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PERFORMANCE OF THE BELGIAN HEALTH SYSTEM: REPORT 2024

SUPPLEMENT: TECHNICAL SHEETS FOR INDICATORS - DIMENSIONS

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COLOPHON

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APPENDIX REPORT

APPENDIX 1. LIST OF INDICATORS

Table 1 list the indicators of the Belgian performance report 2024 related to quality, accessibility, and sustainability. This table also allows to identify indicators for which analyses according to socio-economic characteristics or gender are done in the technical sheets.

Table 1 – List of indicators

ID	Indicator	Socio-economic characteristics	Gender analyses
Quality of care: Effectiveness of care			
Effectiveness of primary care – avoidable hospital admissions			
QE-1	Asthma hospital admissions in adults (/100 000 population)		
QE-10	COPD hospital admissions in adults (/100 000 population)		
QE-2	Complication of diabetes hospital admissions in adults (/100 000 population)		
Effectiveness hospital and specialized care – health outcomes			
QE-3	Breast cancer 5-year relative survival rate (%)		x
QE-4	Colorectal cancer 5-year relative survival rate (%)		x
QE-5	Case fatality within 30 days after admission for AMI (% of the population aged 45+, admission-based)		
QE-6	Case fatality within 30 days after admission for ischaemic stroke (% of the population aged 45+, admission-based)		
QE-7	Case fatality within 30 days after surgery for colon (c) or rectal (r) cancer (% of the population, surgery based)		
QE-7	Case fatality within 90 days after surgery for colon (c) or rectal (r) cancer (% of the population, surgery based)		
QE-8	Treatable mortality, men (rate /100 000 population, age-adjusted)		x
QE-8	Treatable mortality, women (rate /100 000 population, age-adjusted)		x
QE-11	Successful treatment of pulmonary tuberculosis (% of people with laboratory confirmed pulmonary tuberculosis)		
Quality of care: Safety of care			
Healthcare-associated infections			

QS-1	Prevalence of healthcare-associated infections (% of patients hospitalised)		x
QS-2	Incidence of hospital-associated MRSA infections (per 1000 hospital admissions, median)		
QS-7	Methicillin-resistant *Staphylococcus aureus* (MRSA) in acute care hospitals (% of S. aureus isolates, median)		
QS-8	*Escherichia coli* resistant to 3rd generation cephalosporins (3GC-R *E. coli*) in acute care hospitals (% *E. coli* infections, median)		
Hospital safety culture			
QS-9 ***New***	Health workers thinking that staffing levels in hospitals are sufficient to handle the workload and work hours appropriate to provide the best care for patients (% of respondents, HSPSC)		
QS-10 ***New***	Health workers who have positive overall perceptions of patient safety in hospitals (% of respondents, HSPSC)		
Quality of care: Appropriateness of care			
Primary care – people living with chronic disease (guidelines)			
QA-1	Appropriate follow-up of diabetes (% of people 18+ living with diabetes and under insulin)		
QA-2	Appropriate follow-up of diabetes (% of people 18+ living with diabetes and receiving glucose-lowering drugs other than insulin)		
Primary care – prescribing patterns (guidelines)			
QA-3	Use of antibiotics (total DDD/1000 pop/day)		
QA-4	Use of antibiotics at least once in the year (% of population)		x
QA-5	Use of antibiotics of second intention (% total DDD antibiotics)	x	x
Inappropriate medical imaging			
QA-6	Spine imaging (X-ray, CT scan, MRI per 100 000 population)		x
Hospital care (guidelines)			
QA-8	Caesarean section rate (per 1 000 live births)		
QA-9	Patients with early testicular cancer (seminoma) receiving adjuvant treatment after surgery (% of patients with early testicular cancer stage I treated with orchiectomy)		
Quality of care: Continuity of care			
Informational continuity in general practice			

QC-1	Coverage of global medical record (% of people who have a global medical record (GMR) with a general practitioner)	x	x
Relational continuity in general practice			
QC-2	Usual Provider Continuity index ≥0.75 (% of patients with 3 or more contacts with GP in last 2 years)	x	x
Management continuity between hospital and GP			
QC-3	GP encounter within 7 days after hospital discharge (% patients 65+)	x	x
Coordination in ambulatory care			
QC-4	Diabetes follow-up within a convention/passport/care trajectory (% of people 18+ living with diabetes and under insulin)	x	x
QC-5	Diabetes follow-up within a convention/passport/care trajectory (% of people 18+ living with diabetes and receiving only glucose-lowering drugs, excluding insulin)	x	x
QC-7	People with a reference pharmacist (% of people who should have a reference pharmacist)	x	x
Coordination in hospital care			
QC-6	Patients with cancer discussed at the multidisciplinary team meeting (% of patients with cancer)		
Quality of care: People-centred care			
QP-1	Patients reporting that physicians (GP/SP) spend enough time with them during the consultation (% of respondents)*		x
QP-8 ***NEW***	Patients involved as much as they want to be in decisions about their care (% of respondents)**	x	x
QP-9 ***NEW***	Patients discussing with the healthcare professionals involved in their care what is most important for them in managing their own health and wellbeing (% of respondents)**	x	x
QP-10 ***NEW***	Patients rating last consultation with healthcare professional (physician, nurse…) as good to excellent (% of respondents)**	x	x
QP-11 ***NEW***	Patients reporting they have a care plan that takes into account all their health and wellbeing needs (% of respondents)**	x	x
QP-12 ***NEW***	Patients reporting they receive useful information at the time they need it to help them manage their health and wellbeing (% of respondents)**	x	x
QP-13 ***NEW***	Average percentage of positive patient-reported experience in maternity, C/D bed or daycare (PREMs)		
Accessibility of care: Financial access			
A-1	Compulsory health insurance coverage (% of the population entitled to compulsory insurance)		x
A-2	Out-of-pocket (OOP) payments (% of current expenditure on health)	x	

A-3	Out-of-pocket (OOP) medical spending (% of final household consumption)	x	
A-4	Households facing catastrophic out-of-pocket payments (% of respondents, HBS)	x	x
A-5 ***NEW***	Out-of-pocket (OOP) payments for hospital care (% of total hospital care expenditures (excluding budgetary twelfths))	x	
A-6	People with self-reported unmet needs for medical examination due to financial reasons (% of respondents, EU-SILC)	x	x
A-7	People with self-reported unmet needs for dental examination due to financial reasons (% of respondents, EU-SILC)	x	x
A-8 ***NEW***	Volume of outpatient activity done by "conventioned"* physicians (i.e. physicians acceding to the agreement on national tariffs) (% of outpatient consultations/contacts with practicing physicians)	x	x
A-9 ***NEW***	Volume of outpatient activity done by "conventioned"^^ dentists (i.e. dentists acceding to the agreement on national tariffs) (% of outpatient consultations/contacts with practicing dentists)	x	x
Accessibility of care: Health workforce distribution			
A-10	Practising physicians		
A-11	Practising nurses		x
A-12 ***NEW***	Practising dentists		
Accessibility of care: Health services distribution			
Health services distribution – unmet needs (forgone healthcare)			
A-13(a) ***NEW***	People with self-reported unmet need for medical care indicating geographic reasons (too far for travel or no means of transport) as main reason (% of respondents)		
A-13(b) ***NEW***	People with self-reported unmet need for medical care indicating waiting time as main reason (% of respondents)	x	x
A-14(a) ***NEW***	People with self-reported unmet need for dental care indicating geographic reasons (too far for travel or no means of transport) as main reason (% of respondents)		
A-14(b) ***NEW***	People with self-reported unmet need for dental care indicating waiting time as main reason (% of respondents)	x	x
Health services distribution – waiting time (delays in healthcare)			
A-15	Patients who experienced a waiting time of more than two weeks to get an appointment with a medical specialist (% of respondents who consulted a medical specialist in past year)	x	x
A-16 ***NEW***	Patients who experienced waiting time of one day or more to get an appointment with a GP (% of respondents who consulted a GP in past year)	x	x
Health services distribution – Other			
A-17	Deaths among people on waiting lists for organs (% of the population on waiting list)		

NEW		
A-18 ***NEW***	Population living within 20 km of the nearest hospital (% of the population)	
Sustainability of the health system: Financial sustainability		
S-3	Public funding of healthcare (% of current expenditure on health)	
S-20	Projection of public expenditure on health (% GDP), evolution in percentage points	
S-21 ***NEW***	Projection of public expenditure on reimbursed pharmaceuticals	
Sustainability of the health system: Health workforce capacity - Physicians		
Inflow		
S-4	Medical graduates (/100 000 population)	x
S-5	Medical graduates becoming GP (% of those with medical specialisation)	
S-14	Foreign-trained physicians (% of those licensed to practice)	x
Outflow		
S-7	Physicians aged 55+ (% practising), headcounts	
Potential shortage in the future		
S-18	Projection of the number of contacts with GPs (Demand), evolution in %	
S-19	Projection of the number of practising GPs (Supply), evolution in %	
S-19	Projection of the number of FTE practising GPs (Supply), evolution in %	
Sustainability of the health system: Health workforce capacity - Nurses		
Inflow		
S-8	Nursing graduates (/100 000 population)	x
S-9	Nursing students following the bachelor route (% of new graduates)	x
S-16	Foreign-trained nurses (% of those licensed to practice)	x
Outflow		
S-10	Nurses aged 50+ (% practising), headcounts	
Potential shortage in the future		
S-22 ***NEW***	Projection of the number of FTE practising nurses (Supply), evolution in %	

Sustainability of the health system: Health technologies and infrastructure		
Health technologies: eHealth		
S-27 ***NEW***	GPs meeting the thresholds for a selection of 6 eHealth services eligible for the integrated practice bonus (% of active GPs)	x
Health technologies: Health products		
S-28 ***NEW***	Notifications of temporarily unavailable packs of medicines for human use with a critical impact (Number)	
Infrastructure		
S-11	Curative care bed-days (number/capita)	
Sustainability of the health system: Governance		
S-29 ***New***	People satisfied with the healthcare system (% of respondents)	
S-30 ***New***	Trust in the healthcare system, scored on a 1-10 scale	
S-31 ***New***	Patient having a formal participation role in health policy (composite score on 1-3 scale)	
S-32 ***New***	Availability of data to monitor health-related Sustainable Development Goals (SDGs) (%)	

APPENDIX 2. TECHNICAL SHEETS – QUALITY OF CARE

1 QUALITY – EFFECTIVENESS OF CARE

1.1 Asthma hospital admissions in adults (QE-1), BPCO admissions in adults (QE-10), and Complication of diabetes hospital admissions in adults (QE-2)

1.1.1 Documentation sheet

Description	A. Number of hospital admissions for asthma in people aged 15 years and over, per 100 000 population B. Number of hospital admissions for chronic obstructive pulmonary disease (COPD) in people aged 15 years and over, per 100 000 population C. Number of hospital admissions for uncontrolled (or complication of) diabetes in people aged 15 years and over, per 100 000 population
Calculation	See technical definition section below. The indicator for diabetes admission is based on the sum of three indicators: admissions for short-term complications, for long-term complications and for uncontrolled diabetes without complications.
Rationale	Asthma, COPD, and diabetes are three widely prevalent long-term conditions: approximately 6% of the EU population have asthma and 7% has diabetes, while between 5 and 10% of adults over age 40 have COPD.[1] Common to both asthma and diabetes conditions is the fact that the evidence for effective treatment is well established and much of it can be delivered at the primary care level. A high performing primary care system can therefore, to a significant extent, avoid acute deterioration in people living with asthma, or diabetes and prevent their admission to hospital.[2] High hospital admission rates for these two conditions can thus serve as a proxy for pointing to poor effectiveness of primary care, as well as poor coordination or continuity of care. Hospital admissions for COPD is also usually used as an indicator to measure the performance of primary care. [2] For COPD nevertheless, patients are extremely fragile and the pathology is very serious. A large number of hospitalisations is therefore less a reflection of poor primary care. For this indicators, the evolution is therefore more meaningful than the absolute numbers.
Data source	RHM – MZG (hospital administrative discharge data), FPS Public Health OECD health data for international comparison
Technical definitions	From OECD website: Definitions for Health Care Quality and Outcome Indicators 2022-2023 HCQO data collection.[3] All ICD-9 CM and ICD-10 CM codes can be found on the OECD Quality indicator website. **Indicator A: Hospital admission for asthma** Coverage: Population aged 15 and older. All acute care hospitals (public and private) that provide inpatient care.

	Numerator: All non-maternal/non-neonatal hospital admissions with principal diagnosis code of asthma in a specified year (See asthma diagnosis codes in OECD 2022-2023[3], page 9) Denominator: Population count 15+ (mean January t - January t+1) Exclude cases: Non-residents and cases died in hospital; transferred from another institution; with MDC 14 (pregnancy, childbirth and puerperium) or with a specified pregnancy, childbirth and puerperium code in any field; with cystic fibrosis and anomalies of the respiratory system diagnosis code in any field (see diagnosis codes in OECD 2022_2023[3], page 10); or that are same day/day only admissions. It should be noted that previously (2009-2012), cases with MDC 15 (newborn and other neonates) were also excluded. **Indicator B: Hospital admission for chronic obstructive pulmonary disease (COPD)** Coverage: Population aged 15 and older. All acute care hospitals (public and private) that provide inpatient care. Numerator: All non-maternal/non-neonatal hospital admissions with principal diagnosis code of COPD in a specified year (See COPD diagnosis codes in OECD 2022-2023[3], page 11) Denominator: Population count 15+ (mean January t - January t+1). Exclude cases: Non-residents and cases died in hospital; transferred from another institution; with MDC 14 (pregnancy, childbirth and puerperium) or with a specified pregnancy, childbirth and puerperium code in any field; or that are same day/day only admissions. It should be noted that previously (2009-2012), cases with MDC 15 (newborn and other neonates) were also excluded. For the regional comparison, the region and district are those from the patient residence (not the hospital). **Indicator C: Admission of uncontrolled diabetes or complication of diabetes** Coverage: Population aged 15 and older. All acute care hospitals (public and private) that provide inpatient care. Numerator: All non-maternal/non-neonatal hospital admissions with principal diagnosis code (see diagnosis codes in OECD 2022-2023[3], pages 14 and 15) of • Uncontrolled diabetes • Diabetes Short-term complication (i.e. ketoacidosis, hyperosmolarity) • Long term complication (i.e. renal, eye; neurological, circulatory, or complication not otherwise specified). Denominator: Population count 15+ (mean January t - January t+1). Exclude cases: Non-residents and cases died in hospital; transferred from another institution; with MDC 14 (pregnancy, childbirth and puerperium) or with a specified pregnancy, childbirth and puerperium code in any field; or that are same day/day only admissions. It should be noted that previously (2009-2012), cases with MDC 15 (newborn and other neonates) were also excluded.
International comparability	Rates are age-sex standardised to the 2010 OECD population aged 15 and over. These indicators do not take into account underlying differences in the prevalence of the different conditions. For example, with regard to diabetes, it is not always clear whether lower admission rates are due to a lower prevalence of diabetes in the population or a better management of people with diabetes. However, there are several ongoing OECD initiatives that focus on coding practices, dataset structure and data specification, with the aim of making the indicators more useful for international comparison.[4]

	It is also important to note that Belgium changed its coding system to ICD-10 in 2015 but not necessarily other countries. Some may not have changed their system yet while others may have changed long before. Because when moving from ICD-9 to ICD-10 coding, there is a shift from asthma to COPD for some mixed conditions, comparison must be used with cautions.
Limitations	Change from ICD-9 to ICD-10 classification has resulted in a break in the series of RHM – MZG data from 2016 on (and no 2015 data available). Belgian data from RHM – MZG are not adjusted, explaining the differences with Belgian results presented in the international comparison.
Dimension	Effectiveness + Continuity (Management)
Related indicators	
Reviewers	Nathalie Terryn (SPF SPSCAE – FOD VVVL)

1.1.2 Results

1.1.2.1 Asthma hospital admissions in adults

Belgium

Hospital admission rate has decreased over the period (from 32.4 admissions/100 000 pop. in 2010 to 13.7 in 2021, Figure 1), especially from 2019 to 2020, which might be linked to COVID-19 pandemic, although the rate in 2021 is almost the same as in 2020 (13.5).

Regional comparison

Brussels has seen its rate decrease a lot over the period (see Figure 1, left); while is was almost twice as high than other regions in 2010, it is almost the same as in Flanders (13.6 admissions/100 000 pop.) with 13.7, Wallonia having a slightly lower rate (13.2) in 2021.

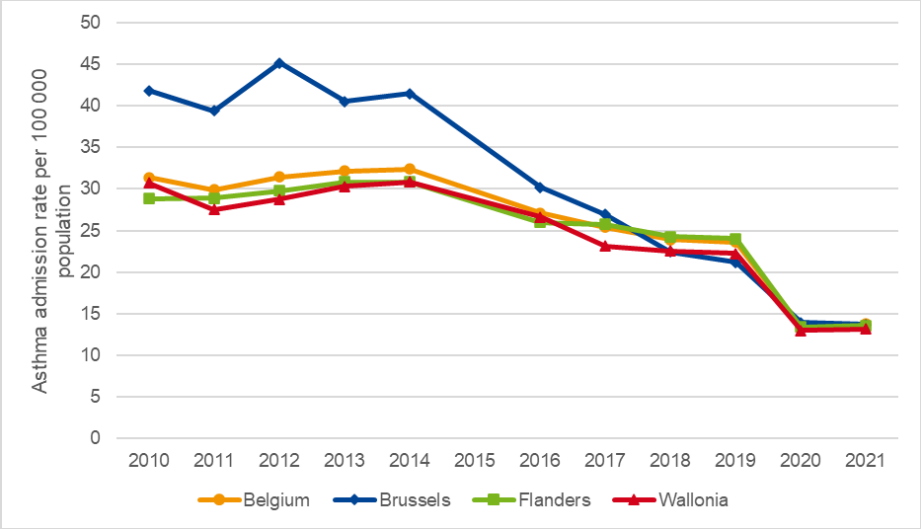
International comparison

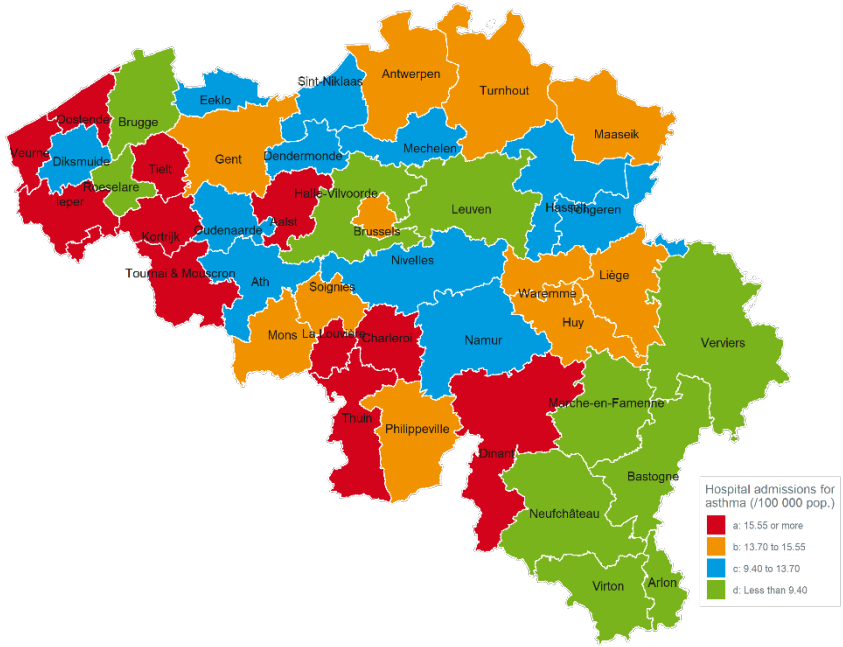
Figure 2 shows that rates have declined over time across Europe (left) and that there are big differences between European countries (right); Belgium has a rate close to EU-14 countries.

Impact of COVID-19 pandemic

The sharp decrease from 2019 to 2020 might be linked to the pandemic. It is observed in all 3 regions as well as in other European countries.

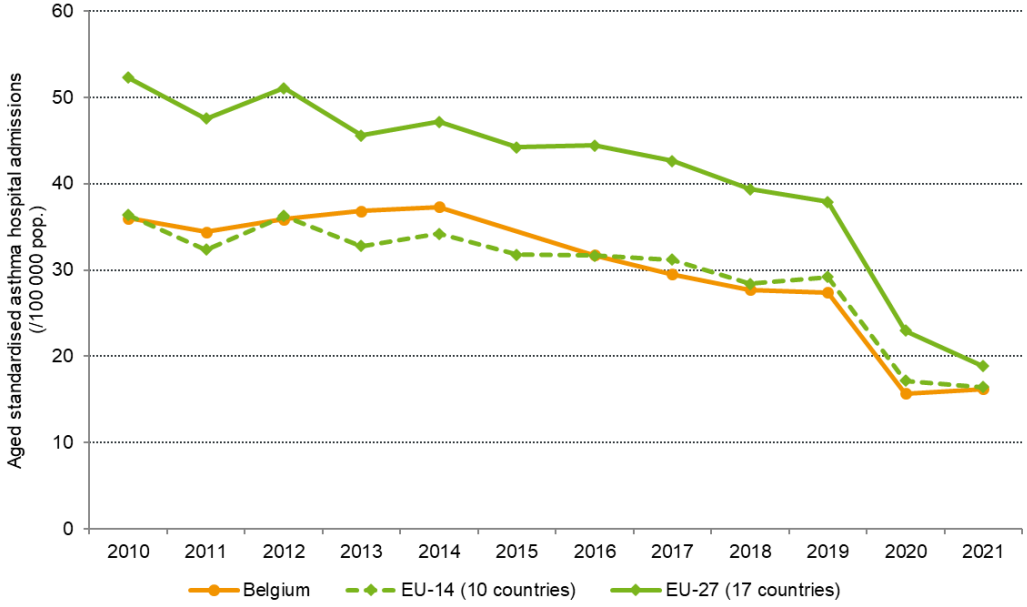
Figure 1 – Hospital admissions for asthma rate by patient's region per 100 000 population aged 15 years and older (2010-2021) and per district (2021)

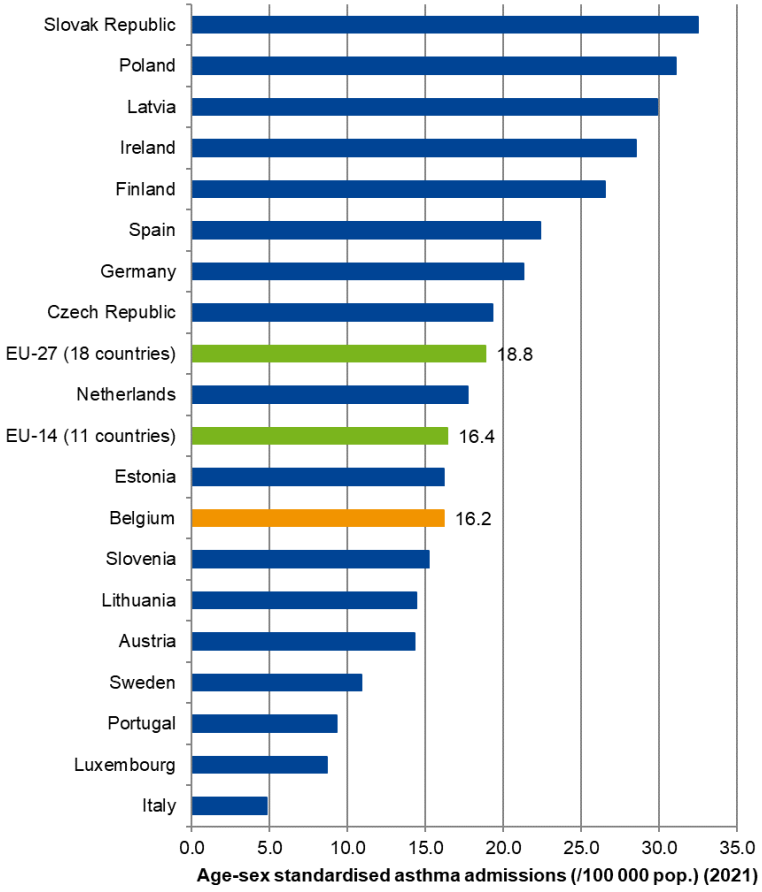




Source: FPS Public Health, hospital administrative discharge data

Figure 2 – Age-sex standardized hospital admissions for asthma (for population aged 15 years and older): international comparison (2010-2021)





Source: OECD health statistics 2023

1.1.2.2 Hospital admissions for COPD for people aged 15 years old and over

Belgium

Data on COPD admissions are quite stable over the 2010-2014 period: with 145.2 and 132.6 admissions per 100 000 population aged 15 years old and over in Belgium in 2010 and 2014 respectively (see Figure 3). A break in data series can be observed in 2016, due to the passage from ICD-9 to ICD-10 and an increase compared to 2014 can be observed, in part due to the fact that the change of coding led to a shift from asthma admission to COPD admission for some mixed conditions. Comparison between the two periods must therefore be used with caution. After a mild increase of the rate from 2016 to 2019, there is a sharp decrease in 2020, which might be linked to the COVID-19 pandemic. The rate decreased further in 2021, but slowly.

Regional comparison

Brussels has lower rates (106.9 admissions/100 000 pop. in 2021), Wallonia has higher rates (204.9 in 2021), and Flanders is in between (160.0 in 2021).

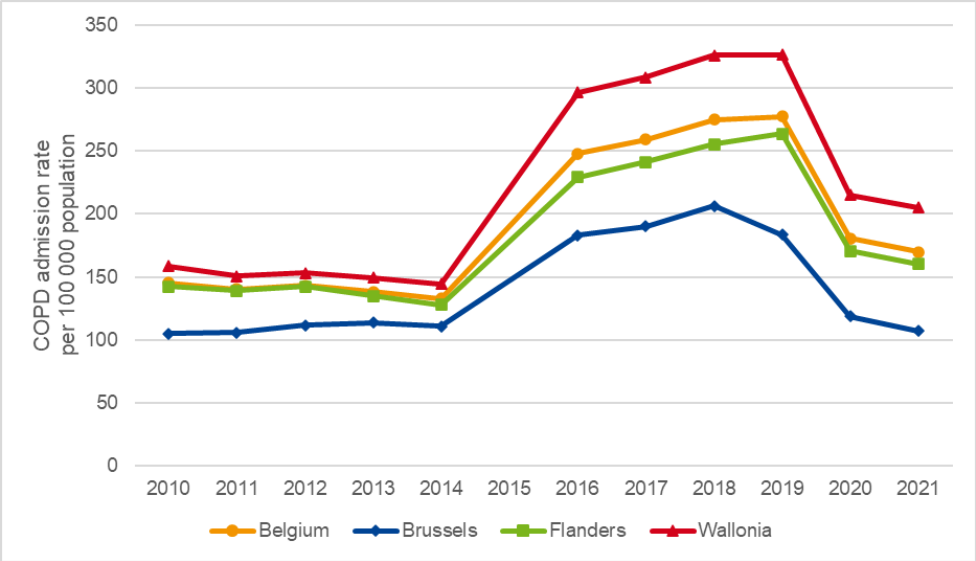
International comparison

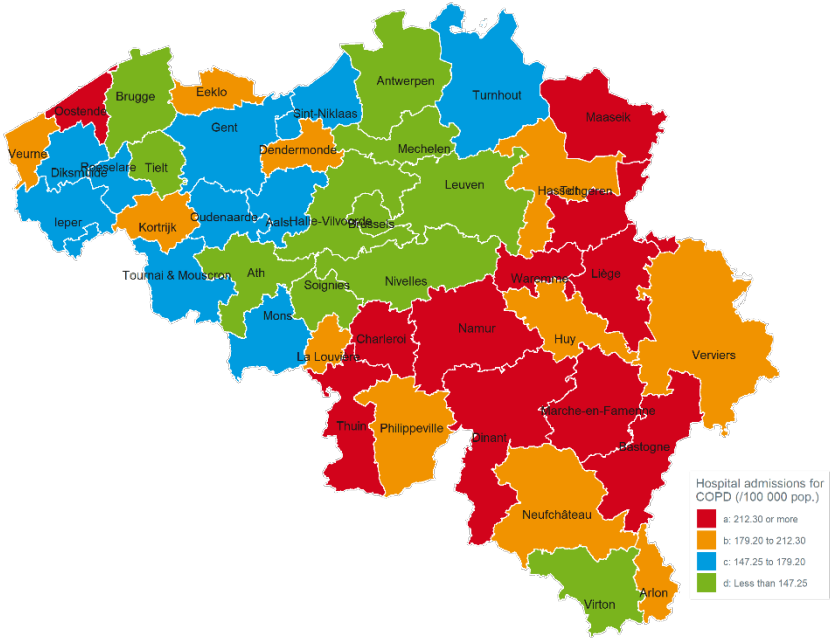
While Belgium had better results than other European countries with ICD-9 encoding (up to 2014), the rate calculated with ICD-10 encoding is higher than most other countries (Figure 4, left); in 2021, only the Netherlands have a higher rate (Figure 4, right).

Impact of COVID-19 pandemic

In 2020, the hospital admission rate for BPCO has decreased strongly, as opposed to a slow growth in the 2016-2019 period. The decreased continued in 2021, but was much milder. The same drop in 2020 was observed in other European countries, but the mean rate stabilised in 2021.

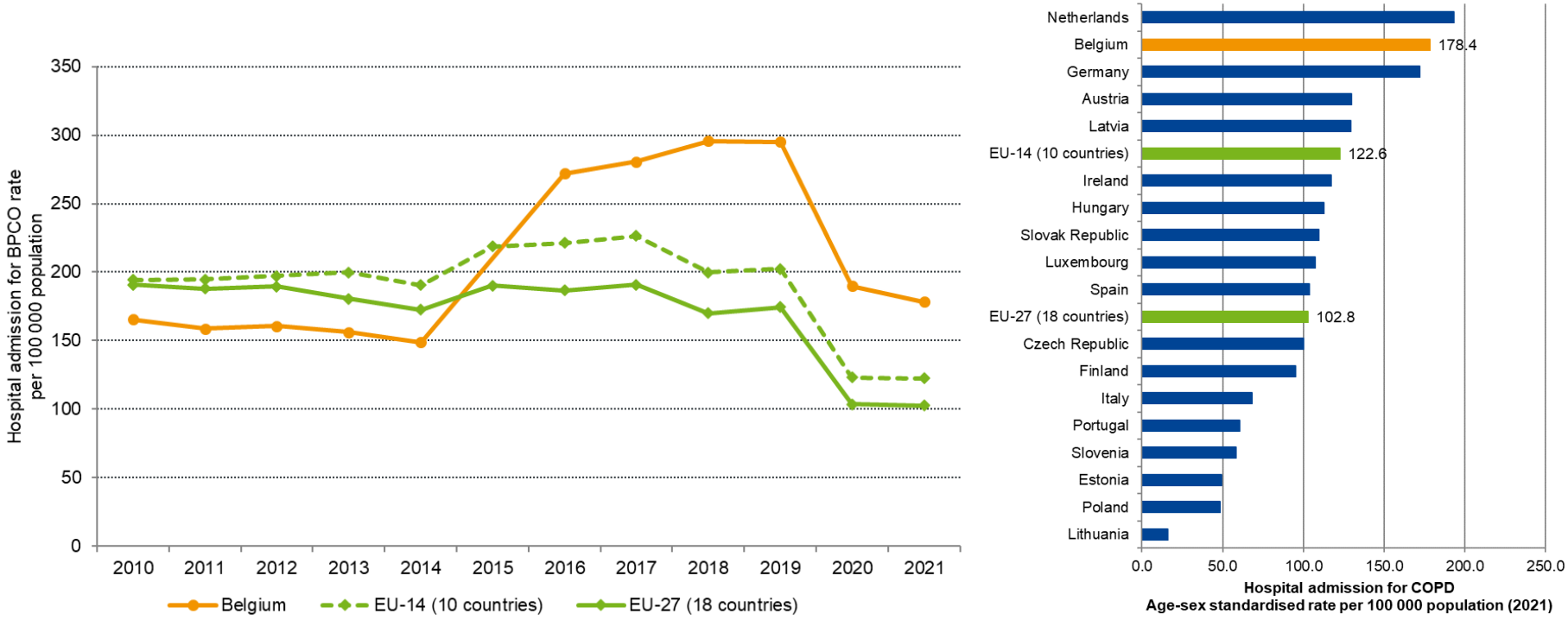
Figure 3 – Hospital admissions for COPD per 100 000 population aged ≥ 15 years, per region (2010-2021) and per district (2021)





Source: FPS Public Health, hospital administrative discharge data

Figure 4 – Age-sex standardised hospital admissions for BPCO per 100 000 population aged ≥ 15 years: international comparison (2010-2021)



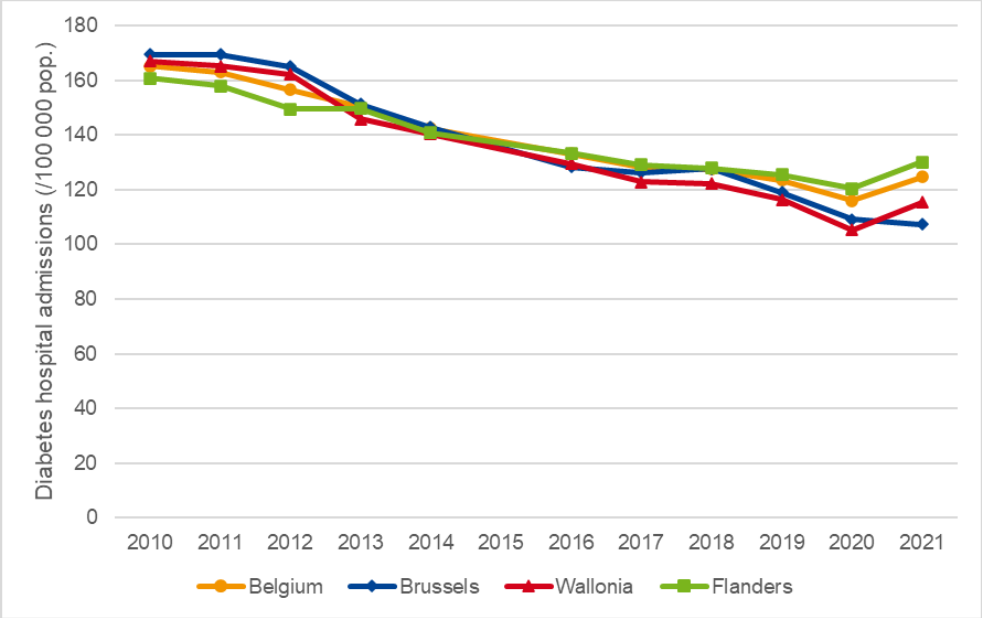
Source: OECD health statistics 2023

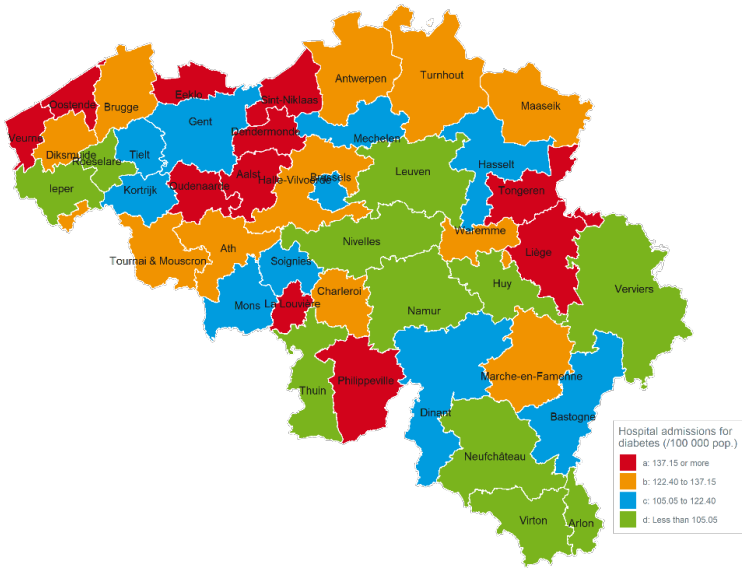
1.1.2.3 Complication of diabetes hospital admissions in adults

Belgium

Data on diabetes admission (for uncontrolled diabetes or for complication of diabetes) exhibit a slow decrease at the national level in the last decade (2010-2021, Figure 5) except for the last available year (2021, at 124.6 admissions/100 000 pop.).

Figure 5 – Hospital admissions for (complications of) diabetes rate by patient's region (per 100 000 population aged 15 years and older) (2010-2021) and per district (2021)





Source: FPS Public Health, hospital administrative discharge data

Regional comparison

Brussels rate of admission (107.4 admissions/100 000 pop.) for (complications of) diabetes is lower than in Wallonia (115.4) and Flanders (130.1) in 2021

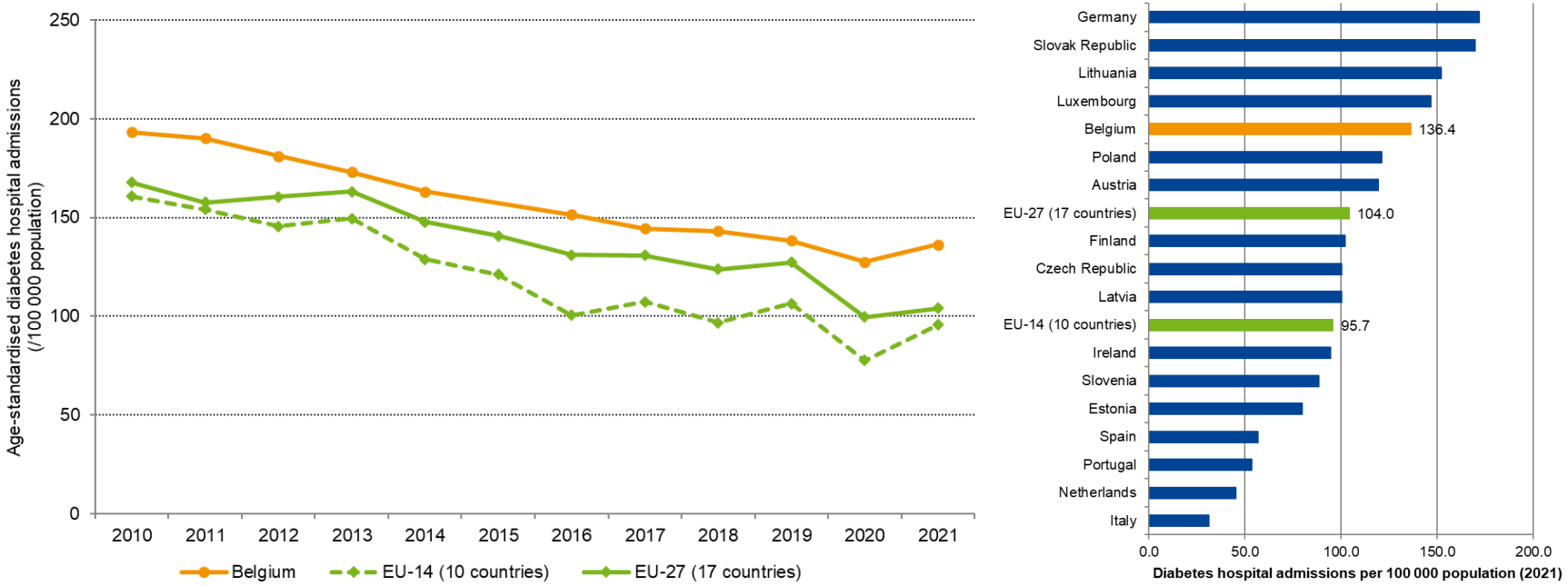
International comparison

When comparing with other European countries, Belgium has a significantly higher rate of (complications of) diabetes admission than other countries (EU-14 and EU-27).

Impact of COVID-19 pandemic

There is a small decrease from 2019 to 2020 (in all Belgian regions, and even more pronounced in other European countries), followed by an increase in 2021.

Figure 6 – Age-sex standardised hospital admissions for diabetes (for population aged 15 years and older): international comparison (2010-2021)



Source: OECD health statistics 2023

Key points

- The relative rates of hospital admission for asthma and diabetes are among the indicators often used as a measure of the extent to which people can access primary care and preventive care, and the quality of this care.
- For both asthma and diabetes rate, trends over time report a reduction in admission rates over recent years, which may represent an improvement in the quality of primary care. These decreasing trends are also observed in other European countries.
- COPD admission rate had a broken series in 2015 when calculations were made on ICD-10 rather than ICD-9; since then, the rate has slowly increased until 2019, and was followed by an important decrease in 2020.
- Belgium is situated around the EU-14 average for asthma admission rate but is does less well than European countries (both EU-14 and EU-27) for diabetes and COPD admission rates, but this is not very informative, as differences between countries can be due to many other factors than quality of care. Trends over time are more informative in this case.

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1.2 Breast cancer (QE-3) and colorectal cancer (QE-4) 5-year relative survival rate

1.2.1 Documentation sheet

Description	5-year relative survival by stage after a diagnosis of breast or colorectal cancer
Calculation	The 5-year relative survival is computed as the 5-year observed survival for the population diagnosed with the specified type of cancer (=proportion of people surviving 5 years after the diagnosis), divided by the 5-year expected survival of a comparable group from the general population residing in Belgium. The relative survival is expressed as a percentage and estimates the excess mortality that can be attributed to the cancer. A 100% 5-year relative survival indicates that patients who were diagnosed with the cancer (type) had a mortality rate similar to the general population of the same age, sex and region.
Rationale	In Belgium, breast cancer is the most frequent cancer type in females, and also the leading cause of death by cancer in females. Colorectal cancer is the third and second most frequent cancer type in males and females respectively.[1] In Belgium, for these two types of cancer, well-developed screening programmes exist, and evidence-based treatment strategies have been recommended in the national guidelines. [2-4] An increase in cancer survival reflects advances in public health interventions, such as greater awareness of the disease, successful screening programmes, and improved treatments.
Data source	Belgian Cancer Registry (BCR): incidence years 2010-2020 Kruispuntbank - Banque Carrefour for mortality data (vital status of patients diagnosed with cancer): 2004- 1 April 2022. Therefore, to allow 5 year follow-up, 5-year survival rates can be calculated for patients diagnosed between 1 January 2004 and 1 April 2017
Technical definitions	Selection of patients: new diagnoses of cancer registered in the BCR, with the following ICD-10 codes: • Breast cancer (for women only): C50 • Colorectal cancer: C18-C20 The following exclusion criteria have been applied: • If the cancer is a subsequent cancer (only the first cancer for each patient is taken into account) • If for a patient, the date of death or the date of lost to follow-up equalled the day of incidence • If the patient had an unknown social security number (INSZ – NISS) • If the patient was younger than 15 years old • If the patient has no Belgian residence at the time of diagnosis The relative survival is computed using the Ederer II method.[5] The Region corresponds to the Region of the place of residence of the patients at time of their diagnosis. Combined stage: the pathological stage prevails over the clinical stage, except in case of clinical proof of distant metastases which are always considered as combined stage IV.
International comparability	OECD study for international comparisons. Belgian survival rates published in the OECD Health Statistics may be different from those published by the Belgium Cancer Registry,[6] because in the OECD data relative survival rates are age standardised[7] to allow comparison across countries, while in alignment with most of the data

	presented by the BCR, this standardisation was not carried out for the present analyses. The impact of the standardisation on the estimate (increase or decrease) is hard to predict, and depends of the age distribution, within a country. Moreover, the comparison of survival estimates between countries often remains challenging in case of cancer types for which screening is organised. Between-countries differences in screening coverage will tend to bias the survival comparisons considering that screening artificially increases the survival time (by advancing the date of diagnosis, i.e. lead time bias, and by discovering not evolving tumours, i.e. overdiagnosis). The solution to this bias is to include a comparison of the stage-distributions and a comparison of survival by stage, but this is currently not possible with the OECD data.
Limitations	5-year relative survival can only be computed for patients diagnosed from 2004 to 1 April 2017, because follow-up is available until 1 April 2022. The specific impact of screening or different treatment strategies on the survival can hardly be disentangled. Evolution of survival by stage reflects better the impact of treatment alone.
Dimension	Quality, Effectiveness of care
Related indicators	Coverage of target group for breast cancer screening and colorectal cancer screening Percentage of patients with cancer discussed at the multidisciplinary team meeting (MDT)
Reviewers	Cindy De Gendt (BCR)

1.2.2 Results

An overview of the 1-year, 3-year and 5-year relative survival is provided in the following tables, for breast cancer (Table 2) and colorectal cancer (Table 3). Survival data are presented by year of incidence, combined stage[a], region (of residence of the patient at diagnosis) and sex (when appropriate).

1.2.2.1 Breast cancer

Belgium

For female breast cancer patients diagnosed between 2004 and 2017, 5-year relative survival is relatively stable over the years, with a small increase: 90.6% for the whole cohort, and 92.4% for patients diagnosed in 2017 (Table 2). The majority of patients is diagnosed at early stages (I (41.5%) or II (34.0%)), and for those groups relative survival at 5-year is the same as in the general (i.e. not having breast cancer) population (stage I, 100.8%), or slightly lower (stage II, 94.5%). For the women diagnosed at stage III, 11.3% of the breast cancer population, a notable increase of survival was observed over the years (72.0% in 2004 to 77.8% in 2017, Figure 7). For the small

[a] Combined stage: because the clinical stage and/or pathological stage is lacking for some patients, a combined stage is defined. To determine this combined stage, a known pathological stage prevails over known clinical stage, except when there is clinical proof of distant metastasis. When only pathological stage or clinical stage is known, the available stage is considered as the combined stage. Otherwise, when pathological stage and clinical stage are unknown, the combined stage also remains unknown.

group of patients diagnosed at stage IV (7.2%), 5-year relative survival only reaches 34.9% on the whole cohort, and increased from 32.4% in 2004 to 40.2% in 2017. An increase in survival is observed for patients for whom stage at diagnosis was unknown in the BCR database, from 76.7% in 2004 to 86.6% in 2017.

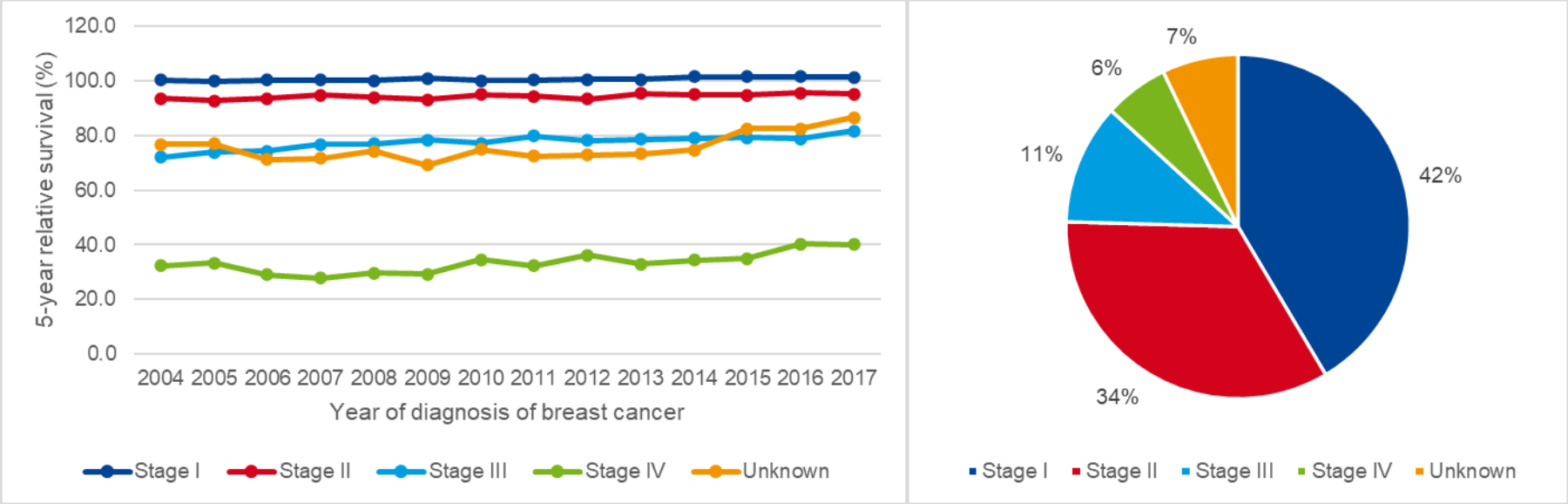
Table 2 – One-, 3- and 5-year relative survival for breast cancer, by year of incidence, stage and Region (2004-2020)

		Unadjusted relative survival (%)					
	N at risk	1-year		3-year		5-year	
Characteristic		**1-y RS**	**95% CI**	**3-y RS**	**95% CI**	**5-y RS**	**95% CI**
Overall	164 955	97.7	[97.6, 97.8]	93.9	[93.8, 94.1]	90.6	[90.4, 90.8]
Incidence year							
2004	9 121	96.9	[96.5, 97.4]	92.4	[91.6, 93.1]	88.2	[87.3, 89.1]
2005	9 081	97.6	[97.2, 98.0]	92.8	[92.0, 93.5]	88.4	[87.5, 89.3]
2006	9 150	97.3	[96.8, 97.7]	92.9	[92.2, 93.6]	88.8	[87.9, 89.7]
2007	9 296	97.1	[96.6, 97.5]	93.1	[92.4, 93.8]	89.4	[88.5, 90.3]
2008	9 203	97.4	[97.0, 97.8]	93.0	[92.3, 93.7]	89.3	[88.4, 90.2]
2009	9 178	97.5	[97.0, 97.9]	93.0	[92.2, 93.7]	89.2	[88.2, 90.0]
2010	9 461	97.5	[97.1, 97.9]	93.2	[92.5, 93.9]	90.3	[89.4, 91.1]
2011	10 069	97.5	[97.1, 97.9]	93.6	[93.0, 94.3]	90.6	[89.7, 91.4]
2012	10 040	97.7	[97.2, 98.1]	93.8	[93.2, 94.5]	90.4	[89.6, 91.3]
2013	10 164	97.9	[97.5, 98.3]	94.2	[93.5, 94.8]	91.2	[90.3, 92.0]
2014	9 913	97.7	[97.3, 98.1]	94.6	[93.9, 95.2]	91.7	[90.8, 92.5]
2015	9 817	98.1	[97.7, 98.5]	94.5	[93.8, 95.1]	91.9	[91.1, 92.7]
2016	10 147	98.0	[97.6, 98.3]	94.9	[94.3, 95.5]	92.3	[91.5, 93.1]
2017	9 982	97.5	[97.1, 97.9]	94.9	[94.3, 95.5]	92.4	[91.6, 93.3]
2018	10 263	97.7	[97.3, 98.1]	94.9	[94.2, 95.5]		
2019	10 247	98.3	[97.9, 98.6]	95.6	[94.9, 96.3]		
2020	9 823	98.2	[97.8, 98.5]				
Stage							
I	68 432	100.5	[100.4, 100.5]	100.8	[100.7, 101.0]	100.8	[100.6, 101.0]

II	56 024	99.6	[99.5, 99.8]	97.2	[96.9, 97.4]	94.5	[94.1, 94.8]
III	18 710	96.3	[96.0, 96.7]	86.4	[85.8, 87.1]	77.8	[77.0, 78.6]
IV	9 971	76.7	[75.8, 77.6]	52.8	[51.8, 53.9]	34.9	[33.8, 36.1]
Unknown	11 818	90.9	[90.3, 91.5]	83.4	[82.5, 84.3]	77.3	[76.2, 78.3]
Region							
Brussels	14 804	97.5	[97.1, 97.8]	93.7	[93.1, 94.2]	90.4	[89.7, 91.2]
Flanders	95 922	97.8	[97.7, 97.9]	94.0	[93.7, 94.2]	90.5	[90.2, 90.8]
Wallonia	54 229	97.5	[97.3, 97.6]	93.9	[93.6, 94.2]	90.8	[90.4, 91.2]

Source: Belgian Cancer Registry

Figure 7 – Five-year relative survival for breast cancer, by stage and year of incidence and distribution of patients across stages (2004-2020)



Source: Belgian Cancer Registry

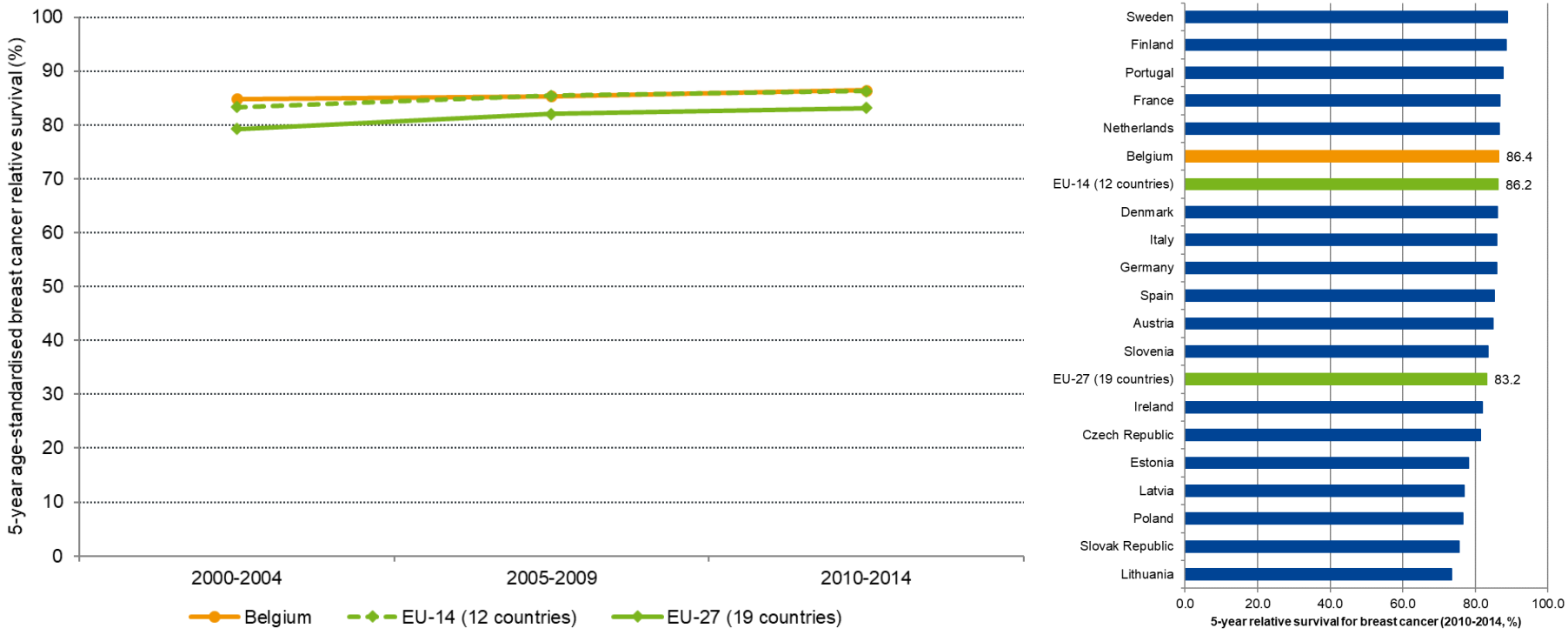
Regional comparison

On the whole cohort, differences in 5-year relative survival amount for less than 1 percentage point between Regions: Wallonia (90.8%), Flanders (90.5%) and Brussels Capital Region (90.4%).

International comparison

Results from the international comparisons (Figure 8), show lower 5-year survival rates for Belgium than displayed in Table 2: in this study, 5-year relative survival for Belgium is only 86.4% (compared to 90.6% in Table 2), and place Belgium just above the European average of EU-15 countries (86.2%, Figure 8). One reason for this difference is that the most recent period available for the international comparison is the 2010-2014 period (vs 2004-2017 cohorts for results from Table 2); other explanations are provided in the technical fiche, under heading international comparison.

Figure 8 – 5-year age-standardised relative survival for breast cancer: international comparison



Source: OECD Health data 2023

Impact of COVID-19 pandemic

Not yet applicable for 5-year survival.

1.2.2.2 Colorectal cancer

Belgium

For patients diagnosed with colorectal cancer between 2004 and 2017, overall 5-year relative survival slightly increases from 63.2% for patients diagnosed in 2004 to 71.9% for patients diagnosed in 2017 (Table 3). Survival is highly dependent on the stage, with 96.3% 5-year relative survival for patients diagnosed at stage I and 17.8% for patients diagnosed at stage IV. The majority of patients is diagnosed either at stage II (26.6%) or III (25.1%). For stage III, the 5-year relative survival increases notably (61.0% to 73.6%) over the 2004-2017 period, see Figure 9.

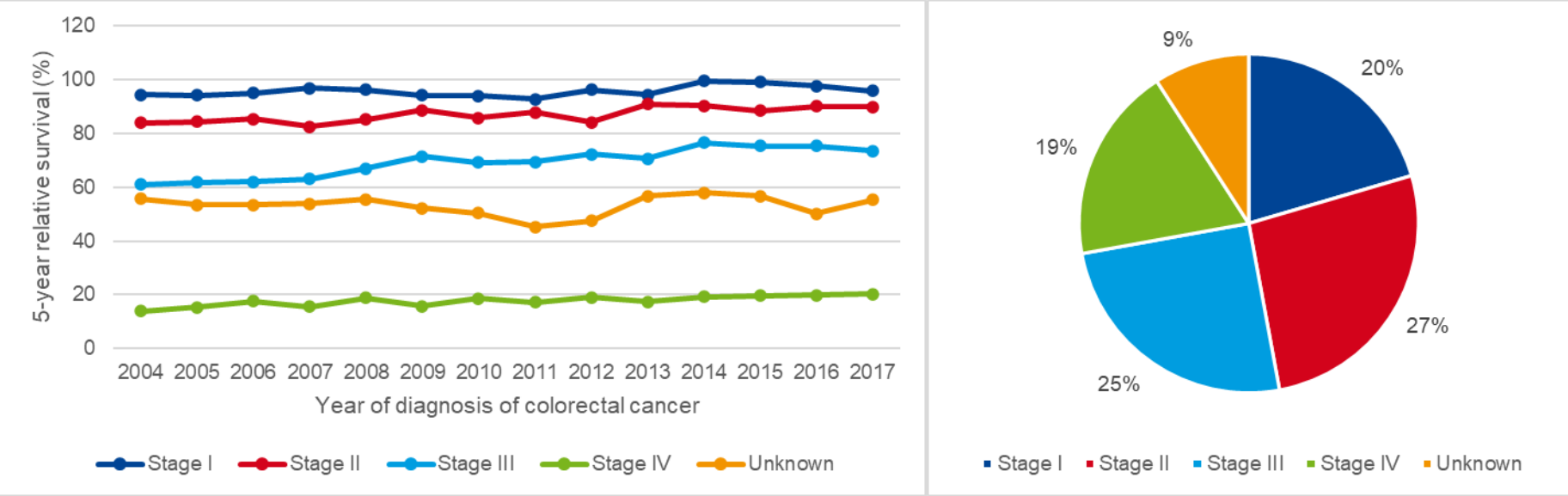
Table 3 – One-, 3- and 5-year relative survival for colorectal cancer, by year of incidence, stage and Region (2004-2020)

		Unadjusted relative survival (%)					
	Frequency count	1-year		3-year		5-year	
Characteristic		**1-y RS**	**95% CI**	**3-y RS**	**95% CI**	**5-y RS**	**95% CI**
Overall	119 326	85.1	[84.9, 85.4]	73.8	[73.5, 74.1]	68.4	[68.0, 68.8]
Incidence year							
2004	6 933	82.3	[81.2, 83.3]	68.9	[67.6, 70.2]	63.2	[61.7, 64.6]
2005	6 839	83.1	[82.0, 84.1]	70	[68.7, 71.3]	63.5	[62.0, 65.0]
2006	6 910	82.7	[81.7, 83.7]	70.3	[69.0, 71.6]	64.4	[62.9, 65.8]
2007	6 897	83.1	[82.1, 84.1]	69.9	[68.6, 71.2]	64.3	[62.8, 65.8]
2008	7 186	83.6	[82.6, 84.5]	71.9	[70.6, 73.1]	66	[64.6, 67.4]
2009	7 105	84.4	[83.4, 85.3]	72.8	[71.5, 74.1]	67.4	[65.9, 68.8]
2010	7 224	84.8	[83.8, 85.7]	72	[70.8, 73.3]	66.4	[65.0, 67.8]
2011	7 293	84.1	[83.1, 85.0]	72.1	[70.9, 73.4]	66.4	[65.0, 67.8]
2012	7 256	85.1	[84.1, 86.0]	73.4	[72.1, 74.6]	68	[66.5, 69.4]

2013	7 326	85.9	[84.9, 86.8]	74.2	[73.0, 75.5]	69.4	[67.9, 70.7]
2014	8 200	88.5	[87.6, 89.3]	79.1	[78.0, 80.2]	75.1	[73.8, 76.4]
2015	7 321	87.2	[86.3, 88.0]	78	[76.8, 79.2]	73.1	[71.7, 74.5]
2016	7 102	86.3	[85.4, 87.2]	76.9	[75.7, 78.1]	72.5	[71.1, 73.9]
2017	6 793	87.0	[86.0, 87.9]	76.8	[75.5, 78.0]	71.9	[70.4, 73.3]
2018	6 462	86.4	[85.5, 87.4]	76.7	[75.4, 78.0]		
2019	6 555	86.9	[85.9, 87.8]	75.6	[74.2, 76.9]		
2020	5 924	85.4	[84.4, 86.5]				
Stage							
I	24 403	97.9	[97.5, 98.1]	97.5	[97.1, 98.0]	96.3	[95.6, 96.9]
II	31 787	93.6	[93.3, 94.0]	90.4	[89.9, 90.9]	87.3	[86.6, 88.0]
III	29 897	89.3	[88.9, 89.7]	77	[76.4, 77.6]	69.7	[69.0, 70.4]
IV	22 360	61.5	[60.9, 62.2]	28.9	[28.3, 29.6]	17.8	[17.2, 18.4]
Unknown	10 879	67.6	[66.6, 68.6]	56.3	[55.2, 57.4]	53.4	[52.2, 54.6]
Region							
Brussels	9 102	82.1	[81.2, 83.0]	69.9	[68.7, 71.1]	64.7	[63.3, 66.1]
Flanders	74 107	86.2	[85.9, 86.5]	75.3	[74.9, 75.7]	70.1	[69.7, 70.6]
Wallonia	36 117	83.7	[83.3, 84.2]	71.6	[71.0, 72.2]	65.8	[65.1, 66.4]
Sex							
Males	64 709	86.00	[85.7, 86.3]	74.5	[74.0, 74.9]	68.3	[67.8, 68.8]
Females	54 617	84.1	[83.8, 84.5]	72.9	[72.5, 73.4]	68.5	[68.0, 69.0]

Source: Belgian Cancer Registry

Figure 9 – Five-year relative survival for colorectal cancer, by stage and year of incidence and distribution of patients across stages (2004-2020)



Source: Belgian Cancer Registry

Analysis by demographic characteristics

There are no significant differences between sex; the 5-year relative survival for colorectal cancer is 68.3% for males and 68.5% for females over the 2004-2017 period.

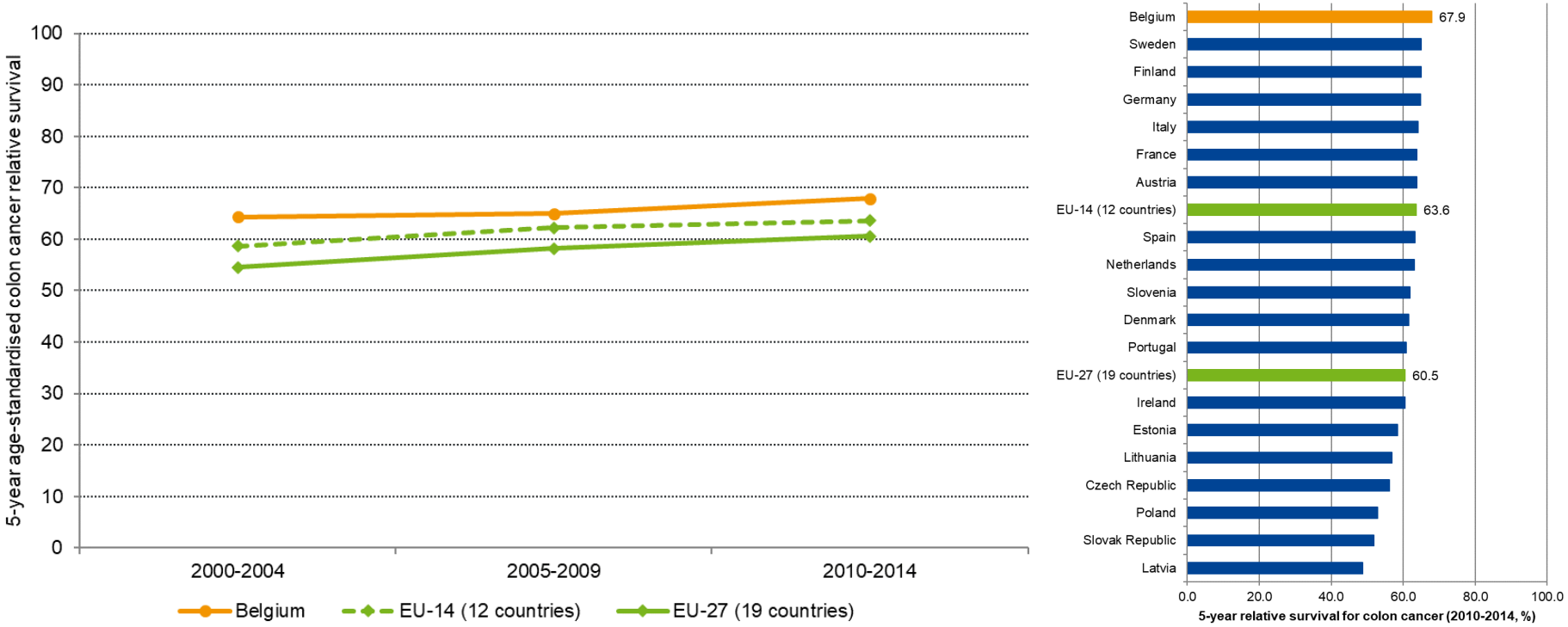
Regional comparison

Small regional differences are observed for the 5-year relative survival for colorectal cancer: survival is 3 percentage points higher in Flanders (68.6%) than in the Wallonia (65.6%), with even lower rates in the Brussels-Capital Region (64.2%). This could partly be explained by the differences in screening (see P-9). In all three Regions overall survival rates improved between 2004 and 2012, with the most impressive improvement observed in Flanders (64.3% in 2004 versus 69.0% in 2012).

International comparison

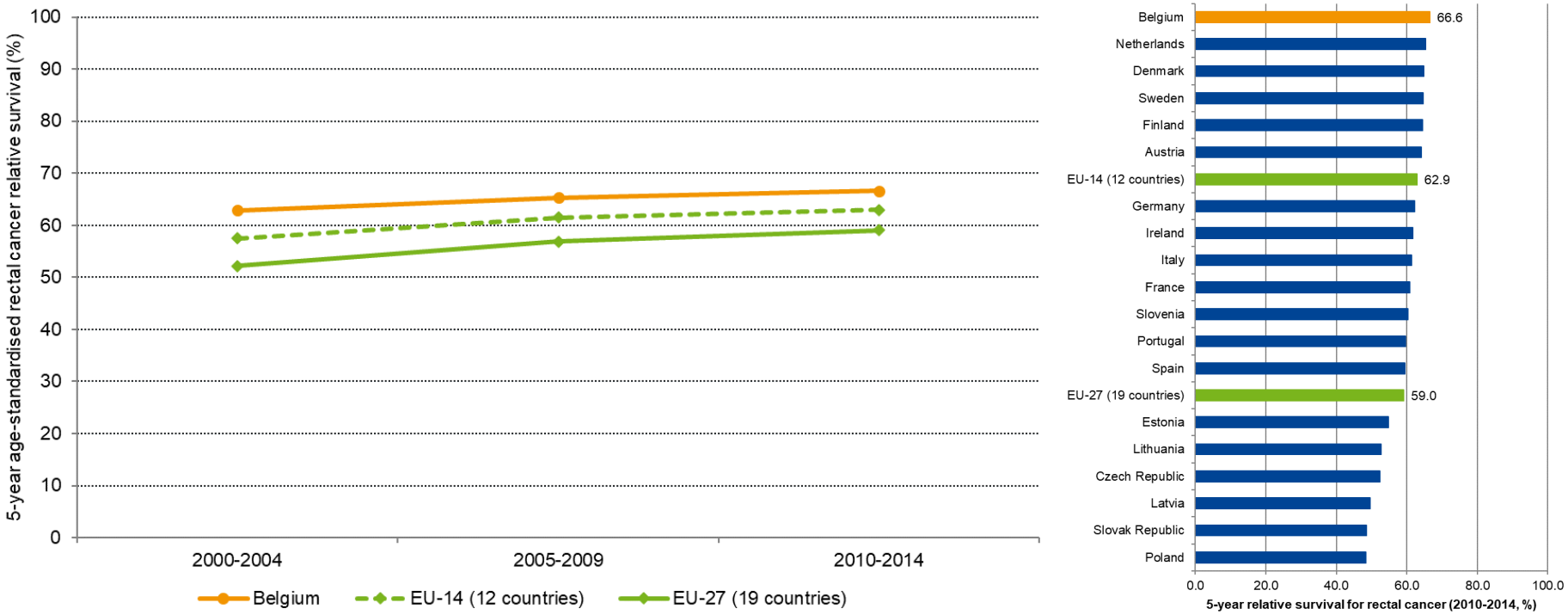
Results from the international comparisons (OECD Health Statistics) are presented for colon cancer (Figure 10) and rectal cancer (Figure 11) separately, and show slightly lower 5-year survival rates for Belgium than displayed in Table 3 (67.9% for colon cancer, 66.6% for rectal cancer). Differences between OECD Health Statistics and results published in Table 3 are explained in the technical fiche, under the heading international comparison. Keeping in mind these limitations, the OECD places Belgium at the highest survival rate of European countries (12 of the EU-14 and 19 of the EU-27 countries).

Figure 10 – 5-year age-standardised relative survival for colon cancer: international comparison



Source: OECD Health data 2023

Figure 11 – 5-year age-standardised relative survival for rectal cancer: international comparison



Impact of COVID-19 pandemic

Not yet applicable for 5-year survival.

Key points

- The relative survival 5 years after the diagnosis of breast cancer and colorectal cancer is respectively 92.4% and 71.9%, based on the cohort of patients diagnosed in 2017. For both cancers, survival is mainly determined by the extent of disease at diagnosis (i.e. the stage). For breast cancer, the majority of patients (75%) are diagnosed at early stages (i.e. stage I or II), while for colorectal cancer diagnosis mainly (52%) occurs at later stages (i.e. II or III), this information is indispensable when interpreting the difference in prognosis between these two cancers.
- Trends over time (period 2004-2017) show stable relative survival rates for breast cancer patients, and an increase for colorectal cancer patients. A notable increase is particularly observed for stage III patients with colorectal cancer.
- No regional differences in relative survival rates are observed for breast cancer. Colorectal cancer survival shows lower relative survival rates in Brussels and Wallonia compared to Flanders, but this requires further analysis (taking into account possible differences in patient populations and in coverage of the screening programme) before drawing conclusions on regional differences in quality of care.
- Comparison of Belgian survival results with other European countries is complicated by several data and methodological limitations, and thus should be interpreted with caution. In the most recent data from OECD Health Statistics, Belgium has outstanding 5-year age-standardised survival rates for colon and rectal cancer, 67.9% for colon cancer and 66.6% for rectal cancer, compared to the European (EU-14) average of 63.6% and 62.9%. Belgian results for breast cancer survival are 86.4%, very close to the average European results for breast cancer patients (86.2%). These results are based on a cohort of patients diagnosed between 2010 and 2014.

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1.3 Case fatality within 30 days after admission for AMI (QE-5) and Case fatality within 30 days after admission for ischaemic stroke (QE-6)

1.3.1 Documentation sheet

Description	A. In-hospital case-fatality rate following admission for acute myocardial infarction (AMI) B. In-hospital case-fatality rate following admission for ischaemic stroke
Calculation	A. Proportion of people who die within 30 days of being admitted (including same day admissions) to hospital with an AMI. B. Proportion of people who die within 30 days of being admitted (including same day admissions) to hospital with an ischaemic stroke.
Rationale	From the OECD report "Health at a Glance":[1] Mortality due to coronary heart diseases has declined substantially over the past few decades. Important advances in both public health policies, including reductions in smoking and improved treatment for heart diseases, have contributed to these declines. Clinical practice guidelines such as those developed by the European Society of Cardiology have helped optimise treatment. Despite these advances, acute myocardial infarction (AMI or heart attack) remains the leading cause of cardiovascular deaths across European countries, making further improvements a priority. Across EU countries, some 610 000 stroke events occurred in 2015 and the number is expected to rise by one-third by 2035 due to population ageing and increases in some risk factors. Stroke is the second leading cause of death after heart disease, and is also the second leading cause of disability after depression. Another report from OECD on "Quality of care in cardiovascular diseases and diabetes "also discusses these indicators.[2]
Data source	RHM – MZG (hospital administrative discharge data), FPS Public Health FPS Public Health and OECD health data for international comparison
Technical definitions	From OECD website: Definitions for Health Care Quality and Outcome Indicators 2022-2023 HCQO data collection[3] **Indicator A: Admission based AMI 30 day in-hospital (same hospital) mortality** **Indicator B: Admission based ischaemic stroke 30 day in-hospital (same hospital) mortality** Coverage: patients aged 45 and older Numerator: number of deaths in the same hospital that occurred within 30 days of the admission date of the denominator cases Denominator: number of admissions to hospital for acute non-elective (urgent) care with a principal diagnosis of (A) acute myocardial infarction [AMI diagnostic codes upon separation: ICD-9 410 or ICD-10 I21, I22] (B) ischaemic stroke [Ischemic stroke diagnostic codes upon separation: ICD-9 433, 434, and 436 or ICD-10 I63-I64] from 1 January to 31 December in the specified year. The same day hospital episodes are included in both the numerator and the denominator.
International comparability	There are two types of OECD quality of care indicators for acute conditions such as AMI and stroke: the patient-based rates ("linked data") and the admission-based rates ("unlinked data"). Ideally, rates should be based on individual patients (patient-based rates). However, not all countries have the ability to track patients in- and out-of-hospital or even within the same hospital because they do not currently use a unique patient identifier. Some countries (Finland, Portugal, Sweden, the Netherlands…) present also data on the more robust and comprehensive indicator of 30-day case fatality rate, patient based.

	In order to increase country coverage, this indicator is also presented based on unique hospital admissions and restricted to mortality within the same hospital (admission-based). When counting the number of admissions for AMI (indicator A) or stroke (indicator B), transfers to other hospitals are excluded from the analysis.
Limitations	The indicator is influenced not only by the quality of care provided in the hospitals but also by differences in hospital transfers, average length of stay and AMI/stroke severity. In Belgium, patients cannot be followed after discharge: only patients who died in hospital are accounted for. Change from ICD-9 to ICD-10 classification has resulted in a break in the series of RHM – MZG data from 2016 on (and no 2015 data available). Belgian data from RHM – MZG are not adjusted, explaining the differences with Belgian results presented in the international comparison.
Dimension	Quality – effectiveness of care
Reviewer	Nathalie Terryn (SPF SPSCAE – FOD VVVL)

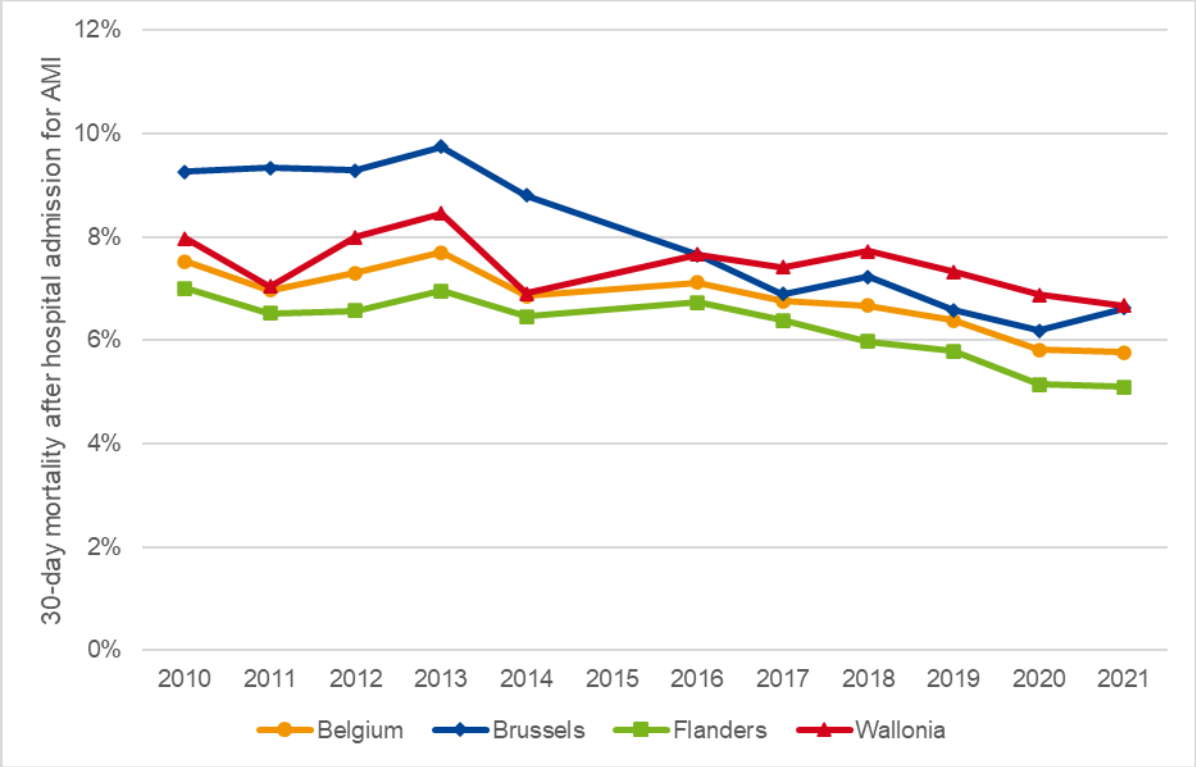
1.3.2 Results

1.3.2.1 Case-fatality rate after hospital admission for acute myocardial infarction

Belgium

In Belgium, approximately 18 000 patients are admitted every year at the hospital for an episode of acute myocardial infarction (AMI). Over the study period, the case-fatality rate for AMI hospital admission has decreased in Belgium, from 7.5% in 2010 to 5.8% in 2021 (Figure 12).

Figure 12 – Case-fatality within 30 days after admission for AMI, admission-based (same hospital) by hospital region (2010-2021)



Source: FPS Public Health, hospital administrative discharge data

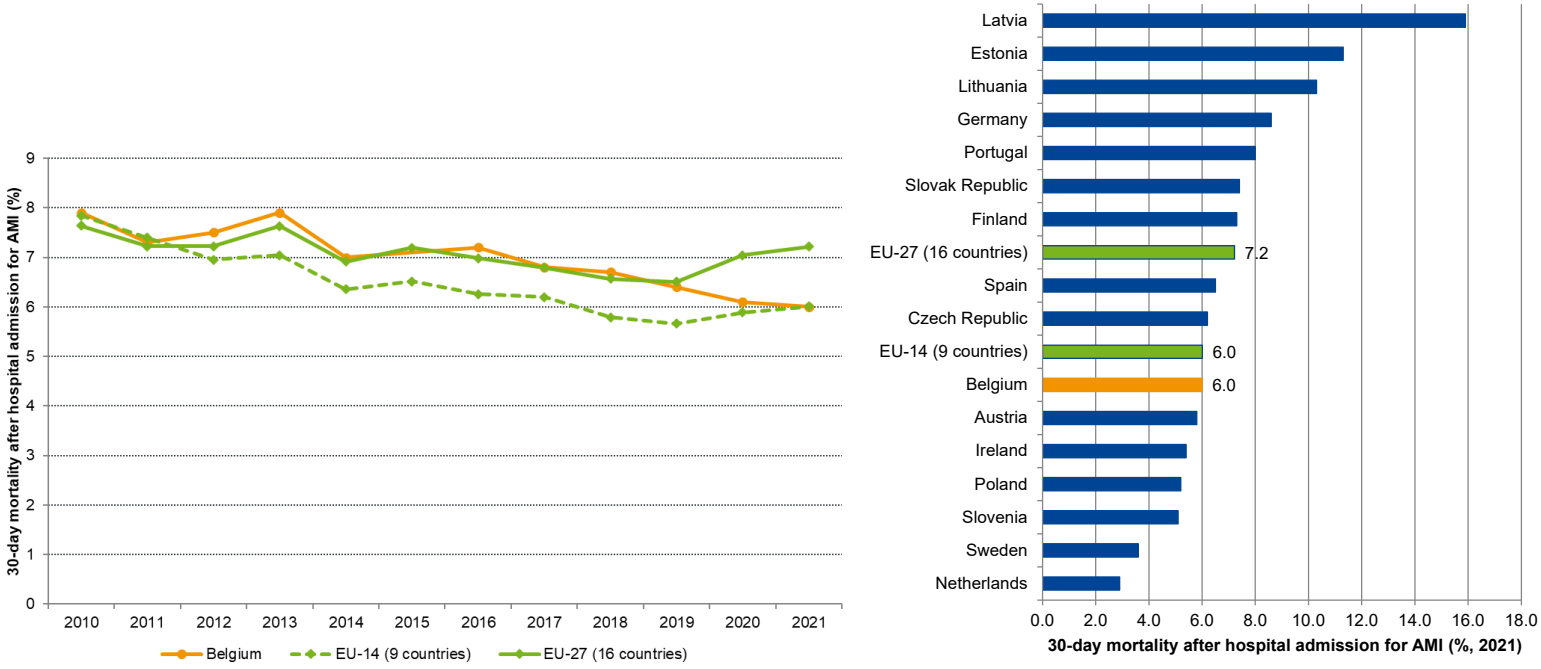
Regional comparison

Rates are lower in Flanders (5.1% in 2021) than in Wallonia (6.7% in 2021) and Brussels (6.6% in 2021, see Figure 12).

International comparison

Rates in European countries have been decreasing from 2010 to 2019, then increased in 2020 and 2021 (Figure 13, left). In Belgium, rates continue to decrease and latest figures (2021) place Belgium at the same level than the EU-14 average and below the EU-27 average (Figure 13, right) with a 6.0% (adjusted) case-fatality rate.

Figure 13 – Case-fatality within 30 days after admission for AMI, admission based (same hospital): international comparison (2010-2021)



Source: OECD health statistics 2023 (updated in 2025 for Belgium concerning the years 2020 and 2021)

Impact of COVID-19 pandemic

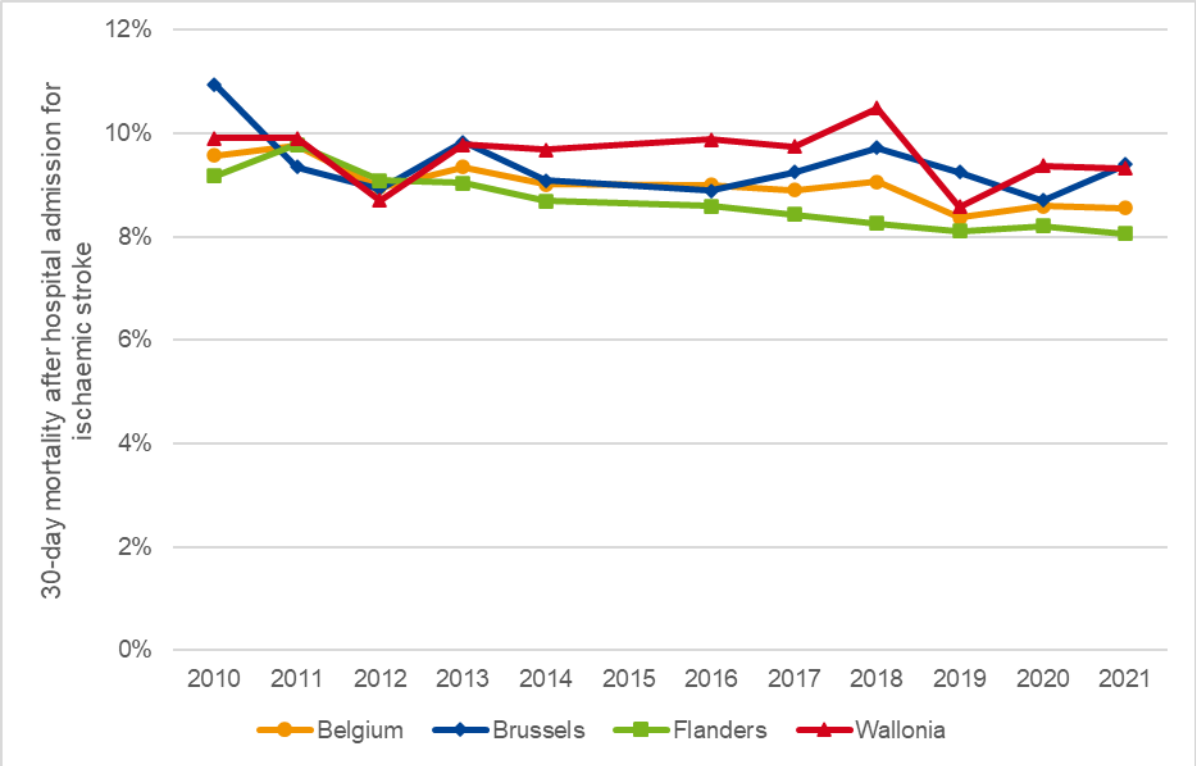
Unlike what happened in other European countries, AMI case-fatality rate has decreased from 2019 to 2021 in Belgium.

1.3.2.2 Case-fatality rate after admission for ischaemic stroke

Belgium

In Belgium, approximately 17 000 patients are admitted every year at the hospital for an episode of ischaemic stroke. In opposition to long-term trends in case-fatality after AMI, case-fatality after ischaemic stroke was only slightly reduced during the 2010-2021 period: from 9.6% in 2010 to 8.6% in 2021 (Figure 14).

Figure 14 – Case-fatality within 30 days after admission for ischaemic stroke, admission based (same hospital), by hospital region (2010-2021)



Source: FPS Public Health, hospital administrative discharge data

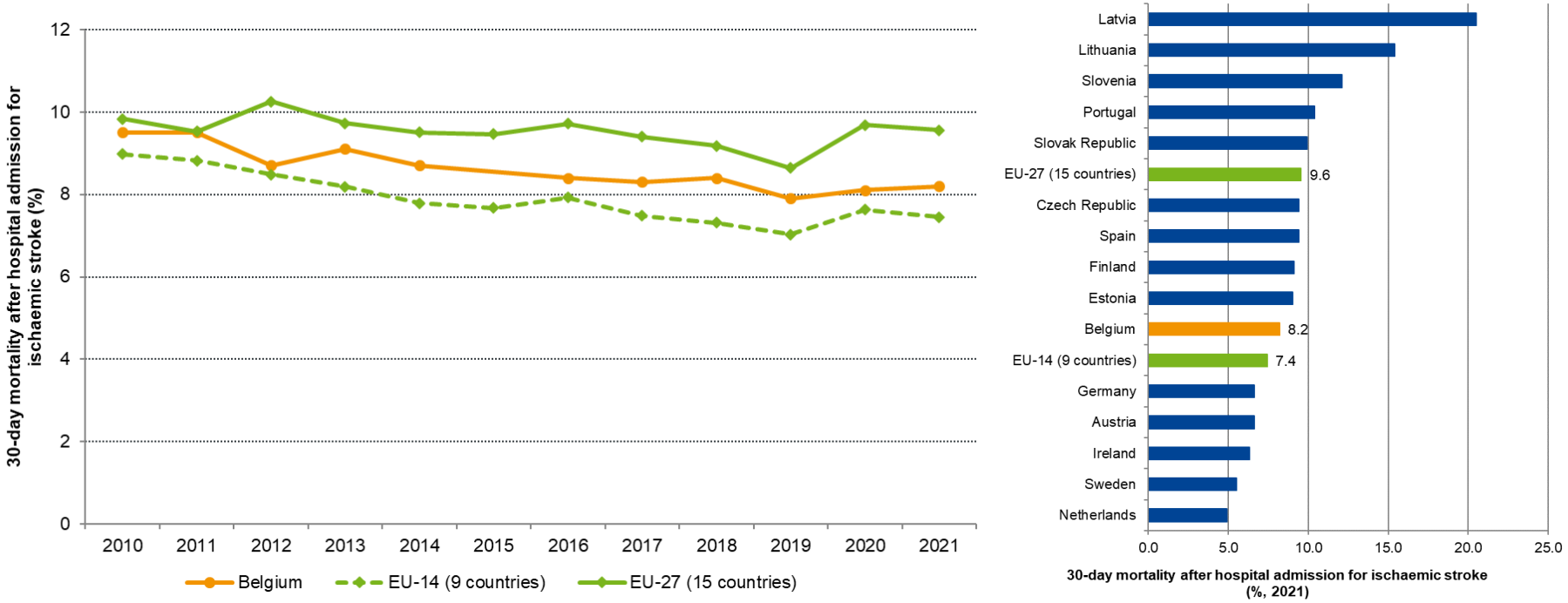
Regional comparison

Flanders has a lower rate of case-fatality for ischaemic stroke admission; it is at 8.1% in 2021, while Wallonia and Brussels are respectively at 9.3% and 9.4% in 2021.

International comparison

The rate for Belgium is between EU-14 (9 countries) and EU-27 (15 countries) mean rates (Figure 15).

Figure 15 – Case-fatality within 30 days after admission for ischaemic stroke, admission based (same hospital): international comparison (2010-2021)



Source: OECD health statistics 2023

Impact of COVID-19 pandemic

Unknown (the trend has been reversed between 2019 and 2020: growing again, but is it tiny for Belgium; the rate has increased more in other countries).

Key points

- Case-fatality after acute myocardial infraction decreased in Belgium between 2010 and 2021 (from 7.5% to 5.8%), following the trend of other European countries. Mortality results are lower in Flanders than in the two other regions.
- Case-fatality after ischaemic stroke decreased slightly in Belgium between 2010 and 2021 (from 9.6% to 8.6%), as in other European countries. Flanders has a lower rate than Wallonia and Brussels.

References

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1.4 Case fatality within 30 days after surgery for colon or rectal cancer (QE-7)

1.4.1 Documentation sheet

Description	Case fatality within 30 and 90 days after primary tumour-directed surgery for colorectal cancer
Calculation	A. 30 and 90 days postoperative mortality for colon cancer B. 30 and 90 days postoperative mortality for rectal cancer
Rationale	Colorectal cancer is the third most frequently occurring cancer for men and women in Belgium, with 7881 cases reported in 2021[1]. In the majority of cases treatment for colorectal cancer includes surgery (with curative or palliative intent).[b] Case fatality rates within 30 days and 90 days after a surgery to treat the colorectal cancer are indicators of the quality of care delivered to patients.[2, 3]
Data source	Belgian Cancer Registry (BCR): incidence years 2011-2020 IMA-AIM data Kruispuntbank - Banque Carrefour for mortality data (vital status of the patients diagnosed with cancer): follow up guaranteed until 1 April 2022
Technical definitions	Selection of patients: patients with new diagnoses of cancer registered in the BCR in the period 2011-2020, with the following ICD-10 codes: **Indicator A (colon): C18-C19** **Indicator B (rectum): C20** Exclusion criteria:

[b] https://www.cancer.be/les-cancers/types-de-cancers/cancer-du-gros-intestin-colorectal/traitements

	• Patients without official residence in Belgium at date of diagnosis • Patients with no social security number (INSZ – NISS) known • Patients with no IMA data available in incidence year Numerator: number of patients with primary diagnosis of (A) colon cancer (B) rectal cancer in a specified year that died within 30-/90- days after radical colorectal surgery. Denominator: number of patients with primary diagnosis of (A) colon cancer (B) rectal cancer in the specified year, and a radical colorectal surgery performed. (in case of multiple colorectal cancer diagnoses in one patient, only the first diagnosis is kept) Selection of nomenclature codes for the radical colorectal surgeries: 243036-243040, 243051-243062, 244016-244020, 244031-244042, 244053-244064, 244753-244764, 243014-243025, 244075-244086, 244790-244801, 243073-243084, 243095-243106, 243110-243121, 243272-243283.
International comparability	None
Limitations	The results that are demonstrated here are unadjusted, this means that there was no correction carried out for underlying differences in patient- or tumour-characteristics such as sex, age, performance score, stage of disease.
Dimension	Quality – effectiveness of care
Reviewer	Lien van Walle (BCR)

1.4.2 Results

1.4.2.1 Postoperative mortality in colon cancer

Belgium

In Belgium, over the period 2011-2020, 57 792 patients with colon cancer were studied (only the first tumour was studied in case of patients with multiple tumours), in 79.7% (N=46 047) a radical colon surgery was performed. Overall, 30- and 90-days postoperative mortality rates are 3.7% and 6.4 % respectively.

The observed postoperative mortality at 30 days decreased from 4.6% to 3.6% during the study period (see Table 4) while the mortality at 90 days decreased from 7.5% to 6.7%.

Table 4 – Postoperative mortality colon cancer (2011-2020)

Year	Belgium				Flanders				Wallonia				Brussels			
	postoperative mortality at 30 d		postoperative mortality at 90 d		postoperative mortality at 30 d		postoperative mortality at 90 d		postoperative mortality at 30 d		postoperative mortality at 90 d		postoperative mortality at 30 d		postoperative mortality at 90 d	
	D	(%)	D	(%)	D	(%)	D	(%)	D	(%)	D	(%)	D	(%)	D	(%)
2011	4 674	4.6	4 673	7.5	2 892	4.1	2 892	6.7	1 396	5.3	1 395	8.7	386	5.2	386	9.3
2012	4 680	4.1	4 680	7.1	3 007	3.6	3 007	6.4	1 343	4.8	1 343	7.9	330	5.2	330	10.6
2013	4 808	3.6	4 808	6.6	3 004	3.1	3 004	5.9	1 466	4.0	1 466	7.3	338	5.3	338	9.8
2014	5 458	3.3	5 458	5.6	3 779	2.4	3 779	3.8	1 349	5.1	1 349	9.6	330	6.4	330	9.7
2015	4 811	3.9	4 811	6.6	3 132	3.2	3 132	5.7	1 357	5.0	1 357	8.0	322	6.2	322	9.6
2016	4 584	3.2	4 584	5.9	2 855	2.2	2 855	4.2	1 371	5.0	1 371	8.5	358	4.5	358	8.7
2017	4 451	3.5	4 450	5.8	2 669	2.8	2 669	4.6	1 458	4.6	1 458	7.7	324	4.0	323	7.1
2018	4 290	3.5	4 289	6.4	2 588	2.5	2 588	5.1	1 395	4.9	1 394	8.8	307	5.2	307	9.5
2019	4 377	3.6	4 377	6.0	2 621	2.7	2 621	5.0	1 440	4.7	1 440	7.4	316	5.7	316	8.2
2020	3 914	3.6	3 914	6.7	2 436	2.8	2 436	5.8	1 219	4.9	1 219	7.6	259	5.8	259	10.4
2011-2020	46 047	3.7	46 044	6.4	28 983	2.9	28 983	5.3	13 794	4.8	13 792	8.1	3 270	5.3	3 269	9.3

D : denominator, d : days
Source: Belgian Cancer Registry (BCR)

Regional comparison

The overall observed postoperative mortality was lower in Flanders (2.9% at 30 days and 5.3 at 90 days) than in Wallonia (4.8% at 30 days and 8.1% at 90 days) and Brussels (5.3% at 30 days and 9.3% at 90 days).

Impact of COVID-19 pandemic

Unknown (but figures for 2021 are not known yet).

1.4.2.2 Postoperative mortality rectal cancer

Belgium

Rectal cancer is less common than colon cancer, 22 602 patients were studied between 2011 and 2020 (only the first tumour was studied in case of patients with multiple tumours). A radical rectal cancer resection has been recorded in 67.5% (n=15 257) of the cases. Overall, 30- and 90-days postoperative mortality rates are 2.0% and 4.0% respectively (Table 5).

The observed postoperative mortality rates are stable throughout the study period (except for Brussels where the low number of patients might explain the higher variations).

Table 5 – Postoperative mortality in rectal cancer (2011-2020)

Year	Belgium				Flanders				Wallonia				Brussels			
	postoperative mortality at 30 d		postoperative mortality at 90 d		postoperative mortality at 30 d		postoperative mortality at 90 d		postoperative mortality at 30 d		postoperative mortality at 90 d		postoperative mortality at		postoperative mortality at	
	D	(%)	D	(%)	D	(%)	D	(%)	D	(%)	D	(%)	D	30 d (%)	D	90 d (%)
2011	1 715	2.2	1 715	4.2	1 096	1.6	1 096	3.7	503	3.2	503	5.0	116	2.6	116	6.0
2012	1 711	2.3	1 711	4.8	1 063	1.9	1 063	4.1	548	2.9	548	6.0	100	4.0	100	5.0
2013	1 707	2.1	1 707	4.3	1 096	1.5	1 096	3.8	515	3.1	515	5.1	96	4.2	96	5.2
2014	1 771	1.5	1 771	3.2	1 192	1.3	1 192	2.8	500	2.0	500	4.2	79	1.3	79	2.5
2015	1 609	2.4	1 609	4.2	1 014	1.8	1 014	3.4	492	3.3	492	5.5	103	4.9	103	5.8
2016	1 536	2.2	1 536	4.0	919	1.5	919	3.2	510	3.3	510	5.7	107	1.9	107	2.8
2017	1 432	2.2	1 432	3.7	860	2.4	860	3.7	477	1.9	477	4.2	95	1.1	95	1.1
2018	1 333	1.3	1 333	3.0	768	1.2	768	2.9	464	1.3	464	3.0	101	2.0	101	4.0
2019	1 284	2.6	1 284	4.3	762	2.0	762	3.2	443	3.2	443	5.4	79	5.1	79	8.9
2020	1 159	1.6	1 158	4.2	666	2.3	666	4.2	409	1.0	409	3.4	84	0.0	83	8.4
2011-2020	15 257	2.0	15 256	4.0	9 436	1.7	9 436	3.5	4 861	2.6	4 861	4.8	960	2.7	959	4.9

D : denominator, d : days
Source : Belgian Cancer Registry (BCR), Intermutualistic Agency (IMA – AIM) and Crossroads Bank for Social Security (KSZ – BCSS)

Regional comparison

The observed postoperative mortality rates are lower in Flanders (1.7% and 3.5% for 30 days and 90 days, respectively) than in Wallonia (2.6% for 30 days and 4.8% for 90 days) and Brussels (2.7% for 30 days and 4.9% for 90 days).

Impact of COVID-19 pandemic

Unknown (but figures for 2021 are not known yet).

Key points

- The overall observed postoperative mortality at 30 days and 90 days after surgery is 3.7% and 6.4% respectively for colon cancer, and 2.0% and 4.0% for rectal cancer.
- Radical primary tumour-directed surgical interventions as part of the treatment are recorded in 79.7% of colon cancers and 67.5% of rectal cancers.
- The evolution of the observed postoperative mortality rate over the period 2011-2020 is favourable (i.e. mortality decrease) for colon cancer and stable for rectal cancer.
- The observed postoperative mortality rates are similar in Brussels and Wallonia, whereas in Flanders lower rates are documented; this requires further analysis (account for possible differences in patient populations, e.g. age/sex/performance score/stage at diagnosis) before drawing conclusions on regional differences in quality of care.

References

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3. Byrne B, Mamidanna R, Vincent C, Faiz O. Population-based cohort study comparing 30-and 90-day institutional mortality rates after colorectal surgery. British Journal of Surgery. 2013;100(13):1810-7.

1.5 Avoidable mortality: treatable mortality (QE-8)

1.5.1 Documentation sheet

Description	This sheet describes the two sub-indicators constituting the “avoidable mortality”: 1. The treatable mortality 2. The preventable mortality The concept of avoidable mortality is based on the idea that certain deaths (for specific diseases/conditions) among people aged less than 75 years could be 'avoided' or that their number could be reduced, if there had been more effective medical and public health interventions in place (1). • **Treatable mortality:** Causes of death that can be mainly avoided through timely and effective health care interventions, including secondary prevention and treatment (i.e. after the onset of diseases, to reduce case-fatality). • **Preventable mortality:** Causes of death that can be mainly avoided through effective public health and primary prevention interventions (i.e. before the onset of diseases/injuries, to reduce incidence). Avoidable mortality concerns exclusively deaths under 75 years old. Some causes of death can be prevented and treated once they occurred, in those cases they have been attributed to the preventable category. For a minority of causes of death, there is no strong evidence of predominance between treatable and preventable mortality, in which case a 50%-50% allocation was used (1).
Calculation	**Treatable deaths** are all deaths under 75 years old in Belgium with a treatable underlying cause of death as defined by the Eurostat/OECD list (1). **Preventable deaths** are all deaths under 75 years old in Belgium with a preventable underlying cause of death as defined by the Eurostat/OECD list (1). **Age-standardised mortality rates** are then calculated as the age-specific rates weighted by the European standard population then summed up and divided by the total standard population to obtain age-standardised rates, that allow for regional or between countries comparisons.
Rationale	Avoidable mortality indicators, while not being definite measures of health system performance, are a good starting point to assess the performance of public health and healthcare policies in avoiding premature mortality from preventable and treatable causes of death (1).
Primary data source	Statistics Belgium, causes of death (COD) database
Indicator source	For Belgium: own calculations (based on Statistics Belgium COD database) For international comparisons: Eurostat This can lead to slightly different results between the Belgian and the Eurostat results.
Technical definitions	Since the introduction of the concept in the 80ths, many lists of causes for so-called “avoidable deaths” have been proposed. In 2018, an expert group from Eurostat and OECD develop a new joint list that built on earlier work carried out by researchers. The current work uses the revised list adopted by Eurostat/OECD (1).

	The complete list of causes included in the preventable and treatable categories can be consulted here (1). For all causes, the upper age limit is 75 years.
Limitations	• The choice of the causes and the attribution of the causes to a category is sometimes discussable. The lists are revised regularly to integrate new knowledge. For example, since data 2020 COVID-19 is included as a preventable disease. • Avoidable mortality is informing health system performance assessment but is not an exact measure of performance. • The number of avoidable deaths is also likely to be influenced by other factors related to the likelihood that individuals may contract a disease or seek medical advice, such as education, social background, beliefs related to health, and costs of diagnosis and treatment (2). • It is an aggregate measure that provides only global information but does not indicate what is to be addressed when there is evidence of suboptimal quality. This needs a more in-depth analysis (including a cause-specific mortality analysis and a qualitative assessment of the process) (3). • The treatable mortality indicator does not take into account all the benefits of the health care interventions that are not only preventing death but meanwhile improving the quality of life.
International comparability	Availability: yes (Eurostat) Validity: the validity of the comparison is hampered by (at least) two major causes: 1. Differences between countries can be partly due to differences in certification and coding of the cause of death; moreover, there are important differences between the countries in the quality of coding. Countries with a large proportion of poorly determined causes of death will have consequently fewer specified causes of death, those latter only constituting avoidable deaths. 2. The 'treatable mortality' does not account for differences in the underlying prevalence/incidence of the diseases.
Reviewer	Martina Otavova, PhD student, Center for Demographic Research, UCLouvain, and Department of Epidemiology and Public Health, Sciensano

1.5.2 Results

1.5.2.1 Preventable mortality

See P-13.

1.5.2.2 Treatable mortality

Rates by sex and region

The age-standardised treatable mortality rate in 2019 and in 2020 is slightly higher in men than in women in Brussels and Wallonia but not in Flanders. The treatable mortality is higher in Wallonia and in Brussels than in Flanders, and this difference in mortality is more pronounced in men.

Table 6 – Age-adjusted treatable mortality rates, by sex, Belgium and regions, 2019-2020

Year	Sex	Belgium	Flanders	Brussels	Wallonia	Ratio Brussels/Flanders	Ratio Wallonia/Flanders
2019	Males	71.6	54.6	78.3	93.0	1.4	1.7
	Females	61.0	54.8	65.8	71.3	1.2	1.3
	Sex ratio	1.2	1.0	1.2	1.3		
2020	Males	65.8	51.9	88.3	89.1	1.7	1.7
	Females	59.4	55.2	71.8	78.1	1.3	1.4
	Sex ratio	1.1	0.9	1.2	1.1		

Figure 16 – Age-adjusted treatable mortality rates, by sex, Belgium and regions, 2019

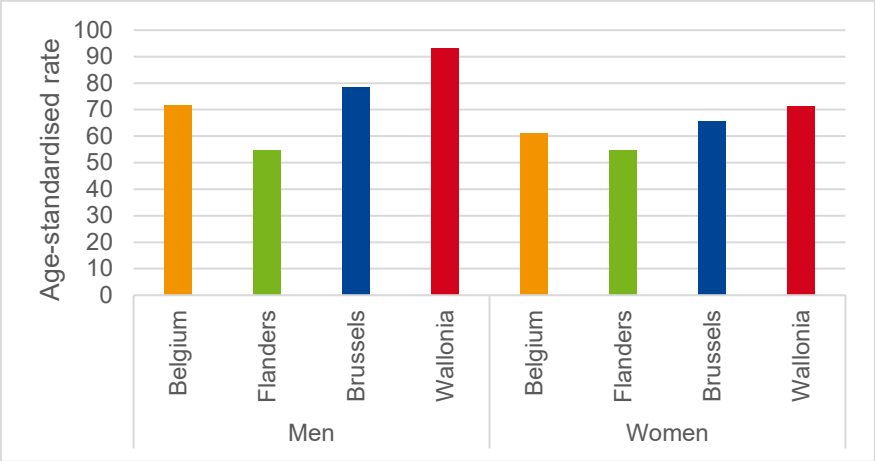
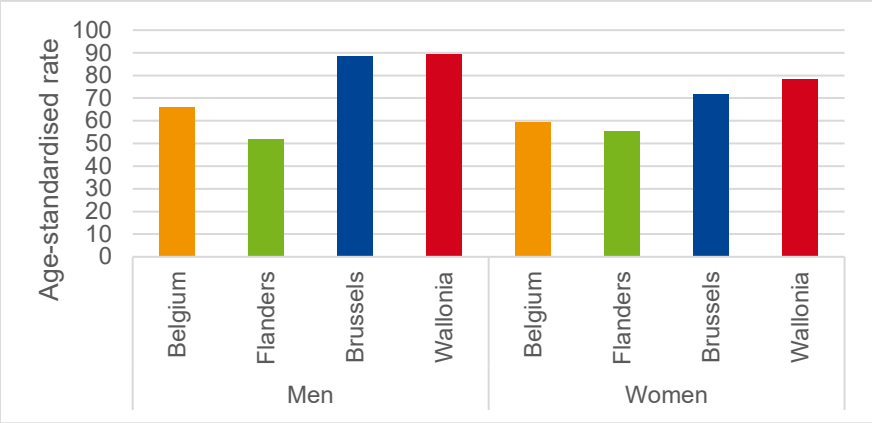


Figure 17 – Age-adjusted treatable mortality rates, by sex, Belgium and regions, 2020



Source: author's calculation based on Statbel causes of death database

Leading causes of treatable mortality

The leading causes of treatable deaths in men in 2020 were ischemic heart diseases, colorectal cancer, and cerebrovascular diseases; in women, it was breast cancer, colorectal cancer, and cerebrovascular diseases. In 2019, the third leading cause of treatable deaths in men was unspecified pneumonia before cerebrovascular diseases, followed by sepsis. In women, the third cause was ischaemic heart diseases before cerebrovascular diseases.

Figure 18 – Leading causes of treatable mortality among men, 2019-2020

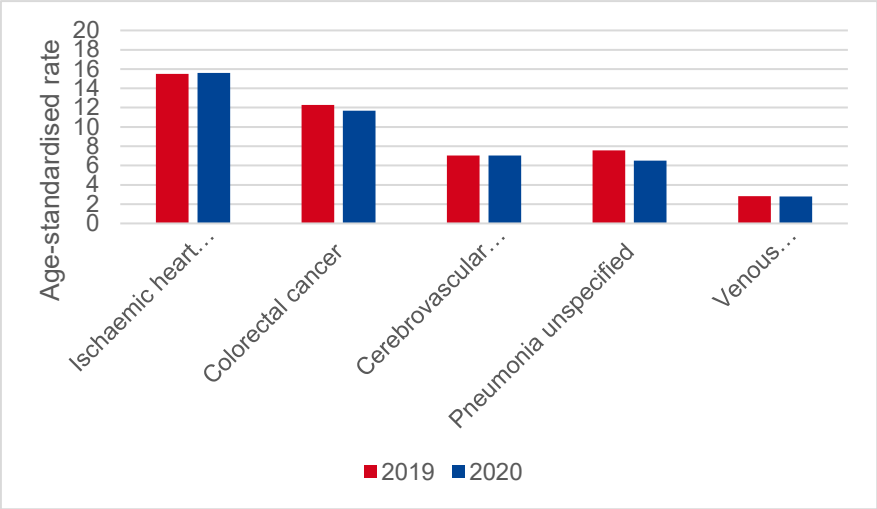
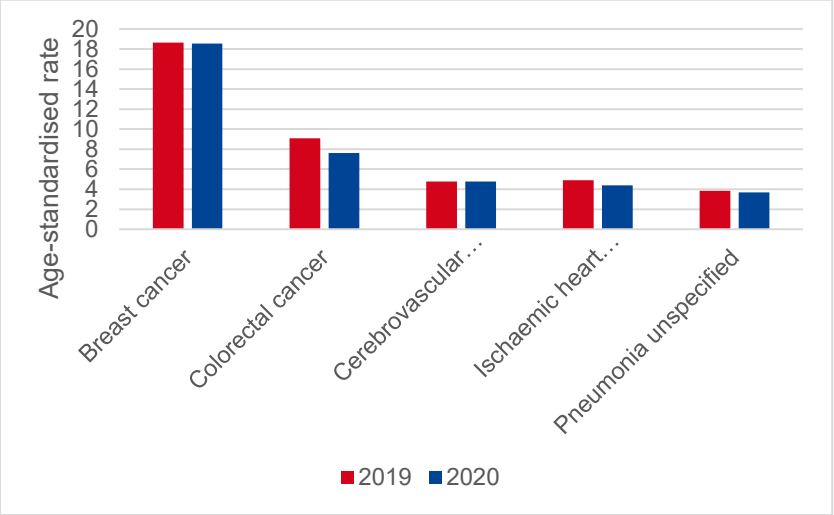


Figure 19 – Leading causes of treatable mortality among women, 2019-2020



Source: author's calculation based on Statbel causes of death database

Evolution by sex and region over time and impact of the COVID-19 pandemic

Between 2010 and 2019, treatable mortality decreases in all regions and for both sexes. Some fluctuations are seen in Brussels, probably due to small numbers.

In 2020, small increases were observed in Brussels and in Wallonia (only for women). More research is needed to determine the potential impact of the COVID-19 crisis on treatable mortality.

Figure 20 – Age-standardised treatable mortality rates among men, Belgium and regions, 2010-2020

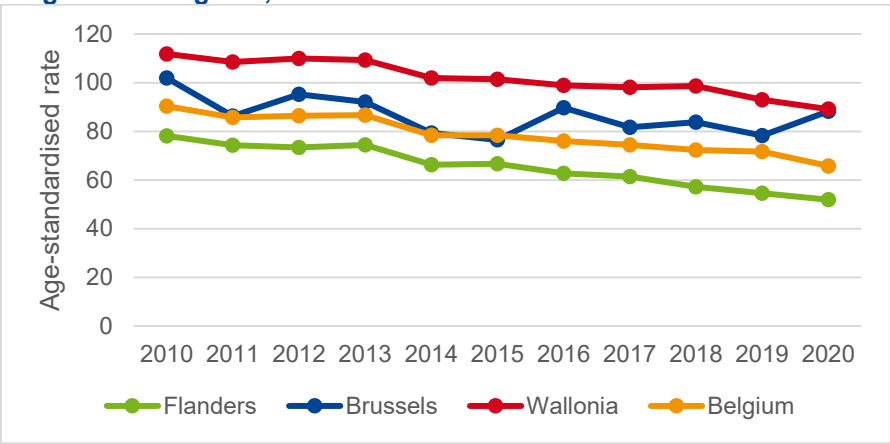
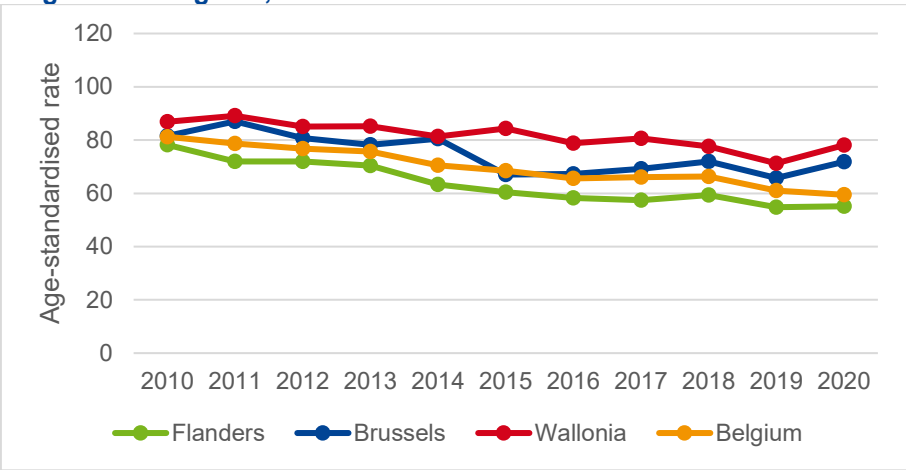


Figure 21 – Age-standardised treatable mortality rates among women, Belgium and regions, 2010-2020

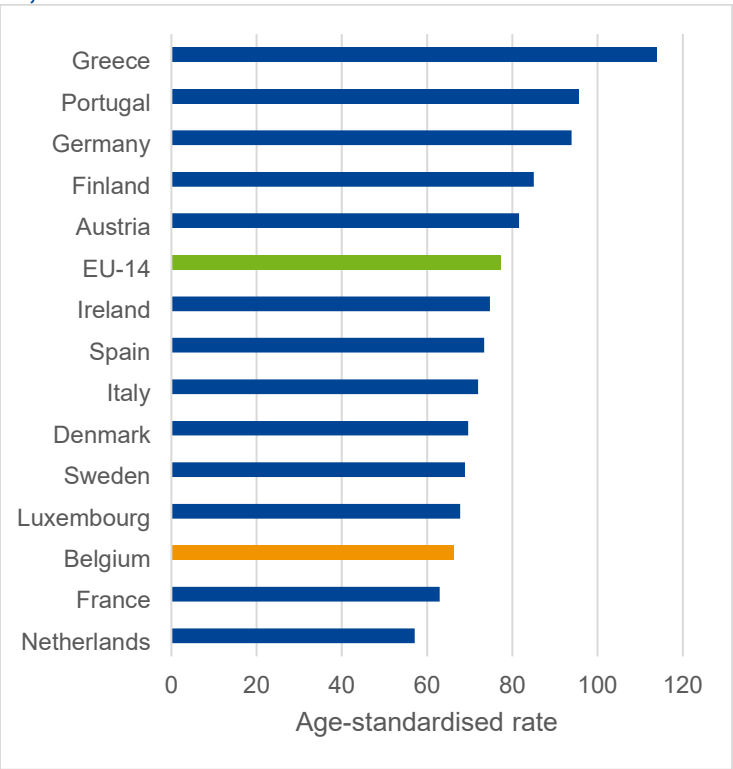


Source: author's calculation based on Statbel causes of death database

European comparison

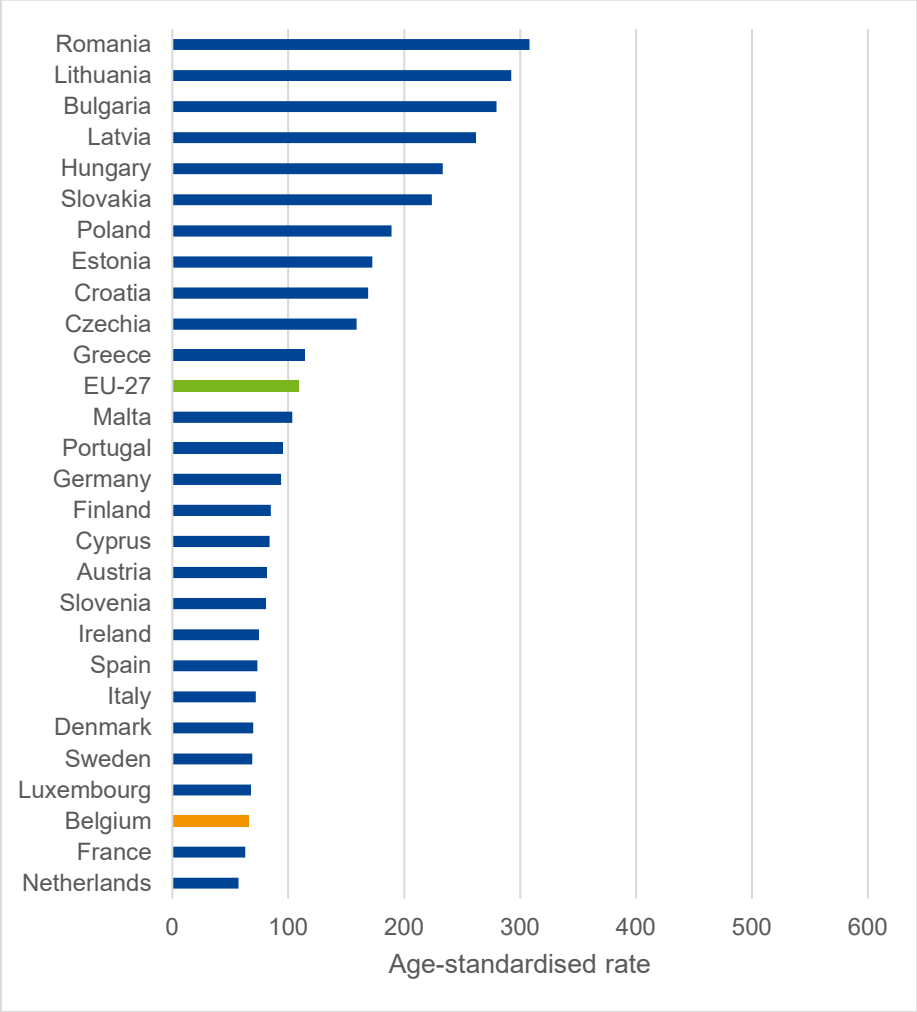
The treatable mortality is lower than the EU14 average in men and in women.

Figure 22– Age-standardised treatable mortality rate among men, EU-14, 2020



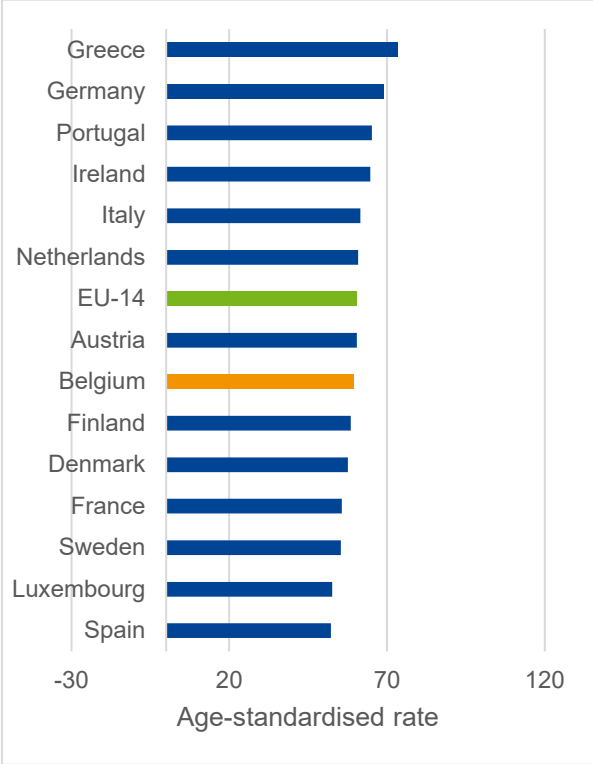
Source : Eurostat

Figure 23 – Age-standardised treatable mortality rate among men, EU-27, 2020



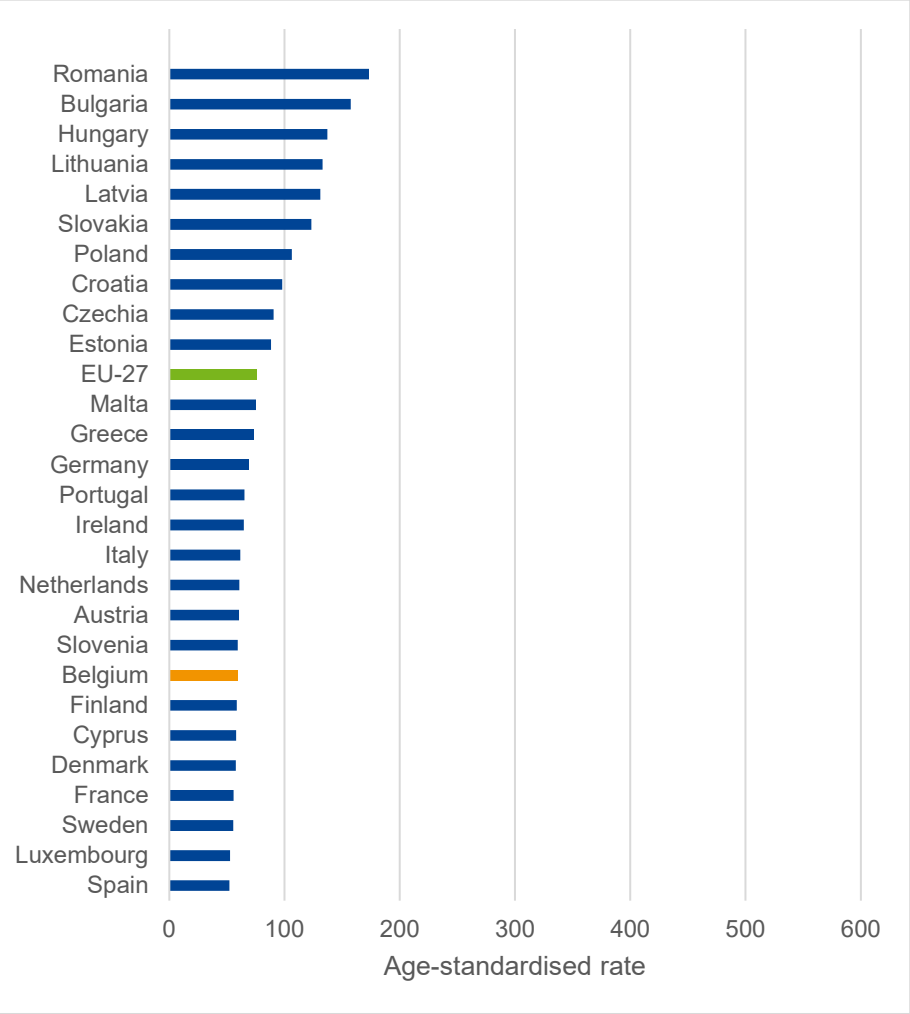
Source : Eurostat

Figure 24 – Age-standardised treatable mortality rate among women, EU-14, 2020



Source : Eurostat

Figure 25 – Age-standardised treatable mortality rate among women, EU-27, 2020



Source : Eurostat

Key messages

- There are regional differences in treatable and preventable mortality, with the highest mortality rates in Wallonia, followed by Brussels-Capital region, and Flanders.
- Preventable mortality is consistently two times higher in men than in women.
- The occurrence and consequent inclusion of COVID-19 as a cause of preventable death increases preventable mortality in 2020. Before 2020, preventable mortality is decreasing in men and constant in women.
- In comparison with the countries of the EU-14, Belgium compares well in treatable mortality. Conversely, Belgium has the highest rate of preventable mortality in the EU-14.
-

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1.6 Successful treatment of pulmonary tuberculosis (QE-11)

1.6.1 Documentation sheet

Description	Percentage of people with laboratory-confirmed Tuberculosis (TB) successfully treated among TB cases notified during past year
Calculation	**Numerator**: number of people successfully treated from laboratory confirmed pulmonary tuberculosis within the Belgian tuberculosis cohort of the previous year. **Denominator**: number of people with laboratory confirmed pulmonary tuberculosis notified the previous year, included in the Belgian tuberculosis cohort and for which information about their follow-up or treatment outcome at 12 months was available Results are provided as a percentage.
Rationale	Since the 1970s, Belgium has had compulsory reporting and registration of tuberculosis cases. Since 1995, our country has participated in the European surveillance network. This system allows the comparison of the epidemiology of European countries and helps to define coordinated prevention measures. According to the recommendation of the World Health Organisation (WHO)[1], Belgium has implemented a system to collect data on the therapeutic results in a standardised manner since 2002.[2] In the treatment of tuberculosis, compliance is essential to cure. However, keeping the patient's adherence to the TB treatment is challenging. Indeed, it is a long treatment of minimum 6 months, and, in addition, the treatment consists on a polytherapy with many potential side effects.[3] The calculation of the indicator on successful treatment of pulmonary tuberculosis cases allows to assess the effectiveness and the compliance of the patients to their treatment. This indicator reflects notably the capacity of the health system to ensure the adhesion to a long and difficult treatment, especially as it affects, as described in the tuberculosis section of the health status report, a public that is often in a precarious situation.[2]
Data source	The Belgian tuberculosis register: data from 2011 to 2021 are used. All results are published in reports available on the websites of the 'Fonds des affections respiratoires asbl' (FARES)[4] and the 'Vlaamse vereniging voor respiratoire gezondheidzorg en tuberculosebestrijding' (VRGT).[5] The Belgian tuberculosis register is created by merging the database from Flanders (Agenschap Zorg en Gezondheid) with the TUBER case management database from Brussels and Wallonia (thus data does not come directly form the regional declaration platforms for Brussels and Wallonia). In all three regions, TB registration is mandatory. Belgian tuberculosis register attempts thus to accurately represent the situation in Belgium. The data is processed in compliance with the General Data Protection Regulation. Encoded pseudo-anonymously by regional teams, they are then centralised once a year to be validated and processed by the data manager.[2] Treatment outcomes data are collected by FARES, VRGT and Agentschap Zorg en Gezondheid from the patient's physician in charge of the clinical follow-up. In 2020 (last cohort for which there is available data concerning treatment outcomes), 830 new notifications of TB cases were included in the register, from which 357 were eligible to be included in the cohort of lung tuberculosis treatment follow-up (see inclusion criteria in technical definition just below).

Technical definitions	The study population is part of the Belgian cohort of the tuberculosis register. It includes only people with bacteriological confirmation of pulmonary tuberculosis at the diagnostic phase (n=453 for the 2020 cohort) for whom FARES/VRGT/Agentschap Zorg en Gezondheid's teams got follow-up information on treatment outcomes at one year (n=357 for the 2020 cohort). Although the Belgian register includes TB incident cases whatever the localisation (with 69.3% being pulmonary TB), the results of the follow-up study published in the Belgian report only includes the pulmonary cases. However, the European report includes all TB cases (for Belgium also). The term 'successfully treated' covers two different treatment outcomes grouped together: patients with bacteriological evidence of negativity and patients who have completed their treatment but with no bacteriological result. The successful treatment rate is an indicator that evaluates the management of the TB cases in a public health perspective. The TB successful treatment rate is a usual indicator through countries and regions.
International comparability	Data comes from the database of the European Centre for Disease Prevention and Control (ECDC) and the database of the European Region of the WHO. The analysis of those databases is reported in the same document: "Tuberculosis surveillance and monitoring in Europe". The last report was published in 2023 and analyses the data of 2021 which means the treatment outcomes of the cohorts of 2020.[6] Since 2008, the ECDC and the WHO Regional Office for Europe have coordinated the collection and analysis of TB surveillance data in Europe. The standards and definitions have been agreed by experts. Reporting completeness varied among countries due to differences in legislation, surveillance systems and TB case identification. Everyone should be cautious when making comparisons across countries as the rate of data reporting by countries vary a lot. So only data from a limited number of EU-countries (n=13 among EU-27) can be taken into account as they report treatment follow-up data for at least 80% of their notification cohort. However a global mean for 29 European countries is available based on the analysis of all the reported treatment follow-up cases whatever the country's origin of the data (71.7%).[6] A difference appears between the data reported in Belgium and at the European level. Indeed, in Belgium, the success of the management only concerns confirmed pulmonary tuberculosis cases, whereas the data reported in the European report does not specify the body's location of tuberculosis. However, in the EU data, Belgian data concern all cases. This difference does not hamper the comparability.
Limitations	All confirmed pulmonary TB cases (new and previously treated cases) are evaluated together in Belgium because the information collected about previous TB treatment is not reliable and does not allow to distinguish relapses, failure and return after defaulted (clinical history usually not available) There is no treatment follow-up data available for 84 patients of the cohort 2020. Many European countries reports only few data on treatment follow-up. Belgian (FARES/VRGT) and European (ECDC) calculation methodologies are different, leading to different results.
Dimension	Quality of care : effectiveness
Reviewers	Vinciane Sizaire (FARES), Wouter Arrazola de Oñate (VRGT)

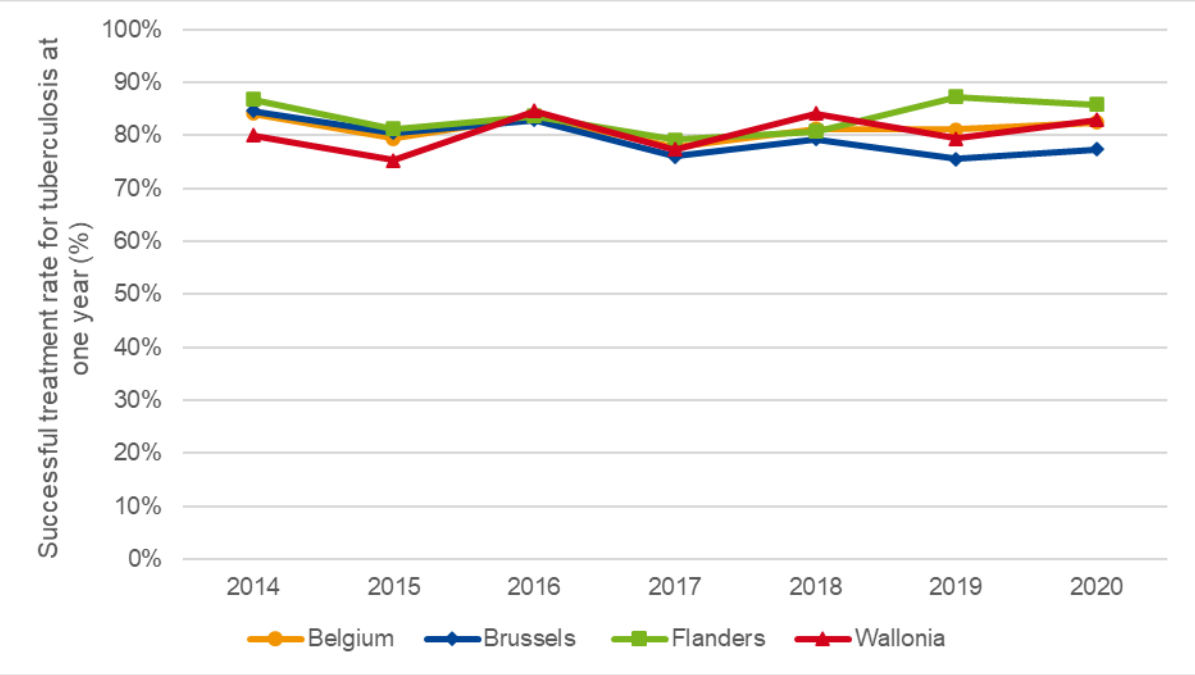
1.6.2 Results

Belgium

In Belgium in 2021, 82.4% of the people with proven pulmonary tuberculosis (TB) were successfully treated (n=294). This proportion of favourable treatment outcomes corresponds to an increase of 1.3 points of percentage from 2019 (81.1%) but to a decrease of 1.8 points of percentage from 2014 (84.2%) (see Figure 26). The target set by WHO is 85% of success rate.[2]

The term 'successfully treated' covers two different treatment outcomes grouped together: patients with bacteriological evidence of negativity: they are a minority (n=35), and patients who have completed their treatment but without bacteriological evidence of negativity: they are the majority (n=259). This means that the group of "successfully treated" mainly includes people without bacteriological results. Indeed, the bacteriological evidence of TB negativity in the lung is obtained only in 9.8% of the patients in the Belgian follow-up cohorts (see Table 7).

Figure 26 - Successful treatment rate in bacteriologically proven pulmonary tuberculosis at one year, per region (2014-2020)



Source: FARES and VRGT

Table 7 – Treatment outcomes (indicator-related and other issues) at one year in bacteriologically proven pulmonary tuberculosis, per region – cohort of 2020, followed in 2021

Treatment outcomes		Belgium	Brussels	Flanders	Wallonia
Treatment fully completed		82.4% (n=294)	77.4% (n=89)	85.9% (n=122)	83.0% (n=83)
	Successful treatment without bacteriological evidence of negativity	65.6% (n=345)	65.2% (n=75)	83.8% (n=119)	65.0% (n=65)
	Successful treatment with bacteriological evidence of negativity	9.8% (n=35)	12.2% (n=14)	2.1% (n=3)	18.0% (n=18)
Treatment failure		0.3% (n=1)	0% (n=0)	0.7% (n=1)	0% (n=0)
Death		9.5% (n=34)	8.7% (n=10)	9.9% (n=14)	10.0% (n=10)
Discontinuation of treatment		7.0% (n=25)	12.2% (n=14)	3.5% (n=5)	6.0% (n=6)

Source: FARES and VRGT

Regional comparison

Between regions, very small differences exist in 2021 and those differences vary over time (see Figure 26). In 2021, Flanders (85.9%) performs a bit better than Wallonia (83.0%) and Brussels (77.4%) (see Table 7). Since 2016, the success rate in Brussels is slightly lower than in the other regions. One explanation could be that big cities host often more people at risk of unsuccessful treatment outcome (homeless people, asylum seekers…).[2]

Other items included in 'unsuccessful treatment outcomes' are death, treatment failure and treatment discontinuation, also known as loss to follow-up. Failure means that patient take the treatment correctly but does not respond. This outcome almost never happens in Belgium because treatment is always adjusted to the resistance profile. Death is usually the result of a very late diagnosis and/or co-morbidities. Loss to follow-up leads to unsuccessful treatment outcome of precarious population. Loss of follow-up is also the most valuable indicator for programmatic evaluation (which is the purpose of the TB register).

International comparison

According to the ECDC/WHO Europe report[6], the treatment success rate among 125 957 new and relapse TB cases having started treatment with first-line drugs in 2020 was 73.4% in EU WHO Region (54 countries). The treatment success rate shows results comparable with the previous year (76.5% in 2018). Only 13 countries and areas achieved an 85% treatment success rate in this treatment cohort. Another 11 were close to the target, with success rates of 80–85%. Nine had treatment success rates below 60%. However the annex 4 of the ECDC report[6] shows that most of the countries do not report complete data. In several countries, a very high proportion of cases are not evaluated (see Table 8). Figure 27 shows the success rate of tuberculosis treatment of 13 EU-countries which report treatment outcome data for at least 80% of their cohort.

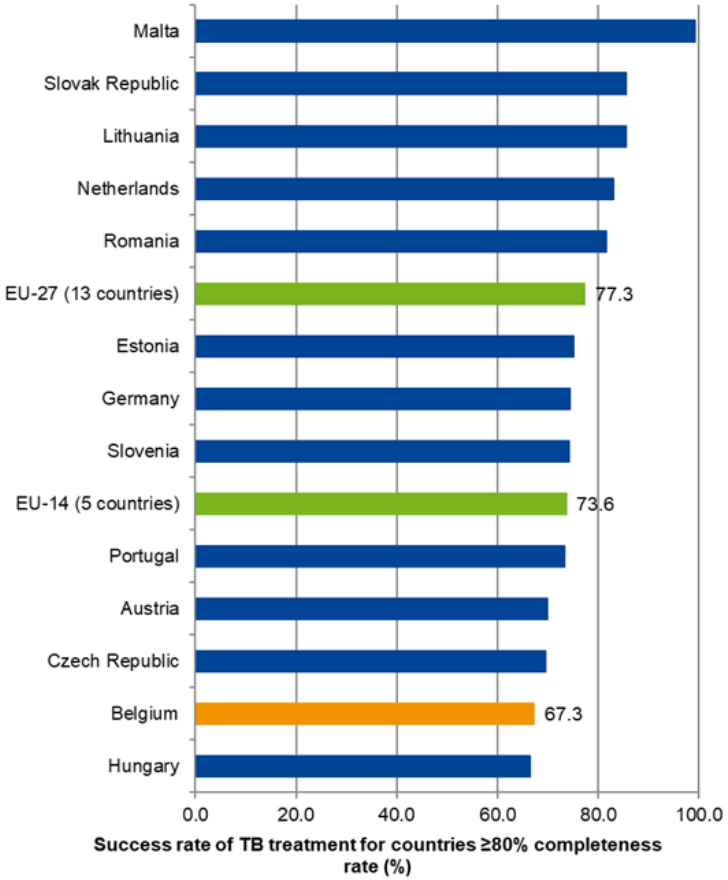
Compared to the rate available for EU-13 countries, Belgium shows a poor success rate in TB treatment (67.3%), ranked at the forelast place, just before Hungary (66.5%) (see Figure 27). Belgium is far from the countries close to the target set by WHO.

Table 8 – Successful treatment rate of incident TB cases (new cases and relapse of TB), for EU-27 countries –reported in 2021

Country	Successful treatment rate at one year (%)	Completeness rate (%)[a]
Austria	70.0	91.0
Belgium	67.3	80.8
Bulgaria	Not available	0.0
Croatia	50.5	77.3
Cyprus	44.1	66.7
Czech Republic	69.5	100.0
Denmark	34.5	38.9
Estonia	75.2	100.0
Finland	25.4	27.6
France	Not available	44.6
Germany	74.4	87.4
Greece	Not available	0.0
Hungary	66.5	97.3
Ireland	6.3	11.4
Italy	Not available	0.0
Latvia	Not available	Not available
Lithuania	85.5	100.0
Luxembourg	37.5	41.2
Malta	99.3	100.0
Netherlands	83.0	94.9
Poland	Not available	0.0
Portugal	73.4	100.0
Romania	81.6	100.0
Slovak Republic	85.5	95.6
Slovenia	74.3	100.0
Spain	53.3	64.3
Sweden	72.3	77.5
EU-27 (=13 countries) Mean of the 13 countries for which completeness rate is ≥ 80%	76.8	At least 80%

Data source: ECDC and WHO-Europe. [a]: data for the 2019 cohort

Figure 27 – Success of tuberculosis treatment in EU-27 (13) countries with ≥ 80% of completeness rate - cohorts of 2020, data reported in 2021 (%)



Data source: ECDC and WHO-Europe

Impact of COVID-19 pandemic

Although the incidence has stagnated around 9 per 100 000 population in recent years, there is a significant drop between 2019 and 2020. The reason for this can most likely be attributed to the COViD-19 crisis. (https://tuberculose.vrgt.be/sites/default/files/Tuberculose%20in%20Belgi%C3%AB%20infografiek%20register%202020.pdf)

Among non-Belgians, after a significant fall in standardised incidence between 2019 (26.5/100 000 pop.) and 2020 (21/100 000 pop.), standardised incidence rises again to 29/100 000 pop. in 2021, thus exceeding that observed in 2019. The figures for the last two years should be interpreted with caution, in the context of the Covid-19 pandemic. (https://www.fares.be/tuberculose/publications/rapports-epidemiologiques/fares-registretbc2021_2hd.pdf)

Key points

- The successful treatment rate of tuberculosis is an indicator for which WHO European Region have set the target of 85%.
- The successful treatment rate of tuberculosis is an indicator composed by two subcomponents which are summed before being reported to the analysed population: people having completed their treatment with a bacteriological proof of negativity, and people who completed their treatment but without bacteriological proof of negativity.
- The last report of the Belgian TB register (2021) shows that 82.4% of the people with proven pulmonary tuberculosis in 2020 were successfully treated at one year. This proportion of favourable treatment outcomes corresponds to an increase of 1.3 points of percentage from 2017 (81.1%) but to a decrease of 1.8 points of percentage from 2014 (84.2%). Actually, this rate is quite stable since several years and through the different regions.
- Compared to 13 European countries for which outcome data are reported for at least 80% of the people included in each cohort, Belgium shows a poor successful treatment rate of (any site) tuberculosis (67.3%) in penultimate place according to the last available data (cohorts 2020).
- The systematic reporting of TB and follow-up of treatment outcomes, operative in Belgium since 2002, represents an important advantage to Belgian Authorities to reach the target set by WHO European Region.
- According to the FARES and VRGT, the systematic use of polytherapy, over a long period and the adherence to treatment till completion, are of the upmost importance to improve the successful treatment rate of TB in Belgium. It is necessary for the health care system to be able to support patients to complete this long and difficult treatment. FARES and VRGT have implemented many projects to support this objective over the last few years.

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6. European Centre for Disease Prevention and Control - ECDC. Tuberculosis surveillance and monitoring in Europe 2023 : 2021 data. Copenhagen: WHO Regional Office for Europe; 2023. Available from: https://www.ecdc.europa.eu/sites/default/files/documents/tuberculosis-surveillance-monitoring-2023.pdf

2 QUALITY – SAFETY OF CARE

2.1 Prevalence of healthcare-associated infections (QS-1)

2.1.1 Documentation sheet

Description	Proportion of patients with at least one healthcare-associated infection (HAI) on any given day in acute care hospitals.
Calculation	The prevalence of HAIs was reported as the proportion of patients with at least one HAI over the total number of eligible patients, based upon a point prevalence survey (PPS).
Rationale	Healthcare-associated infections represent a threat (burden) to the safety of patients (morbidity, mortality, length of stay, treatment costs).
Primary data source	Sciensano, Service healthcare-associated infections & antimicrobial resistance (www.nsih.be); in collaboration with ECDC
Source of results	2011 Point Prevalence Survey: European Centre for Disease Prevention and Control (ECDC)[1] 2017 Point Prevalence Survey: Vandael et al., 2018[2]
Technical definitions	An active infection was defined as healthcare-associated (associated with acute care hospital stay only) when: 1. The onset of the signs and symptoms was on Day 3 of the current admission or onwards (with Day 1 being the day of admission); OR 2. The signs and symptoms were present on admission or became apparent before Day 3, but the patient had been discharged from an acute care hospital less than two days before admission; OR 3. The signs and symptoms of an active surgical site infection were present on admission or started before Day 3, and the surgical site infection occurred within 30 days of a surgical intervention (or in the case of surgery involving an implant, a deep or organ/space surgical site infection that developed within 90 days of the intervention); OR 4. The signs and symptoms of a *Clostridioides difficile* infection were present on admission or started before Day 3, with the patient having been discharged from an acute care hospital less than 28 days before the current admission; OR 5. The signs and symptoms were present on admission or became apparent before Day 3 and the patient had a relevant device inserted on this admission prior to onset. AND 1. The infection meets the case definition on the day of the survey; OR 2. Patient is receiving treatment AND HAI has previously met the case definition between Day 1 of treatment and survey day.
International comparability	Yes: the PPS is conducted by different EU member states in collaboration with ECDC, following a standardised protocol.
Limitation	Limited periodicity; so far only three point prevalence surveys have been conducted.
Dimensions	Quality (safety)
Reviewers	Katrien Latour

2.1.2 Results

Belgium

In total, 47 Belgian acute care hospital sites (33 mergers, participation rate 32.4%) participated in the ECDC PPS 2017. In these hospitals, 11 800 patients were included.

In the ECDC PPS 2017, 911 HAIs were registered. The crude prevalence of having at least one HAI was 7.3% (95% CI 6.8-7.7%). This is a status quo in comparison with the Belgian results of the ECDC PPS 2011 (7.1%, 95% CI 6.1-8.3)[1].

The HAI prevalence ranged from 0.0% to 18.1% in the participating hospitals. In total, 856 patients (mean age 66.4 years ±20.7, 51.5% male) had at least one HAI (patients ≥65 years: 8.6% (95% CI 7.9-9.3%), <65 years: 5.7% (95% CI 5.1-6.3%)). In 53 (6.2%) patients, two HAIs were detected, and 1 patient (0.1%) had three HAIs.

The most frequently registered HAIs were pneumonia (N=197, 21.6%), urinary tract infections (N=194, 21.3%), surgical site infections (N=154, 16.9%), blood stream infections (N=105, 11.5%) and gastro-intestinal infections (N=87, 9.6%; including 30 (3.3%) with *Clostridium difficile*). One-fifth of the HAIs (N=190, 20.9%) was linked to an invasive device. Most of the HAIs were linked to the current hospital (N=810, 88.9%) and the current ward (N=617, 67.7%).

Overall 721 microorganisms were reported. The top 10 most commonly isolated microorganisms were *Escherichia coli* (N=162, 17.8%), *Staphylococcus aureus* (N=81, 8.9%), *Pseudomonas aeruginosa* (N=47, 5.2%), *Enterococcus faecalis* (N=44, 4.8%), *Klebsiella pneumonia* (N=38, 4.2%), *Enterobacter cloacae* (N=38, 4.2%), *Staphylococcus epidermidis* (N=37, 4.1%), *Clostridium difficile* (N=30, 3.3%), *Proteus mirabilis* (N=20, 2.2%), and *Candida albicans* (N=19, 2.1%).

Regional coverage

No information available.

International comparisons

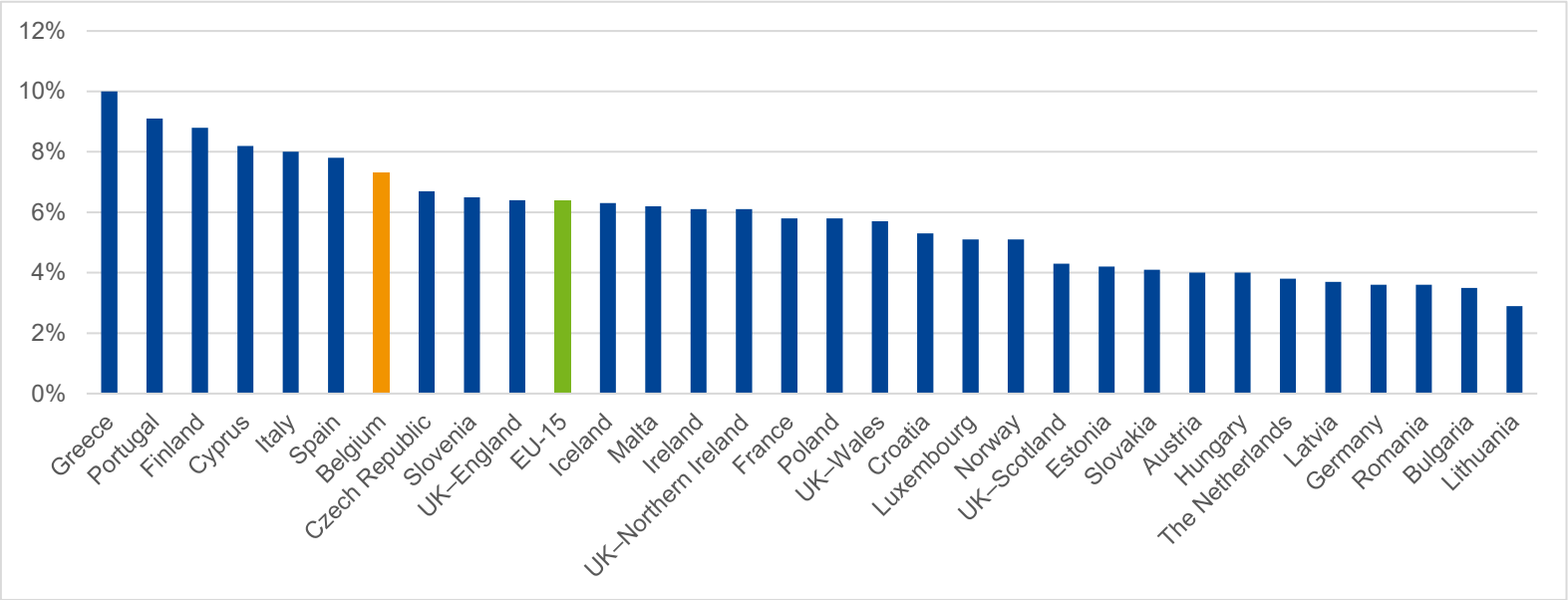
In total, 1735 hospitals from 28 EU/EEA countries and one EU candidate country (Serbia) participated in the ECDC PPS of HAI and antimicrobial use in European acute care hospitals in the period 2016 to 2017[3]. However, it is important to note that the comparability of HAI prevalence percentages between European countries needs to be improved. Before making comparisons between countries in HAI prevalence, including case-mix adjusted prevalence, considerable efforts should be taken to harmonise the interpretation of case definitions, validate results and enhance diagnostic capacity in many EU/EEA Member States. Direct comparison of HAI prevalence percentages between countries were not an objective of the ECDC PPS.

The prevalence of HAIs is known to be influenced by a variety of factors such as the type of hospital and healthcare system, the severity of the patient case mix (co-morbidities), methodological differences such as different interpretations of the case definitions for HAIs, differences in availability of diagnostic tests, differences in the level of training and skills of healthcare workers (surveillance, hand hygiene compliance, antimicrobial stewardship, bundle care…) applying the definitions and differences in reporting behaviour between hospitals and between countries. The latter are largely determined by possible legal or financial incentives or disincentives for reporting HAIs. Some of these determinants were included in the protocol and were used to interpret the observed HAI prevalence results, but others were not measured in the PPS and therefore their influence could not be assessed.

Comparing crude prevalence percentages of HAI between countries without taking into account differences in case mix, representativeness and confidence intervals and differences in sensitivity and specificity is therefore not meaningful. Representativeness of the PPS data by country are evaluated based on compliance with the recommended sampling methodology of hospitals and sample size. In the ECDC PPS 2017, counting UK administrations separately, the country representativeness of the sample was optimal in 20 countries, good in 10, and poor in 2 countries (Bulgaria and the Netherlands).

Figure 28 compares the estimates obtained in the 31 EU/EEA countries. The prevalence of patients with at least one HAI ranged from 2.9% in Lithuania to 10.0% in Greece. The HAI prevalence in the EU-15 (excluding Denmark and Sweden) was 6.4%. The prevalence of patients with HAIs in Belgium was 7.3% (95% CI 6.4–8.3%), thus higher than the European mean estimates.

Figure 28 – Prevalence of healthcare-associated infections in European acute care hospitals, 2016–2017



Source: Suetens et al., 2018[3]

Discussion

After adjusting for case-mix, Belgium has a higher than expected HAI prevalence, implying progress remains to be made with HAI prevention. Care-bundles have recently been introduced for specific HAI such as VAP (Ventilator Associated Pneumonia). Attention also has been given to the safe surgery list and an audit has been performed by BAPCOC (Belgian Antibiotic Policy Coordination Committee) on surgical prophylaxis on a voluntary basis. Annual national hand hygiene campaigns show continuous improvements of both basic requirements and compliance.[4] Finally, a multidrug resistant organisms (MDRO) task force has been set up to enhance infection prevention and control in the near future. Emphasis is given among others on microbiological and epidemiological surveillances, antimicrobial consumption improvement, and outbreak support (MDRO protocol, Belgisch Staatsblad – Moniteur belge 21-11-2013, p 86540-86545).

Key points

- The prevalence of patients with at least one healthcare-associated infection on any given day in 2017 was estimated at 7.3% (95% CI 6.8-7.7%). This is a status quo in comparison with the Belgian results of the ECDC PPS 2011 (7.1%, 95% CI 6.1-8.3).
- The three most frequently registered healthcare-associated infections were pneumonia (22%), urinary tract infections (21%), and surgical site infections (17%).
- The three most frequently reported microorganisms from healthcare-associated infections were *Escherichia coli* (18%), *Staphylococcus aureus* (9%) and *Pseudomonas aeruginosa* (5%).
- The prevalence of patients with healthcare-associated infections in Belgium was higher than the EU-15 mean estimate of 6.4%.
- Progress remains to be made with healthcare-associated infections prevention.

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2.2 Incidence of healthcare-associated MRSA (QS-2)

2.2.1 Documentation sheet

Description	Incidence of healthcare-associated MRSA (Methicillin-resistant *Staphylococcus aureus*) infections per 1000 hospital admissions.
Calculation	Numerator: Number of newly acquired healthcare-associated MRSA infections in acute care hospitals in the reporting period. Healthcare-associated is defined as not present at admission, no known carriage (for 12 months), and first positive strain >48h after admission. Denominator: Number of hospital admissions in the reporting period x 1000.
Rationale	*Staphylococcus aureus* is an important cause of infections of the skin and mucosae, of postoperative wound infections, catheter infections, pneumonia, bacteraemia and infections of articulations.[1] Since its first description,[2] MRSA has been a major source of healthcare-associated infections in European countries and abroad. Participation in the surveillance of MRSA (at least one semester/year) is compulsory in Belgium for acute care hospitals since 2006.[3]
Primary data source	Sciensano, Service healthcare-associated infections & antimicrobial resistance https://www.sciensano.be/nl/over-sciensano/organigram-van-sciensano/zorginfecties-en-antibioticaresistentie
Source of results	National Surveillance of Infections in Healthcare facilities: https://www.sciensano.be/nl/projecten/nationale-surveillance-van-antimicrobiele-resistentie Surveillance of antimicrobial resistant bacteria in Belgian hospitals: Report 2021[4]
Technical definitions	In Belgium the following indicator is in use: the total number of hospitalised patients with new Methicillin Resistant *Staphylococcus aureus* strain isolated from clinical samples (all). MRSA is not present at admission, no known carriage for the 12 past months, and the first MRSA positive strain is isolated >48h after admission (healthcare-associated MRSA). Duplicates and screening samples are excluded. Only patients admitted to one of the following departments of acute care hospitals are taken into account: • intensive care, intensive neonatology, coronary care, mixed departments (H-index) • surgery, medicine, paediatrics, maternity, neonatology (N-index) • psychiatry • geriatrics and Sp-index as far as these two departments are physically part of the hospital or the fusion. An admission is defined as a stay in a hospital bed of minimally one night. Samples of ambulant patients (e.g. day clinic, one-day clinic, haemodialysis department, policlinic services) are not included in the surveillance. The retrospectively collected data (previous year) are transmitted, and aggregated at hospital level. Institutions that are part of a fusion unity are asked to gather their data per hospital site but can choose not to do so.
International comparability	No international organisations include data on healthcare-associated MRSA, making comparison difficult. An exception is the European Antimicrobial Resistance Surveillance Network (EARS-Net), but this European program does not focus on nosocomial acquisition and considers isolates from blood cultures and cerebrospinal fluid only. Differences between countries concerning the coverage and participation, the quality of the lab results, and the frequency of sampling are also possible.
Periodicity	Semestrial data are available since 1994. Surveillance is continuous. Since 2012 the retrospective MRSA data (for the previous surveillance year) are transmitted once a year instead of each semester.
Dimensions	Quality (safety)
Reviewer	Katrien Latour, Service healthcare-associated infections & antimicrobial resistance, Sciensano

3.1.1. Results

Belgium

The median incidence of healthcare-associated MRSA in acute care hospitals was 0.3 cases per 1000 admissions in 2021. The median incidence of healthcare-associated MRSA was calculated as the median of all incidence rates of hospitals participating in the surveillance period.

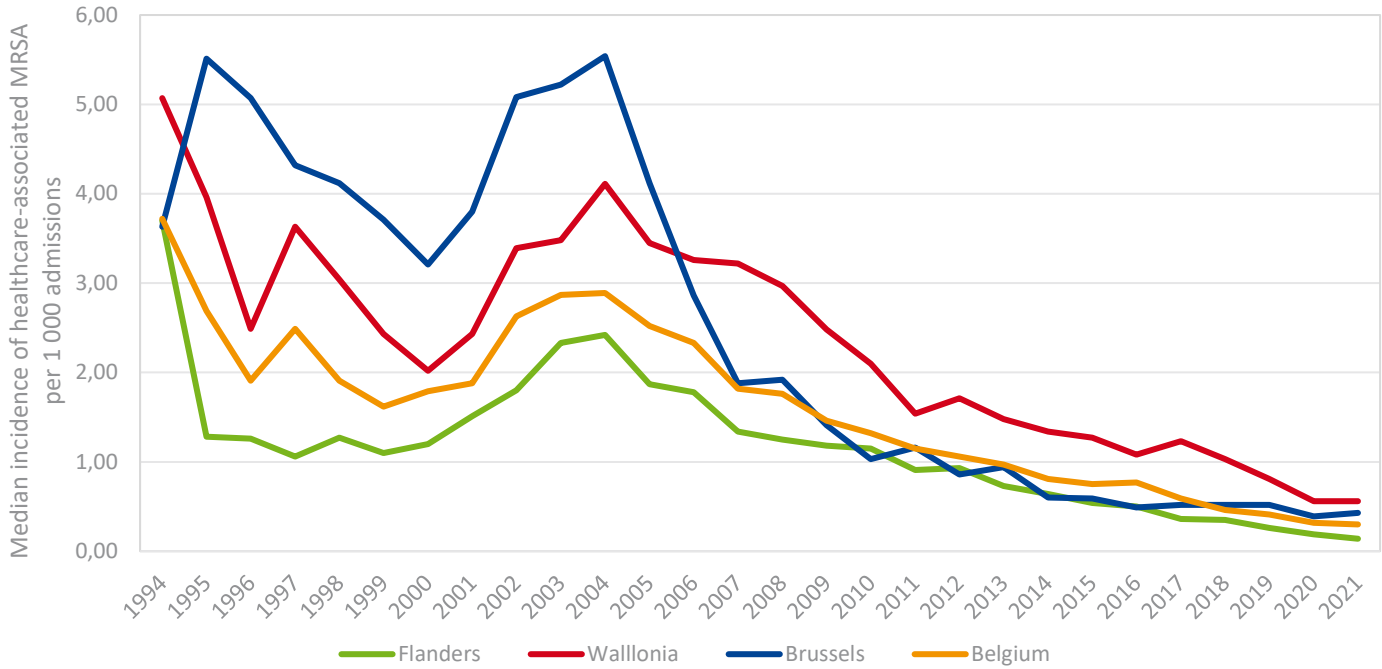
The incidence has been decreasing since 2004 and is currently at its lowest level since the start of the surveillance in 1994 (Figure 29).

Probably, the application of the recommendations for the control of MRSA (since 2003), the national hand hygiene campaigns, and the rationalisation of the use of antibiotics positively influenced this evolution. Nevertheless, the interpretation of the indicator remains influenced by the screening practices which vary in coverage rate and intensity between hospitals.[4]

Regional comparisons

To illustrate the trends by region, we used the median incidence of healthcare-associated MRSA by region. The median incidence increased in all regions between 2001 and 2004, but again decreased afterwards (Figure 29). This decrease was most impressive in the Brussels hospitals: from 5.5 cases/1000 admissions in 2004 to 0.4 cases/1000 admissions in 2021. In the Flemish Region, the median incidence decreased from 2.4 cases (2004) to 0.1 cases/1000 admissions in 2021. In the Walloon Region, after a peak at 4.1 cases/1000 admissions (2004), the median incidence decreased to 0.6 cases/1000 admissions in 2021.

Figure 29 – Evolution of the median incidence of healthcare-associated methicillin resistant *Staphylococcus aureus* (MRSA) per 1000 admissions (clinical samples only) by region, Belgian acute care hospitals, 1994–2021



Source: Latour et al., 2023[4]

International comparisons

Not available.

Impact of COVID-19 pandemic

Due to the COVID-19 pandemic, there was no legal obligation for hospitals to participate in the national surveillances (incl. the surveillance of MRSA and multi-resistant Gram-negative bacteria) in 2020 (collecting 2019 data) and 2021 (collecting 2020 data). When interpreting the results, it is important to keep in mind that the 2019 surveillance findings presented in this report reflect the pre-pandemic period. The 2020 and 2021 data are however largely impacted by the altered hospital activities due to the COVID-19 crisis.

Key points

- Since 2005, we have measured a slow decrease in the incidence of healthcare-associated MRSA in acute care hospitals.
- Probably, the application of the recommendations for the control of MRSA (since 2003), the national hand hygiene campaigns, and the rationalization of the use of antibiotics influenced positively this evolution. Nevertheless, the interpretation of the indicator remains influenced by the screening practices which vary in coverage rate and intensity between hospitals.
- No international data are currently available to benchmark the Belgian results.

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1. Superior Health Council. Richtlijnen voor de beheersing en preventie van overdracht van methicilline-resistente staphylococcus aureus (MRSA) in Belgische ziekenhuizen. 2005.
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2.3 MRSA in acute care hospital (% of S. aureus isolates, median) (QS-7) and 3GC-R *E. coli* in acute care hospitals (% of E. coli infections, median) (QS-8)

2.3.1 Documentation sheet

Description	**Principal indicator** Proportion of methicillin-resistant *Staphylococcus aureus* (MRSA) on the total number of S. aureus isolates and proportion of *Escherichia coli* resistant to 3rd generation cephalosporins (3GC-R *E. coli*) on the total number of *E. coli* isolates in acute care hospitals **Secondary indicator** Proportion of healthcare-associated methicillin-resistant *Staphylococcus aureus* on the total number of MRSA
Calculation	**Principal indicator** Numerator: Number of MRSA and 3GC-R *E. coli* infections in acute care hospitals in the reporting period. Denominator: Number of *S. aureus* and *E. coli* infections in acute care hospitals in the reporting period. **Secondary indicator** Numerator: Number of healthcare-associated MRSA in acute care hospitals in the reporting period. Denominator: Number of MRSA in acute care hospitals in the reporting period.
Rationale	*Staphylococcus aureus* is an important cause of infections of the skin and mucosae, of postoperative wound infections, catheter infections, pneumonia, bacteraemia and infections of articulations.[1] Since its first description,[2] MRSA has been a major source of healthcare-associated infections in European countries and abroad. Third-generation cephalosporins (3GC) are broad-spectrum antimicrobial agents useful in a variety of clinical situations. Their proven record of clinical efficacy, favourable pharmacokinetics, and low frequency of adverse effects make 3GC the preferred antibiotic in many clinical situations. Monitoring *S. aureus* (a skin bacterium) can inform about the effectiveness of infection prevention and control measures (including hand hygiene), while monitoring *E. coli* (a gut bacterium), additionally informs about antibiotic consumption. In 1994, Sciensano initiated the first national surveillance program of methicillin-resistant *Staphylococcus aureus* (MRSA). By the end of the 1990s, resistance in a wide range of Gram-negative bacteria started to escalate. In 2005, the surveillance program was therefore extended to also include resistance in *Escherichia coli* and several other Gram-negative bacteria. Belgian acute care hospitals must participate (at least one semester/year) in the surveillance of MRSA (since 2006) and multi-resistant Gram-negative bacteria (since 2015).[3] MRSA and 3GC-R *E. coli* are considered by ECDC primary indicators of antimicrobial resistance in bacteria from humans.
Primary data source	Sciensano, Service healthcare-associated infections & antimicrobial resistance (https://www.sciensano.be/nl/over-sciensano/organigram-van-sciensano/zorginfecties-en-antibioticaresistentie) International comparisons are based on EARS-Net data (https://ecdc.europa.eu/en/about-us/partnerships-and-networks/disease-and-laboratory-networks/ears-net)
Source of results	National Surveillance of Infections in Healthcare facilites: https://www.sciensano.be/nl/projecten/nationale-surveillance-van-antimicrobiele-resistentie

	Surveillance of antimicrobial resistant bacteria in Belgian hospitals: Report 2021[4] Surveillance of antimicrobial resistance in Europe: Surveillance Atlas of Infectious Diseases, ECDC https://atlas.ecdc.europa.eu/public/index.aspx?Dataset=27&HealthTopic=4
Technical definitions	MRSA is defined as *Staphylococcus aureus* (*S. aureus*) resistant to methicillin or oxacillin. 3GC-R *E. coli* is defined as *Escherichia coli* (*E. coli*) resistant to 3rd generation cephalosporins (cefotaxime, ceftriaxone, ceftazidime) according to EUCAST or CLSI criteria. The resistance proportion (crude, mean, median, interquartile range) was calculated for each resistant bacterium by dividing the number of resistant bacterial species by the total number of isolated species in the hospital during the surveillance period.
International comparability	The only source of information for international comparisons is the European Antimicrobial Resistance Surveillance Network (EARS-Net). EARS-Net is a program managed and coordinated by the European Centre for Disease Prevention and Control (ECDC) and is the largest publicly funded system for antimicrobial resistance surveillance in Europe. The results of EARS-Net should however be interpreted with caution: • EARS-Net only considers invasive isolates (from blood cultures, cerebrospinal fluid, and urine), while the national surveillance includes all isolates. • EARS-Net is a voluntary programme, and estimates are therefore not nationally representative for Belgium. Differences between countries concerning the coverage and participation, the quality of the lab results, and the frequency of sampling are also possible. The national surveillance on the other hand is mandatory and does yield nationally representative estimates for Belgium.
Periodicity	Both the national surveillance and EARS-Net have an annual periodicity.
Dimensions	Quality (safety)
Reviewers	Katrien Latour, Service healthcare-associated infections & antimicrobial resistance, Sciensano

2.3.2 Results

Proportion of methicillin-resistant *Staphylococcus aureus*

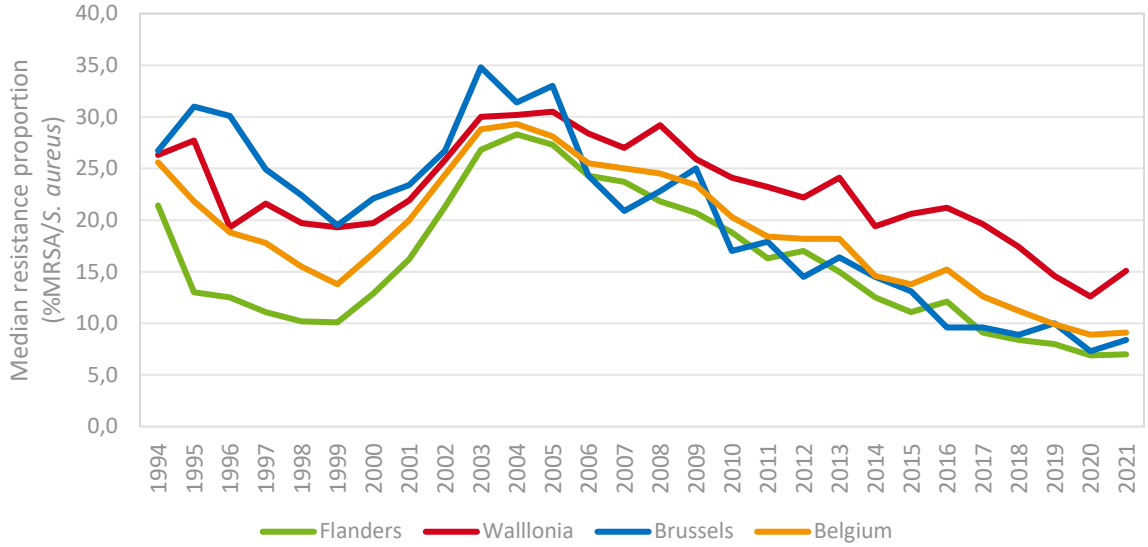
In 2021, the crude proportion of MRSA on the total number of S. aureus isolates was 10.8% (n=3 064/28 450) in all 111 participating acute care hospitals. The median MRSA resistance proportion was 9,1%. The proportion was higher in Wallonia (Table 9).

The overall median MRSA resistance proportion in acute care hospitals peaked around 2004 and has shown an overall steady decrease afterwards except between 2015 and 2016. Between 2020 and 2021, it again slightly increased overall (8.9% and 9.1%, respectively) and in all three regions: from 6.9% to 7.0% in Flanders, from 12.6% to 15.1% in Wallonia and from 7.3% to 8.4% in Brussels (Figure 30).

Table 9 – Resistance in *Staphylococcus aureus*: proportion of methicillin-resistant *S. aureus* (MRSA) on the total number of reported *S. aureus* isolates (clinical samples only) by region, Belgian acute care hospitals, 2021

	Number of participating hospitals	Proportion MRSA / *S. aureus (%)*			
		Crude	*Mean*	*Median*	*Interquartile range*
Belgium	111	10.8	10.9	9.1	5.7-13.9
Flanders	59	7.1	7.8	7.0	3.8-10.7
Wallonia	38	17.4	16.0	15.1	9.0-22.5
Brussels	14	10.0	10.3	8.4	7.0-12.7

Figure 30 – Evolution of the median proportion of methicillin resistant *Staphylococcus aureus* (MRSA) on the total number of reported *S. aureus* (clinical samples only) by region, Belgian acute care hospitals, 1994-2021



Source: Latour et al., 2021[4]

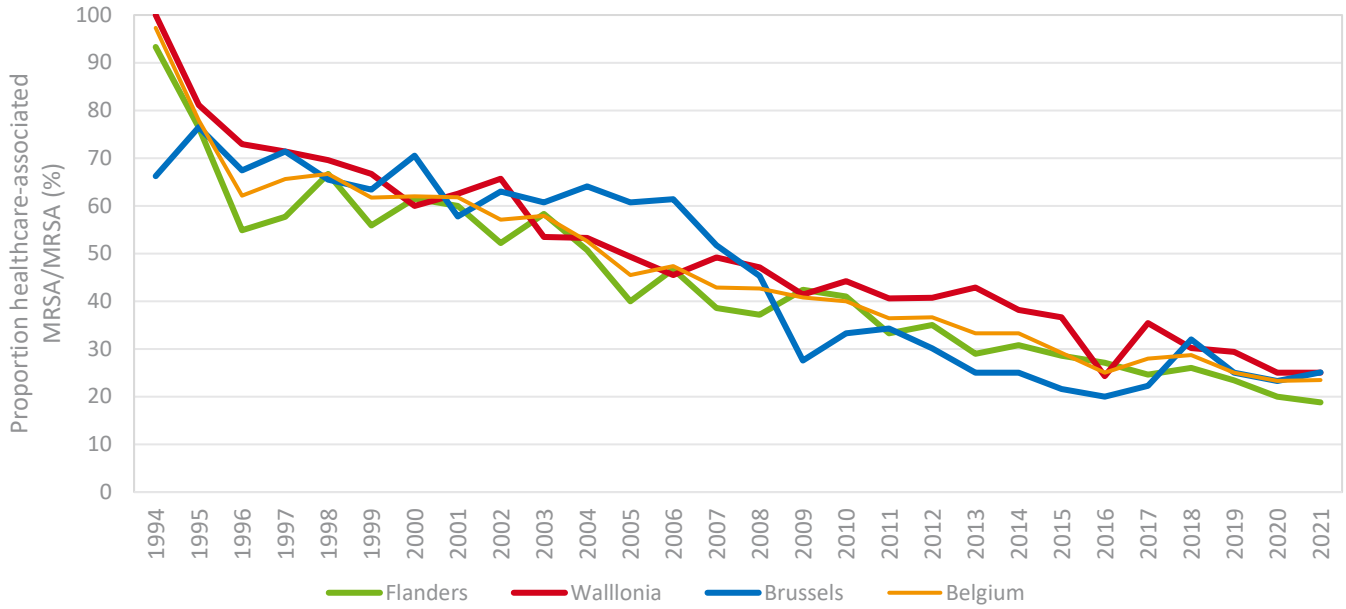
Proportion of healthcare-associated methicillin-resistant *Staphylococcus aureus*

In total, 111 acute care hospitals reported 614 clinical samples and 627 screening samples as MRSA positive more than 48 hours after admission. These MRSA cases can therefore be considered healthcare-associated. The crude proportion of clinical samples tested MRSA positive more than 48 hours after admission (healthcare-associated MRSA) on the total number of clinical samples tested positive for MRSA was 20.0% (n=614/3 064). More details on this proportion by region can be found in Table 9. The median proportion of healthcare-associated MRSA has been decreasing in all regions.

Table 10 – Proportion of healthcare-associated methicillin-resistant *Staphylococcus aureus* (MRSA) on the total number of reported MRSA isolates (clinical samples only) by region, Belgian acute care hospitals, 2021

	Number of participating hospitals	Proportion nosocomial MRSA / MRSA *(%)*			
		Crude	*Mean*	*Median*	*Interquartile range*
Belgium	111	20.0	25.0	23.1	10.0-33.3
Flanders	59	20.6	21.9	18.8	9.5-33.3
Wallonia	38	19.9	29.0	25.0	14.0-38.8
Brussels	14	19.2	27.4	25.1	9.5-44.4

Figure 31 – Evolution of the median proportion of healthcare-associated methicillin-resistant *Staphylococcus aureus* (MRSA) on the total number of reported MRSA isolates (clinical samples only) by region, Belgian acute care hospitals, 1994-2021



Source: Latour et al., 2021[4]

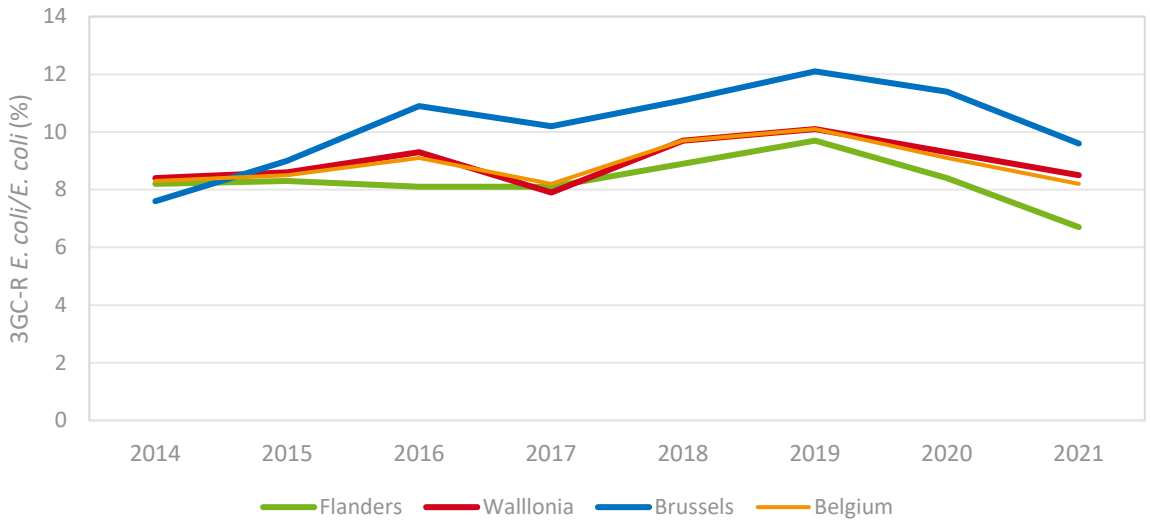
Proportion of 3GC-R *Escherichia coli*

In 2021, the crude overall resistance proportion for 3GC-R *E. coli* was 7.8% (n=7 210/91 915). The median resistance proportion was 8,2% in the 111 participating acute care hospitals. The proportion was lower in Flanders (6,7%), intermediate in Wallonia (8,5%), and higher in Brussels (9,6%) (Table 11).

Table 11 – Resistance proportion of *Escherichia coli resistant to 3rd generation cephalosporins* (clinical samples only) by region, Belgian acute care hospitals, 2021

	Number of participating hospitals	Proportion 3GC-R *(%)*			
		Crude	*Mean*	*Median*	*Interquartile range*
Belgium	111	7.8	8.0	8.2	6.1-9.5
Flanders	59	7.2	6.9	6.7	5.4-8.7
Wallonia	38	8.2	8.6	8.5	7.9-10.2
Brussels	14	10.2	10.6	9.6	9.3-12.4

Figure 32 – Evolution of the median resistance proportion of *Escherichia coli* resistant to third-generation cephalosporins (clinical samples only) by region, Belgian acute care hospitals, 2014-2021



Source: Latour et al., 2023[4]. 3GC-R = resistance to 3rd generation cephalosporins; note: prior to 2018 non-susceptibility to 4th generation cephalosporins was included, prior to 2021 both intermediate susceptibility and resistance were considered

The median resistance proportion of 3GC-R *E. coli* fluctuated between 2014 (8.3%) and 2021 (8.2%), with a peak in 2016 (9.1%) and 2019 (10.1%). The median resistance proportion for 3GC-R *E. coli* is higher in Brussels since 2015 (Figure 32).

International comparisons

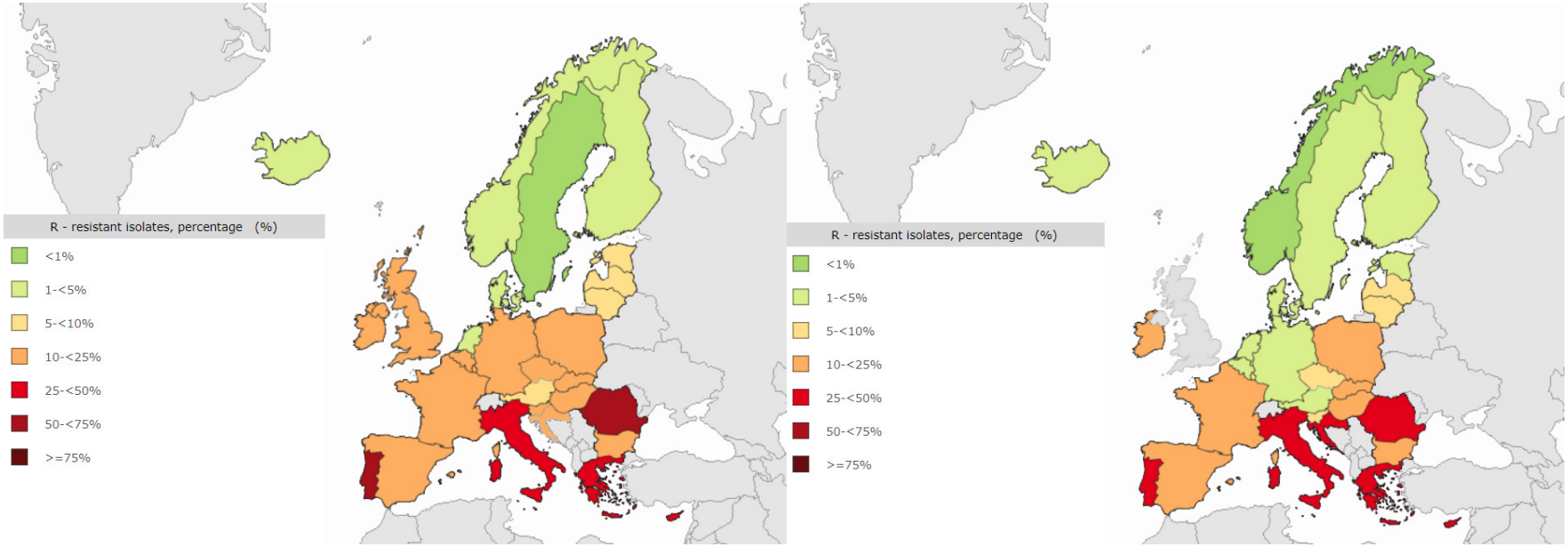
The European Antimicrobial Resistance Surveillance Network (EARS-Net) is the main EU surveillance system for AMR in bacteria that cause serious infections. Data reported from the network serve as important indicators of the occurrence and spread of AMR in Europe. All 28 EU Member States and two EEA countries (Iceland and Norway) participate in EARS-Net. The vast majority of the countries regularly report data for all bacteria and antimicrobial groups under surveillance. The number of participating laboratories continuously increased since the initiation of the network, indicating a strengthening of national AMR surveillance systems in the EU/EEA. The widespread and continuing implementation of European Committee on Antimicrobial Susceptibility Testing (EUCAST) guidelines for antibacterial susceptibility testing in Europe, and the high proportion of laboratories that participate in the annual EARS-Net external quality assessment (EQA) exercise, contribute to improved data quality and an increasing ability of EU/EEA countries to report comparable AMR data.

The results of EARS-Net should however be interpreted with caution:

- EARS-Net only considers invasive isolates (from blood cultures, cerebrospinal fluid, and urine), while the national surveillance includes all isolates.
- EARS-Net is a voluntary program, and estimates are therefore not nationally representative for Belgium. Differences between countries concerning the coverage and participation, the quality of the lab results, and the frequency of sampling are also possible. The national surveillance on the other hand is mandatory and does yield nationally representative estimates for Belgium.

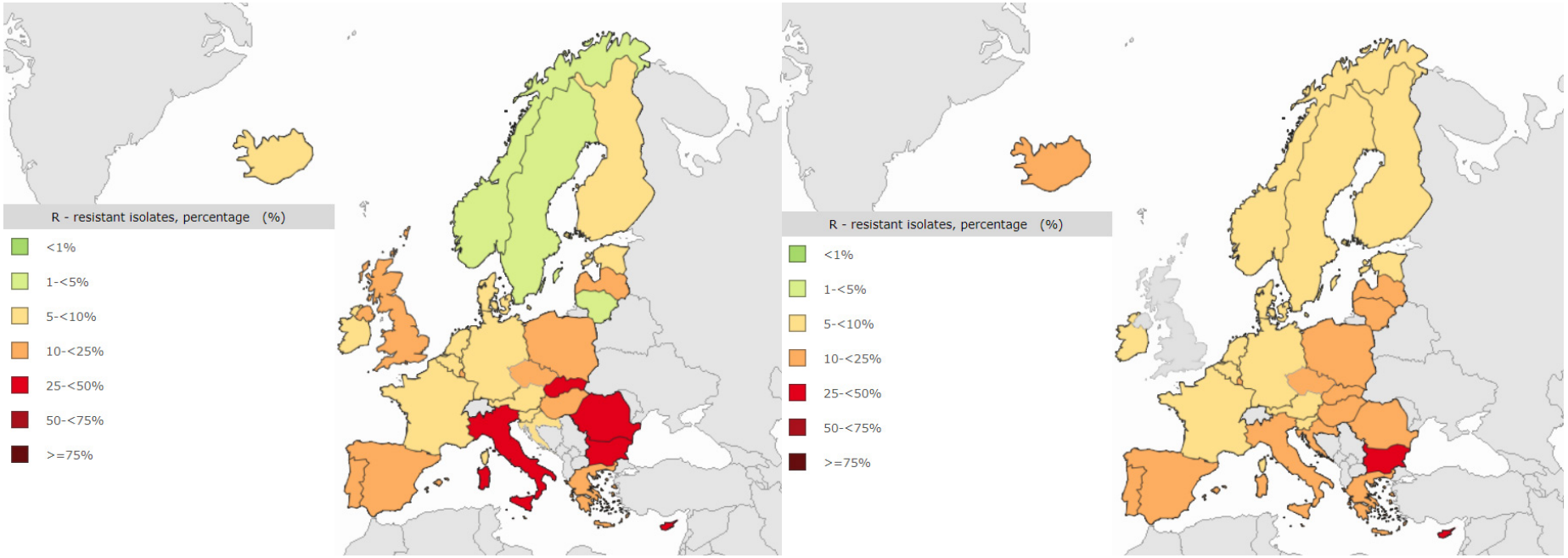
Based on the EARS-Net data, the resistance proportion of both MRSA and 3GC *E. coli* in Belgium has a favourable position across EU-15 countries (Figure 33 and Figure 34).

Figure 33 – Staphylococcus aureus. Percentage (%) of invasive isolated with resistance to methicillin (MRSA), EU/EEA, 2012, 2021



Source: EARS-Net, Surveillance Atlas of Infectious Diseases, ECDC

Figure 34 – Escherichia coli. Percentage (%) of invasive isolated with resistance to third-generation cephalosporins, EU/EEA, 2012, 2021



Source: EARS-Net, Surveillance Atlas of Infectious Diseases, ECDC

Impact of COVID-19 pandemic

Due to the COVID-19 pandemic, there was no legal obligation for hospitals to participate in the national surveillances (incl. MRSA and multi-resistant Gram-negative bacteria) in 2020 (collecting 2019 data) and 2021 (collecting 2020 data).

When interpreting the results, it is important to keep in mind that the 2019 surveillance findings presented in this report reflect the pre-pandemic period. The 2020 and 2021 data are however largely impacted by the altered hospital activities due to the COVID-19 crisis.

Key points

- **In 2021, the median MRSA proportion in Belgian acute care hospitals was 9.1%.**
- **After an overall steady decrease since 2004, the median resistance proportion of MRSA in Belgian acute care hospitals slightly increased between 2015 and 2016 and, more recently, between 2020 and 2021.**
- **In 2021, the median 3GC-R *E. coli* proportion in Belgian acute care hospitals was 8.2%.**
- **Based on EARS-Net data, the resistance proportion of both MRSA and 3GC *E. coli* in Belgium has a favourable position across EU-15 countries.**

References

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2.4 Health workers thinking that staffing levels in hospitals are sufficient to handle the workload and work hours appropriate to provide the best care for patients (% of respondents, HSPSC) (QS-9) Health workers who have positive overall perceptions of patient safety in hospitals (% of respondents, HSPSC) (QS-10)

2.4.1 Documentation sheet

Description	**Primary indicators** QS-9 Average percentage of health workers thinking that staffing levels in hospitals (acute, psychiatric, and long-term care) are sufficient to handle the workload and work hours appropriate to provide the best care for patients QS-10 Average percentage of health workers who have positive overall perceptions of patient safety in hospitals (acute, psychiatric and long-term care hospitals) **Secondary indicator** Patient-to-nurse ratio on general nursing units
Calculation	**Health workers thinking that staffing levels in hospitals are sufficient to handle the workload and work hours appropriate to provide the best care for patients (% of respondents, HSPSC) (QS-9)** Numerator: Number of respondents within a hospital who answered positively (“strongly agree” or “agree”) for this indicator Denominator: Total number of survey respondents for this indicator **Health workers who have positive overall perceptions of patient safety in hospitals (% of respondents, HSPSC) (QS-10)** Numerator: Number of respondents within a hospital who answered positively (“strongly agree” or “agree”) for this indicator Denominator: Total number of survey respondents for this indicator **Patient-to-nurse ratio on general nursing units** Numerator: Number of patients on general surgical and internal medicine nursing units Denominator: Number of nurses on general surgical and internal medicine nursing units
Rationale	The perceptions of health professionals on overall patient safety and on the staffing levels are measures of patient safety culture (PSC), which can be used together with patient-reported experiences on safety to give a comprehensive perspective on the state of safety in health systems. Patient safety is widely recognised as an ethical, economic and public health issue requiring research and improvement[1] and PSC has recently been identified as an essential component in creating and maintaining safe healthcare systems.[2] A growing body of literature reported that positive PSC is associated with positive patient and staffing outcomes, including better health outcomes and patient experiences, as well as improved organisational productivity and staff satisfaction.[2] The COVID-19 pandemic emphasized the importance of PSC in times of emergency. Health systems with more positive PSCs are likely to be more resilient and adaptive to changing circumstances. In Belgium, measuring PSC is a key condition to improve patient safety in hospitals.[3] Starting in 2007, the Belgian government (FPS Public Health) launched a 5-year quality and safety program for acute, psychiatric and long-term care hospitals, focusing on three pillars of Donabedian’s framework: structure, process and outcome measurement. The first program run from 2007 to 2012 and the second one from 2013 to 2017. A third program on quality and safety was organised for psychiatric hospitals from 2018 to 2022, with attention for safety culture improvement. In addition, in

	2018, pay for performance was introduced in acute hospitals with incentives for accreditation processes (including safety culture measurement and improvement). The health system's need to provide continuous care (i.e. 24 hours a days and seven days a week) and heavy workload are significant challenges for the organisation and the performance of the health system, health workers' well-being, safety and productivity, as well as patients' safety and outcomes.[4] Having adequate staff levels to handle the workload is an important patient safety issue and has been associated with patient outcomes in several studies. One study using data across nine European countries reported that an increase in a nurses' workload by one patient increased the likelihood an inpatient dying within 30 days of admission by 7%.[5] A recent study of 34 267 patients in seven hospitals in Belgium also found that the number of nurses working on a hospital ward affects the mortality rate of the patients in their care.[6] In high burn patient-volume hospitals in the United States, each additional patient per nurse was associated with 30% higher odds of mortality.[7] In the English National Health service, both the level of registered nurses staffing and the seniority mix of registered nurses were associated with patient mortality outcomes, but healthcare support workers and agency nurse staffing were not.[8] Having the right staffing mix and quality ward management are also important to achieve optimal workload, care quality and patient safety.[9] Furthermore, having appropriate work hours to provide the best care for patients is also an essential patient safety issue. Working overtime, extending shift lengths or reducing the rest time between shifts can increase the likelihood of making medical errors.[9] Two studies have shown that reducing working hours and the length of shifts is associated with a reduction in medical errors.[10, 11] Burnout among nurses in acute care hospitals in the United States was a significant predictor of self-reported medication administration errors.[12]
Primary data source	**Primary indicators** Belgian Hospital Survey on Patient Safety Culture (v 1.0), Hasselt University **Secondary indicator** 2009 data comes from the European survey called RN4CAST.[13] 2019 data comes from the Belgian KCE survey replicating the RN4CAST method.[14]
Technical definitions	**Primary indicators** The Hospital Survey on Patient Safety Culture (HSPSC), developed by the American Agency for Healthcare Research and Quality (AHRQ),[15] was chosen to measure PSC within Belgian hospitals, as it covers a large range of patient safety aspects and demonstrates good psychometric properties.[16] All types of hospitals (i.e. acute, psychiatric and rehabilitation) are included in the survey. A Belgian version of the HSPSC was developed and validated for use in Belgian hospitals, and is recognised by the AHRQ on their list of international survey users. The HSPSC measures 12 composite dimensions (42 items), including 10 safety dimensions and 2 outcome dimensions. The staffing indicator is one of the 12 safety dimensions and measures the extent to which there are enough staff to handle the workload and work hours are appropriate to provide the best care for patients. This dimension includes 4 items measured on a 5-point Likert scale (strongly disagree, disagree, neither agree nor disagree, agree, strongly agree): • We have enough staff to handle the workload. • Staff in this unit work longer hours than is best for patient care (negatively worded). • We use more agency/temporary staff than is best for patient care (negatively worded).

	• We work in "crisis mode" trying to do too much, too quickly (negatively worded). The indicator “overall perceptions of patient safety” is one of the two outcome dimensions and measures the extent to which procedures and systems are good at preventing errors and there are no patient safety problems. This dimension includes 4 items measured on a 5-point Likert scale (strongly disagree, disagree, neither agree nor disagree, agree, strongly agree): • Patient safety is never sacrificed to get more work done. • Our procedures and systems are good at preventing errors from happening. • It is just by chance that more serious mistakes don't happen around here. • We have patient safety problems in this unit. Based on the responses to the items in each dimension, mean dimensional scores (range 1-5) are calculated at the respondent level. Answers to negatively worded questions are reversed. These individual scores are then dichotomized by considering scores higher than three as a positive attitude towards patient safety. Summary positive dimensional scores (average percentage of positive scores) are computed at the national level, hospital level and for groups of respondents (e.g. same work area or profession).[16] **Secondary indicator** Nurse staffing was calculated based on the RN4CAST survey (survey in 12 countries, 488 hospitals, 33 659 nurses, 2009 data) as a ratio of patients to nurses (P2N). Nurses on general surgical and internal medicine nursing units were asked how many patients they were responsible for during their last shift. The results were averaged across all nurses providing direct inpatient care in the sampled nursing units. Lower ratios indicated more favourable staffing.[13] The KCE report 325 updated results but for Belgium only.
Limitations	**Primary indicators** Data are collected for hospitals that voluntarily submitted their data for comparison and did not represent a random sample of all Belgian hospitals. However, overall, the characteristics of the included hospitals are fairly consistent with the distribution of all Belgian hospitals. The number of hospitals included and survey respondents varied by year. The average response rates varied by year (from 62% in 2010 to 27% in 2022), language spoken, and profession. Included hospitals used different survey methods (paper, electronic or mixed-mode) and not all of the hospitals sent reminders, which could explain some of the differences in response rates. **Secondary indicator** Data are only available for 2009 (12 countries) and 2019 (Belgium).
International comparability	**Primary indicators** These indicators are included in the OECD Patient Safety Culture Pilot Data Collection 2020-2021.[17] Careful comparison of this indicator across countries is required due to broad variations between countries in data reporting, including the scope and methods used in the patient safety culture measurement, particularly the total number of survey respondents, types and number of participating hospitals, response rates and required vs. voluntary reporting.[17] As data over time was only available in three other OECD countries (United States, Israel and France), an international comparison of trends over time was not included. **Secondary indicator**

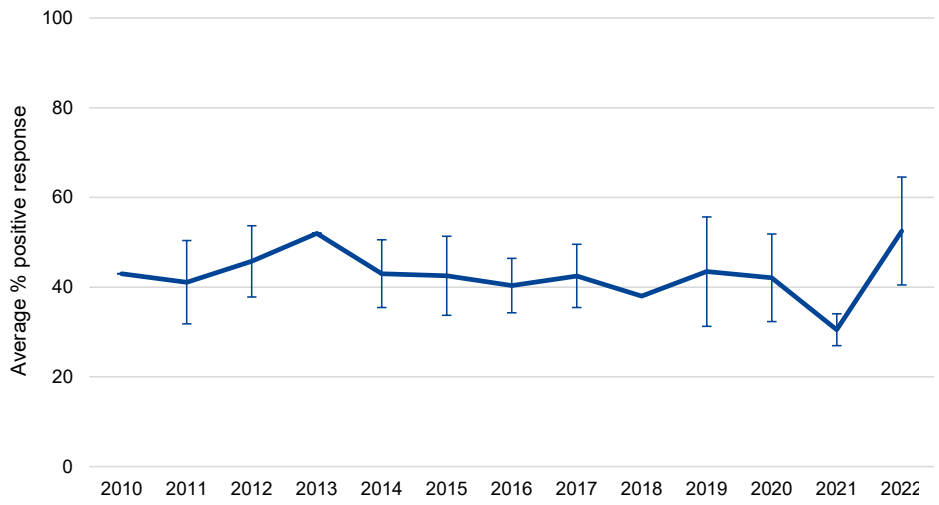
	The European RN4CAST survey (2009 data) was performed in 12 European countries (Belgium, England, Finland, Germany, Greece, Ireland, Netherlands, Norway, Poland, Spain, Sweden, and Switzerland).[13] Primary data for nurse staffing allows the minimisation of differences in administrative reporting methods across countries and restrict staffing measures to nurses providing direct inpatient care. A "nurse" was defined as a fully qualified professional nurse by the standards of each country. The KCE report 325 only updated results for Belgium. To learn from international practices, an international comparison of safe staffing policies in four countries (Australia: Victoria, Queensland; United States: California, Massachusetts; United Kingdom: England; Ireland) was also performed through literature review. The selection of countries was based on the following criteria: variation of policy approaches; implementation realised or in a stage where evaluation of several policy elements is already possible; availability of published documents (legal and policy documents, grey- and peer-reviewed literature). Experts in the safe staffing policies in each of the regions were consulted for additional information. In addition, these experts were asked to review a first draft of the relevant region.
Performance dimensions	Quality (safety of care)
Related indicators	Indicators on workforce capacity
Reviewer	Annemie Vlayen (FPS – Public)

2.4.2 Results

2.4.2.1 Perceptions of staffing levels in hospitals among health workers

The average percentage positive response for perceptions of staffing levels in hospitals among health workers was 53% in 2022 (see Figure 35 and Table 12 below). The rates of positive perceptions of staffing remained relatively stable between 2010 (43%) and 2022.

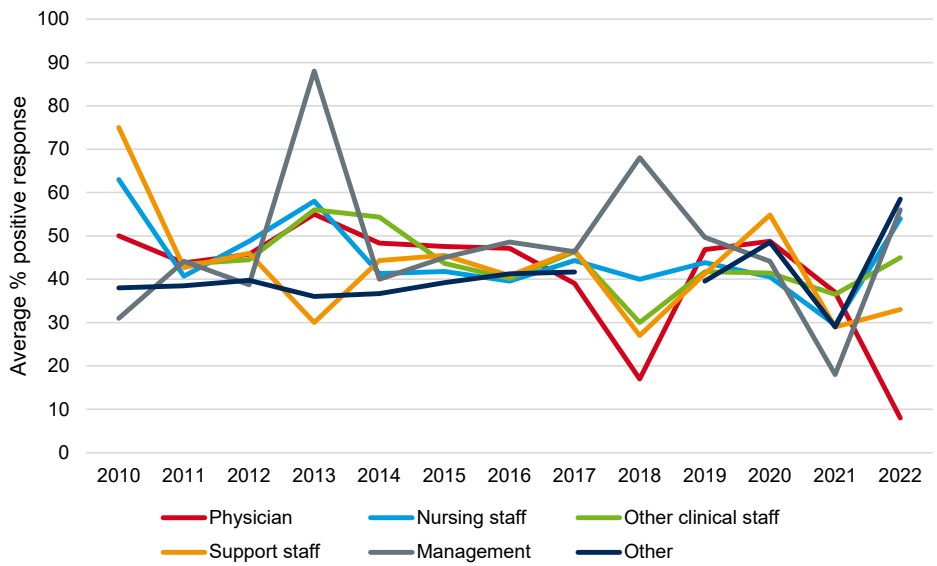
Figure 35 – Perceptions of staffing levels in hospitals among health workers (2010-2022)



Note: The size and composition sample of hospitals and health workers varied from year to year

The perceptions of staffing levels in hospitals among health workers differed somewhat across staff types in Belgium between 2010 and 2022 (see Figure 36 below). The perceptions of staffing varied the most between management staff and support staff or physicians. For instance, there was a 51-58% points difference between the average positive response rates for management staff and physicians or support staff in 2013, 2018 and 2022. Physicians reported especially low average positive response rates in 2018 (17%) and 2022 (8%). However, variations in positive response rates over time might be related to the smaller sample of surveyed hospitals and respondents in some years.

Figure 36 – Perceptions of staffing levels in hospitals among health workers by type (2010-2022)



Note: The size and composition sample of hospitals and health workers varied from year to year.

Table 12 – Perceptions of staffing levels in hospitals among health workers by type (2010-2022)

	All health workers			Physician		Nursing staff		Other clinical staff		Support staff		Management		Other	
	No. of hospitals	No. of staff	Average % (std)	No. of staff	Average % (std)	No. of staff	Average % (std)	No. of staff	Average % (std)	No. of staff	Average % (std)	No. of staff	Average % (std)	No. of staff	Average % (std)
2010	1	42	43 (0)	3	50 (0)	7	63 (0)			1	75 (0)	4	31 (0)	27	38 (0)
2011	141	56568	41 (9)	5254	44 (14)	34098	41 (12)	6252	43 (10)	2643	43 (14)	2235	44 (19)	6086	38 (13)
2012	4	995	46 (8)	87	46 (11)	511	49 (12)	161	45 (12)	54	46 (15)	21	39 (10)	161	40 (7)
2013	1	82	52 (0)	5	55 (0)	31	58 (0)	20	56 (0)	11	30 (0)	4	88 (0)	11	36 (0)
2014	3	1314	43 (8)	152	48 (16)	791	41 (9)	121	54 (6)	53	44 (7)	30	40 (16)	167	37 (7)
2015	118	43770	43 (9)	3709	48 (14)	26180	42 (10)	5719	44 (11)	2355	45 (16)	2141	45 (15)	3666	39 (12)
2016	11	5400	40 (6)	612	47 (8)	3313	40 (7)	697	40 (4)	265	41 (15)	122	49 (20)	391	41 (10)
2017	4	1222	43 (7)	98	39 (18)	660	44 (4)	87	46 (15)	38	47 (23)	30	46 (12)	309	42 (7)
2018	1	272	38 (0)	6	17 (0)	171	40 (0)	66	30 (0)	11	27 (0)	18	68 (0)		
2019	37	9050	43 (12)	560	47 (20)	5022	44 (13)	1527	42 (14)	427	41 (19)	412	50 (23)	1102	40 (18)
2020	11	2025	42 (10)	142	49 (17)	1056	41 (15)	504	41 (8)	72	55 (15)	119	44 (17)	132	49 (21)
2021	2	1454	31 (4)	111	37 (10)	1000	30 (4)	173	37 (5)	82	29 (3)	26	18 (8)	62	29 (3)
2022	2	407	53 (12)	3	8 (0)	250	54 (11)	42	45 (21)	69	33 (11)	20	56 (6)	23	59 (23)

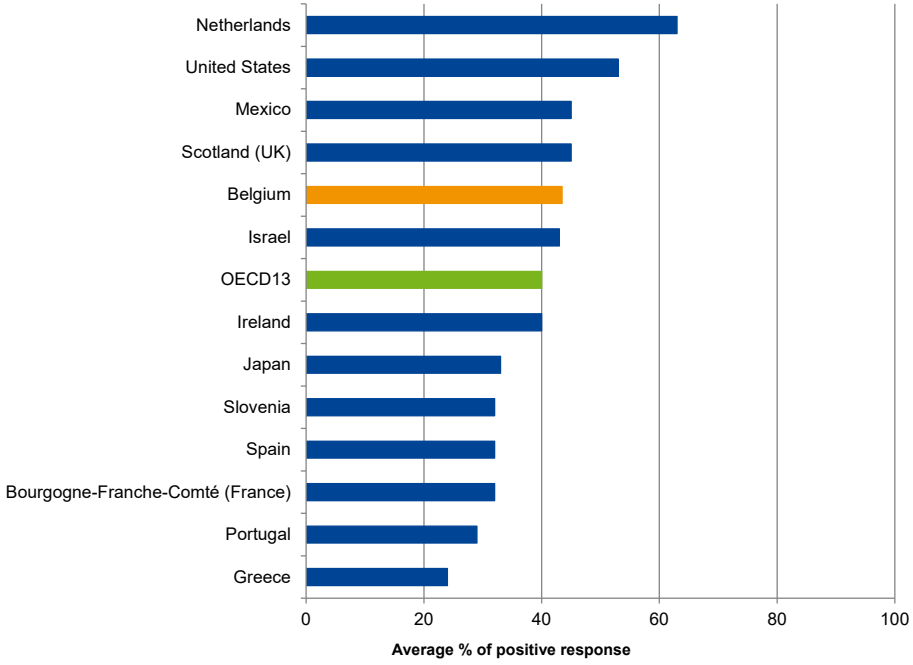
Impact of COVID-19 pandemic

The impact of the COVID-19 pandemic on the perceptions of staffing levels in hospitals among health workers is not clear.

International comparison

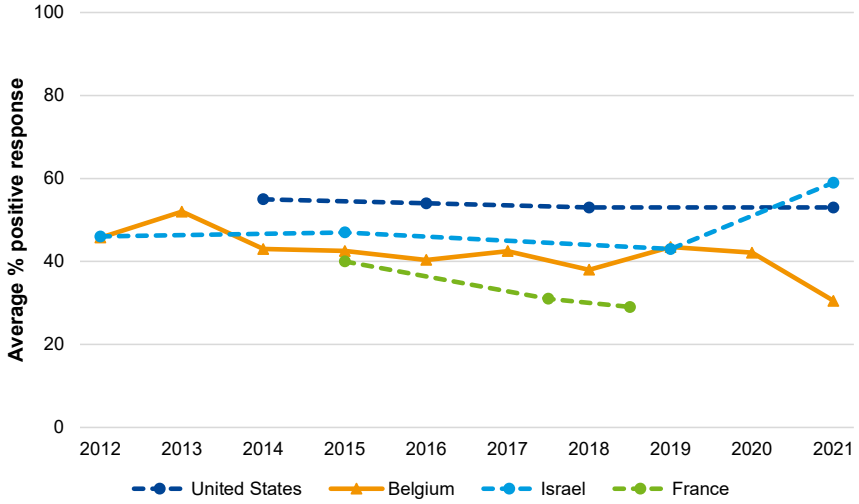
In 2019, the percentage of positive response for perceptions on staffing among health workers was higher in Belgium (44%) than the average perception based on 13 OECD countries (40%; see Figure 37 below). The perceptions of staffing was lower in Belgium than in the United States, but higher than in France between 2012 and 2021 (see Figure 38, below).

Figure 37 – Perceptions of staffing levels in hospitals in 13 OECD countries in 2019 (or latest year available): international comparison



Source: OECD Patient Safety Culture Pilot Data (2020-2021)

Figure 38 – Trends in perceptions of staffing levels in hospitals: international comparison

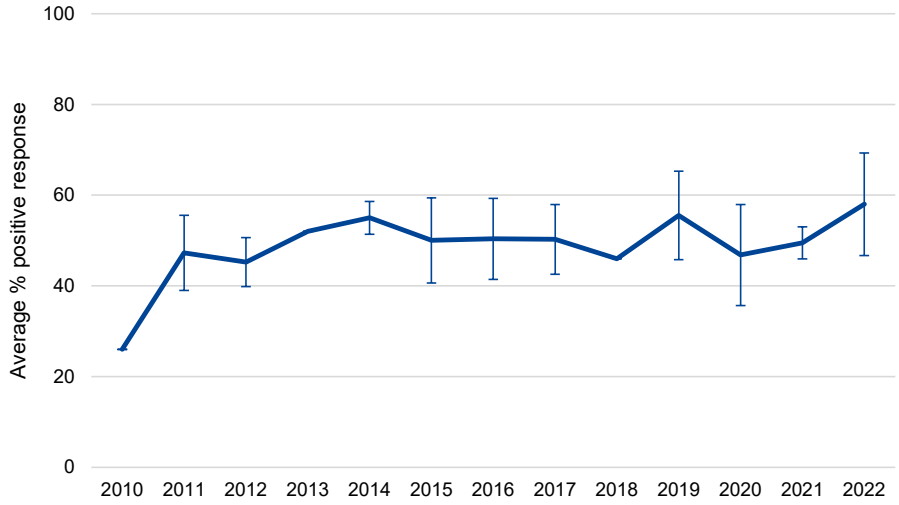


Note: The size and composition sample of hospitals vary from year to year (within and between countries).

2.4.2.2 Overall perceptions of patient safety in hospitals

The average percentage positive response for overall perceptions of patient safety in hospitals was 58% in 2022 (see Figure 39, below). The overall perceptions of patient safety was stable between 2011 (47%) and 2021 (50%). The increase between 2010 (26%) and 2011 (47%) must be interpreted with caution because of the limited number of respondents in 2010.

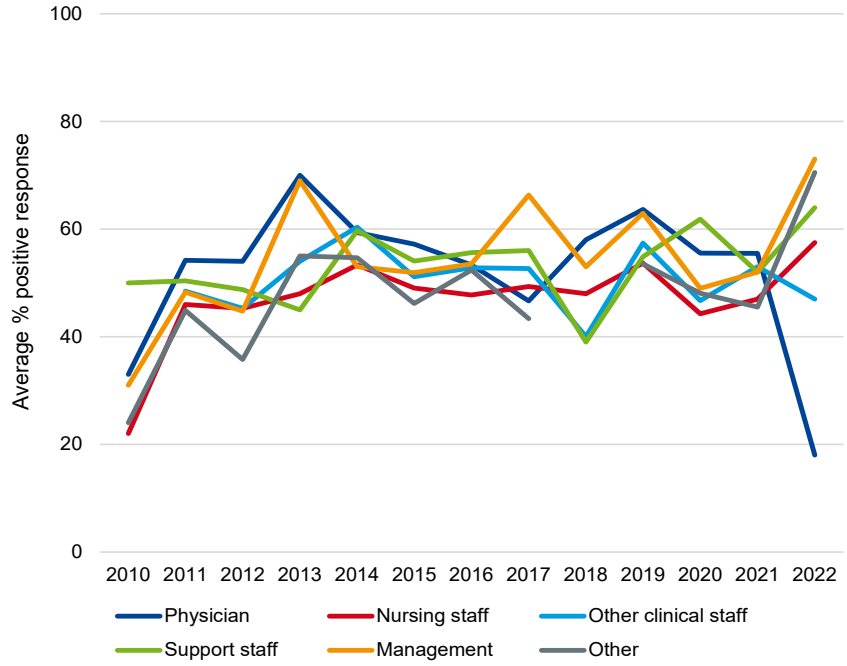
Figure 39 – Overall perceptions of patient safety in hospitals (2010-2022)



Note: The size and composition sample of hospitals and health workers varied from year to year.

The overall perceptions of patient safety were relatively similar across health workers types in Belgium between 2010 and 2021 (see Figure 40, below). In 2022 the overall perceptions of patient safety by physicians decreased (from 56% in 2021 to 18% in 2022) while it increased for other health workers. Nevertheless, 2022 results should be interpreted with caution because this is based on a limited number of respondents (only 3 respondents for physicians in 2022).

Figure 40 – Overall perceptions of patient safety in hospitals by health worker type (2010-2022)



Note: The size and composition sample of hospitals and health workers varied from year to year.

Table 13 – Overall perceptions of patient safety in hospitals by health workers type (2010-2022)

	All health workers			Physician		Nursing staff		Other clinical staff		Support staff		Management		Other	
	No. of hospitals	No. of staff	Average % (std)	No. of staff	Average % (std)	No. of staff	Average % (std)	No. of staff	Average % (std)	No. of staff	Average % (std)	No. of staff	Average % (std)	No. of staff	Average % (std)
2010	1	42	26 (0)	3	33 (0)	7	22 (0)			1	50 (0)	4	31 (0)	27	24 (0)
2011	140	56568	47 (8)	5254	54 (15)	34098	46 (9)	6252	48 (10)	2643	50 (15)	2235	48 (19)	6086	45 (16)
2012	4	995	45 (5)	87	54 (15)	511	45 (5)	161	45 (2)	54	49 (17)	21	45 (23)	161	36 (4)
2013	1	82	52 (0)	5	70 (0)	31	48 (0)	20	54 (0)	11	45 (0)	4	69 (0)	11	55 (0)
2014	3	1314	55 (4)	152	59 (9)	791	53 (4)	121	60 (7)	53	60 (11)	30	53 (9)	167	55 (3)
2015	118	43770	50 (9)	3709	57 (15)	26180	49 (10)	5719	51 (11)	2355	54 (15)	2141	52 (18)	3666	46 (12)
2016	11	5400	50 (9)	612	53 (11)	3313	48 (9)	697	53 (12)	265	56 (16)	122	54 (17)	391	52 (15)
2017	4	1222	50 (8)	98	47 (20)	660	49 (9)	87	53 (16)	38	56 (30)	30	66 (13)	309	43 (7)
2018	1	272	46 (0)	6	58 (0)	171	48 (0)	66	40 (0)	11	39 (0)	18	53 (0)		
2019	37	9050	56 (10)	560	64 (22)	5022	54 (10)	1527	57 (13)	427	55 (19)	412	63 (17)	1102	54 (18)
2020	11	2025	47 (11)	142	56 (18)	1056	44 (10)	504	47 (13)	72	62 (16)	119	49 (15)	132	48 (17)
2021	2	1454	50 (4)	111	56 (16)	1000	47 (4)	173	53 (1)	82	52 (3)	26	52 (3)	62	46 (13)
2022	2	407	58 (11)	3	18 (0)	250	58 (11)	42	47 (21)	69	64 (16)	20	73 (6)	23	71 (42)

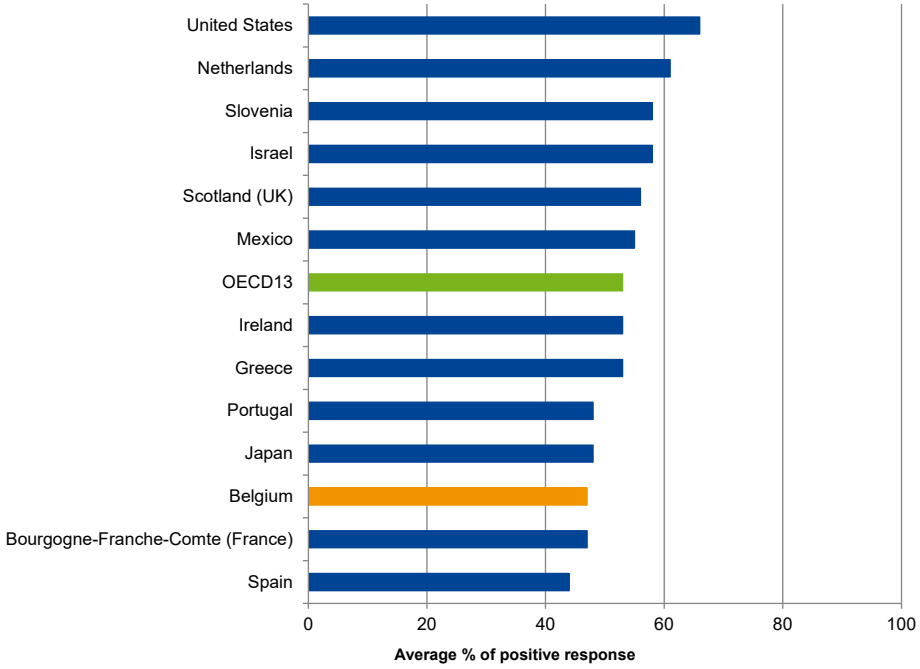
Impact of COVID-19 pandemic

The impact of the COVID-19 pandemic on the overall perceptions of patient safety in hospitals is not clear.

International comparison

In 2019, the percentage of positive response for overall perceptions of patient safety was lower in Belgium (47%) than the average perception based on 13 OECD countries (53%; see Figure 41 below).

Figure 41 – Overall perceptions of patient safety in hospitals in 13 OECD countries in 2019 (or latest year available): international comparison



Source: OECD Patient Safety Culture Pilot Data (2020-2021)

2.4.2.3 Patient-to-nurse ratio on general nursing units

Previous data from NR4CAST

In 2009, the average patient-to-nurse ratio in Belgium (10.7) was high compared to other EU countries studied (average for 12 countries: 9) as shown in Table 14. The average number of patients assigned to one nurse was only higher in Germany (13.0) and Spain (12.6), and nearly twice as high as in Norway (5.4). If on top of registered nurses lesser trained staff is also counted, the number of patients per staff member is 7.9 in Belgium, which is only higher in Germany (see Table 14).

2009-2019 Evolution from KCE report 325

In 2019, the overall patient-to-nurse ratio improved to 9.4 on average (based on the 84 hospitals participating to the 2019 survey). This ratio, however, varied across hospitals from 6.1 to 12.7. Large differences in ratios were observed according to shift type:

- Morning/day shift: 7.1 patients per nurse (variation across hospitals from 5.4 – 9.9);
- Afternoon/evening shift: 8.9 patients per nurse (variation across hospitals from 4.6 – 13.3);
- Night shift: 18.1 patients per nurse (variation across hospitals from 8.0 – 27.6).

The patient-to-nurse ratios do not differ much between week- and weekend days. The average ratio for university hospitals was 7.8 while it was 9.5 in non-university hospitals.

If we focus on the 49 hospitals for which we have both 2009 and 2019 data, the analysis showed a significant improvement in the patient-to-nurse ratio, overall but also per type of shift (morning – day – night), see Figure 42.

Based on the literature review, the international comparison reported that, when available, the patient-to-nurse ratio in Belgium was worse than in the studied countries (see Table 15) and seemed too high still. Indeed, the observed patient-to-nurse ratios in Belgium are still far above what is internationally considered as safe. In California, Victoria and Queensland, a maximum number of patients per nurse is defined by law, reflecting what is considered as safe and in England, based on NICE guidance, a P2N superior to 8 is considered as manifestly unsafe. Moreover, because the intensity of nursing care increased (CIPPD) simultaneously, one can conclude that not much happened during the last decade to improve nurse staffing levels in Belgian hospitals. Additional results can be found in the KCE report 325, including data on the intensity of nursing care and the importance of missed nursing care.[14]

Table 14 – Patient-to-Nurse ratios in European Hospitals: NR4CAST international comparison (2009-2010)

Country	Nurse staffing ratio Patients to professional registered nurses	Patients to total nursing staff (registered nurses + lesser trained care personnel)
Belgium	10.7 (2.2)	7.9 (1.7)
England	8.6 (1.5)	4.8 (0.6)
Finland	8.3 (2.2)	5.3 (0.8)
Germany	13 (2.3)	10.5 (1.6)
Greece	10.2 (2.8)	6.2 (2.1)
Ireland	6.9 (1.0)	5.0 (0.8)
Netherlands	7 (0.8)	5.0 (0.7)
Norway	5.4 (1.0)	3.3 (0.5)
Poland	10.5 (1.9)	7.1 (1.4)
Spain	12.6 (1.9)	6.8 (1.0)
Sweden	7.7 (1.1)	4.2 (0.6)
Switzerland	7.9 (1.5)	5.0 (1.0)

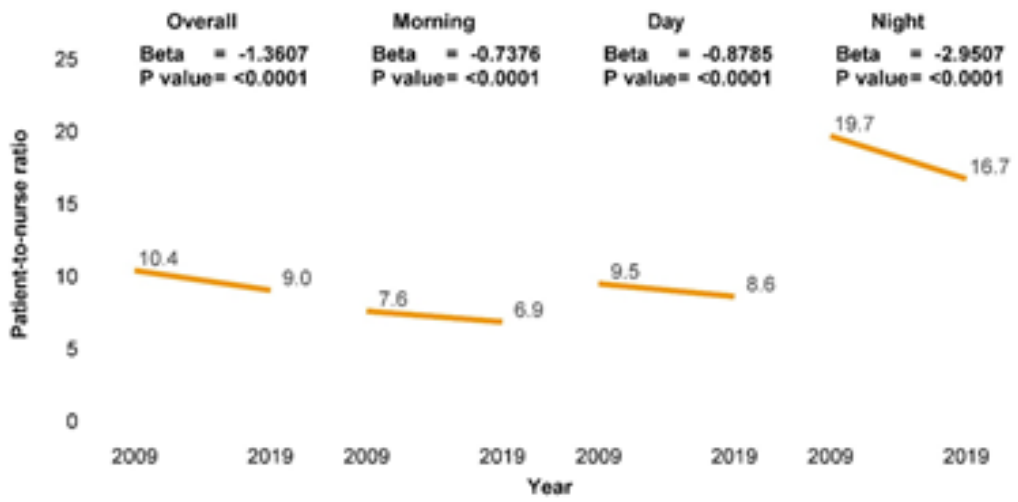
Source: RN4CAST [5]

Table 15 – Patient-to-nurse ratio in selected states

	California	Victoria	Queensland	England
Patient-nurse ratio	5:1	4:1 (day) 8:1 (night)	4:1 (day) 7:1 (night)	N/A (*More than 8 patients per nurse is considered as an unsafe ratio*)

N/A not available

Figure 42 – Patient-to-nurse ratio: evolution between 2009 and 2019 (n = 49 hospitals)



Key points

- The perception of staffing levels in hospitals varied among type of health workers with greater differences between management staff and physicians or support staff.
- The positive response rate for perception of staffing levels in hospitals in Belgium was higher than the average across 13 OECD countries in 2019.
- In 2010-2022, around half of surveyed health workers in Belgium had positive overall perceptions of patient safety in hospitals – meaning that on average 49% of the staff thought the procedures and systems at their workplace are good at preventing errors and that there is a lack of patient safety problems.
- The positive response rate for overall perceptions of patient safety in hospitals varied little over time and across staff types, and was lower in Belgium than the average across 13 OECD countries in 2019.
- In 2010-2022, less than half of surveyed health workers in Belgium believed that the staffing levels at their workplace are appropriate for ensuring patient safety.
- The average patient-to-nurse ratio slightly improved from 10.7 in 2010 to 9.4 in 2019 but this is far above what is internationally considered as a safe patient-to-nurse ratio. Moreover, because the intensity of nursing care increased (CIPPD) simultaneously, one can conclude that not much happened during the last decade to improve nurse staffing levels in Belgian hospitals.

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3 QUALITY – APPROPRIATENESS OF CARE

3.1 Appropriate follow-up of people living with diabetes (QA-1, QA-2)

3.1.1 Documentation sheet

Description	Quality of people living with diabetes' follow-up based on different criteria
Calculation	**Numerator**: Number of people living with diabetes identified through their drugs prescription who received the five following tests in the past 15 months: • at least two records of HbA1c • at least one record of lipid profile • at least one record of microalbuminuria • at least one record of serum creatinine • at least a consultation by an ophthalmologist **Denominator:** number of people living with any type of diabetes identified through their drugs prescription.
Rationale	Diabetes is a chronic condition that occurs when the body is unable to regulate excessive glucose levels. If left undiagnosed or poorly controlled, it can result in serious complications, including blindness, kidney failure and lower limb amputation. Diabetes increases the risks of cardiovascular diseases.[1] In Belgium, diabetes prevalence is increasing over time, with 6.8% of the Belgian population having a known diabetes diagnosis in 2021. Because according to Sciensano more than one in three people with diabetes do not know they have the disease, the true prevalence of diabetes can therefore be estimated to around 10%.[2] All people living with type 1 diabetes are on insulin while most people living with type 2 diabetes do not receive insulin, but they may be on a treatment which may or may not include insulin; overall 5-10% of all people living with diabetes are suffering from type 1 diabetes. The majority of people living with type 2 diabetes do not receive insulin. According to the RIZIV – INAMI 2019 feedback on GPs practice, for people living with diabetes, it is recommended to measure "at least twice a year the level of glycated haemoglobin (HbA1c), every 3 months fasting glycaemia, and once a year the microalbuminuria and the lipid profile".[1] It is also recommended that an ophthalmologist performs a dilated fundus examination once a year to detect ocular complications at an early stage. These recommendations were then reviewed with experts to create an indicator permanently available in the Atlas of the IMA-AIM. After this review, the glycaemia measurement was removed and serum creatinine measurement was added (as also recommended in the 2012 RIZIV-INAMI Performance report of GP practice)[2].
Data source	AIM – IMA

Technical definitions	Numerator: • **Test 1 HbA1c:** billing code 540750-540761, 571830-571841 (measure of glycated haemoglobin in haemolysate) at least twice over the 15 months period; **Test 2 Lipid profile:** total cholesterol (billing codes: 540271-540282) AND HDL (billing codes: 540293-540304) AND triglycerides (billing codes: 541376-541380); OR LDL (billing codes: 542231-542242) at least once over the 15-months period; • **Test 3 Albumin measurement:** billing codes to check microalbuminuria (543712-543723, 433554-433565) or total protein measurement (125532-125543) to check proteinuria, at least once over the 15 months period; • **Test 4 Serum creatinine:** billing codes 540330-540341 at least once over the 15 months period; • **Test 5 (ophthalmology):** ophthalmologist consultation (all billing codes of the article 14h OR (billing codes: 102012, 102535 and specialist qualification code: 037, 370, 371, 374, 378 or 397) at least once over the 15 months period; Denominator: People living with diabetes selected on Pharmanet: class ATC A10 drugs prescription. Two distinct subgroups are considered : • **Adults living with diabetes under insulin** (ATC=A10A): people aged ≥ 18 years and A10A outpatient prescription >37.5 DDDs (N.B.: for insulin: 1 DDD = 40 IU[c]). **Adults living with diabetes receiving glucose-lowering drugs other than insulin (ATC=A10B) and almost no insulin (ATC=A10A)**: people aged ≥ 18 years and A10B outpatient prescription >=270 DDDs per year and 0≤A10A outpatient prescription<37.5DDDs per year. This group includes all oral antidiabetics but also incretin mimetics (GLP1-agonists, code A10BJ) which are a non-insulin injectable solutions.
International comparability	Four of the included tests (not creatinine) were selected as indicators in the early phases of the OECD quality indicators project [3] but have been abandoned in the recent phases because of the poor availability of data in the majority of countries.[4] Hence, there is no international comparison available for this composite indicator. Target: no target has been set for this composite indicator but it should be noted that in 2021, a report of the World Health Organization has proposed some targets to reduce the global burden of diabetes mellitus by 2030, including global targets of 80% on the proportion of persons with glycaemic control (HbA1c < 8%) and blood pressure control (BP < 140/90) among diagnosed people.[5]
Limitations	People living with diabetes controlled with diet only are not identified. Moreover, for people receiving glucose-lowering drugs other than insulin, it is possible that some of them take e.g. metformin to lose weight instead of stabilising a diabetes. It should also be noted that the selection of these tests was based on the 2019 RIZIV-INAMI feedback to the GPs concerning the quality of follow-up of patients with diabetes[1], then reviewed by experts to be incorporate in the AIM – IMA atlas (see also the section on "rationale"). According to the 2018 guidelines of the American Diabetes Associations,[6] for diabetes type 1 people (expected in the "under insulin" subgroup),

[c] https://www.whocc.no/atc_ddd_index/?code=A10AD01 N.B.: Because some patients have a much lower daily dose than 40 UI, those who started taking insulin at the end of a year might be excluded.

	microalbuminuria and serum creatinine are nevertheless only recommended for diabetes duration over 5 years.[d] Additionally, according to these guidelines, for some people, ophthalmologic consultations are not needed on a yearly base.[e] This must be kept in mind when assessing the performance based on the global indicator on all 5 tests. Results per test must also be considered.
Dimension	Appropriateness of care and Continuity of Care
Related indicators	Diabetes follow-up within a convention/passport/care trajectory (% of adults) (QC-4, QC-5)
Reviewers	Christophe De Block (UZA), Chantal Mathieu (UZ Leuven), Astrid Lavens (Sciensano), Johan Van Overloop (IMA – AIM) and Kathleen Sierens (RIZIV – INAMI)

3.1.2 Results

Belgium

The composite endpoint of all five tests being evaluated as a quality indicator for follow-up of diabetes was only 42.7% in 2021 for adult living with diabetes and under insulin (which is worse than in 2011, when it was 47.3%, see Figure 44) and 16.9% (improving, as in 2011 it was 14.1%) for the adult living with diabetes and receiving glucose-lowering drugs other than insulin (Figure 43).

According to some experts, these low results can in part be explained by the fact that not all these five tests are recommended for every diabetic patient in some recent guidelines. In the 2018 ADA guidelines,[6] for patients with type 1 diabetes, microalbuminuria and serum creatinine are for example only recommended for diabetes duration over 5 years and the consultation to an ophthalmologist could be considered every two years for some patients. Results per test must therefore also be considered.

Recommendations for glycated haemoglobin (2x HbA1C), cholesterol level and serum creatinine measures were followed properly in adult living with diabetes and under insulin (Figure 43): 85.0%, 91.2% and 96.6% of them were measured with these respective tests in the last 15 months (last results available for 2021). For the other tests, the proportions of patients with a yearly measurement were lower over the same period: i.e. check for microalbuminuria (66.7%) and ophthalmological consultations (60.8%). Nevertheless, as stated above, some guidelines do not recommend these 3 latest tests yearly for some diabetic patients (especially type 1 with a diabetes duration inferior to 5 years).

Recommendations are followed less properly for adult living with diabetes and receiving glucose-lowering drugs other than insulin (under oral antidiabetics or taking glucagon-like peptide-1 analogues): while serum creatinine is tested in 93.6% of these patients, cholesterol level in 89.0%

[d] «At least once a year, assess urinary albumin (e.g., spot UACR) and eGFR in people with type 1 diabetes with duration of ≥5 years, in all people with type 2 diabetes, and in all people with comorbid hypertension. B»6.American Diabetes Association. Standards of Medical Care in Diabetes-2018 Abridged for Primary Care Providers. Clin Diabetes. 2018;36(1):14-37.

[e] «Adults with type 1 diabetes should have an initial dilated and comprehensive eye examination by an ophthalmologist or optometrist within 5 years after the onset of diabetes. B » ; « People with type 2 diabetes should have an initial dilated and comprehensive eye examination by an ophthalmologist or optometrist at the time of the diabetes diagnosis. B»; «If there is no evidence of retinopathy for one or more annual eye exam and glycemia is well controlled, then exams every 1–2 years may be considered. If any level of diabetic retinopathy is present, subsequent dilated retinal examinations should be repeated at least annually by an ophthalmologist or optometrist. If retinopathy is progressing or sight-threatening, then examinations will be required more frequently. B »6. Ibid.

and glycated haemoglobin in 70.9%, the other tests are monitored in less than half of the patient population: microalbuminuria (33.6%) and ophthalmological consultation (44.7%). While the low rate concerning ophthalmological consultations can in part be explained by the fact that some guidelines considered a consultation every 2 years could be appropriate for some patients, the low rate of the albumin measurements are less explained because the subgroup of adult living with diabetes and receiving glucose-lowering drugs other than insulin mainly concerns type 2 diabetes, for which a yearly test is recommended.

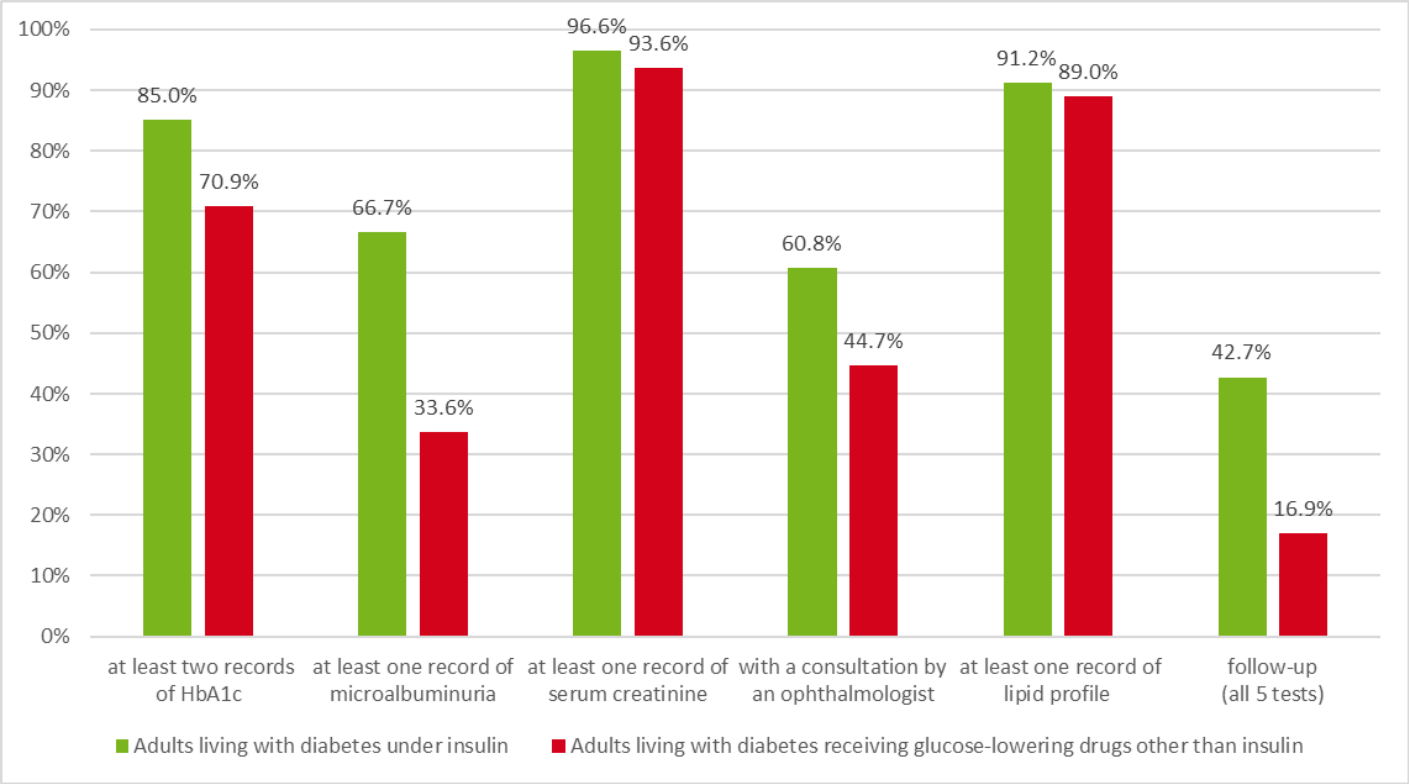
Regional comparison

Regional differences are small but for adults living with diabetes and under insulin, results are slightly worst in Wallonia and for adults living with diabetes receiving glucose-lowering drugs other than insulin, a better follow-up is observed in Brussels (Figure 44). Some variation per district can also be observed (see Figure 47).

Impact of COVID-19 pandemic

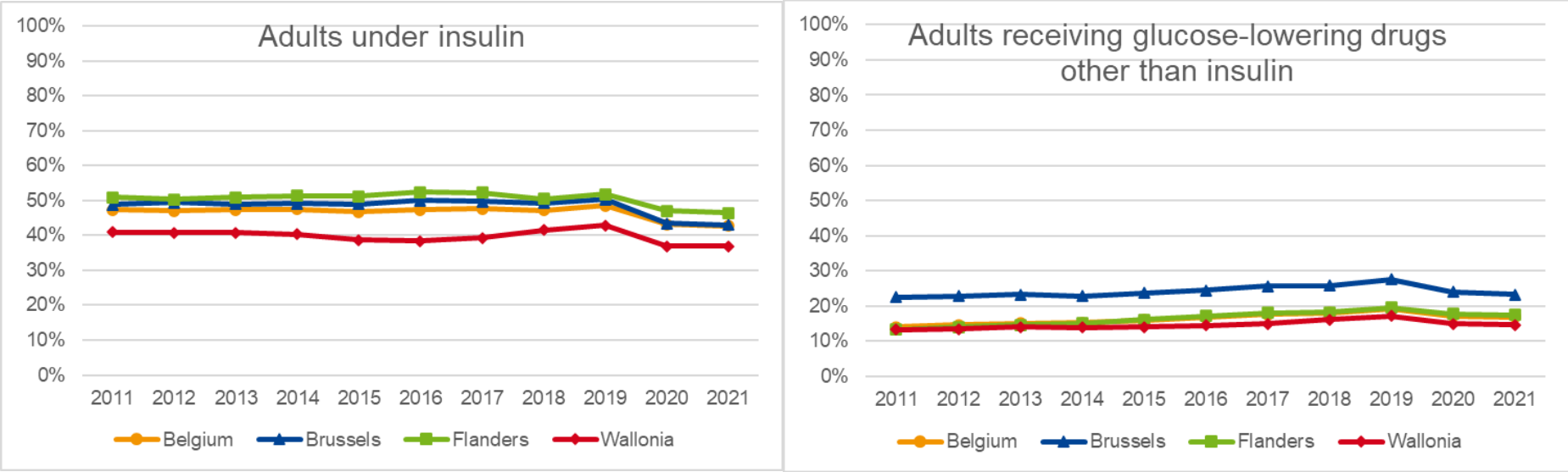
Unknown, but due to selection and prioritisation of patients during the pandemic, some people living with diabetes might have had their yearly consultation to the ophthalmologist postponed or cancelled. A decrease is observed in 2020 (43.1%) and 2021 (42.7%) compared to 2019 (48.5%) for adults living with diabetes under insulin.

Figure 43 – Proportion of people living with diabetes getting the combination of five tests over 15 months, details per test in 2021 in Belgium



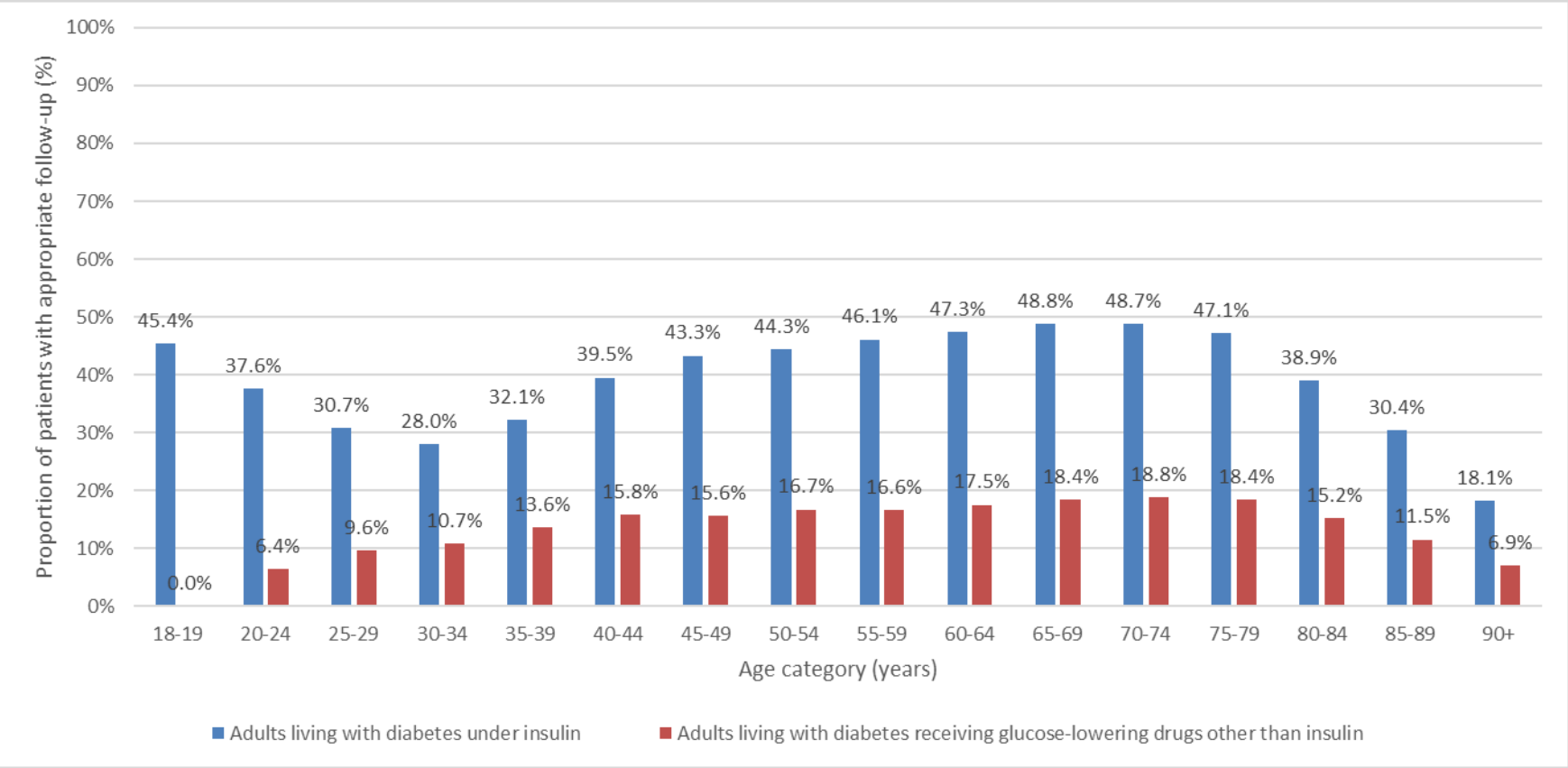
Source: IMA – AIM

Figure 44 – Proportion of people living with diabetes getting the combination of five tests over 15 months, details per region (2011-2021)



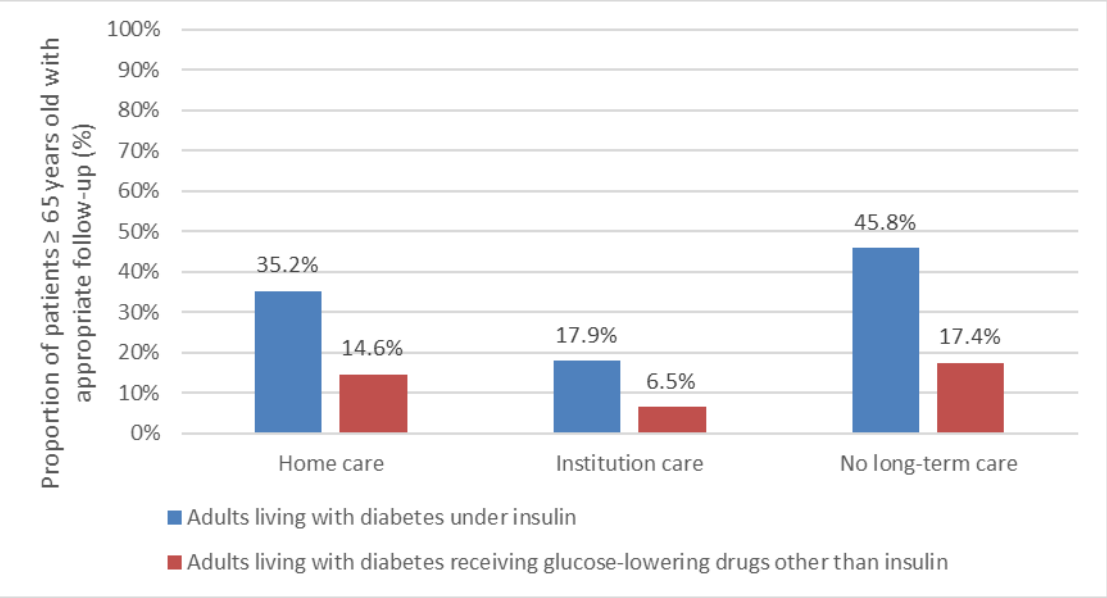
Source: IMA – AIM

Figure 45 – Proportion of people living with diabetes getting appropriate follow-up by age (2021)



Source: IMA - AIM

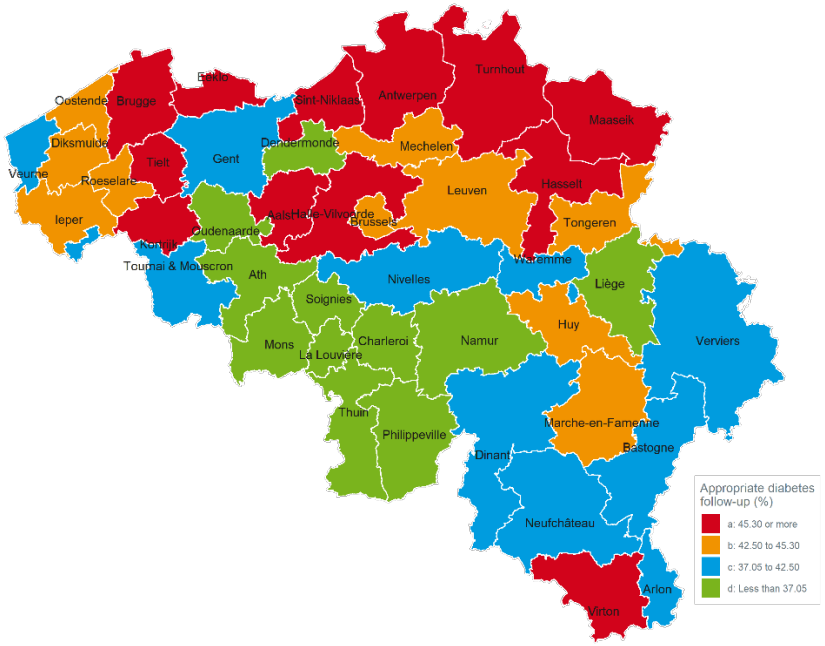
Figure 46 – Proportion of people aged 65 or over living with diabetes



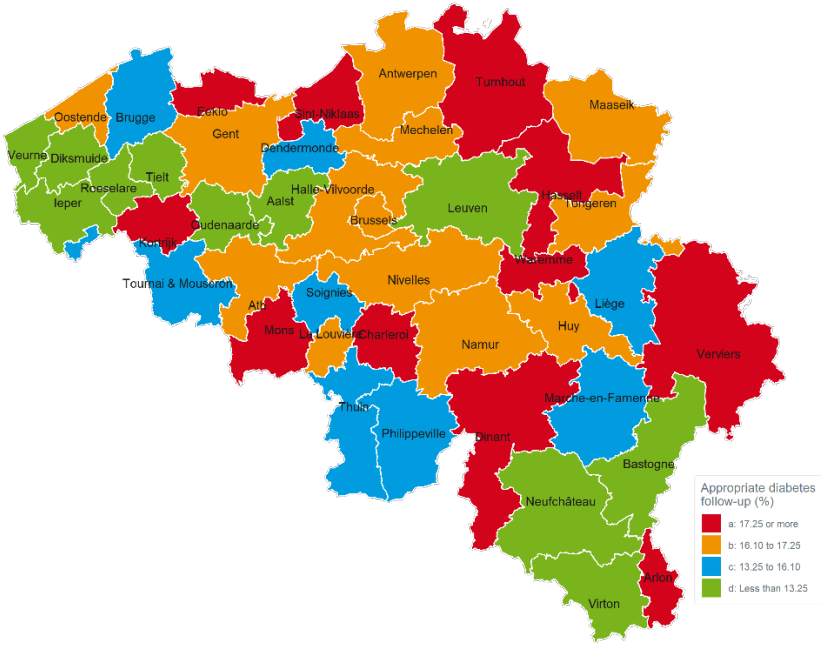
Source: IMA – AIM

Figure 47 – Proportion of people living with diabetes getting the combination of five tests over 15 months, details per districts in 2021 (%)

Adults under insulin



Adults receiving glucose-lowering drugs other than insulin



Source: IMA – AIM

Key points

- **The five tests selected to assess the quality of diabetes follow-up are performed for 42.7% of the adults living with diabetes under insulin; the rates in 2020 (43.1%) and 2021 (42.7%) are lower than in previous years, i.e. from 2011 (47.3%) to 2019 (48.5%).**
- **For adults living with diabetes receiving glucose-lowering drugs other than insulin, the coverage of the five tests combined is much lower, i.e. 16.9%. Although the 2020 (17.2%) and 2021 (16.9%) rates are lower than those in 2019 (19.3%), an improvement compared to 2011 (14.1%) is nevertheless observed.**
- **Regional differences are small but for adults living with diabetes under insulin, results are slightly worst in Wallonia and for adult living with diabetes receiving glucose-lowering drugs other than insulin, a better follow-up is observed in Brussels.**
- **The low rates for the five tests combined can in part be explained by the fact that not all these five tests are recommended for every people living with diabetes in some recent guidelines. In the 2018 ADA guidelines,[6] yearly microalbuminuria and serum creatinine measurements in patients with type 1 diabetes (i.e. mainly patients in the subgroup under insulin) are for example only recommended from diabetes duration over 5 years and consultations to an ophthalmologist could be considered every 2 years for some patients. Results per test must therefore also be considered.**
- **For adult living with diabetes and under insulin, the serum creatinine (96.6%), cholesterol measures (91.2%) and the glycated haemoglobin (85.0%) are very well covered while the annual consultations with an ophthalmologist (60.8%) and microalbuminuria measurements (66.7%) are less frequent. Nevertheless, as stated above, some guidelines do not recommended these 3 latest tests yearly for some people living with diabetes (especially with type 1 diabetes of a duration inferior to 5 years).**
- **For adult living with diabetes and receiving glucose-lowering drugs other than insulin, the serum creatinine (93.6%), cholesterol measures (89.0%) and glycated haemoglobin (70.9%) are well covered, albumin measurement and ophthalmological consultations are performed yearly in less than half of the patient population. While the low rate concerning ophthalmological consultation can in part be explained by the fact that some guidelines considered a consultation every 2 years was appropriate for some patients, the low rate of albumin measurement is less explained by these new guidelines because the subgroup of adult living with diabetes and receiving glucose-lowering drugs other than insulin mainly concerns type 2 diabetes, for which a yearly test is recommended whatever the diabetes duration.**

References

1. RIZIV-INAMI. Feed-back individuel des médecins généralistes. Brussels: National Institute for Health and Disability Insurance; 2019. Available from: https://www.inami.fgov.be/SiteCollectionDocuments/generalistes_rapport_activite_2016_medecine_acte.pdf
2. Meeus P, Aubel X. Performance de la médecine générale, bilan de santé. Health Services Research (HSR). National Institute for Health and Disability Insurance; 2012 February 2013.
3. GREENFIELD S, NICOLUCCI A, MATTKE S. Selecting indicators for the qualityof diabetes at the health system level in OECD countries. 2004. OECD Technical Paper Available from: http://www.oecd.org/els/health-systems/33865546.pdf
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5. Gregg E, Buckley J, Ali M, Davies J, Flood D, Griffiths B, et al. Improving Health Outcomes of People with Diabetes Mellitus: Target Setting to Reduce the Global Burden of Diabetes Mellitus by 2030. World Health Organization; 2021. Available from: https://www.who.int/publications/m/item/improving-health-outcomes-of-people-with-diabetes-mellitus
6. American Diabetes Association. Standards of Medical Care in Diabetes-2018 Abridged for Primary Care Providers. Clin Diabetes. 2018;36(1):14-37.

3.2 Prudent prescription of antibiotics: QA3 Use of antibiotics (total DDD/1000 pop/day); QA4 Use of antibiotics at least once in the year (% of population); QA5 Use of antibiotics of second intention (% total DDD antibiotics)

3.2.1 Documentation sheet

Description	Three indicators and two sub-indicators are used to assess the prudent prescription of antibiotics in the ambulatory care sector: • QA-3 Use of antibiotics (total DDD/1000 pop/day): Volume in Defined Daily Dose (DDD) of antibiotics prescribed reimbursed in the ambulatory care sector • QA-4 Use of antibiotics at least once in the year (% of population): Proportion of patients with at least one antibiotic prescribed in the year • QA-5 Use of antibiotics of second intention (% total DDD antibiotics): The ratio of second-line antibiotics, compared to the total of DDDs prescribed Sub-indicator 1: The proportion amoxicillin/ amoxicillin+amoxicillin – clavulanate Sub-indicator 2 : Proportion of all antibiotics representing quinolones
Calculation	QA-3: Amount of antibacterials for systemic use (ATC group J01) prescribed within ambulatory care and expressed in DDD per 1000 inhabitants per year (DID). Numerator = Total DDDs per year of J01 reimbursed antibacterials, at national level extrapolated to cover the whole Belgian population. The prescriptions made in nursing homes were not removed, so this represents consumption in the ambulatory sector including residential homes. Denominator = total number of inhabitants (Eurostat). When this indicator is explored at regional level or by age group, the numerator is not extrapolated and the denominator corresponds to the total number of insured persons (so called beneficiaries) and thus expressed in DDD/1000 beneficiaries/day (DBD). QA-4: Proportion of patients with at least one ATC group J01 DDD. Numerator = Number of beneficiaries with a reimbursed treatment in ATC class J01 in ambulatory care (Pharmanet - public pharmacies) between 1 July of the year and 30 June of the following year. Denominator = all insured population. QA-5: Number of DDDs with criteria (criteria = prescription second line antibiotic (i.e. amoxicillin - clavulanate, 3rd and 4th generation cephalosporins, quinolones and macrolides)) among all other antibiotic DDDs.
Rationale	Rising rates of antimicrobial resistance, i.e. the ability of microorganisms to resist antimicrobial products, is a growing concern. Antimicrobial resistance is primarily driven by non-prudent use of antimicrobials, including antibiotics, in human health, agriculture and livestock production and by contamination of the environment. In May 2015, the World Health Assembly[f] endorsed a global action plan to tackle antimicrobial resistance, reflected in several national strategies. The European Centre for Disease Prevention and Control (ECDC) monitors antibiotic use in Europe, among others, through the European Surveillance of Antimicrobial Consumption network (ESAC-Net[g]). The Belgian Antibiotic Policy

[f] World Health Assembly addresses antimicrobial resistance, immunization gaps and malnutrition; available at: https://www.who.int/publications/i/item/9789241509763 (last access: 10 July 2023)

[g] Antimicrobial consumption interactive database (ESAC-Net); available at: https://www.ecdc.europa.eu/en/antimicrobial-consumption/surveillance-and-disease-data/database (last access: 10 July 2023)

Coordination Committee (BAPCOC) is active since 1999 to approach the problem; it defined several targets for the 2014-2019 period.[h] One of them is to decrease total antibiotic use in the ambulatory sector (from more than 800 prescriptions per 1000 inhabitants per year in 2014 to 600 prescriptions by 2020 and 400 prescriptions by 2025); a second target is the increase of the amoxicillin versus amoxicillin-clavulanate ratio.[1] The total volume of antibiotics prescribed, and the second line antibiotics used as a proportion of total volume of antibiotic prescribed, have been designated by BAPCOC as markers of quality in the primary care setting. Since 1 May 2018, ciprofloxacin, levofloxacin, moxifloxacin, norfloxacin and ofloxacin (quinolones) are no longer reimbursed unless very specific diagnoses are confirmed by the prescribing doctor. The NIDHI has specified seven narrowly defined diagnostic conditions, such as "acute prostatitis".

Implementation of the One Health plan in 2019:

In collaboration with the Federal Expertise Centre for Healthcare[2], the Belgian Antibiotic Policy Coordination Commission has drawn up a national action plan with an integrated and holistic One Health approach against antimicrobial resistance, to be implemented in the medical, pharmaceutical and veterinary sectors, from the end of 2019.[3] This One Health approach aims to coordinate the approach to the irrational use of antibiotics in "human" medicine with that of veterinary medicine and actions linked to the food chain and the environment. The players involved will work together to tackle the problem of antimicrobial resistance, which is difficult to control in Belgium, situate the problem in a wider context than just human medicine (e.g. resistant bacteria in our drinking water), define the objectives for the period 2020-2024, discuss the recommendations for the desired holistic approach and translate these recommendations into more concrete operational proposals, with the critical performance indicators needed for evaluation.

Data source

QA-3: Sciensano analysed RIZIV – INAMI consumption data (Pharmanet), reimbursed prescriptions of J01 antimicrobials from 2010 to 2021; aggregated by molecule, patient age, gender and province. National figures are shared annually with ECDC (ESAC-Net) for international comparison.

QA-4: IMA-AIM atlas. Variable = (STAT_004_004) * 365/1 000. See also https://atlas.aim-ima.be/info/metadataPDF/METADATA_004_004_FR.pdf

QA-5: Sciensano analysed RIZIV – INAMI consumption data (Pharmanet)

Technical definition

QA-3: Amount antibacterials for systemic use (ATC group J01) consumed within ambulatory care extrapolated and expressed in DDD per 1 000 inhabitants and per day (DID). When not extrapolated, the numbers are expressed as DDD per 1 000 beneficiaries and per day (DBD). DDDs are calculated according to the ATC classification and the data source is Pharmanet (ambulatory reimbursement database, including GPs, specialists and dentists) (see data source section).

ATC code	DENOMINATION
J01A	TETRACYCLINES
J01B	AMPHENICOLS
J01C	PENICILLINS
J01D	OTHER BETA-LACTAM ANTIBACTERIALS
J01E	SULFONAMIDES AND TRIMETHOPRIM

[h] Plan stratégique BAPCOC 2014-2019, available at: https://organesdeconcertation.sante.belgique.be/fr/documents/plan-strategique-bapcoc-2014-2019 (last access: last access: 10 July 2023) 1. Balligand E, Costers M, Van Gastel E. Belgian Antibiotic Policy Coordination Committe. Note de politique pour la législature 2014-2019. 2014.

J01F	MACROLIDES, LINCOSAMIDES AND STREPTOGRAMINS
J01G	AMINOGLYCOSIDE ANTIBACTERIALS
J01M	QUINOLONE ANTIBACTERIALS
J01R	COMBINATIONS OF ANTIBACTERIALS
J01X	OTHER ANTIBACTERIALS

QA-4: Number of patients with at least one prescription of antibiotics (ATC = J01) delivered by a pharmacy open to the public (per year)

QA-5: Number of DDDs with criteria (criteria = prescription second line antibiotic (i.e. amoxicillin - clavulanate, 3rd and 4th generation cephalosporins, quinolones and macrolides)) among all other antibiotic DDDs.

ATC code	DENOMINATION
J01CR	Amoxicillin clavulanate
J01DD and J01DE	3rd and 4th generation cephalosporins
J01M	Quinolones
J01FA	Macrolides

Sub-indicator 1 : The proportion amoxicillin (ATC code J01CA04)/ amoxicillin+amoxicillin – clavulanate

Sub-indicator2 : Proportion of all antibiotics (J01) representing quinolones (J01M). To note: To reduce their consumption, the reimbursement criteria for fluoroquinolones (J01MA) were changed on 1 May 2018, so that they are now only reimbursed for the treatment of a small number of well-defined infections. Due to these changes, total sales data are combined with reimbursement data to estimate total consumption of fluoroquinolones in Belgium. Since 2018, an estimate of total consumption of fluoroquinolones has been made on the basis of a comparison between total sales data (IQVIA, reimbursed and non-reimbursed sales) and INAMI data (Farmanet, reimbursed consumption only), with 2017 used as the reference year.

International comparability

ESAC-Net and OECD have data on ambulatory pharmaceutical consumption by daily defined dose, according to the ATC classification and expressed in DDD/1 000 inhabitants/day. Persons residing in nursing homes are included in Belgian results and that can vary between countries.[4]

Limitations

The defined daily dose (DDD) is the assumed average maintenance dose per day for a drug used for its main indication in adults. DDDs are standardized doses provided as part of the Anatomical Therapeutic Chemical drug classification (ATC) system maintained by the WHO Collaborating Centre for Drug Statistics Methodology (www.whocc.no/atcddd). [5] The DDD is an internationally accepted unit for measuring medicine use and for making comparisons between countries. Yet, it must be realised that the DDD does not necessarily reflect the recommended or Prescribed Daily Dose in the specific country. Only one DDD is assigned per ATC code and route of administration (e.g. oral

	intake). The DDD is sometimes a 'dose' that is rarely if ever prescribed, because it might be an average of two or more commonly used doses and is based on an adult body weight of 70kg.[6] Drug utilization data presented in DDDs only give a rough estimate of consumption and not an exact picture of the actual antibiotic use in a specific country. For instance, as DDDs do not take into account the dosage used in children, measures in DDDs should not include children.[6] However, DDDs provide a fixed unit of measurement independent of price, currencies, package size, strength (i.e. amount of drug per unit) and molecule, as one day of treatment receives approximately equal weight whatever the drug.[7] This enables the researcher to assess trends in drug use and to perform comparisons between population groups.
Dimension	Quality – appropriateness; Safety
Related indicators	None
Reviewer	Lucy Catteau, Moira Kelly

3.2.2 Results

3.2.2.1 QA-3: The volume of antibiotics prescribed in ambulatory care sector (DDDs per 1 000 inhabitants per day) (DID)

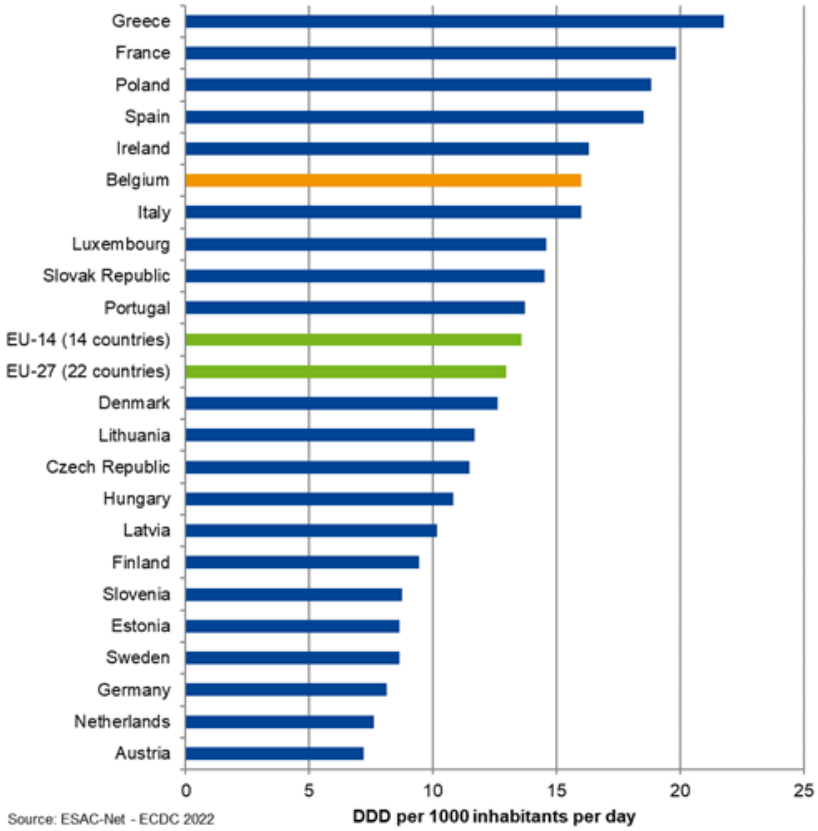
In 2016, antibiotic consumption in the Belgian ambulatory sector equalled 22.5 Defined Daily Doses (DDD) per 1 000 inhabitants and per day (DID) and decreased to 16.0 DID in 2021.

However, the volume of antibiotics remains one of the highest in OECD countries, similar to Ireland and Italy. In comparison, consumption in the Netherlands is much lower: 7.6 DDDs per 1 000 inhabitants per day (Figure 48; Figure 49).

Between 2016 and 2020, the total use of antibiotics in the ambulatory sector in Belgium expressed as DDD/1 000 inhabitants/day decreased, with a particularly sharp fall in 2020, due to the COVID-19 crisis. The trend then picks up in 2021, and over the next few years consumption is probably likely to return to pre-crisis levels (Figure 49).

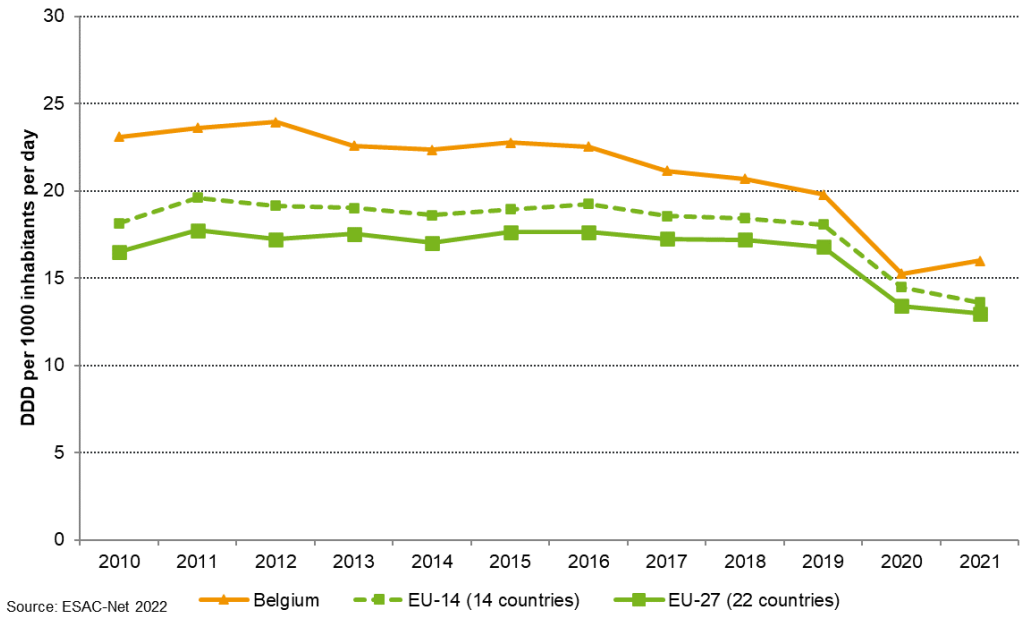
When considering the DID by ATC code we see a continued high proportion of J01C (Beta-lactam antibacterials, penicillins) use. The overall decrease in J01 DDD over time is spread quite evenly over the various J01 subgroups. However, it should be noted that the observed significant decrease in quinolones consumption safter 2018 is influenced by a reduction in the reimbursement of quinolones prescriptions since 2018 (Figure 50).

Figure 48 – Consumption of antibacterials for systemic use (J01) in the community sector, expressed as number of DDD per day per 1000 inhabitants, international comparison, 2021



EU-14 countries: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden; EU-27= EU-14 + Poland, Slovak Republic, Lithuania, Czech Republic, Hungary, Latvia, Slovenia, Estonia.

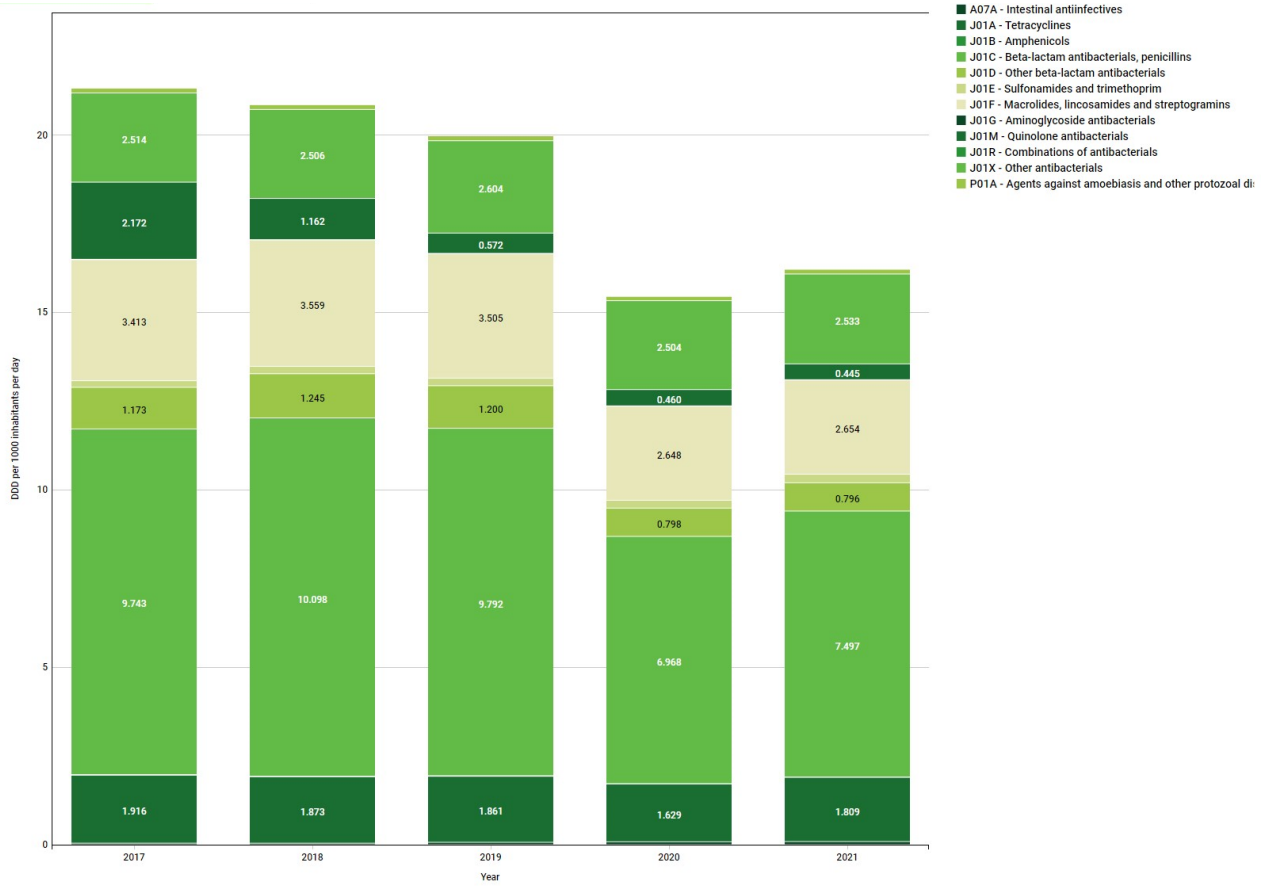
Figure 49 – Consumption of antibacterials for systemic use (J01) in the community sector, expressed as number of DDD per 1000 inhabitants per day, international comparison, 2010-2021



Source: ESAC-Net 2022

EU-14 countries: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden; EU-27= EU-14 + Poland, Slovak Republic, Lithuania, Czech Republic, Hungary, Latvia, Slovenia, Estonia.

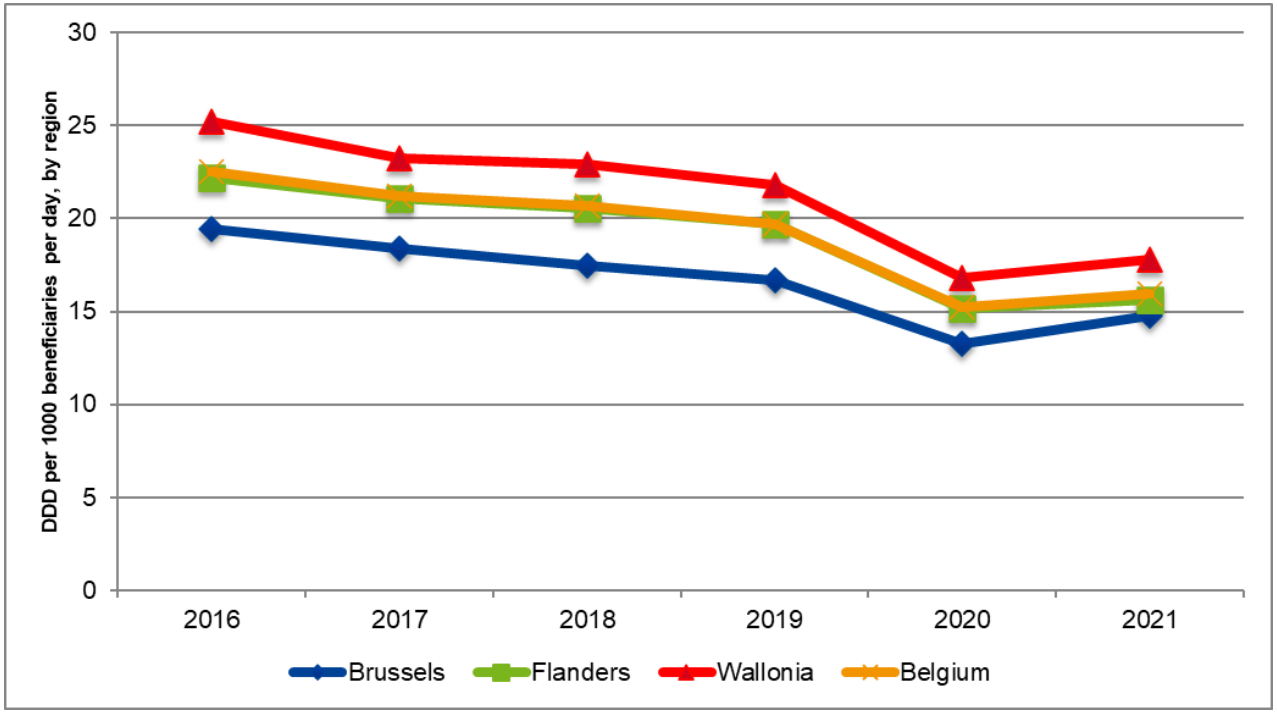
Figure 50 – Trend in the consumption of antibiotics for systemic use (ATC group J01) in ambulatory care (DDD per 1000 inhabitants per day, 2016-2021)



Source: ESAC-Net 2022

Exploring more in depth the national figures, regional and age group comparisons can be done. J01 antimicrobial consumption is expressed in number of DDD/1000 insured persons (beneficiaries)/day (DBD). Differences between regions were important and stable until 2019: Wallonia is continuously above 20 DDDs per 1000 beneficiaries per day (DBD) (except during the COVID crisis), Brussels under 20 DDDs per 1000 beneficiaries per day and Flanders in between (Figure 51). After a significant reduction in 2020 due to COVID-19, in 2021, Wallonia has a consumption of 17.8 DDDs per 1000 beneficiaries and per day while Brussels is at 14.5 DBDs and Flanders is in between (15.6 DBDs) (Table 16).

Figure 51 – Overall volume of consumed J01 antibacterials for systemic use, DDD per 1000 beneficiaries per day, by region, 2016-2021



Source: Sciensano, Figure: KCE

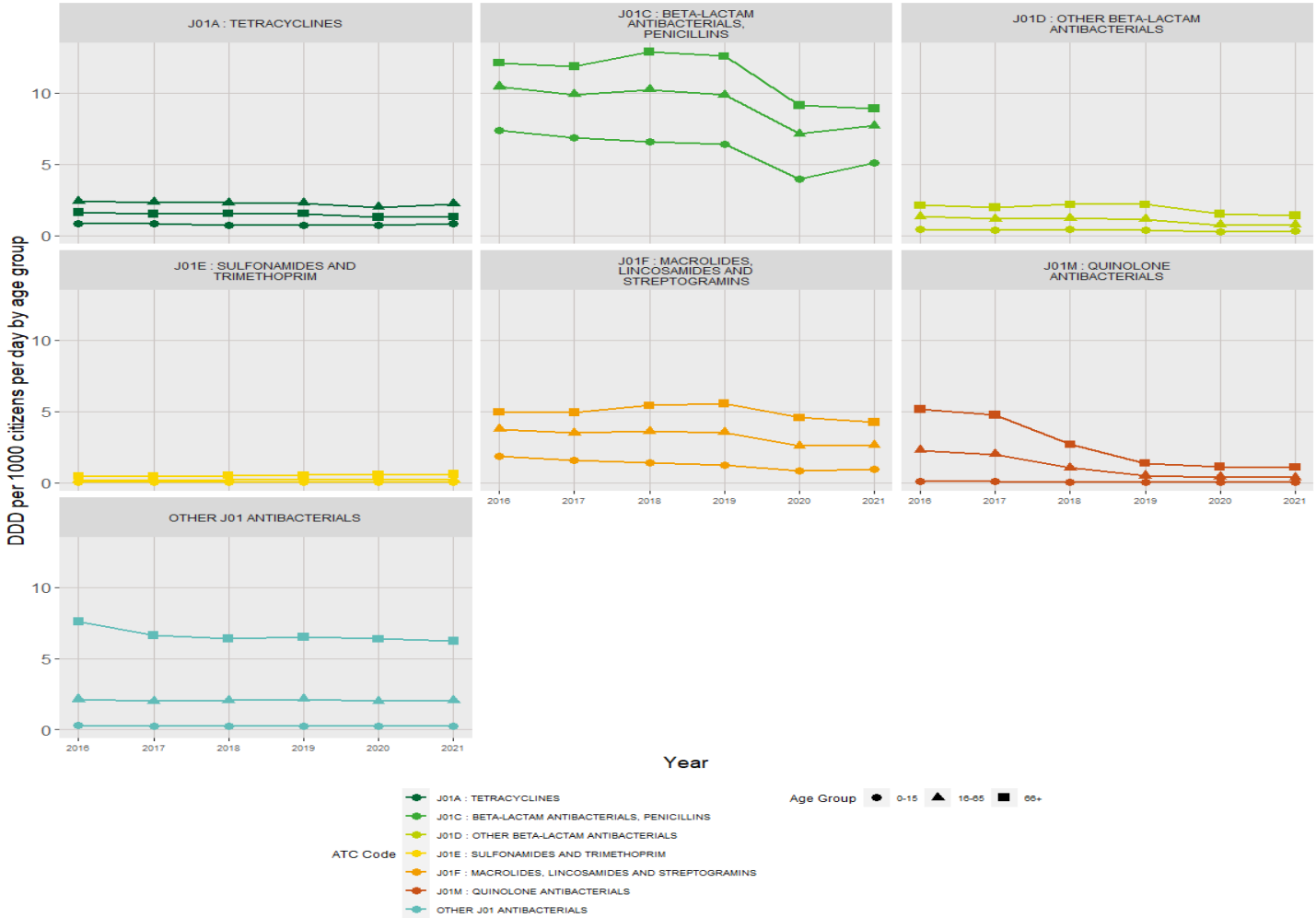
Table 16 – Number of DDD per 1000 beneficiaries per day, by region, 2016-2021

Year	Region	DBD
2016	Brussels	19.44
2016	Flanders	22.20
2016	Wallonia	25.20
2016	Belgium	22.54
2017	Brussels	18.41
2017	Flanders	21.07
2017	Wallonia	23.25
2017	Belgium	21.19
2018	Brussels	17.44
2018	Flanders	20.57
2018	Wallonia	22.90
2018	Belgium	20.66
2019	Brussels	16.65
2019	Flanders	19.67
2019	Wallonia	21.81
2019	Belgium	19.73
2020	Brussels	13.24
2020	Flanders	15.14
2020	Wallonia	16.81
2020	Belgium	15.23
2021	Brussels	14.79
2021	Flanders	15.64
2021	Wallonia	17.82
2021	Belgium	15.96

Source: Sciensano

Considering antimicrobial consumption (AMC) as DDD per 1000 beneficiaries within age groups, we see that while overall consumption is proportionally higher in older age groups, this increase with age is not proportional across ATC codes. All J01 subgroups show the highest use in the oldest age group (65years +), except for tetracyclines which show the highest use in the 15-65 year age group (Figure 52).

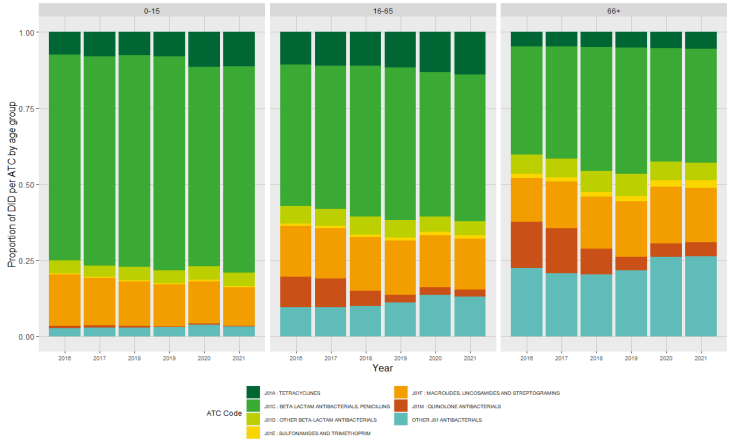
Figure 52 – DDD per 1000 beneficiaries per day stratified by ATC code and patient age, 2016-2021



Source: Sciensano

In all J01 antimicrobial classes except tetracyclines we see DID increase with age. But the differences between age groups vary with antimicrobial group, suggesting relative use within age groups varies. Tetracyclines and J01 beta-lactams occupy a lower proportion of AMC in the oldest age group, with proportionally more “other” J01 antimicrobials prescribed to this age group. Macrolides, lincosamides and streptogramins are the only antibacterial group with similar proportional use across all age groups (Figure 53).

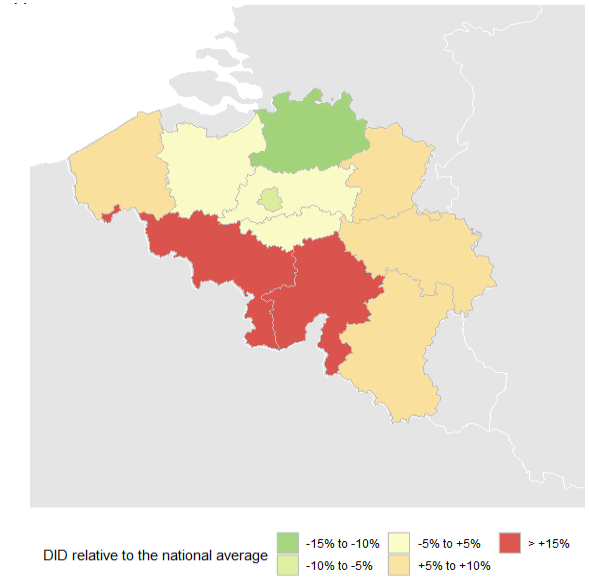
Figure 53 – Proportional antimicrobial use by ATC code per age group, 2016-2021



Source: Sciensano

By visualising the DDD in relation to the National average, per province, we observe higher DBD values in Hainaut (18.72) and Namur (18.56), with below national average consumption in Brussels (14.79) and Antwerp (14.05).

Figure 54 – Total volume of reimbursed J01 antimicrobials for systemic use delivered in the ambulatory sector in Belgium, DDD per 1000 beneficiaries per day, standardised relative variations around the national mean, per district, 2021

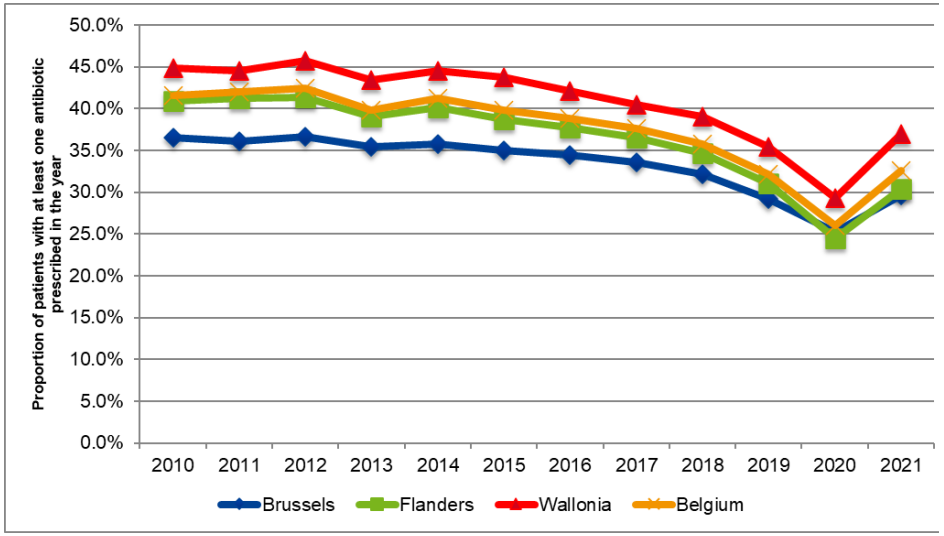


Source: Sciensano

3.2.2.2 *QA-4: Proportion of patients with at least one antibiotic prescription a year*

In 2021, 32.6 % of patients have received at least one antibiotic prescription. There is a sharp drop in consumption in 2020 (26.0%) following the COVID crisis. There will then be a marked increase in 2021 to reach a higher pre-COVID consumption levels (2019: 32.1%; 2021: 32.6%) (Figure 55).

Figure 55 – Proportion of patients with a least one AB (J01) prescription, by region, 2010-2021



Source: IMA-AIM atlas, figure: KCE

Table 17 – Proportion of patients with at least one antibiotic prescription (J01), by patient characteristics, 2021*

Variable	Category	Percentage with AB
Age (years)	0-4	43.8%
	5-14	21.5%
	15-24	30.3%
	25-44	31.0%
	45-64	33.2%
	65-74	35.0%
	75 et plus	39.8%
Gender	Female	36.5%
	Male	28.1%
Entitlement to increased reimbursement	No	31.8%
(18 years or more)	Yes	36.1%
Province	Antwerpen (2018)	31.8%
	Brabant Wallon	34.7%
	Brussels	32.1%
	Hainaut	40.2%
	Liège	38.3%
	Limburg	37.6%
	Luxembourg	NA
	Namur	NA
	Oost-Vlaanderen	33.6%
	Vlaams Brabant	33.9%
	West-Vlaanderen	37.2%
Total	Belgium	32.5%

*Source: IMA-AIM (atlas), calculation KCE, * 2018 for Province, NA=Not available*

Women (43.8%), inhabitants between 0 and 4 years (43.8%) and older than 75 years (39.8%), as citizens from Hainaut (40.2%) were most frequently exposed to at least one antibiotic in 2021. There is no important difference in AB use according to BIM status in 2021(Table 17). Sciensano, through its HISLink project, was however able to highlight a significant difference in antibiotic use according to the new socio-economic status of patients (aged 15 and over).[8]

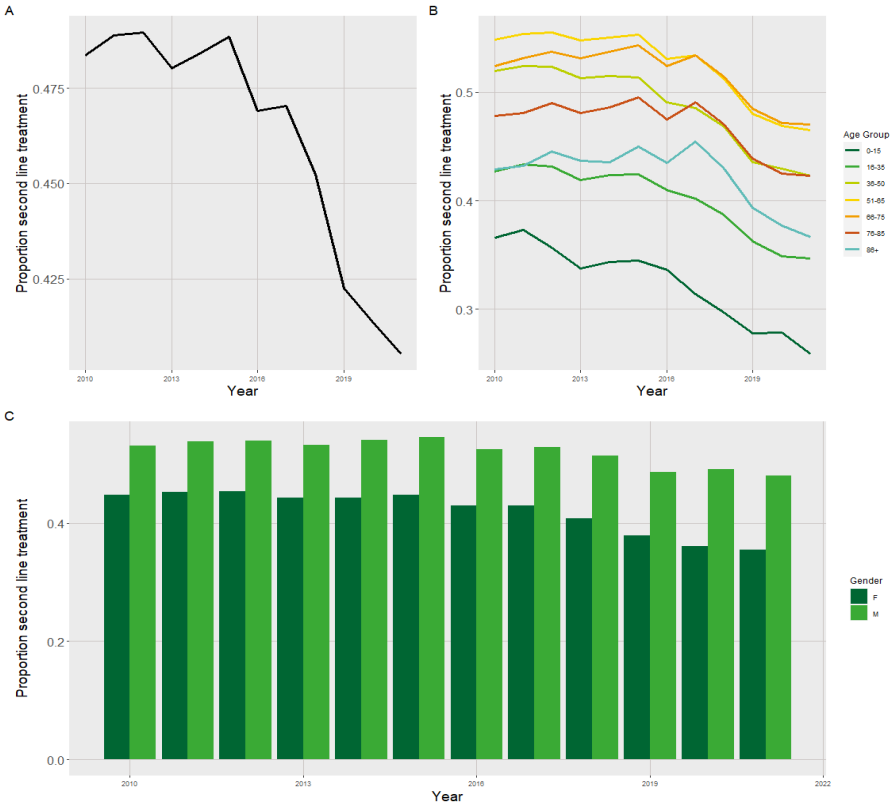
3.2.2.3 QA-5: The ratio of second-line antibiotics, compared to the total of DDDs delivered

In 2021, 40.5% of antibiotics prescribed were second-line. Wallonia prescribes proportionately more second-line antibiotics than Flanders or Brussels (Table 18). We observe a consistent reduction in second line treatments as a proportion of total J01 antimicrobials over time. While the use of second line antibacterials is higher in older age groups, this reduction is observed in all age groups. More second line treatments are prescribed to males, as a proportion of total prescriptions per gender, and a greater decrease in second-line treatments is observed in females (t-test = 23.12, $p<0.001$) (Figure 56).

Table 18 – Use of AB of second intention (% total DDD antibiotics), 2021

Region	Use of AB of second intention (% total DDD antibiotics)
Brussels	0.359
Flanders	0.399
Wallonia	0.413
Belgium	0.405

Figure 56 – Proportion of total J01 prescriptions representing second line treatments. A) Nationally, B) stratified by age c) stratified by gender



Source: Sciensano

We observe that while the proportion of second line treatments decreases over time in all provinces, this reduction is slower in some provinces, such as Hainaut, Liege and Luxembourg, than in others.

The ratio amoxicillin to amoxicillin – clavulanate

While we have continued to see improvements in the ratio of amoxicillin:amoxicillin clavulanic acid in the youngest age group, which is approaching the BAPCOC goal of 4:1 ratio, or 80% use. However, we saw decreases in this ratio in the oldest age group in the last two years. Nationally, and in the population above 16 years of age we are still far from the target ratio (Table 19).

Proportion of all antibiotics representing quinolones

It is worth noting that the reimbursement of quinolones was changed in 2018, such that only certain medications are refunded for specific medical conditions. As such, a greater proportion of quinolones may be prescribed without reimbursement and therefore not included in this dataset - this is reflected in the large drop in quinolone reimbursements from 2018 (2017: 100% reimbursed and 2021: 39.6% reimbursed) (Table 20). Reducing the consumption of fluoroquinolones to 5% of total consumption of antimicrobials in ATC group J01 has been a national objective since 2014.

Table 19 – Proportion Amoxicillin of total Amoxicillin and Amoxicillin-Clavulanic acid DDDs reimbursed per age group by year from 2010 to 2021

Age group	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Total	0.448	0.453	0.461	0.469	0.463	0.467	0.504	0.499	0.486	0.506	0.466	0.481
0-15	0.671	0.679	0.700	0.718	0.722	0.735	0.755	0.771	0.780	0.795	0.777	0.799
16-65	0.439	0.443	0.451	0.459	0.454	0.457	0.492	0.489	0.476	0.498	0.463	0.471
66+	0.340	0.338	0.346	0.353	0.346	0.354	0.387	0.382	0.369	0.387	0.345	0.336

Source: Sciensano

Table 20 – Reimbursed and Total (reimbursed and non-reimbursed) quinolones as a proportion of total J01 antimicrobial reimbursements, 2010-2021

Value	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Reimbursed Quinolone (%)	11.51	11.54	11.4	10.91	10.96	10.85	10.65	10.26	5.61	2.89	3.02	2.79
Total Quinolone (%)*	11.51	11.54	11.4	10.91	10.96	10.85	10.65	10.26	7.68	6.67	7.44	7.05

*Source: Sciensano; * Since 2018, total sales data are combined with reimbursement data to estimate total consumption of fluoroquinolones in Belgium.*

In 2021, the use of quinolones as a proportion of total reimbursements varied across the country with greatest proportional use observed in West Flanders (4.11%) and Limburg (3.78%), and lower use in Liege (1.68%), Luxembourg and Namur (1.75%) (Table 21).

Table 21 – Proportion of total J01 DDDs representing reimbursed quinolones (as a proportion of total J01 antimicrobial reimbursements) per province in 2021

Province	Quinolone Proportion
Anvers	2.88%
Brabant flamand	3.09%
Brabant wallon	2.12%
Bruxelles-Capitale	2.14%
Flandre occidentale	4.11%
Flandre orientale	3.4%
Hainaut	2.15%
Liege	1.68%
Limbourg	3.78%
Luxembourg	1.78%
Namur	1.75%

Source: Sciensano

Key points

- **In 2021, antibiotic consumption in the Belgian ambulatory sector equalled 16.0 Defined Daily Doses (DDD) per 1000 inhabitants and per day (DID), compared to other European countries (e.g. the Netherlands with 7.6 DDDs) Belgium ranks poorly.**
- **Geographical variation within Belgium is also observed: Wallonia has a consumption of 17.8 DDDs per 1000 beneficiaries and per day while Brussels is at 14.8 DBDs and Flanders in between (15.6 DBDs).**
- **In 2021, 32.6 % of Belgian citizens received at least one antibiotic prescription. Some differences between the regions were observed :37% in Wallonia, 30.4% in Flanders and 29.6% in Brussels. The proportion of citizens with at least one antibiotic prescription was highest among the younger (i.e. 0 to 4 years) and the elderly (i.e. 75+ years old).**
- **The proportion amoxicillin to amoxicillin – clavulanate improved slightly from 0.46 in 2014 to 0.48 in 2021 but remains far from the BAPCOC goal of 80%.**
- **In 2021 the quinolone use was still 7.05% of the total DDD for the ambulatory sector.**

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3.3 Spine imaging (QA-6)

3.3.1 Documentation sheet

Description	Number of examinations (X-ray, CT scan and MRI) by 100 000 insured population per year
Calculation	**Numerator**: Number of examinations (X-ray, CT scan and MRI) x 100 000 **Denominator**: insured population
Rationale	Low back pain (LBP) is a considerable public health problem which combines high frequency, healthcare consumption and societal cost. In Belgium, 21% of the 15 years old and over declared to have suffered from low back disorder or other chronic back defect in the past 12 months (HIS 2013). Guidelines do not recommend imaging as a diagnosis tool for aspecific low back pain (acute and chronic) unless a cluster of specific symptoms ("red flags") is observed.[1, 2] Public awareness campaigns[i] over medical imaging are annually set up since 2010; see also guidelines for medical imaging from the Belgian Society of Radiology.[j] Use of three imaging techniques for spine have been used as proxy for low back pain examination: X-ray, computed tomography (CT scan) and magnetic resonance imaging (MRI).
Data source	- Document N 2007-2017 for cases and expenses of insured persons (who meet selection criteria) of which age, gender, preferred scheme and district are known - Document P 2015-2017 for numbers and expenses of insured persons (who meet selection criteria) per specialisation
Technical definitions	Selection of the following INAMI – INAMI – RIZIV billing codes (nomenclature): - 455394-455405, 455416-455420, 455475-455486, 455534-455545, 455593-455604, 466395-466406, 466410-466421, 466476-466480, 466535- 466546, 466594-466605 (X rays) - 457855-457866, 457870-457881, 457892-457903, 458835-458846, 458850-458861 (CT scan) - 457914-457925, 457936-457940, 457951-457962, 459491-459502 (MRI)
International comparability	N.A., but the number of MRI units and CT scanners in EU-15 has been added as reference.
Limitations	In certain specific cases (red flags), it may of course be necessary to prescribe spine imaging. By excluding patients with known orthopaedic problems, we focus more (but impossibly exclusively) on non-specific back pain, so that we can make a better assessment of possible overuse of imaging in these patients. MRI and CT scan codes regarding spine examination are not specific to the lumbar spine. The indicator is thus a proxy.
Dimension	Appropriateness, safety, efficiency
Related indicators	Radiation rate (see HSPA 2015[3])

[i] https://www.pasderayonssansraisons.be/

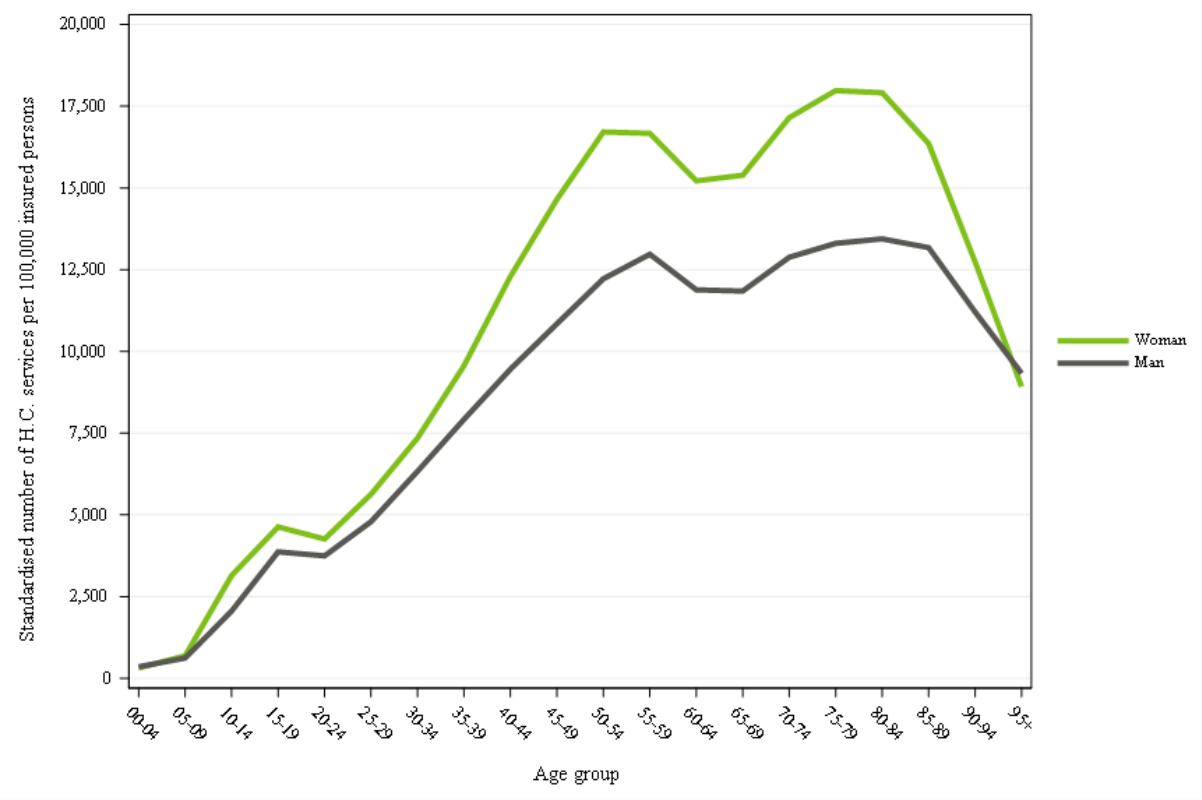
[j] https://www.health.belgium.be/en/node/27827

3.3.2 Results

Belgium

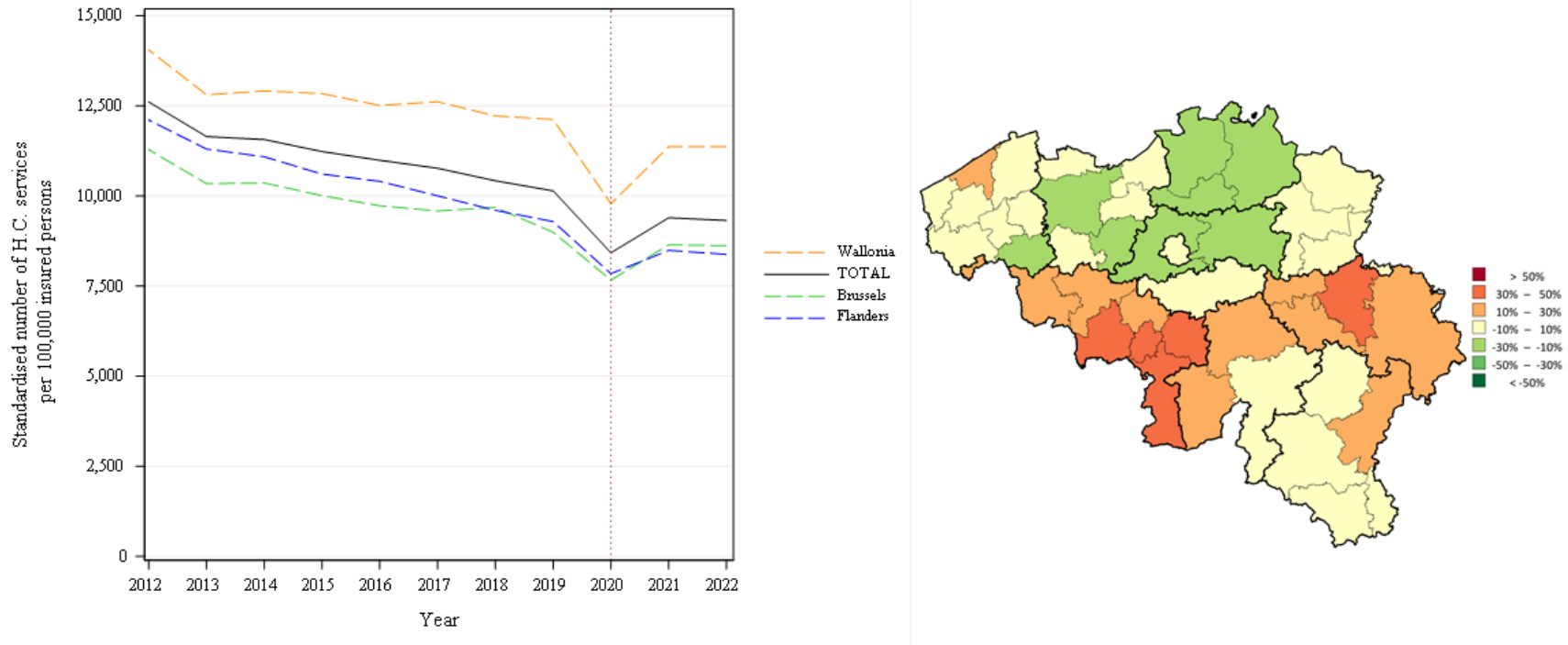
General practitioners are prescribing 44.0% of the imaging for spine, with a median of 26 prescriptions per GP in 2022.[4] Over the 2012-2022 period, there are more women (58.3%) than men (41.7%) who receive spine imaging and the most frequent age category is 75-79 years old for women and 80-84 for men (Figure 57). In average, there were 9320 images taken for spine for 100 000 insured population per year over the 2012-2022 period. The global trend for the consumption of spine imaging is decreasing over time: -2.98% over the 2012-2022 period. Figure 58 (left) shows that in 2020, there was a dip in consumption, due to the COVID-19 pandemic.

Figure 57 – Spine imaging: age distribution for women and men (2012-2022)



Source: RIZIV – INAMI

Figure 58 – Spine medical imaging: overall consumption (2012-2022) and relative variations around the national mean per district



Source: RIZIV – INAMI

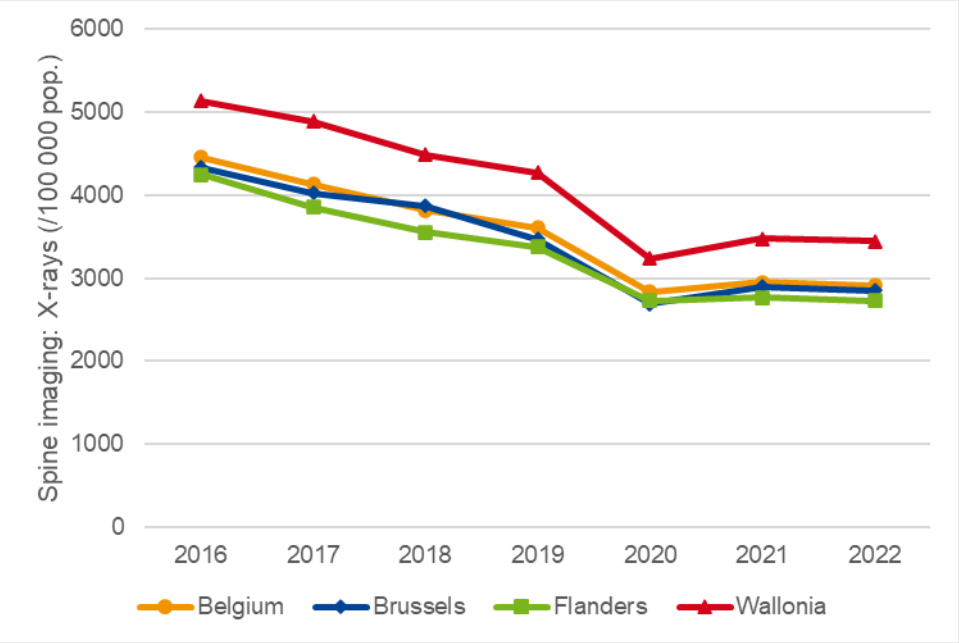
Regional comparison

The proportion of images per 100 000 insured persons is higher in Wallonia (11 370 /100 000 in 2022) than in Brussels (8618 /100 000 in 2022) and Flanders (8378 /100 000 in 2022). This is shown in Figure 58. For X-rays and CT scans, Wallonia's consumption is above Brussels and Flanders (Figure 59 and Figure 60). The evolution over the 2016-2022 period is more pronounced in Flanders (-2.7% per year) than in Brussels (-1.8% per year) and Wallonia (-1.1% per year).

Looking separately at the three imaging techniques, it is obvious that the pattern is the same in the three regions for X-rays (Figure 59): the consumption has decreased from 2016 to 2020, then stabilised, with an annual rate of -4.9%; Wallonia's number of X-rays per 100 000 pop. is above the other regions at 3441 (for 2851 for Brussels and 2727 for Flanders). The trend for MRI is similar for Flanders (+1.5% per year) and Wallonia (+1.5% per year) with an increase (except for 2020, due to the COVID-19 pandemic), while it is stable in Brussels (-0.1% per year, Figure 61). CT scans rate is lower (2440 CT scans/100 000 pop. in 2022) and decreasing

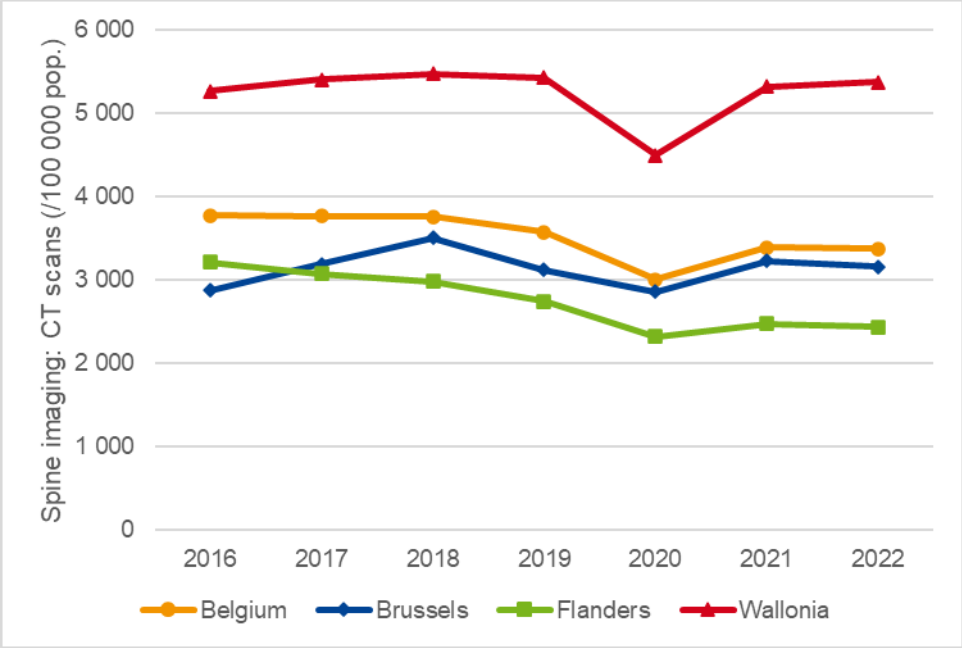
(-3.5% per year) in Flanders, higher (5375 in 2022) and stable (+0.3% per year) in Wallonia, and in-between (3163 in 2022) and increasing (+1.4% per year) for Brussels (Figure 60).

Figure 59 – Spine imaging: X-rays by region (2016-2022)



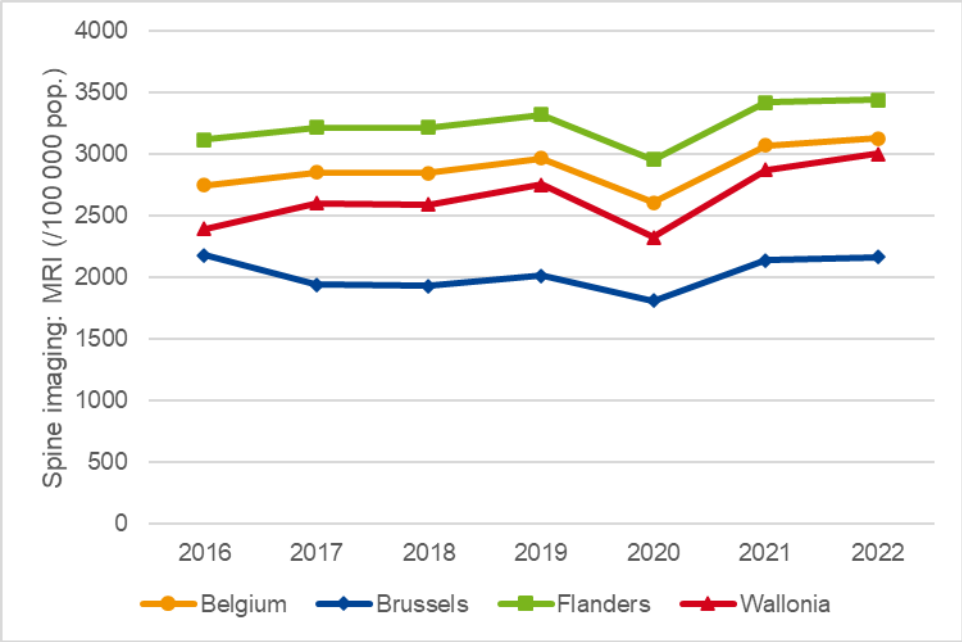
Source: RIZIV – INAMI

Figure 60 – Spine imaging: CT scans by region (2016-2022)



Source: RIZIV – INAMI

Figure 61 – Spine imaging : MRI by region (2016-2022)



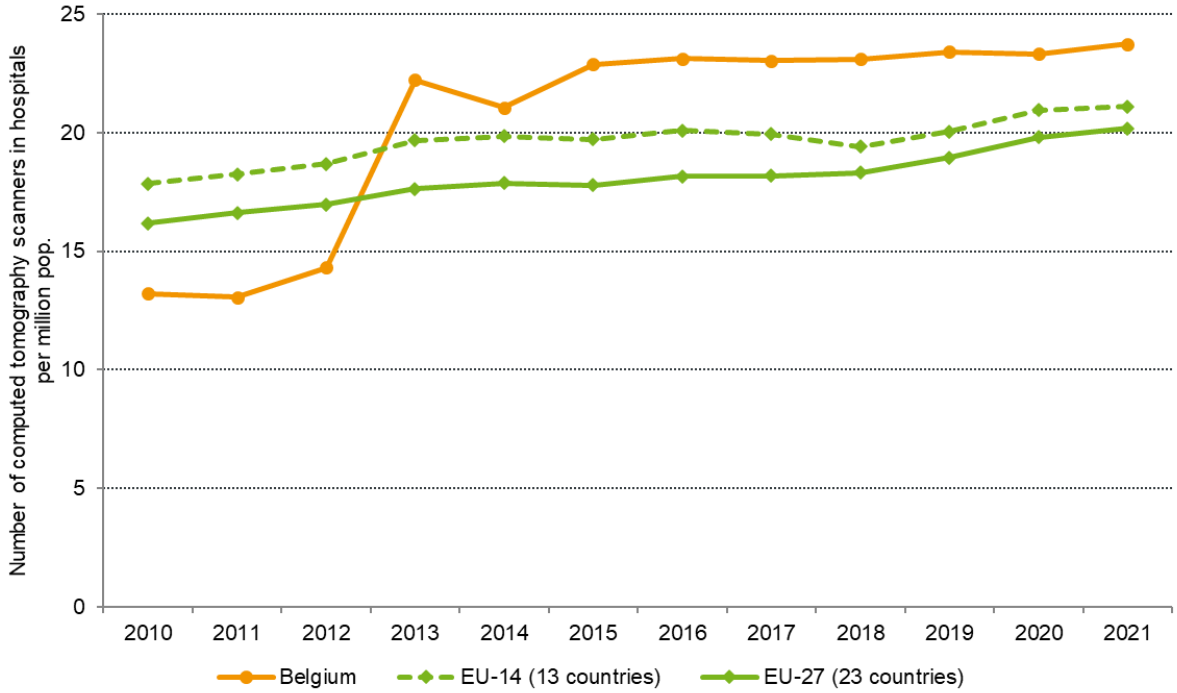
Source: RIZIV – INAMI

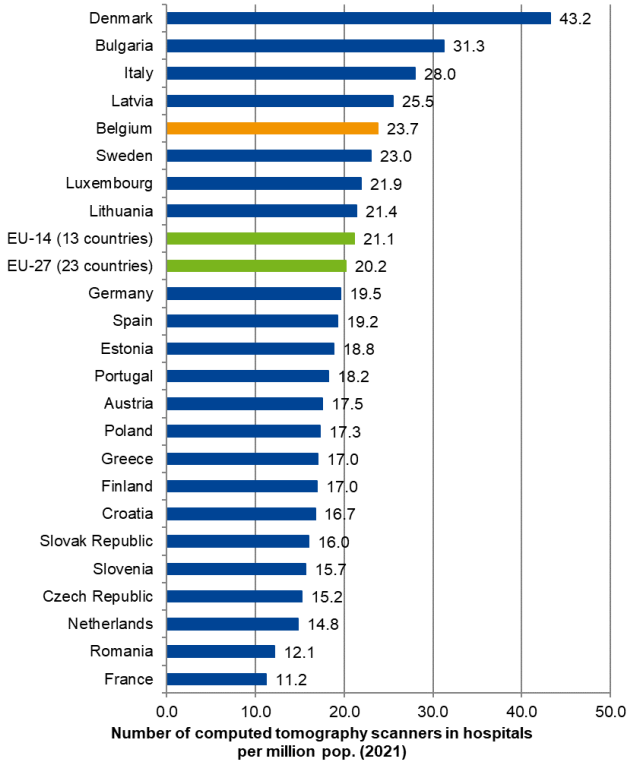
MRI and CT scanners units

As complementary information, the number of CT scanners in hospitals and the number of MRI units per population have been compiled (Figure 62 and Figure 63) for available EU-15 countries and Belgium: since 2013[k], Belgium is a bit above the EU-14 (23.7 CT scanners per million inhabitants and 21.1, respectively in 2021) while for MRI, Belgium has the same number of units since 2014 and a density which is now a bit below the EU-14 mean (14.7 MRI units per million inhabitants in Europe for 11.4 in Belgium in 2021). The regional distribution is shown for MRI units Figure 65: extra units were added in 2017and 2022. CT scanner units per region figures are available in Figure 64: except for a temporary rise in Flanders in 2014, the number of units is rather stable from 2017 (263 units) to 2023 (276 units).

[k] It should be noted that due to limitations in the data collection, before 2013, the figures represent the number of hospitals with at least one CT scanner unit (per million inhabitants); from 2013 on, the figures represent the number of CT scans units per million inhabitants, as expected.

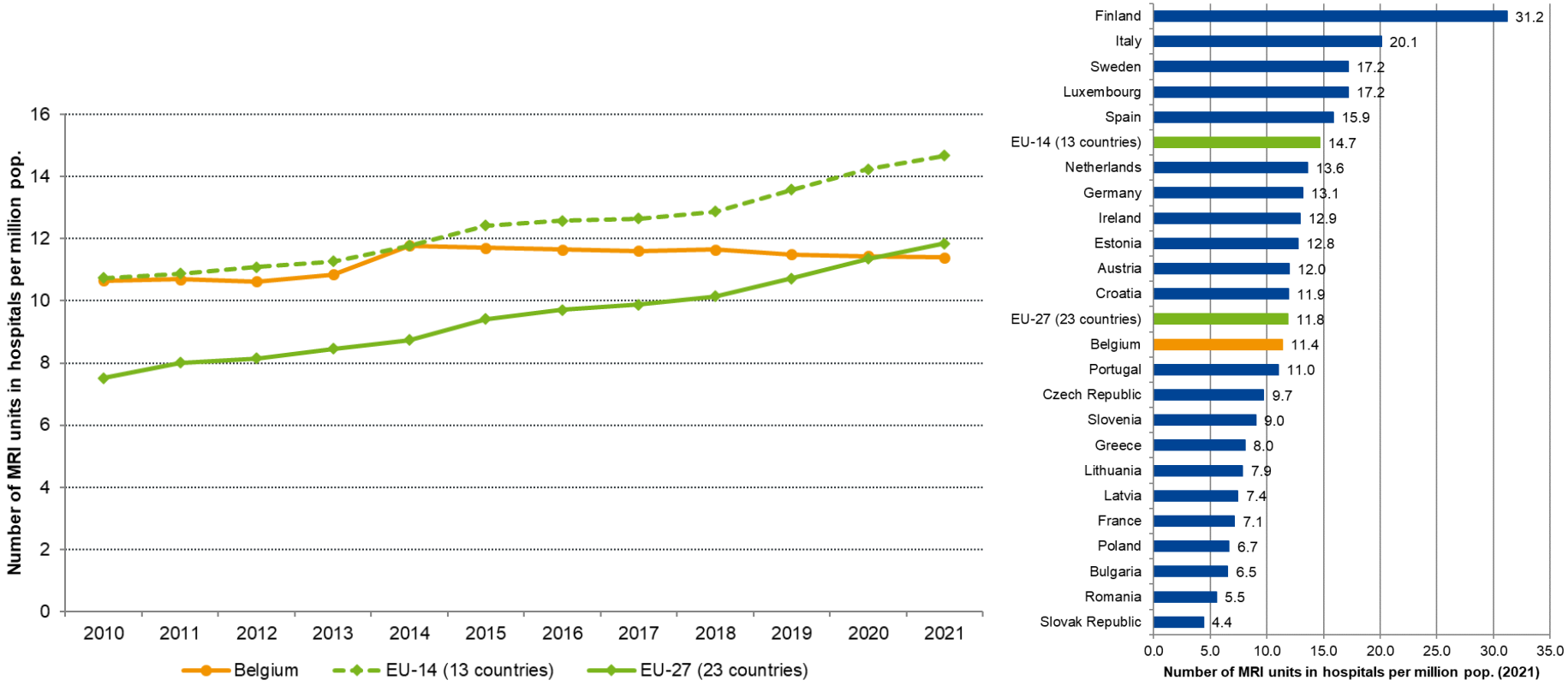
Figure 62 – Number of computed tomography scanners in hospitals per million population





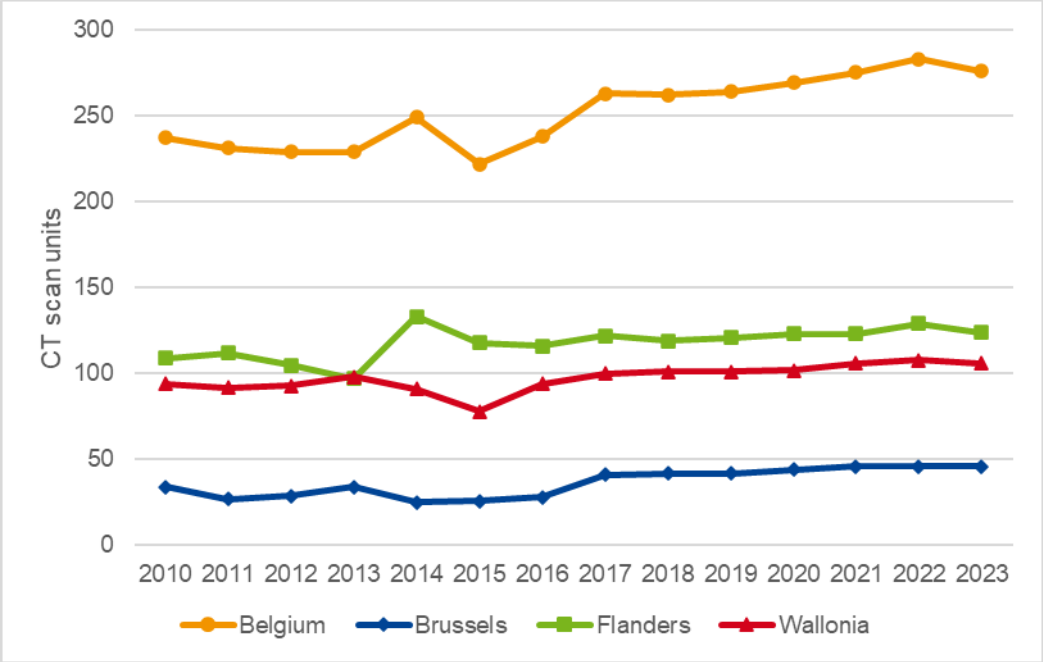
Source: OECD Health data 2023

Figure 63 – Number of MRI units in hospitals per million population



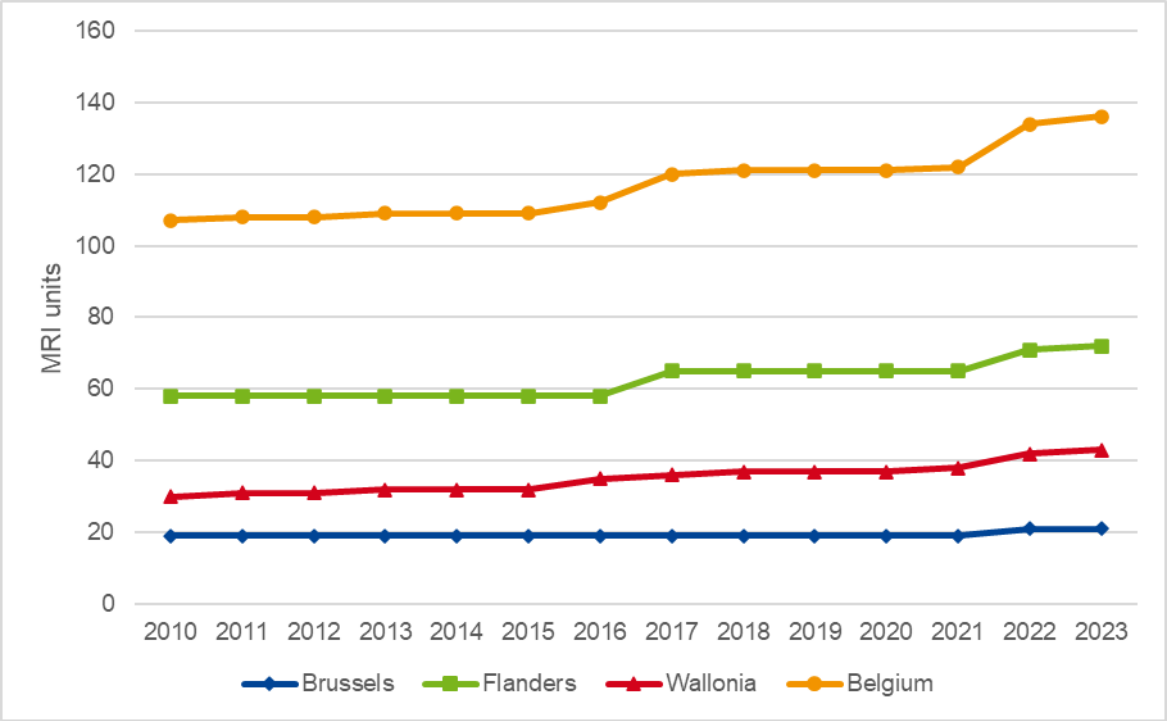
Source: OECD Health data 2023

Figure 64 – Number of CT scanner units in hospitals by region (2010-2023)



Source: SPF SPSCAE – FOD VVVL

Figure 65 – Number of MRI units in hospitals by region (2010-2023)



Source: SPF SPSCAE – FOD VVVL

Impact of COVID-19 pandemic

There was a impact of the COVID-19 pandemic on the consumption of spine imaging (see Figure 58 (left), Figure 59, Figure 60 and Figure 61).

Key points

- **Over the 2016-2022 period: global imaging of the spine decreased by 2% per year**
  - **X-rays imaging decreased by 4.9% per year**
  - **CT scans have decreased by 1.5% per year**
  - **MRI is still growing at 2.0% per year**
- **Medical variations between regions remain high with high differences in utilisation rate, especially for CT scans**

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3.4 Caesarean sections (QA8)

3.4.1 Documentation sheet

Description	Number of caesarean sections per 1000 live births
Calculation	The number of caesarean sections (x1000), divided by all live births. The distribution of caesareans by categories, using Robson classification, is also presented.
Rationale	Since 1985 and up to 2015, the international healthcare community have considered that the C-sections rate should not be higher than 10-15%. But in 2015, WHO stated that "*every effort should be made to provide caesarean sections to women in need, rather than striving to achieve a specific rate*".[1] Caesarean delivery rates are still increasing in most European countries. Reasons for the increase include, among others, the increase in maternal age, and obesity. While caesarean delivery is required in some circumstances, the benefits of caesarean versus vaginal delivery for normal uncomplicated deliveries continue to be debated. There is some evidence from observational studies of increased maternal mortality, maternal and infant morbidity, and increased complications for subsequent deliveries. Nevertheless, due to a lack of trials on the topic, the Cochrane Collaboration review on caesarean section for non-medical reasons at term could not reach strong conclusions on the best medical indications.[2] These risks, combined with the greater financial cost (the average cost associated with a caesarean section is at least two times greater than a normal delivery in many OECD countries), raise questions about the appropriateness of some caesarean delivery that may not be medically required.[3] These concerns are translated into (professional) guidelines. In 2018, the WHO published recommendations for non-clinical interventions for women, healthcare professionals, health organisations, facilities or systems to reduce unnecessary caesarean sections.[4] Professional associations of obstetricians and gynaecologists in countries such as Canada encourage the promotion of normal childbirth without intervention such as caesarean sections.[5] In its 2021 guidelines (updated in 2023), the National Institute for Health Care Excellence (NICE, UK) sets out a clear list of indications for scheduled caesarean sections (such as Placenta previa or Mother-to-child transmission of maternal infection risks).[6] Guideline from the French Health Authority recommends informing the patient on the increased risk of complications for future pregnancy after a caesarean section.[7] In Belgium, KCE recommends raising awareness of gynaecologists and obstetricians regarding the consequences of the caesarean section without medical indication, especially for nulliparous with single cephalic pregnancy beyond 37 weeks.[8] Categorisation of caesarean sections has often been done using its indications (why the C-section was being performed). However, the lack of uniform definitions for most common indications has resulted in poor reproducibility and difficult national and international comparison.[9, 10] In its last statement, the World Health Organization (WHO) recommends using Robson classification.[1] This system classifies women admitted for delivery according to obstetric characteristics that are generally routinely collected in most maternities.[11]

Data source	SPF Public health (Hospital administrative discharge data (RHM-MZG)) and OECD Health Statistics for international comparison. Additional sources: CEpiP and SPE for the Robson categories.
Technical definitions	Numerator: ICD9-CM codes: 74.0 Classical caesarean section; 74.1 Low cervical caesarean section; 74.2 Extraperitoneal caesarean section; 74.4 Caesarean section of other specified type; 74.99 Other caesarean section of unspecified type. Robson classification is detailed in Table 26.
International comparability	Same definition of ICD9 codes, but not all countries use the same definition of live births.
Limitations	Change from ICD-9 to ICD-10 classification has resulted in a break in the series of RHM – MZG data from 2016 on (and no 2015 data available). Since Robson categories 2 and 4 may represent a large proportion of the obstetric population, WHO suggests that these categories could be subdivided between induced labour (categories 2a and 4a) and pre-labour caesarean (categories 2b and 4b). These subcategories can be important to understand how differences in clinical practice (rates of induced labour or pre-labour caesarean) contribute to the overall rates of caesarean.[12] However, these subcategories are not routinely recorded in Belgium.
Dimension	Quality (appropriateness); variability of care.
Related indicator	None
Reviewer	Pascale Jonckheer (KCE)

3.4.2 Results

Rate of caesarean sections

In Belgium in 2021, the rate of caesarean section is 217 per 1 000 live births which corresponds to an increase of 11.3% with respect to the rate of 2010 (194 per 1 000 live births) (Figure 66, Table 22).

Regional differences exist for this indicator: the rate of caesarean section is 224 (per 1 000 live births) in Wallonia, 218 (per 1 000 live births) in Flanders and 201 (per 1 000 live births) in Brussels in 2021 (Figure 66, Table 22).

The number of caesarean sections (per 1 000 live births) increased in every Belgian region from 2010 to 2021 (average annual increase of 2.10 caesarean sections per 1 000 live births in Wallonia, 2.60 in Flanders and 1.50 in Brussels) (Table 22).

Caesarean sections by Robson classification

The definition of the Robson classification is available in Table 26. Not all of those Robson categories are equally frequent. Therefore some of the groups contribute more than other categories to the total number of caesarean. Figure 67 shows the contribution of each category to the total proportion of caesarian sections performed by regions.

In 2021, in all Belgian regions, the highest proportions of caesarean sections were performed in women with transverse and oblique lies (Robson 9) with almost 100% of deliveries by caesarean in these situations, followed by nulliparous singleton breech births (Robson 6) and multiparous singleton breech births (Robson 7) (Table 23; Table 24; Table 25). Although Robson categories 9, 6 and 7 show higher caesarean rates, they represent a small part of the total number of deliveries, therefore not contributing much to the total caesarean rates.

In 2021, in all Belgian regions, lower proportions of caesarean sections were attributed to Robson 3 classes. It means that multiparous women without a previous uterine scar with a single cephalic pregnancy, ≥37 weeks gestation in spontaneous labour (Robson 3); multiparous women without a previous uterine scar, with a single cephalic pregnancy, ≥37 weeks gestation who either had labour induced or were delivered by caesarean section before labour (Robson 4); or nulliparous women with a single cephalic pregnancy, ≥37 weeks gestation in spontaneous labour (Robson 1) had proportionally less caesarean sections than the women in the other Robson classes. On the other hand, Robson classes 1, 3 and 4 are the most frequent in the Belgian population and also those with the lowest caesarean rates, therefore not contributing much to the total caesarean rates (Table 23; Table 24;Table 25).

In 2021, as shown in Figure 67, the Robson categories that contribute the most to the Belgian caesarean section rate are multiparous women with at least one previous uterine scar, with single cephalic pregnancy, ≥37 weeks gestation (Robson 5) and Nulliparous women with a single cephalic pregnancy, ≥37 weeks gestation who either had labour induced or were delivered by caesarean section before labour (Robson 2). Both categories combine a high frequency in pregnancy and a relative high rate of caesarean.

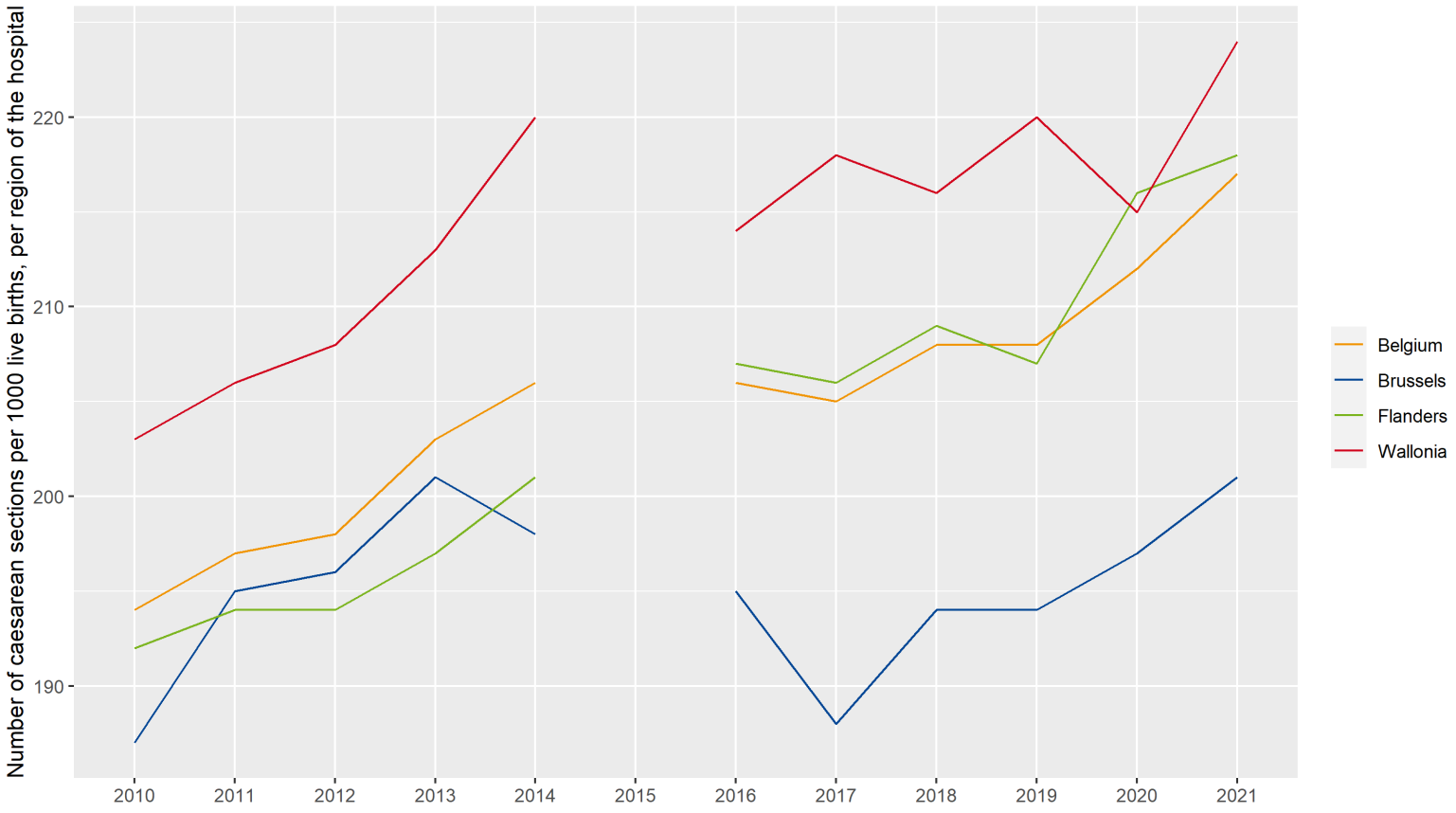
C-section rate among multiparous women with at least one previous uterine scar, with single cephalic pregnancy, ≥37 weeks gestation (Robson 5) is above the upper bound of the expected range of 50-60% according to WHO (see Table 26)[12] in Wallonia (in 2021, 63.3% in Wallonia, 58.8% in Brussels, and 58.0% in Flanders).[12] Hence, repeated C-sections contribute largely to the overall rate of C-section (Wallonia: 29.8%; Brussels: 30.8%; Flanders: 29.8%) (Table 23; Table 24; Table 25).

International comparison

In 2020, Belgium had a lower caesarean section rate (214 caesarean section rate per 1 000 live births) than the average EU-14 (243 caesarean section rate per 1 000 live births) and the average EU-27 (252 caesarean section rate per 1 000 live births) and was classified seventh in EU-27, i.e. between Denmark (203 caesarean section rate per 1 000 live births) and Slovenia (217 caesarean sections per 1 000 live births) (Figure 68).

Despite a slight increase in the caesarean section rate since 2010, Belgium always performed better than the average EU-14 from 2010 to 2020 for this indicator (Figure 69).

Figure 66 – Number of caesarean sections per 1 000 live births, per region of the hospital, 2010-2021



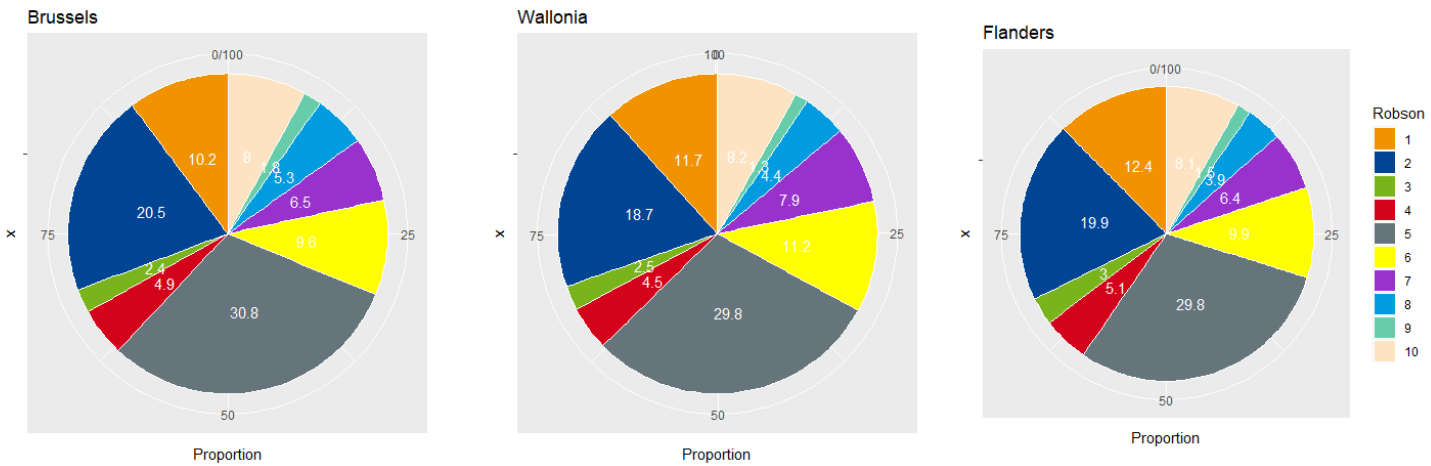
Data source: SPF-FOD; Figure: KCE

Table 22 – Number of caesarean sections per 1 000 live births, per region of the hospital, 2010-2021

Region	2010	2011	2012	2013	2014	2016	2017	2018	2019	2020	2021	Average annual difference
Belgium	194	197	198	203	206	206	205	208	208	212	217	2.2
Brussels	187	195	196	201	198	195	188	194	194	197	201	1.5
Flanders	192	194	194	197	201	207	206	209	207	216	218	2.6
Wallonia	203	206	208	213	220	214	218	216	220	215	224	2.1

2015: Data not available. Data source: SPF-FOD

Figure 67 – Distribution of the Robson categories among caesarean sections, by region, 2021



*Definition of the Robson classification is available in Table 23;*Data source: CEpiP (BRU&WAL) & SPE (FL); Calculation: KCE

Table 23 – Caesarean section, by Robson classification, Brussels, 2021, N = 22 178

Robson		Number of caesarean sections /Total number of deliveries	Relative size of the Robson category on total deliveries	Proportion of caesarean section	Contribution to the overall deliveries	Contribution to the overall caesarean sections
1	Nulliparous women with a single cephalic pregnancy, ≥37 weeks gestation in spontaneous labour	453/4 790	21.6%	9.5%	2.0%	10.2%
2	Nulliparous women with a single cephalic pregnancy, ≥37 weeks gestation who either had labour induced or were delivered by caesarean section before labour	911/3 123	14.1%	29.2%	3.3%	20.5%
3	Multiparous women without a previous uterine scar, with a single cephalic pregnancy, ≥37 weeks gestation in spontaneous labour	107/6 301	28.4%	1.7%	0.5%	2.4%
4	Multiparous women without a previous uterine scar, with a single cephalic pregnancy, ≥37 weeks gestation who either had labour induced or were delivered by caesarean section before labour	216/3 043	13.7%	7.1%	1.0%	4.9%
5	All multiparous women with a least one previous uterine scar, with a single cephalic pregnancy ≥37 weeks gestation	1 371/2 332	10.5%	58.8%	6.2%	30.8%
6	All nulliparous women with a single breech pregnancy	429/507	2.3%	84.6%	1.9%	9.6%
7	All multiparous with a single breech pregnancy, including women with previous uterine scars	289/397	1.8%	72.8%	1.3%	6.5%
8	All women with multiple pregnancies, including women with previous uterine scars	237/414	1.9%	57.2%	1.1%	5.3%
9	All women with a single pregnancy with a transverse or oblique lie, including women with previous uterine scars	79/79	0.4%	100.0%	0.4%	1.8%
10	All women with a single cephalic pregnancy <37 weeks gestation, including women with previous scars	354/1 192	5.4%	29.7%	1.6%	8.0%
TOTAL*		4 446/22 178	100.0%		20.1%	4 446

** Unknown for 90 deliveries (0.4% of the total number of deliveries).* Data source: CEpiP; Calculation: KCE

Table 24 – Caesarean section, by Robson classification, Wallonia, 2021, N = 34 379

Robson		Number of caesarean sections /Total number of deliveries	Relative size of the Robson category on total deliveries	Proportion of caesarean section	Contribution to the overall deliveries	Contribution to the overall caesarean sections
1	Nulliparous women with a single cephalic pregnancy, ≥37 weeks gestation in spontaneous labour	898/7 761	22.6%	11.6%	2.6%	11.7%
2	Nulliparous women with a single cephalic pregnancy, ≥37 weeks gestation who either had labour induced or were delivered by caesarean section before labour	1 433/4 784	13.9%	30.0%	4.2%	18.7%
3	Multiparous women without a previous uterine scar, with a single cephalic pregnancy, ≥37 weeks gestation in spontaneous labour	192/8 862	25.8%	2.2%	3.3%	2.5%
4	Multiparous women without a previous uterine scar, with a single cephalic pregnancy, ≥37 weeks gestation who either had labour induced or were delivered by caesarean section before labour	343/4 978	14.5%	6.9%	1.0%	4.5%
5	All multiparous women with a least one previous uterine scar, with a single cephalic pregnancy ≥37 weeks gestation	2 285/3 612	10.5%	63.3%	6.6%	29.8%
6	All nulliparous women with a single breech pregnancy	858/903	2.6%	95.0%	2.5%	11.2%
7	All multiparous with a single breech pregnancy, including women with previous uterine scars	603/725	2.1%	83.2%	1.8%	7.9%
8	All women with multiple pregnancies, including women with previous uterine scars	337/553	1.6%	60.9%	1.0%	4.4%
9	All women with a single pregnancy with a transverse or oblique lie, including women with previous uterine scars	101/102	0.3%	99.0%	0.3%	1.3%
10	All women with a single cephalic pregnancy <37 weeks gestation, including women with previous scars	629/2 117	6.2%	29.7%	1.8%	8.2%
TOTAL*		7 679/34 397	100.00%		22.4%	

** Unknown for 84 deliveries (0.2% of the total number of deliveries).* Data source: CEpiP; Calculation: KCE

Table 25 – Caesarean section, by Robson classification, Flanders, 2021, N = 63 272

Robson		Number of caesarean sections /Total number of deliveries	Relative size of the Robson category on total deliveries	Proportion of caesarean section	Contribution to the overall deliveries	Contribution to the overall caesarean sections
1	Nulliparous women with a single cephalic pregnancy, ≥37 weeks gestation in spontaneous labour	1 729/16 160	25.5%	10.7%	2.7%	12.4%
2	Nulliparous women with a single cephalic pregnancy, ≥37 weeks gestation who either had labour induced or were delivered by caesarean section before labour	2 778/8 552	13.5%	13.5%	4.4%	19.9%
3	Multiparous women without a previous uterine scar, with a single cephalic pregnancy, ≥37 weeks gestation in spontaneous labour	417/ 16 457	26.0%	2.5%	1.2%	3.0%
4	Multiparous women without a previous uterine scar, with a single cephalic pregnancy, ≥37 weeks gestation who either had labour induced or were delivered by caesarean section before labour	715/7 595	12.0%	9.4%	5.1%	5.1%
5	All multiparous women with a least one previous uterine scar, with a single cephalic pregnancy ≥37 weeks gestation	4 159/7 175	11.3%	58.0%	6.6%	29.8%
6	All nulliparous women with a single breech pregnancy	1 389/1 468	2.3%	94.6%	2.2%	9.9%
7	All multiparous with a single breech pregnancy, including women with previous uterine scars	893/1 003	1.6%	89.0%	1.4%	6.4%
8	All women with multiple pregnancies, including women with previous uterine scars	541/948	1.5%	57.1%	0.9%	3.9%
9	All women with a single pregnancy with a transverse or oblique lie, including women with previous uterine scars	210/210	0.3%	100.0%	0.3%	1.5%
10	All women with a single cephalic pregnancy <37 weeks gestation, including women with previous scars	1 136/3 710	5.9%	30.6%	1.8%	8.1%
TOTAL		13 967$/63 272	100.00%		22.1%	

* Data source & calculation: SPE; $Number of unclassifiable cases due to missing values: n = 62

Figure 68 – Number of caesarean sections per 1 000 live births, by EU-27 country, 2020

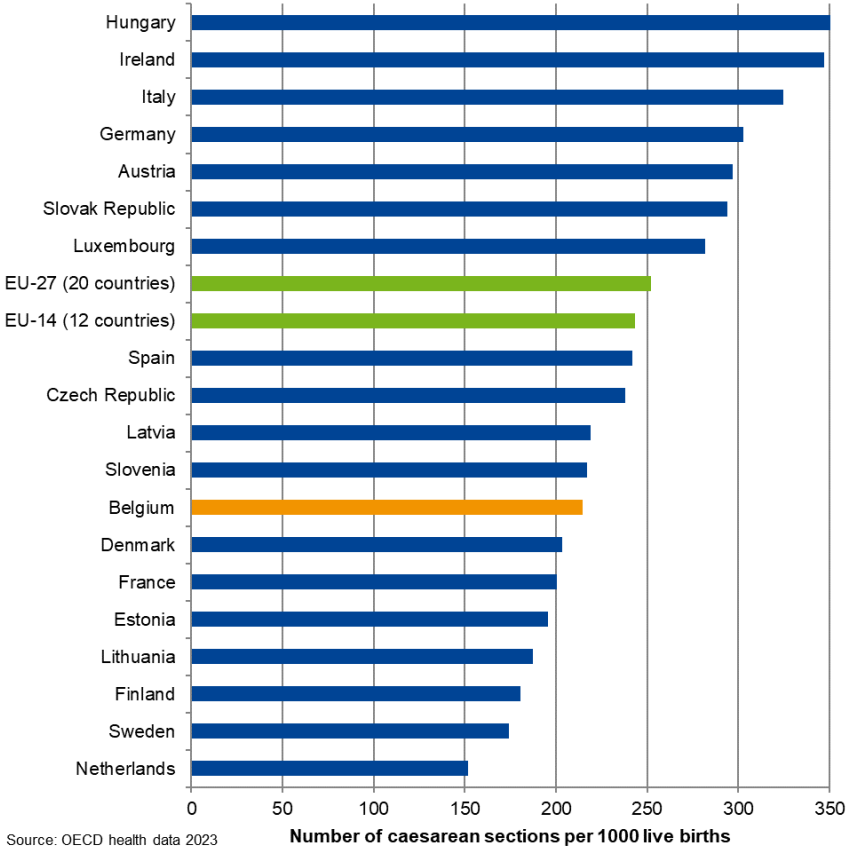
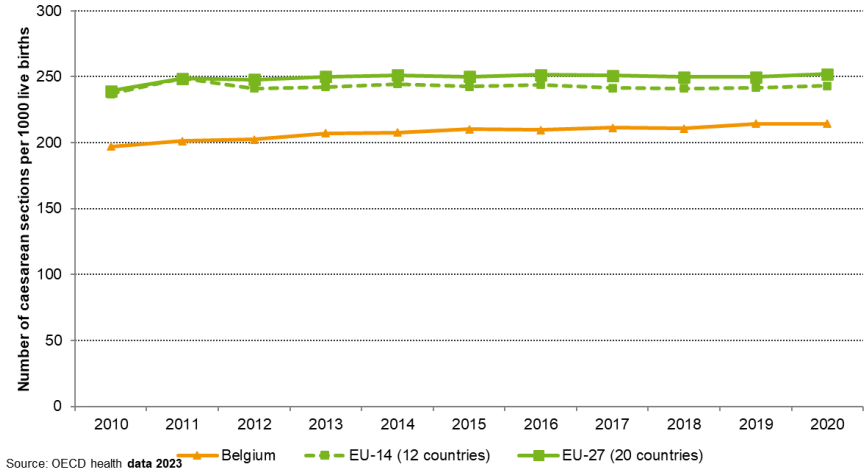


Figure 69 – Number of caesarean sections per 1 000 live births, by EU-14* country, 2000-2020



** 12 countries: Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, Luxembourg, Netherlands, Spain, Sweden*

Table 26 – Robson classification

		WHO recommendations[12], caesarean rate
1	Nulliparous women with a single cephalic pregnancy, ≥37 weeks gestation in spontaneous labour	Rates under 10% are achievable
2	Nulliparous women with a single cephalic pregnancy, ≥37 weeks gestation who either had labour induced (2a) or were delivered by caesarean section before labour (2b)	Consistently around 20-35%
3	Multiparous women without a previous uterine scar, with a single cephalic pregnancy, ≥37 weeks gestation in spontaneous labour	Normally, no higher than 3.0%
4	Multiparous women without a previous uterine scar, with a single cephalic pregnancy, ≥37 weeks gestation who either had labour induced (4a) or were delivered by caesarean section before labour (4b)	It rarely should be higher than 15%
5	All multiparous women with a least one previous uterine scar, with a single cephalic pregnancy ≥37 weeks gestation	Rates of 50-60% are considered appropriate provided you have good maternal and perinatal outcome
6	All nulliparous women with a single breech pregnancy	
7	All multiparous with a single breech pregnancy, including women with previous uterine scars	
8	All women with multiple pregnancies, including women with previous uterine scars	It is usually around 60%
9	All women with a single pregnancy with a transverse or oblique lie, including women with previous uterine scars	
10	All women with a single cephalic pregnancy <37 weeks gestation, including women with previous scars	In most populations it is usually around 30%

Key points

- **In 2021, the caesarean section rate is 217 per 1 000 live births which corresponds to an increase of 11.3% with respect to the rate of 2010 (194 per 1 000 live births).**
- **The caesarean section rate is higher than the 10-15% recommended by the WHO.**
- **Globally, the caesarean section rate is still increasing in every Belgian region since 2010.**
- **Repeated C-sections (Robson 5: multiparous women with a least one previous uterine scar, with a single cephalic pregnancy ≥37 weeks gestation) contribute the most to the total caesarean rate.**
- **Despite an increase in the caesarean rate over the years, Belgium performed better than the average EU-14 and EU-27 from 2010 to 2020 for this indicator.**

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3.5 Patients with early testicular cancer receiving adjuvant treatment after surgery (QA-9)

3.5.1 Documentation sheet

Description	Proportion of patients with early testicular cancer (stage I) receiving adjuvant treatment after orchiectomy (%)
Calculation	**Numerator**: number of patients receiving adjuvant treatment after surgery **Denominator**: number of patients with testicular cancer clinical stage I treated with orchiectomy
Rationale	Testicular cancer is an uncommon cancer (435 new cases in 2021 in Belgium[I]) which generally affects men in the 20-39 age category (76.6% in 2021).[1] Good clinical practice recommendations advise surveillance after surgical removal of the testis (not to be confused with lymphadenectomy) in case of stage I disease (i.e. localised tumour), especially in absence of risk factors (i.e. rete testis invasion and tumour size in case of seminomas and vascular invasion in case of non-seminomas).[2] Alternatively, adjuvant treatment (i.e. chemotherapy or radiotherapy or retroperitoneal lymph-node dissection) can be offered. The guidelines recommend surveillance (follow-up) after surgery for a stage I testicular tumour: KCE guidelines[3] (2010) and ESMO guidelines[2] (2013). The current analysis distinguishes three periods: before the ESMO guidelines (2004-2012), the period shortly after (2013-2016), and the most recent period (2017-2020). The rationale of the guideline is to limit unnecessary long-term side effects of radiotherapy and chemotherapy.
Data source	Belgian Cancer Registry (BCR): incidence years 2004-2020. IMA – AIM
Technical definitions	Selection of patients: • Patients with new diagnoses of cancer registered in the BCR in the period 2004-2020, with ICD-10 code C62 (testicular cancer) • Clinical Stage I The following exclusion criteria have been applied: • Patients without official residence in Belgium at date of diagnosis • Patients with no NSSN known • Patients with no IMA – AIM data available in incidence year • The Region of the hospital where surgery was performed is taken into account for the analyses The following interventions (nomenclature) have been identified for patients in the GZSS (health care) IMA – AIM database: • Surgery: 261111-261122, 261096-261100, 262570-262581, 241312-241323, 241334-241345, 241872-241883, 241894-241905, 241113-241124, 241150-241161, 260750-260761, 611796-611800, 260713-260724, 260853-260864, 260875-260886, 260890-260901, 262172-262183, 684213-684224, 154932-154943 • Curative external radiotherapy: 444135-444146, 444150-444161, 444172-444183, 444113-444124

[I] https://kankerregister.org/Statistiques_tableaux%20annuelle

- Retroperitoneal lymph node dissection: 240450-240461, 240472-240483, 243751-243762, 243773-243784, 240494-240505, 240516-240520
- Chemotherapy has been identified by ATC codes « L01 » with the exception of some CNK codes (710566, 1092857, 1174481, 1174499, 38521 and 706044) in the Pharmanet-Farmanet IMA – AIM database
  - Carboplatin: L01XA02
  - BEP (bleomycin + etoposide + cisplatin): L01DC01, L01CB01, L01XA01

Testicular tumours were classified as seminomas and non-seminomas using the definition of the EUROCARE-5 study[4]:

- seminomas: ICD-O-3 morphology codes 9060-9062
- non-seminomas: ICD-O-3 morphology codes 9080-9083; 9085; 9100-9102; 9065; 9070-9072

Tumours were classified as seminomas and non-seminomas using the definition of the EUROCARE-5 study. As there is no direct link between the cancer diagnosis (in the BCR database) and the treatments found in the IMA data, time frames around the incidence date are used to select treatments:

- A surgery is considered as related to the cancer if it occurs within 1 month before and 6 months after the incidence date
- A treatment is considered to be adjuvant if it is given within 3 months after the date of surgery[5]

International comparability	N/A
Limitations	The BCR database does not have information on risk factors (i.e. rete testis invasion and tumour size in case of seminomas, vascular invasion in case of non-seminomas) readily available for patients with testicular cancer. Therefore it is not possible to identify the tumours with presence of risk factors. The calculated indicator on adjuvant treatment serves as a proxy for de ESMO clinical practice guidelines.[2] The BCR database does not have information on risk factors (i.e. rete testis invasion and tumour size in case of seminomas, vascular invasion in case of non-seminomas) readily available for patients with testicular cancer. Therefore, as it is not possible to identify the tumours with presence of risk factors, the calculated indicator on adjuvant treatment serves as a proxy for the ESMO clinical practice guidelines. In comparison, a Spanish publication from 2011 reported 47% rete testis invasion in stage I seminoma[6] and another publication reported 18% vascular invasion.[7]
Dimension	Quality, appropriateness
Related indicators	N/A
Reviewer	Lien van Walle (BCR)

3.5.2 Results

Belgium

Over the period 2004-2020, 6543 testicular tumours clinical stage I were studied (clinical stage I = localised tumour which can be surgically removed), diagnosed in 5530 patients.

Seminomas

Most Belgian patients diagnosed with a seminoma stage I (N=2952 tumours in 2894 patients) receive surgery as primary treatment (i.e. orchiectomy) (95.7%, N=2826 tumours in 2770 patients). Since the publication of the ESMO guidelines in 2013, surveillance is recommended following primary orchiectomy, especially in absence of certain histological risk factors (i.e. rete testis invasion and tumour size in case of seminomas) instead of adjuvant. The results show that during the period 2004-2012, the majority of the patients with stage I seminomas (72.3%) received an adjuvant treatment (i.e. chemotherapy or external radiotherapy), compared to only 45.2% for the 2013-2016 period, and 40.4% for the 2017-2020 period (Table 27). When looking at the proportion of patients receiving adjuvant external radiotherapy (with or without chemotherapy), there has been a remarkable decrease between the 2004-2012 period (29.3%) and the following periods (3.0% for the 2013-2016 period and 1.2% for the 2017-2020 period). The evolution is different when considering chemotherapy as adjuvant therapy (with or without radiotherapy): the observed decrease is rather modest (43.3% of the patients with a stage I seminoma received adjuvant chemotherapy during the 2004-2012 period, 42.2% during the 2013-2016 period and 39.2% during 2017-2020).

Non-seminomas

There were 2431 non-seminoma stage I testicular cancers (diagnosed in 2406 patients) included over the period 2004-2020; 94.3% (2292 cases) were treated with surgery (i.e. orchiectomy) as primary treatment.

The observed evolution in adjuvant treatment between the 3 periods in non-seminoma is smaller than for seminoma (Table 28): in 2004-2012, 67.3% of the operated patients received an adjuvant therapy compared to 59.2% in 2013-2016 and 55.1% in 2017-2020.

Regional comparison

Seminomas

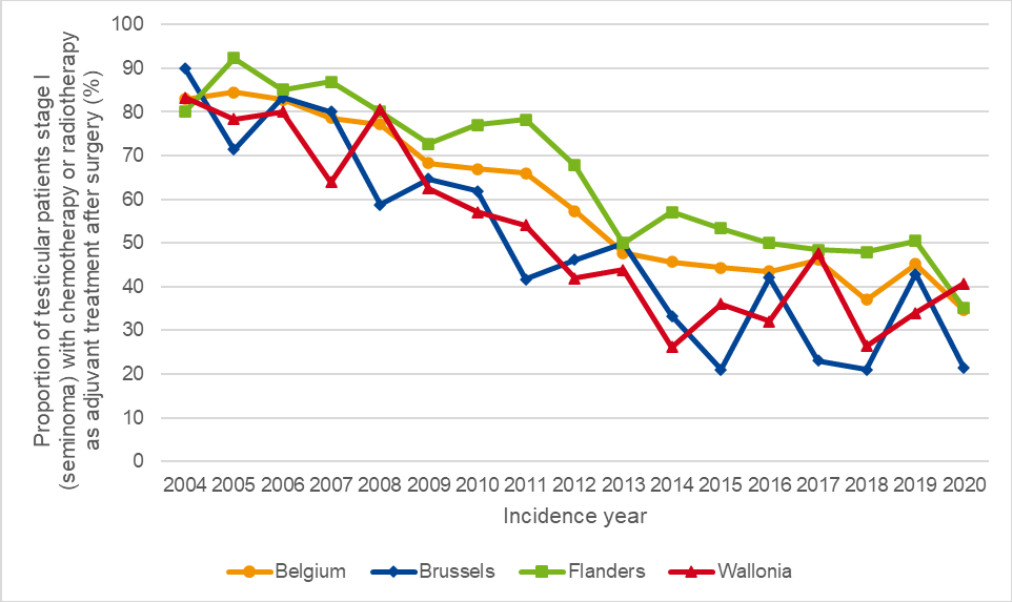
Regional variations are observed (Table 27), in 2017-2020 a quarter of the patients (25.1%) in Brussels received adjuvant treatment, compared to almost half of the patients in Flanders (45.5%) and about a third of patients (35.9%) in Wallonia; annual figures are presented in Figure 70.

Table 27 – Proportion of stage I testicular cancer patients (seminoma) treated with surgery who received adjuvant therapy (chemotherapy or radiotherapy)

Period	Belgium			Brussels			Flanders			Wallonia		
	N op	N adj	%	N op	N adj	%	N op	N adj	%	N op	N adj	%
Before ESMO guidelines (2004-2012)	1045	756	**72.3**	131	86	**65.7**	534	422	**79.0**	378	246	**65.1**
Shortly after ESMO guidelines (2013-2016)	657	297	**45.2**	68	24	**35.3**	376	198	**52.7**	213	75	**35.2**
After ESMO guidelines (2017-2020)	681	275	**40.4**	74	19	**25.7**	389	177	**45.5**	217	78	**35.9**

N op: number of patients with stage I seminomia with surgery, N adj: number of patients with stage I seminoma with an adjuvant treatment (chemotherapy or radiotherapy) after surgery. Source: Belgian Cancer Registry (BCR) , Intermutualistic Agency (IMA – AIM)

Figure 70 – Proportion of testicular cancer patients (stage I, seminoma) treated with surgery who received adjuvant treatment (chemotherapy or radiotherapy), by region (2004-2020)



Source: Belgian Cancer Registry (BCR) , Intermutualistic Agency (IMA – AIM)

Non-seminomas

There are regional variations, with the highest rate of adjuvant treatment observed in Flanders, followed by Wallonia, and the lowest rate in Brussels. The observed decrease of adjuvant treatment over time is of similar order of magnitude in the 3 regions (Table 28).

Impact of COVID-19 pandemic

It is too early to make a judgement.

Table 28 – Proportion of stage I testicular cancer patients (non-seminoma) treated with surgery who received adjuvant therapy (chemotherapy or retroperitoneal lymph node dissection) after surgery

Period	Belgium			Brussels			Flanders			Wallonia		
	N op	N adj	%	N op	N adj	%	N op	N adj	%	N op	N adj	%
Before ESMO guidelines (2004-2012)	731	492	**67.3**	92	53	**57.6**	422	304	**72.0**	217	135	**62.2**
Shortly after ESMO guidelines (2013-2016)	434	257	**59.2**	62	34	**54.8**	243	152	**62.6**	127	69	**54.3**
After ESMO guidelines (2017-2020)	461	254	**55.1**	50	24	**48.0**	293	170	**58.0**	118	60	**50.9**

N op: number of patients with stage I non-seminomia with surgery, N adj: number of patients with stage I non-seminoma with an adjuvant treatment (chemotherapy or radiotherapy) after surgery
Source: Belgian Cancer Registry (BCR) , Intermutualistic Agency (IMA – AIM)

Key points

- Patients with early testicular cancer (stage I, localised cancer) have a primary surgical treatment (i.e. orchiectomy) which can be followed within 3 months by an adjuvant treatment or surveillance; since 2013, ESMO guidelines recommend surveillance after orchiectomy for stage I seminomas and non-seminomas rather than adjuvant treatment, especially in absence of risk factors; when comparing with the period before the publication of the guidelines (2004-2012), a clear decrease in proportion of adjuvant treatment has been observed for the 2013-2016 period (shortly after guidelines publication) and the 2017-2020 period (after guidelines publication) in case of seminoma, and to a lesser extent in case of non-seminoma; these trends are observed in all regions.
- Regional variation regarding adjuvant treatment for stage I testicular seminoma shows the highest rates for Flanders, both before (79.0%) and after (45.5%) the publication of new guidelines; Wallonia and Brussels had similar rates before publication of the 2012 guidelines (65.1% and 65.7%, respectively), but in Brussels the observed decrease after publication of the guidelines was more pronounced that in Wallonia (25.7%, and 35.9% respectively).
- Regional variation regarding adjuvant treatment for stage I testicular non-seminoma shows the highest rates for Flanders, followed by Wallonia and lastly Brussels, both before and after the publication of new guidelines.

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4 QUALITY – CONTINUITY OF CARE

4.1 Coverage of global medical record (QC-1)

4.1.1 Documentation sheet

Description	Percentage of people who have a global medical record (GMR) with a general practitioner (GP)
Calculation	**Numerator**: number of insured persons with a global medical record or a electronic global medical record **Denominator**: all insured persons
Rationale	Since 2001, the GMR is implemented in Belgium. Each patient can ask a (unique) general practitioner to manage his/her medical information.[m] By leaving the coordination of medical care to one central person, the quality of care is expected to increase. Referral to and communication with other care providers can become more efficient, and double investigations or contrasting treatments can be avoided. Since 2016, the electronic global medical record is implemented in Belgium.
Data source	IMA – AIM
Technical definitions	RIZIV – INAMI billing codes: • GMR codes: 102771, 102793, 102395, 101371, 101393, completed with • eGMR codes (since 2016): 101312, 101334, 101452, 101474, 101496, 101511, 101533, 101555, 103574, 103596.
International comparability	None
Limitations	Nomenclature codes are used as a proxy to calculate the present indicator. Condition for the billing is to have at least a contact with the GP during the year. It means that people without any contact during the year are not registered with a GMR even if they still keep their GMR. This phenomenon affects particularly young patients who often contact the GP less than once a year.
Dimension	Quality (continuity), Quality (effectiveness), Efficiency
Related indicators	None

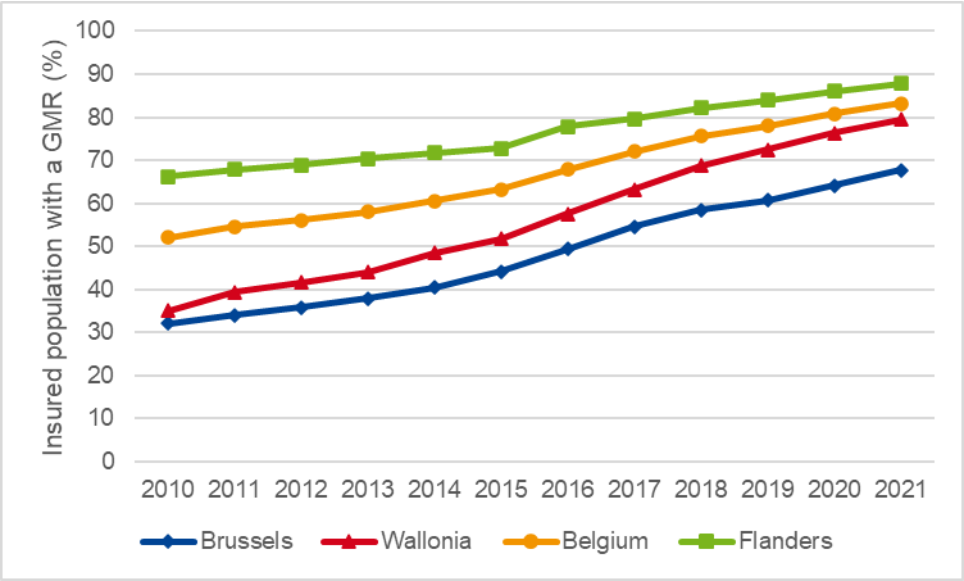
[m] https://www.inami.fgov.be/fr/themes/cout-remboursement/facilite-financiere/Pages/dossier-medical-global.aspx

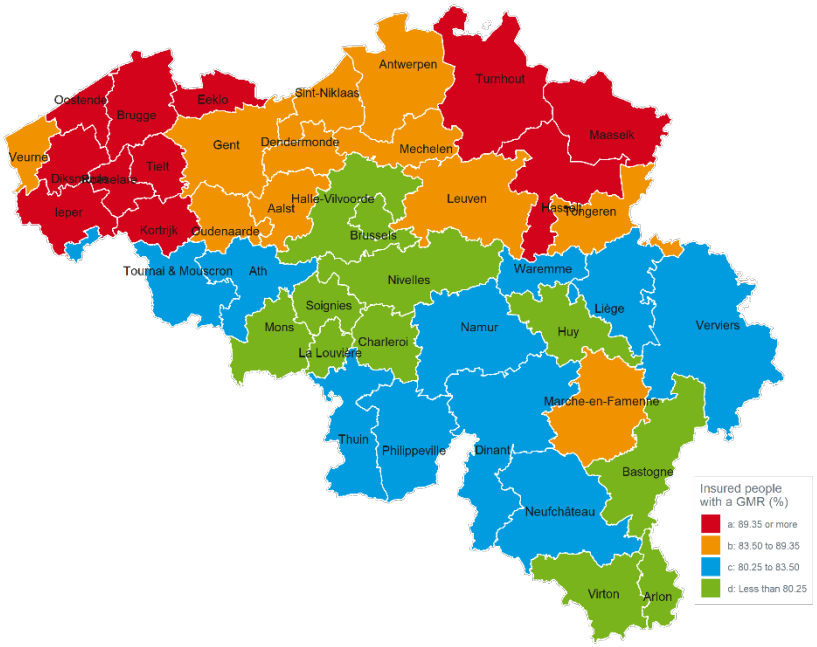
4.1.2 Results

Belgium

In 2010, the percentage of insured persons with a global medical record (GMR) was 52.1% and reached 83.3% in 2021. The coverage of GMR by general practitioner increases continuously over the time (Figure 71).

Figure 71 – Evolution of insured population with a GMR, by region (left) and by district (2021, right)





Source: IMA – AIM

Analysis by demographic characteristics and socio-economic status

The coverage of global medical record by general practitioner is higher for women (85.7% in 2021) than men (80.8% in 2021, Table 29). Among the population with a GMR in 2021, 52.3% are women. The mean age of people with a GMR in 2021 is 44 years old.[n] Differences in coverage can also be observed by age group. Older insured persons have a better coverage (> 90% for persons aged 65 and over in 2021) than younger insured people (< 80% for persons 0-44 years old). People entitled to increased reimbursement have a higher coverage (85.1% of the insured people in 2021) than other people (83.2%, Table 29).

Table 29 - Percentage of insured population with a GMR by gender, age category and entitlement to increased reimbursement (%)

		2010	2015	2021
Belgium		52.1	63.2	83.3
Gender	Female	55.1	66.4	85.7
	Male	48.5	59.9	80.8
Age category	0-4	31.8	48.6	63.4
	5-14	40.2	57.6	75.1
	15-24	43.5	56.4	80.7
	25-44	44.7	56.1	81.6
	45-64	57.1	66.5	86.7
	65-74	71.1	77.0	90.6
	75 and older	76.3	82.6	93.2
Entitlement to increased reimbursement	Yes	57.9	69.7	85.1
	No	51.1	62.2	83.2

Source: IMA – AIM

[n] Medical practice variations, Patient file's global management (2012-2022), RIZIV – INAMI

Regional comparison

Differences can be observed and remain large between regions and districts in 2021 (Figure 71). In Flanders, 87.8% of the insured persons are covered, 79.6% are covered in Wallonia 67.8% are covered in Brussels in 2021. Even within regions, differences in coverage can be observed: for instance, within Flemish region, Limburg and West-Vlaanderen have a better global coverage (91.0% and 91.1%, respectively) than Vlaams-Brabant (83.4%,); the same is observed within Wallonia: Liège and Namur have a better global coverage (81.1% and 81.0%, respectively) than Brabant wallon (75.4%, Table 30). Even if there are differences between regions, the percentage of insured persons with a GMR increases over time in the three regions (Figure 71).

Table 30 – GMR coverage in 2021 by regions and by provinces

Entity		GMR coverage in 2021 (%)
Belgium		83.3
Regions	Brussels	67.8
	Flanders	87.8
	Wallonia	79.6
Provinces	Antwerpen	86.6
	Brabant wallon	75.4
	Brussels	67.8
	Hainaut	79.4
	Limburg	91.0
	Liège	81.1
	Luxembourg	76.8
	Namur	81.0
	Oost-Vlaanderen	88.4
	Vlaams-Brabant	83.4
	West-Vlaanderen	91.1

Source: IMA-IMA

Key points

- **The coverage of global medical record by general practitioner is growing over time, from 52.1% in 2010 to 83.3% in 2021.**
- **Differences can be observed by age group. Older insured persons have a better coverage than young people, i.e. over 90% for people aged 65 years and over have a GMR versus less than 80% for people aged below 45 years old in 2021.**
- **Differences are large between regions in 2021: the coverage is especially low in Brussels (67.8%) compared to Flanders (87.8%) and Wallonia (79.6%).**

4.2 Usual Provider Continuity index ≥ 0.75 (% of patients with 3 or more contacts with GP in last two years) (QC-2)

4.2.1 Documentation sheet

Description	Proportion of patients that visited their usual general practitioner (GP) at least three out of four times during the last two years. The Usual provider continuity (UPC) index measures the proportion of encounters conducted by the patient's most frequently consulted GP (i.e. usual GP).
Calculation	**Numerator:** number of patients (children and adults) with a UPC index ≥ 0.75 **Denominator:** total number of patients (children and adults) with encounters with GPs UPC index calculation for each patient: **Numerator:** number of encounters with the usual GP during the last two years (children and adults) **Denominator:** total number of encounters with GPs during the same period (children and adults)
Rationale	A longitudinal relationship between physician and patient has been shown to encourage communication, improve satisfaction, medication compliance, stimulate receipt of preventive services and decrease hospital admissions and emergency department visits for patients with chronic disease.[1] There are several measures of longitudinal continuity, with UPC as one of the most commonly used index.[2-8] The advantage of this indicator is its easy interpretation.
Data source	IMA – AIM data
Technical definition	**Nomenclature codes for GPs encounters** (consultation and home visits, out-of-hour visits excluded): 101010, 101032, 101076, 103110, 103132, 103213, 103235, 103316, 103331, 103353, 103412, 103434, 103515, 103530, 103552, 103913, 103935, 103950, 104112, 104134, 104156, 104355, 104370, 104650, 104672, 101135, 101990. **Usual GP**: the GP consulted most frequently or the more recent one if two GPs were consulted at the same frequency during the period. **Period**: Two years; one year may not be long enough for some patients to have a total of three visits and therefore might biased the results. **Categories**: • Very low continuity if UPC<0.25; • Low continuity if 0.25≤UPC<0.5 • Intermediate continuity if 0.5≤UPC<0.75 • High continuity if 0.75≤UPC<1 • Maximum continuity or exclusivity if UPC =1 **Exclusion criterion:** • Patients with <3 encounters with GP during the period of two years. **Long term care**: For long term care, definitions of the IMA – AIM have been used (http://atlas.aim-ima.be/base-de-donnees, see statistics on care for older people).

Limitations	A growing number of patients are served by different GPs in a single practice or a group of GPs with a relative longitudinal continuity but the GPs belonging to the same practice or group cannot be identified. Patients followed by medical houses were excluded because their number of GP visits cannot be currently identified. Some patients were excluded from the analysis because they had less than three visits during a two year period. Children are more often managed by paediatricians than by GPs.
International comparability	Not available
Dimensions	Continuity (Longitudinal); Ambulatory care
Related indicators	Coverage of global medical record in the population
Reviewer	Pascal Jonckheer (KCE)

Results

Belgium

In 2021, among patients with 3 or more contacts with GP in last 2 years, 30.9% had an exclusive encounters (UPC=1) with the same GP and around 11% had an UPC<0.5. The proportion of patients with a high continuity index (UPC≥0.75) was 60.3%. The higher the number of encounters with a GP over the last two years, the lower is the proportion of individuals with exclusivity. However, if we consider an UPC threshold of high continuity (UPC≥0.75) instead of maximum (UPC=1), the continuity increased with the number of encounters (Table 31).

When excluding teleconsultations, the proportion of patients with a high continuity index was higher than when including all types of GP visits (62.9% vs 60.3%), which was due to a higher proportion of patients with maximum continuity (36.9% vs 30.9%).

The proportion of patients having a high continuity with their GP slightly decreased between 2011 and 2021 (Figure 72). The decrease in the proportion of patients having a high continuity index in 2011-2021 was greater in Flanders than in Brussels or Wallonia.

Analysis by demographic characteristics and socio-economic status

Although, there are no major differences by sex concerning the proportion of patients with a high continuity index, men seem to have more often an exclusive continuity with their usual GP than women (32.9% vs 29.2%, Table 31). This is related to the fact that men had less encounters with a GP than women in 2021. The age group of 65-84 years had the highest proportion of exclusive relationship with their GP (39.2%). However, if we consider the threshold of UPC≥0.75, the proportion of patients with high continuity increases continuously with age starting from 20 years old. Among individuals aged 65 years and above, patients receiving home care have the highest proportion of exclusivity with general practitioners, followed by patients without long term care and finally patients in institutions. The repartition of the high continuity index is not the same since patients receiving home care have the highest proportion of patients with high continuity (77.0%) followed closely by patients in institutions (64.6%). The lowest proportion of patients with high continuity is found in patients without long term care (59.6%).

A higher proportion of patients with lower socio-economic level (measured by patients entitled to increased reimbursement) had a high continuity (64.8%) with their GP compared to patients without increased reimbursement (59.2%).

Regional comparison

The proportion of individuals with exclusivity was higher in Wallonia (37.0%), followed by Brussels (33.0%) and then Flanders (27.6%; Table 31). This was also the case for the proportion of individuals with a high continuity index (Wallonia: 68.0%, Brussels: 60.3% and Flanders: 56.4%). An analysis by district (Figure 72) showed that Hasselt and Mechelen had the lowest proportion of patients with a high continuity index (51.2% and 52.0%, respectively) while Tournai-Mouscron has the highest (73.0%).

Impact of the COVID-19 pandemic

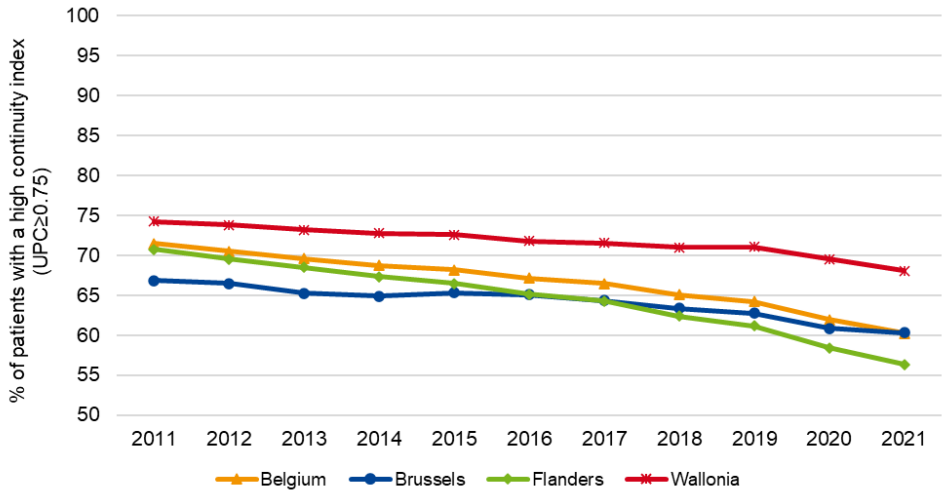
The proportion of patients having a high continuity index continued to decrease during the COVID-19 pandemic, and possibly at a higher rate (Figure 72).

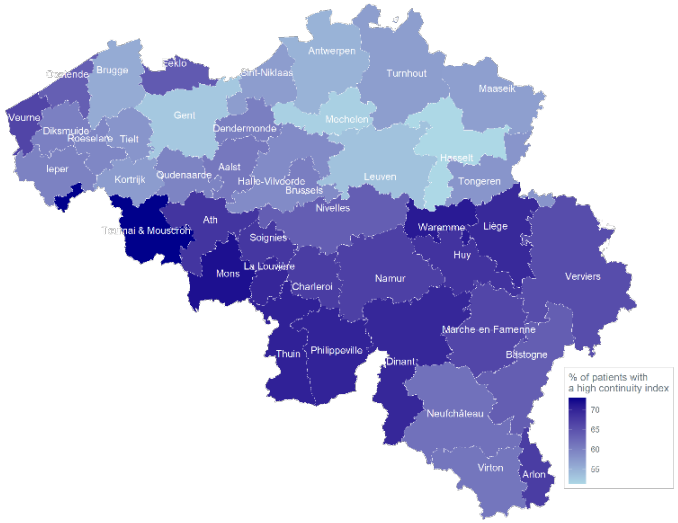
Table 31 – Proportion of patients in the different Usual Provider Continuity (UPC) categories, by patient characteristics (2021-2022)

Characteristics	UPC <0.25	0.25≤UPC<0.50	0.50≤UPC<0.75	0.75≤UPC<1	UPC=1	UPC≥0.75
Belgium	0.3	10.4	29.1	29.3	30.9	60.3
Encounter number						
3 to 7 visits	0.3	9.9	31.6	18.4	39.9	58.3
8 to 12 visits	0.3	10.8	28.1	31.7	29.2	60.9
> 12 visits	0.3	10.7	26.8	40.7	21.5	62.2
Gender						
Male	0.3	10.0	28.7	28.1	32.9	61.0
Female	0.3	10.8	29.4	30.4	29.2	59.6
Age group (in years)						
00-19	0.6	15.7	35.4	21.9	26.4	48.3
20-34	0.6	16.4	35.5	24.8	22.7	47.5
35-64	0.2	9.3	28.9	30.1	31.5	61.7
65-84	0.0	4.6	20.9	35.2	39.2	74.4
≥85	0.0	4.6	20.4	40.4	34.6	75.0
Long term care (65 years and over)						
Nursing care at home	0.0	4.1	19.0	43.2	33.7	77.0
Nursing home	0.1	7.7	27.6	45.1	19.6	64.6
No long term care	0.3	10.7	29.4	28.5	31.1	59.6
Increased reimbursement						
No	0.3	10.8	29.8	28.5	30.6	59.2
Yes	0.2	8.9	26.1	32.9	31.9	64.8
Region						0.0
Brussels	0.3	10.1	29.3	27.3	33.0	60.3
Flanders	0.3	12.4	30.9	28.7	27.6	56.4
Wallonia	0.1	6.5	25.4	31.1	37.0	68.0

Source: IMA–AIM data

Figure 72 – Proportion of individuals with high continuity index (UPC≥0.75), by region (2011-2021) and patient's district (2021)





Key points

- **In 2021, 60.3% of patients had a high continuity index, meaning that at least three out of four encounters were with their usual GP during the last two years. An exclusive relationship (encounters with the same GP everytime) was observed for only 30.9% of patients.**
- **The proportion of patients with a high continuity index increased with the number of encounters with a GP during the last two years. The opposite relationship was observed for exclusive relationship.**
- **The proportion of patients having a high continuity with their GP increased continuously with age starting from 20 years old.**
- **A higher proportion of patients with lower socio-economic level (entitled to increased reimbursement) had a high continuity index compared with patients without increased reimbursement.**
- **Wallonia had the highest proportion of patients with a high continuity index (68.0%), followed by Brussels (60.3%) and then Flanders (56.4%).**
- **The proportion of patients having high continuity with their GP decreased between 2011 and 2021 and this decline was even more pronounced in Flanders.**

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4.3 GP encounter within 7 days after hospital discharge (% patients aged ≥65 years) (QC-3)

4.3.1 Documentation sheet

Description	Proportion of hospital discharges of older patients (≥65 years old) that were followed by a general practitioner (GP) encounter within 1 week
Calculation	**Numerator:** number of hospitalisations for older patients (≥65 years old), alive 1 week after discharge, without new hospital admission in the week following the discharge, and with at least one GP consultation within 1 week (7 days) following the hospital discharge **Denominator:** number of hospitalisations for older patients (≥65 years old), alive 1 week after discharge and without new hospital admission in the week following the discharge.
Rationale	Integration, coordination and continuity of healthcare are priorities for health services. It involves coordinating the care of patients as they navigate through the healthcare system. Care transitions between the inpatient and outpatient setting are such a pivotal moments. Poor continuity of care can increase the risk of adverse events or readmissions, while good continuity of care may contribute to better communication between care providers and the translation of knowledge into health-promoting actions at home.[1-4] As mentioned by the Commission on Dignity in Care for Older people (NHS Confederation, the Local Government, Association and Age UK), the objective of discharge is not simply to get a person out of the hospital, but to ensure seamless clinical, physical and emotional support and the best possible return to their home or care home.[5] This Commission suggests that a follow-up assessment is scheduled with a GP around 1 week after an older person has been discharged from hospital (to check whether care arrangements put in place when the patient was discharged are still appropriate). Moreover, evidence shows that early follow-up after hospital discharge among patients aged 75 years and older can reduce readmissions and length of hospital stay.[6] The increasing number of older patients and shorter hospital stays further emphasise the need for collaboration between different levels of care (secondary care and primary care). Different concepts have been developed (integrated care pathways, care pathways,…) to strengthen coordination and cooperation of healthcare services and results in better quality of patient care (improved health or patient satisfaction outcomes).[7] Moreover, it has been shown that in particular patients with multiple complex chronic conditions can benefit from post-discharge follow-up by a GP in the first week(s).[8]
Data source	IMA – AIM data
Technical definition	**Nomenclature codes for GPs encounters** - all visits and consultations including after-hours visits and consultations were included in the selection of codes: 101010, 101032, 101076, 101091, 101113, 102410, 102432, 102454, 102476, 103110, 103132, 103213, 103235, 103316, 103331, 103353, 103412, 103434, 103515, 103530, 103552, 103913, 103935, 103950, 104112, 104134, 104156, 104215, 104230, 104252, 104274, 104296, 104311, 104333, 104355, 104370, 104392, 104414, 104436, 104451, 104510, 104532, 104554, 104576, 104591, 104613, 104635, 104650, 104672, 104694, 104716, 104731, 104753. **Nomenclature codes for hospital stays:** 761235, 761246, 767163, 767185, 767852, 767863, 767874, 767885, 767896, 767900, 767911, 767922, 767933, 767944, 768003, 768025, 768036, 768040, 768051, 768062, 768084, 768106, 768121, 768143, 768165, 768176, 768180, 768191, 768202, 768213, 768224, 768235, 768246, 768250, 768261, 768272, 768283, 768294, 768305, 768316, 768320, 768331, 768342, 768353, 768364, 777140, 777162, 777184, 777206, 790020, 793590, 793601, 793612, 793623, 793634, 793645, 793656, 793660, 793671, 793682, 793693, 793704, 793715, 793730, 793752, 793774. Hospitalisation are directly identified in the IMA – AIM database. **Exclusion criteria:** • Persons registered in a community health centre: individuals with a registration of nomenclature code 109616 at any point throughout the year were considered to be enrolled in a community health centre.

	• Stays with a duration of less than 24 hours (minimum length of stay). • Stays that, within 1 week after discharge, were followed by death or readmission. • Stays which are still ongoing for the period of analysis. • Stays for patients younger than 65 years old in the year of the hospital discharge. **Long-term care**: long-term care use has been defined similarly as for the IMA – AIM atlas (http://atlas.aim-ima.be/base-de-donnees, see statistics on care for older people (patients aged ≥65 years with a GP encounter online), based on lump sums registered for home care and for care in nursing homes.
Limitations	No information is available on the reason for consulting the GP and the potential link with hospital stay; no information is available on the initiator of the appointment (was it scheduled by the hospital or on the initiative of the patient); no information is available on the reason of the hospitalisation. The analysis does not account for follow-up after hospital discharge by other healthcare providers, for example a specialist, home nurse, or nurse in nursing home. GP follow-ups by teleconsultation are only taken into account for the years 2020 and 2021 (no billing code existing before 2020).
International comparability	Not applicable
Dimensions	Continuity of care (Management/Coordination); coordination of care; integrated care
Related indicators	
Reviewer	Pascale Jonckheer (KCE)

Results

Belgium

The proportion of hospitalisations for older people (aged 65 years or above) followed by a contact with a GP within 1 week after discharge decreased over time from 55.6% in 2013 to 43.4% in 2021 (Figure 73). The declining trend can, but does not necessarily indicate a decrease in the follow-up of patients. It can also result from an increase in follow-up consultations or encounters with another healthcare provider such as a specialist doctor, a home nurse or a nurse in the nursing home. Moreover, a better information flow between the hospital and the patient's GP by means of the Global Medical Record can result in a reduced need for a direct follow-up in the first week, but rather at a later point in time. In 2021, 52.0% of GP encounters within 7 days after hospital discharge took place online (teleconsultations; Table 32).

Analysis by demographic characteristics and socio-economic status

There was a higher proportion of hospitalisations followed by a contact with a GP within 1 week after discharge in women (45.7%) than men (41.0%), which is in part related to a gender effect, i.e. women of the same age have a higher follow-up rate, and an age effect as women grow older than men. The proportion of hospitalisations followed by GPs encounters increased continuously with age from 32.5% among the 65-69 years old to 58.0% among the ≥90 years old.

Almost 56% of hospitalisations of patients living in institutions were followed by a GP encounter and this proportion was slightly higher than in patients with home care (53.7%). The proportion of hospitalisations followed by a GP encounter was clearly lower among patients without long-term care (33.2%).

There was a difference by socio-economic level: a higher proportion of hospitalisations among patients entitled to increased reimbursement was followed by a GP encounter within one week after discharge (48.3%) compared with the group without increased reimbursement (39.2%).

Regional comparison

The proportion of hospitalisations followed by a contact with a GP within 1 week after discharge was quite similar for Flanders (44.6%) and Wallonia (41.2%) in 2021. However, it was lower for Brussels with a percentage falling to 29.8% (Table 32).

An analysis by district showed that Brussels, Arlon, and Virton had the lowest proportion of GP encounters within one week after a discharge (29.8%, 29.6%, and 36.0%, respectively) while the highest proportions were in Ieper (63.4%), Diksmuide (59.1%), and Roeselare (58.3%).

Impact of the COVID-19 pandemic

The proportion of hospitalisations for older people followed by a contact with a GP within 1 week after discharge continued to decrease during the COVID-19 pandemic, and possibly at a higher rate (Figure 73).

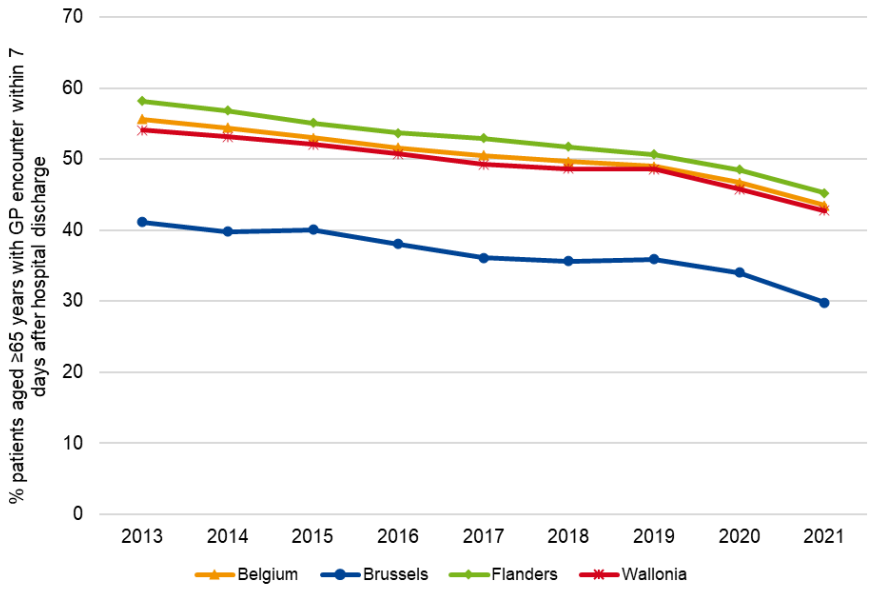
Table 32 – Proportion of hospitalisations for older people (aged 65 years or above) followed by a contact with a GP within 1 week after discharge, by patient characteristics (2021)

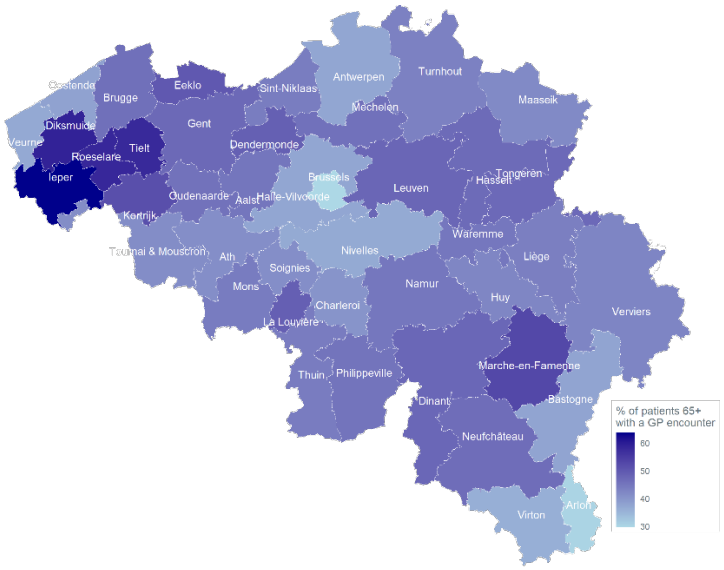
Characteristics		% patients aged ≥65 years with a GP encounter	% of GP encounters that are in-person	% GP encounters that are online
Belgium		43.5	48.0	52.0
Gender				
	Female	45.7	48.1	51.9
	Male	41.0	47.9	52.1
Age group (in years)				
	65-69	32.5	47.0	53.0
	70-74	36.9	47.3	52.7
	75-79	42.0	47.9	52.1
	80-84	48.7	48.4	51.6
	85-89	54.3	48.6	51.4
	≥90	58.0	48.8	51.2
Long term care				
	Nursing care at home	54.0	48.4	51.6
	Nursing home	56.6	48.7	51.3

	No long term care	34.6	47.4	52.6
Increased reimbursement				
	No	40.0	47.7	52.3
	Yes	50.1	48.5	51.5
Region				
	Brussels	29.8	46.7	53.3
	Flanders	45.2	48.1	51.9
	Wallonia	42.7	48.0	52.0
Province				
	Antwerp	40.8	47.4	52.6
	Flemish Brabant	42.4	48.2	51.8
	Walloon Brabant	36.9	47.6	52.4
	Brussels	29.8	46.7	53.3
	West Flanders	50.1	48.7	51.3
	East Flanders	46.7	48.4	51.6
	Hainaut	42.7	48.3	51.7
	Liège	43.5	47.8	52.2
	Limbourg	45.8	47.5	52.5
	Luxembourg	41.9	48.0	52.0
	Namur	45.8	48.0	52.0

Source: IMA-AIM data, KCE calculation

Figure 73 – Proportion of hospitalisations for the older people (aged 65 years or above) followed by a contact with a GP within 1 week after discharge, by region (2013-2021) and district (2021)





Key points

- **Despite the supposed advantage of having a GP encounter within the week after hospital discharge, only 43.5% of the hospitalisation for older people (≥65 years old) were followed effectively by a GP's encounter in Belgium in 2021.**
- **The decreasing trend in the proportion of hospitalisations followed by a contact with a GP within 1 week after discharge in 2023-2021 can indicate a reduction in early follow-up or a switch to other modes of follow-up, such as other healthcare providers.**
- **In 2021, 52% of GP encounters within 7 days after hospital discharge were teleconsultations.**
- **This indicator varied by factors such as gender (45.7% in women vs 41.0% in men), having long-term care (LTC) (more than 50% for older people in institutions or with home care against 34.6% for those without LTC), age group which is directly linked to having LTC (32.5% for the 65-69 years old vs 58.0% for the ≥90 years old) and finally the socio-economic level (50.1% with increased reimbursement and 40.0% without).**
- **The proportion of hospitalisations followed by a contact with a GP within 1 week after discharge was quite similar for Flanders and Wallonia (more than 40%), but lower for Brussels (29.8%).**

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4.4 Proportion of adults living with diabetes (under insulin) within a pass/pre-care trajectory, a care trajectory or a convention (QC-4) & proportion of adults living with diabetes (receiving glucose-lowering drugs other than insulin) within a pass/pre-care trajectory, a care trajectory or a convention (QC-5)

4.4.1 Documentation sheet

Description	QC-4 Proportion of adults living with diabetes (under insulin) registered in a pass/pre-care trajectory, a care trajectory or a convention[o] QC-5 Proportion of adults living with diabetes and older (receiving glucose-lowering drugs other than insulin and almost no insulin, (hereafter abbreviated as "receiving glucose-lowering drugs other than insulin") registered in a pass/pre-care trajectory, a care trajectory or a convention
Calculation	**QC-4 Proportion of adults living with diabetes (under insulin) registered in a pass/pre-care trajectory, a care trajectory or a convention** • Numerator: number of adults (≥ 18 years) under insulin living with any type (type 1 and 2) diabetes registered in a pass/pre-care trajectory, a care trajectory or a convention. • Denominator: number of adults (≥ 18 years) under insulin living with any type (type 1 and 2) diabetes identified through their drugs prescription. **QC-5 Proportion of adults living with diabetes (receiving glucose-lowering drugs other than insulin) registered in a pass/pre-care trajectory, a care trajectory or a convention** • Numerator: number of adults (≥ 18 years) receiving glucose-lowering drugs other than insulin with any type (type 1 and 2) diabetes registered in a pass/pre-care trajectory, a care trajectory or a convention. Denominator: number of adults (≥ 18 years) receiving glucose-lowering drugs other than insulin with any type (type 1 and 2) diabetes identified through their drugs prescription.

Rationale	To optimize care provided to people living with diabetes, several measures have been implemented in Belgium by the RIZIV – INAMI.
	• Diabetes pass/pre-care trajectory (*passeport diabète / modèle (ou protocole) de soins pour le suivi de patients diabétique de type 2, connu sous le vocable de « prétrajet diabète» - diabetespas / zorgmodel (of zorgprotocol) voor de opvolging van een patiënt met diabetes mellitus type 2, bekend als « voortraject diabetes »)*:
	  ○ Diabetes pass set up in Belgium in 2003. Removed and replaced by the pre-care trajectory for people living with type 2 diabetes since the 1st February 2016.
	  ○ Inclusion criteria: people living with diabetes type 2 under diet or oral antidiabetics; people should have a global medical record followed by their general practitioner.

[o] From a legal point of view, the correct translation should be "agreement". Nevertheless, to facilitate the identification of what it means by a Belgian expert, we decided to choose the term "convention", which is more commonly used.

- Aims: to improve the education of patients and those around them (information on treatment, management of complications…), to stimulate the patients involvement through information on periodic examinations and to support the communication between the patient and various care providers.
- Advantages for patients: 2 consultations partially reimbursed with a dietician each year and 2 consultations partially reimbursed with a podiatrist each year (only if the patient is at high risk of foot wound).
- Diabetes pass has been replaced by the pre-care trajectory for people living with type 2 diabetes in order to better manage people living with type 2 diabetes not registered in a care trajectory for chronic care or in a convention. Advantages for patients are almost the same: 2 consultations reimbursed with a dietician and 2 with a podiatrist each year. Some people[p] in the pre-care trajectory are eligible for reimbursement of consultations with a diabetes educator (since 1st May 2018) or with other health professionals (pharmacist, nurses, physiotherapists…). A maximum of 4 consultations per patient per year is reimbursed.

- Care trajectory for people living with type 2 diabetes (*trajet de soins diabète type 2 - Zorgtrajecten diabetes type 2*):
  - Set up in Belgium in September 2009 (modified in 2018).
  - Inclusion criteria: people living with diabetes type 2 under insulin or incretinomimetics or diabetes type 2 insufficiently controlled by oral antidiabetics; people not be registered in a convention; people should have a global medical record followed by their general practitioner and should consult their general practitioner at least twice a year and their endocrinologist at least one by year.
  - Aims: to improve follow-up and collaboration between patients, general practitioner and medical specialist.
  - Advantages for patients: all consultations totally reimbursed with general practitioner and endocrinologist; free access to consultations with a diabetes educator (that can be a nurse, a dietician, a physiotherapist or a podiatrist) specialised in diabetes education (information on lifestyle, treatments, follow-up); free self-control material only for those on injectable therapy (150 dipsticks/6 months, glucometer), 2 consultations partially reimbursed with a dietician each year and 2 consultations partially reimbursed with a podiatrist each year (only if the patient is at high risk of foot wound).
  - Since the 1st May 2018, the reimbursment rules for people living with type 2 diabetes in care trajectory has been modified. It affects consultations in diabetes for education, reimbursement of self-control material and reimbursement of consultations with specialists. People registered in a care trajectory for type 2 diabetes under insulin or under incretinomimetics are fully reimbursed for their self-control material. Each person can benefit from 5 consultations in diabetes for education per year and once 5 supplementary consultations. At least one of them should be delivered at home. Sickness funds do not pay lump sum fee for endocrinologists anymore when people are also registered in a diabetes convention.
- Convention with specialised centres for diabetes self-management and other specific support programmes such as for people living with diabetes (*conventions INAMI – RIZIV overeenkomsten*):
  - Set up in Belgium in 1986 (modified in 2008 and 2016).
  - Inclusion criteria: people living with type 1 or type 2 diabetes under at least 2 insulin injections by day and with a serious medical condition or people living with type 2 diabetes under at least 3 insulin injections by day; people with gestational diabetes; people aged more than 16 years old; ambulatory or hospitalised; people with a global medical record followed by their general practitioner.

[p] Inclusion criteria: people living with type 2 diabetes registered in the pre-care trajectory; people with age 15-69 years and a cardiovascular risk defined as BMI>30 and/or having high blood pressure; GP's prescription for consultation for diabetes education.

	People living with type 2 diabetes registered in a care model often opt for a care trajectory and thus are followed by both GPs and medical specialists. ○ Aims: to organise a multidisciplinary management of people living with diabetes in specialised hospital centres in order to support the education of patients and those around them, the patient's involvement in their periodic examinations and the communication between the patient and various care providers. ○ Advantages for patients: integration in a full revalidation process including free self-control material and multidisciplinary consultations. Since the application of the new convention the 1st July 2016, in addition to the usual standard equipment a new measuring equipment (sensor for self-monitoring of glucose) is reimbursed for people living with type 1 diabetes. Because the registration in a diabetes pass/pre-care trajectory, care trajectory or convention is volunteer, the percentage of people registered in at least one of the three systems of registration is an indicator of the person's participation in this public investment.
Data source	IMA – AIM
Technical definitions	Two distinct groups of people living with diabetes are considered (selection on Pharmanet: class ATC A10 drugs prescription) • **Adults living with diabetes under insulin** (ATC=A10A): people aged ≥ 18 years and A10A outpatient prescription >37.5 DDDs (N.B.: for insulin: 1 DDD = 40 IU[q]). • **Adults living with diabetes receiving glucose-lowering drugs other than insulin (ATC=A10B) and almost no insulin (ATC=A10A)**: people aged 18 years and older and A10B outpatient prescription >=270 DDDs per year and 0≤A10A outpatient prescription<37.5DDDs per year. This group includes all oral antidiabetics but also incretin mimetics (GLP1-agoniste, code A10BJ) which are non-insulin injectable solutions. • For these 2 groups of people living with diabetes (under insulin or receiving other glucose-lowering drugs), we identified people registered in at least one of the three systems of registration. Adults living with diabetes (under insulin or receiving other glucose-lowering drugs) registered in a care trajectory, a convention, or a diabetes pass/pre-care trajectory are identified through the following nomenclature code: • **Diabetes pass/pre-care trajectory:** 102852, 109594. On February 1, 2016, the description of the code 102852 «Use of a diabetes pass by the GP » was replaced by «Follow-up of a patient with type 2 diabetes according to the pre-care trajectory / care protocol established by the Insurance Committee ». The code 109594 was introduced in 2016 for the follow-up, in medical house (*maisons médicales - medische huizen*) of a person living with type 2 diabetes according to the pre-care trajectory / care protocol established by the Insurance Committee. • **Diabetes care trajectory**: 107015, 107030, 107052, 107074. These codes concern the fixed fees for GPs and other medical specialists, respectively, for year 1 and for the following years (from year 2), respectively. • **Diabetes convention**: 770033, 770055, 770070, 771573, 771595, 772450, 772461, 773113, 773231, 773253, 773275, 773393, 773496, 773592, 774115, 774130, 774152, 775456, 775471, 788756, 788771, 788793, 788815, 788830, 788852, 788874, 788896, 788911, 788933,

[q] https://www.whocc.no/atc_ddd_index/?code=A10AD01 N.B.: Because some patients have a much lower daily dose than 40 UI, those who started taking insulin at the end of a year might be excluded.

	788955, 785573, 785595, 785610, 785632, 785654, 785676, 785691, 785713, 785735, 785750, 785772, 785794, 785816, 785831, 785853, 785875, 785890, 785912, 785934, 785956, 789751, 789773, 789795, 789810, 789832, 789854, 789876, 789891, 789913, 789935
International comparability	Not applicable
Limitations	Underestimated denominator (only people living with diabetes under medication as defined by the definition above); Process indicator (which provide no information on outcome); Risk of misclassification, notably risk that some people under insulin since a few days were considered as people receiving glucose-lowering drugs. Moreover, for people receiving glucose-lowering drugs other than insulin, it is possible that some of them take e.g. metformin to lose weight instead of stabilising a diabetes; Risk of misclassification or omission of certain RIZIV - INAMI codes that refer to a pass/pre-care trajectory, care trajectory or a convention.
Dimension	Continuity (Management/Coordination); Ambulatory care; Link specialist and GP; Chronic care
Related indicators	QA-1 & QA-2 (appropriate diabetes follow-up)
Reviewers	Christophe De Block (UZA), Chantal Mathieu (UZ Leuven), Astrid Lavens (Sciensano), Johan Van Overloop (IMA – AIM) and Kathleen Sierens (RIZIV – INAMI)

4.4.2 Results

Belgium

A total of 168 748 adults living with diabetes under insulin and a total of 252 005 adults living with diabetes receiving other glucose-lowering drugs than insulin were identified in 2021 through their drugs prescription (see Table 33 and Table 34). This number does not consider adults living with diabetes without medication (e.g. patients diagnosed with diabetes but only under diet or non-diagnosed patient). Globally, 86.0% of the identified **adults living with diabetes under insulin** had at least one registration in a diabetes care model (pass/pre-care trajectory, care trajectory or convention, see Table 33) in 2021. Among adults living with diabetes under insulin, 63.2% of them had registered for a convention, while 27.5% and 2.1% had a care trajectory or a pass/pre-care trajectory respectively. The proportion of **patients receiving other glucose-lowering drugs than insulin** having at least one registration in a diabetes care model was only 26.6% (see Table 34). Most of them (16.4% of the patients receiving other glucose-lowering drugs than insulin) had registered for a care trajectory, followed by pass/pre-care trajectory registration (10.3%), and only a few had a convention (0.8%, see Table 34).

Table 33 – Proportion of adults living with diabetes under insulin within a pass/pre-care trajectory, a care trajectory or a convention, by patient characteristics (2021)

PATIENTS UNDER INSULIN (18 years or more)		Patients having a at least ONE OF THE THREE systems of registration			Patients having a PASS/PRE-CARE TRAJECTORY	Patients having a CARE TRAJECTORY	Patients having a CONVENTION
		Numerator	Denominator	Proportion	Proportion	Proportion	Proportion
Belgium		145 203	168 748	**86.0%**	2.1%	27.5%	63.2%
Region	**Brussels**	14 193	17 499	**81.1%**	2.4%	20.0%	64.2%
	Flanders	82 053	93 023	**88.2%**	2.2%	30.3%	63.4%
	Wallonia	48 390	57 474	**84.2%**	1.9%	25.3%	62.6%
Gender	**Female**	66 438	77 580	**85.6%**	2.1%	27.6%	62.7%
	Male	78 765	91 168	**86.4%**	2.2%	27.4%	63.7%
Age groups	**18-24**	3 339	3 519	**94.9%**	0.7%	0.7%	94.3%
	25-49	23 578	26 411	**89.3%**	1.6%	9.0%	82.3%
	50-74	77 531	88 837	**87.3%**	2.3%	29.0%	63.6%
	75-84	28 785	34 033	**84.6%**	2.2%	35.7%	54.4%
	85-89	8 214	10 488	**78.3%**	2.3%	39.0%	44.6%
	90+	3756	5460	**68.8%**	2.9%	36.3%	35.5%
Long term care (65 years or +)	**Nursing care at home**	17 069	20 694	**82.5%**	2.1%	35.1%	53.4%
	Institutions	7 611	10 827	**70.3%**	2.2%	29.4%	45.7%
	No LT care	120 523	137 227	**87.8%**	2.1%	26.2%	66.1%
Increased reimbursement (18 years or +)	**No**	92 760	106 791	**86.9%**	1.9%	26.9%	64.6%
	Yes	52 360	61 831	**84.7%**	2.6%	28.6%	60.9%

Source: IMA – AIM

Trend over time shows that the proportion of people living with diabetes with registration in a diabetes care model is decreasing from 2020 to 2021 for **adults living with diabetes under insulin** while it is stable since 2019 for **adults living with diabetes receiving other glucose-lowering drugs than insulin** (Figure 74).

Table 34 – Proportion of adults living with diabetes received glucose-lowering drugs other than insulin within a pass/pre-care trajectory, a care trajectory or a convention, by patient characteristics (2021)

PATIENTS RECEIVING OTHER GLUCOSE-LOWERING DRUGS THAN INSULIN (18 years or more)							
		Patients having a at least ONE OF THE THREE systems of registration			Patients having a PASS/PRE-CARE TRAJECTORY	Patients having a CARE TRAJECTORY	Patients having a CONVENTION
		Numerator	Denominator	Proportion	Proportion	Proportion	Proportion
Belgium		66 957	252 005	**26.6%**	10.3%	16.4%	0.8%
Region	**Brussels**	4 970	20 680	**24.0%**	7.6%	16.4%	1.0%
	Flanders	45 725	139 558	**32.8%**	13.8%	19.2%	0.9%
	Wallonia	16 063	90 818	**17.7%**	5.4%	12.3%	0.6%
Gender	**Female**	27 740	106 572	**26.0%**	10.3%	15.9%	0.7%
	Male	39 217	145 433	**27.0%**	10.3%	16.8%	0.9%
Age groups	**18-24**	37	303	**12.2%**	2.0%	6.6%	1.7%
	25-49	4957	16991	**29.2%**	9.6%	19.4%	1.6%
	50-74	45 490	161 144	**28.2%**	10.4%	18.0%	0.8%
	75-84	13 106	55 037	**23.8%**	10.3%	13.5%	0.6%
	85-89	2 551	13 090	**19.5%**	9.9%	9.5%	0.7%
	90+	816	5440	**15.0%**	8.5%	6.3%	40.0%
Long term care (65 years or +)	**Nursing care at home**	4 746	18 391	**25.8%**	9.5%	16.0%	1.6%
	Institutions	1044	7 167	**14.6%**	6.3%	7.7%	1.1%
	No LT care	61 167	226 447	**27.0%**	10.5%	16.7%	0.7%
Increased reimbursement (18 years or +)	**No**	46 130	177 481	**26.0%**	10.0%	16.1%	0.7%
	Yes	20 819	74 477	**28.0%**	10.9%	17.2%	1.0%

Source: IMA - AIM

Analysis by demographic characteristics and socio-economic status

The proportion of **adults living with diabetes under insulin** with at least one registration in a diabetes care model is quite similar for men (86.4%) and women (85.6%, see Table 33). The same observation can be done among **adults living with diabetes receiving other glucose-lowering drugs than insulin** with at least one registration in a diabetes care model (27.0% for men and 26.0% for women, see Table 34).

The proportion of **adults living with diabetes under insulin** with at least one registration in a diabetes care model is the highest in the 18-24 years (94.5%) and remains superior to 80% until 84 years old. Afterwards, the proportion decrease to 78.3% in the 85-89 age group and 68.8% in the 90+ age group (Table 33). The proportion of **adults living with diabetes receiving other glucose-lowering drugs than insulin** who have at least one registration in a diabetes care model decreases regularly from 29.2% in the 25-49 age group to reach 15.0% in the 90+ age group, but the 18-24 age group has the lowest proportion with 12.2% (Table 34).

Among the 65 years old and over, the proportion of persons living with diabetes with at least one registration in a diabetes care model is lower for patients in institutions (e.g. in nursing homes) compared to patients receiving home care and patients without long-term care (defined as not in institution and without receiving home care), **both for persons under insulin and receiving other glucose-lowering drugs than insulin** (see and Table 34).

Adult living with diabetes **under insulin** with entitlement to increased reimbursement have slightly less often a registration than patients without this financial support (84.7% vs 86.9%, see Table 33). Conversely, the proportion of **diabetic patients receiving other glucose-lowering drugs than insulin** with at least one registration in a diabetes care model is higher with entitlement to increased reimbursement (28.0%) than without increased reimbursement (26.0%, see Table 34).

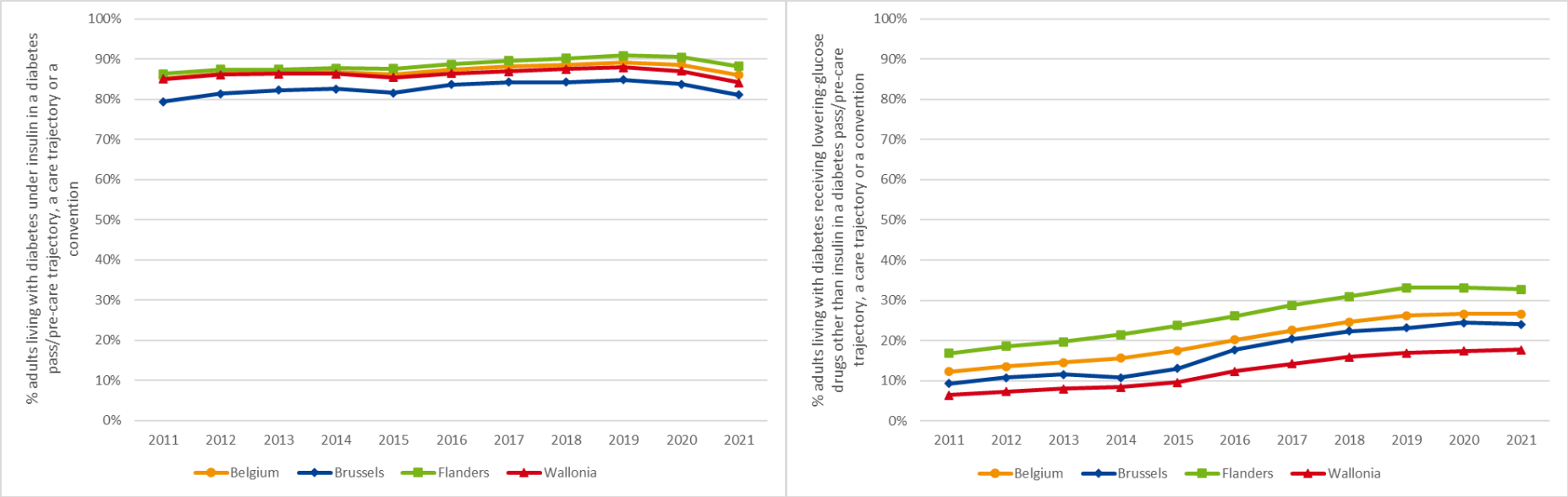
Regional comparison

A slight difference was noticed between the three regions and the type of diabetes care model concerning **adults living with diabetes under insulin** (Table 33). The use of care trajectory in 2021 is higher in Flanders (32.8%) compared to Brussels (24.0%) and Wallonia (17.7%); no large differences were noticed for pass/pre-care trajectory and convention.

The proportion of **adults living with diabetes receiving other glucose-lowering drugs than insulin** with at least one registration in a diabetes care model is higher in Flanders (32.9%) than in Brussels (23.0%) and Wallonia (16.9%) and this difference is found for the three types of registration except for convention registration where Brussels (1.0%) is slightly higher than Flanders (0.9%) (Table 34).

This is not a new trend as shown in Figure 74: Flanders has a higher proportion of adults living with diabetes (both with and without insulin) over the 2011-2021 period.

Figure 74 – Proportion of adults living with diabetes in a care trajectory, a convention or with a diabetes pass/pre-care trajectory, by patient region (2011-2021, left: patients treated with insulin, right: patients treated with other glucose-lowering drugs than insulin)



Source: IMA – AIM

Impact of COVID-19 pandemic

Unknown

Key points

- The proportion of adults living with diabetes with at least one registration in a diabetes care trajectory, a diabetes convention or a diabetes pass/pre-care trajectory is relatively high among patient under insulin (86.0%). A large majority of patients under insulin registered in a diabetes care model have a convention. In another way, a low proportion of patients receiving other glucose-lowering drugs than insulin has at least one registration in a diabetes care model (26.6%), a little more than half having a care trajectory.
- The proportion of adults living with diabetes with at least one registration in a diabetes care model decrease with age both for patients under insulin and adults receiving other glucose-lowering drugs than insulin but remain superior to 80% for patients under insulin from 25 years old to 84 years old.
- Among the 65 years old and over, the proportion of persons living with diabetes with at least one registration in a diabetes care model is lower in institutions (e.g. in nursing homes) compared to home care and no long-term care, both for patients under insulin and receiving other glucose-lowering drugs than insulin.
- Patients under insulin with lower socio-economic level (measured by entitlement to increased reimbursement) have slightly less often a registration in a diabetes care model. Conversely, Patients receiving other glucose-lowering drugs than insulin with lower socio-economic level have slightly more often a registration.
- The proportion of patients with at least one registration in a diabetes care model in 2021 is higher in Flanders (88.2% and 32.8%) than in Wallonia (84.2% and 17.7%) and Brussels (81.1% and 24.0%), respectively for adults living with diabetes treated with insulin and treated with other glucose-lowering drugs than insulin.
- The proportion of patients under insulin with at least one registration in a diabetes care model has decreased from 2020 to 2021. After an increasing trend from 2011 to 2019, the registration rate has become rather stable over the last three years for patients receiving other glucose-lowering drugs than insulin.

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4.5 Reference pharmacist (QC-7)

4.5.1 Documentation sheet

Description	People with a reference pharmacist (% of people who should have a referral pharmacist)
Calculation	**Numerator**: Number of patients with billing code 758192 or 758214 **Denominator**: Number of patients going to a public pharmacy who have been prescribed at least 5 different active substances in a year, with 160 DDDs or more within the last 12 months for at least one of them
Rationale	Since 01/10/2017, a "reference pharmacist" service was introduced for patients with a chronic disease (FR/NL)[1]; it consists of: - Register pharmaceutical delivered in the pharmaceutical (electronic) file - Deliver a medication scheme for the patient - Make sure other care practitioners have access to the patients' medication scheme[2] This indicator measures the uptake of the service among chronic patients and non-chronic patients.
Data source	IMA – AIM
Technical definitions	• Individuals with a billing code 758192 (start) or 758214 (annual fee) benefitting from a reference pharmacist for the current calendar year • Individuals entitled to the status chronic illness: entitlement is observed through IMA – AIM *status chronic illness* variables pp3015 (financial criterion), pp3016 (lump sum for chronic disease) or pp3017 (rare disease). If the value for one of these 3 variables is equal to 1 (start) or 2 (extension), the individual has an entitlement.
International comparability	None
Limitations	None
Dimension	Continuity of care, person centredness
Related indicators	None

4.5.2 Results

The reference pharmacist service is reimbursed by RIZIV – INAMI for the following patients:

- Going to a public pharmacy, excluding patients in homes for the elderly (MRPA – ROB) or nursing homes (MRS – RVT)
- Who have been prescribed at least 5 different active substances in a year, with 160 DDDs or more within the last 12 months for at least one of them.

Among these patients (= "target patients"), 4 subgroups are given priority:

- Individuals entitled to the status chronic illness with a global medical record (GMR)
- Patients enrolled in a diabetes pre-pathway and receiving education from the reference pharmacist or a pharmacist working in the same public pharmacy as the reference pharmacist
- Patient with polypharmacy (taking at least 5 chronic medications within a year
- Patients who require or express a specific need for follow-up pharmaceutical care based on particular pathologies or physiological conditions, (potential) iatrogenic risks, (suspected) non-adherence to medication, or a need for specific support for social reasons.

Belgium

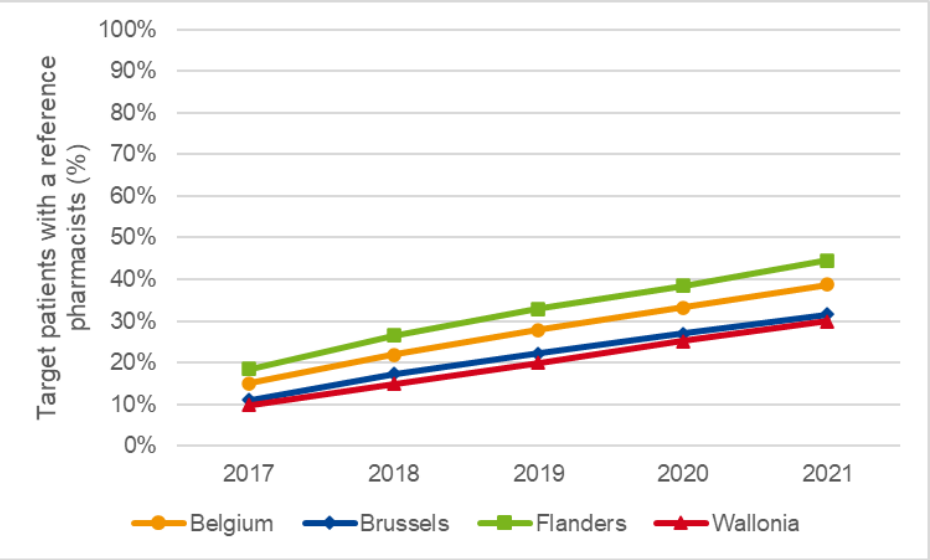
The proportion of target patients that has a reference pharmacist has risen from 15.0% in 2017 to 38.7% in 2021 (Figure 75). For target patients with the status chronic illness ("chronic patients") who have a reference pharmacist, the proportion is low, but increasing (Table 35): from 19.1% in 2017 to 46.6% in 2021. In the target population without status chronic illness, this proportion is lower (12.8% in 2017 and 32.9% in 2021).

Table 35 – Patients (chronic vs non-chronic) entitled to reimbursed reference pharmacist services who have a reference pharmacist

	All patients				Chronic patients				Non-chronic patients			
Year	Belgium	Flanders	Wallonia	Brussels	Belgium	Flanders	Wallonia	Brussels	Belgium	Flanders	Wallonia	Brussels
2017	15.0%	18.5%	9.8%	11.0%	19.1%	23.5%	12.8%	13.5%	12.8%	15.9%	8.3%	9.5%
2018	22.0%	26.6%	14.9%	17.3%	28.3%	34.0%	19.6%	21.3%	18.5%	22.4%	12.4%	14.8%
2019	27.9%	33.0%	20.0%	22.3%	34.9%	41.4%	25.6%	27.1%	23.6%	28.0%	16.4%	19.0%
2020	33.2%	38.4%	25.1%	26.9%	39.7%	46.2%	30.8%	31.6%	29.0%	33.8%	21.2%	23.4%
2021	38.7%	44.6%	29.9%	31.6%	46.8%	53.7%	37.0%	37.9%	32.9%	38.2%	24.6%	26.7%

Source: IMA - AIM

Figure 75 – Proportion of patients entitled to reimbursed reference pharmacist services who have a reference pharmacist



Source: IMA – AIM

Analysis by demographic characteristics and socio-economic status

The mean age of patients with a reference pharmacist is 67.6 years and the median 68 (in 2022); 56.4% of them are women; the proportion of patients benefitting from increased reimbursement is 27.5%.[4]

Regional comparison

Flanders has a higher proportion (44.6% in 2021) than Brussels (31.6% in 2021) and Wallonia (29.9% in 2021). The trend is going up in all three regions.

Impact of COVID-19 pandemic

Unknown.

Key points

- **Since October 2017, polymedicated patients can ask for a reference pharmacist, who will make sure that all medication is registered in the (electronic) pharmaceutical file, that the patient receives a pharmaceutical scheme and that other healthcare practitioners have access to the patient's medication scheme**
- **Uptake has been growing, with 38.7% of the polymedicated persons going to a public pharmacy having one reference pharmacist at the end of 2021 (56.4% of them women)**
- **Uptake could be improved by sending a letter to the eligible patients**

References

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3. RIZIV – INAMI, Variations de pratiques médicales – Fonction pharmacien.ne de référence

4.6 Patients with cancer discussed at the multidisciplinary team meeting (QC-6)

4.6.1 Documentation sheet

Description	Proportion of patients with a new diagnosis of cancer who were discussed at the multidisciplinary team meeting (MDT, MOC-COM[r])
Calculation	**Numerator**: Number of patients diagnosed with an invasive cancer in a given year discussed at the MDT within 1 month before and 6 months after incidence date **Denominator**: Number of patients diagnosed with an invasive cancer in a given year (first tumour only)
Rationale	Multidisciplinary team meetings have been implemented in many countries as the predominant model of cancer care to ensure that all patients receive timely diagnosis and treatment, that management of the tumour is evidence-based, and that there is continuity of care. In all cancer guidelines developed by the KCE and the College of Oncology, multidisciplinary discussion is recommended to decide on the cancer diagnosis, staging and treatment plan. They are financed in Belgium since 2003, and have been strongly encouraged by the National Cancer Plan since then.[1]
Data source	Belgian Cancer Registry (BCR), incidence years 2004-2020, linked to IMA-AIM data.
Technical definitions	The nomenclature codes for the coordination of a MDT (MOC-COM) are the following: • first MOC-COM (350372-350383) • Participation in multidisciplinary MOC-COM (350394-350405, 350416-350420) • follow-up MOC-COM (350276-350280) • additional MOC-COM (350291-350302) • supplementary fees for oncologists (350453-350464, 350475-350486). Selection of patients: • new diagnoses of invasive cancer registered in the BCR (no in situ tumours), incidence years 2004-2020 The following cases were excluded from the analyses: • Second and subsequent invasive tumours for the same patient during one incidence year (only the first tumour per incidence year is taken into account) • Patients without a Belgian residence • Patients without national social security number • Patients for whom no IMA data in the year of incidence were available (≈2% of the selected patients)

[r] COM: consultation multidisciplinaire en oncologie, MOC: multidisciplinair oncologisch consult

	To account for the fact that the date of diagnosis is sometimes slightly inaccurate and that small administrative mistakes in the health insurance data are possible, a MDT was searched for each patient within a time frame of 1 month before and 6 months after incidence date.
International comparability	No data are readily available from other countries. Data on multidisciplinary discussion are only sporadically published.
Limitations	No information is available on the quality of the discussion, and there are some financial incentives for hospitals to organise MDT meetings (the financing of extra manpower in oncological centres is directly linked to the number of patients discussed during MDT in a centre during a given year). As the delay on the invoice data (i.e. IMA-AIM data) can prolong up to 2 years after the actual date that the MDT was organised, the proportion of MDTs from the last included incidence year of the analysis (in this case 2020 may be a slight underestimation.[1] Although extremely useful to assess MDT practice at the population level, working with administrative billing databases entails some limitations in the interpretation of the results.[4] First, although MDT coverage is frequently used as a parameter of quality of care (Stordeur et al., 2012),[5] no information is available on the actual quality of discussions between specialists. Second, only financed MDT meetings were analysed, leading to an underestimation of reality; discussions with experts of the field revealed that many patients are discussed during an MDT pre- and postoperatively. As billing rules define that only one MDT per year can be financed and the postoperative MDT with the full treatment plan is preferred for billing, the latter may fall outside the timeframe of one month before until 6 months after incidence date of the tumour. A financing for the organisation of a “reference MDT meeting” to allow experts from reference centres to discuss more complex cases at a (inter)national level should be foreseen to fairly recognise the contribution of these clinical experts (Stordeur, Vrijens, & Leroy, 2016).[6]
Dimension	Quality: Continuity-Coordination of care
Related indicators	Cancer 5-year survival rate (breast, colorectal)
Reviewers	Cindy De Gendt (BCR)

Background

In Belgium, MDT meetings are financed since 2003 by the National Institute for Health and Disability Insurance (RIZIV – INAMI). MDT meetings are not obligatory according to the Belgian legislation for every new cancer diagnosis. Indeed, the law stipulates only four situations in which the discussion of a case in a MDT is mandatory: (1) when an oncological treatment deviates from the hospital’s oncology manual, (2) when re-irradiation of a same target zone is envisaged within 12 months after the start of the first radiotherapy, (3) when chemotherapy is delivered with a drug that, in its first reimbursement phase, is to be monitored by a MDT and (4) from 2007 onwards, for every new breast cancer diagnosis treated in a recognised breast clinic. Nonetheless, the National Cancer Plan launched in 2008 encouraged the implementation of MDT meetings as an essential step in the clinical pathway of each new cancer case. In 2009, financial incentives have been set up to fund the supportive oncology staff members (i.e., psychologists, nurses, social workers, dieticians and data managers); they are based on the number of billed MDT meetings in preceding years per oncological centre. Hence, the more MDTs are billed, the more supportive staff the oncological centre can recruit. In general, financing was limited to one MDT per patient per calendar year. In 2010, a differentiation was introduced allowing different financed MDT meetings per patient along the care pathway in a few specific situations (i.e. a “follow-up MDT meeting” when the diagnosis and/or the treatment plan is altered and/or when re-irradiation is scheduled within 12 months after initiation of the first radiotherapy, and a “supplementary MDT meeting” when a patient is referred to another hospital to complete the diagnosis and the treatment plan). In addition,

the maximum possible number of intramuros specialists being reimbursed for attending a MDT meeting increased from 4 to 5, and some specialists (in medical oncology, haematology, paediatric oncology and paediatric haematology) received a supplementary fee when attending or coordinating the MDT meeting. The general practitioner of the patient can also participate in the meeting.

4.6.2 Results

Belgium

In 2004 (the first full year after the start of the financing of multidisciplinary discussion of patients diagnosed with cancer in Belgium), only 52.5% of the cancer patients were discussed during a multidisciplinary team meeting. In 2010, 78.9% of the patients benefited from this meeting and this proportion increased further to 90.4% in 2020. The proportion of cancer patients discussed at a MDT varies between different types of cancer, but this variability between tumour types is less pronounced in the more recent years (see Table 36).

In both 2019 and 2020, patients with breast cancer are the most often discussed in a MDT (95.5% in 2020), contrasting with malignant melanoma (75.6% in 2020) and even less (67.5% in 2020) for unknown primary and ill-defined sites cases (Table 36 and Figure 76).

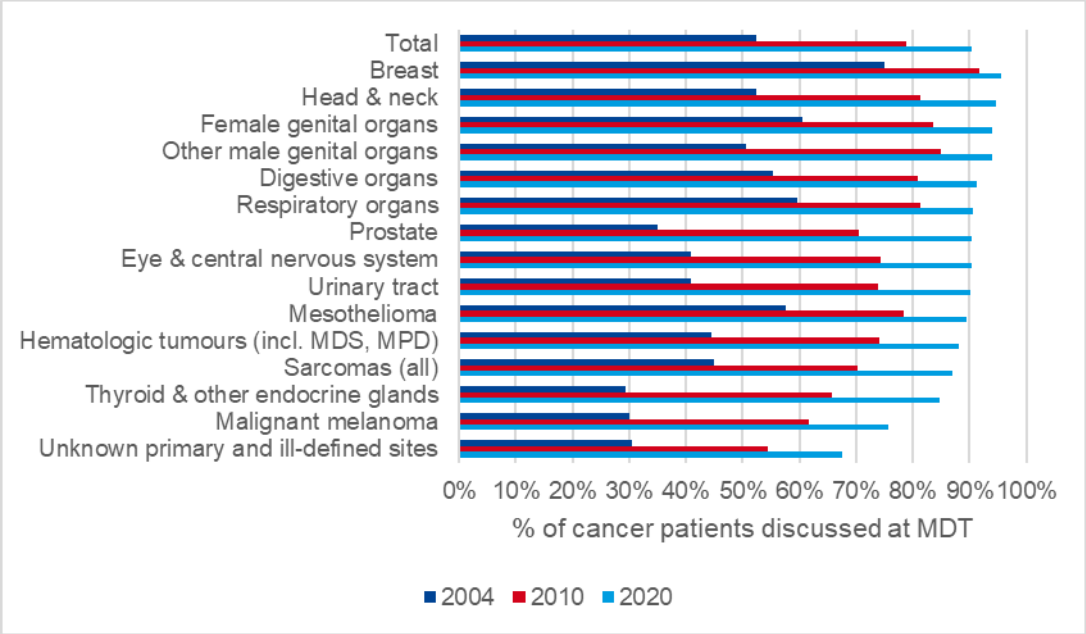
Table 36 – Proportion of cancer patients discussed at multidisciplinary team meeting, per tumour group (2004-2020)

Year	2004			2010			2019			2020		
Localisation	N of Patients	N of MDT	% MDT	N of Patients	N of MDT	% MDT	N of Patients	N of MDT	% MDT	N of Patients	N of MDT	% MDT
C00-C14, C30-C32 Head & neck	2 340	1 225	**52.4%**	2 338	1 899	**81.2%**	2 624	2 467	**94.0%**	2 407	2 279	**94.7%**
C15-C26 Digestive organs	11 148	6 178	**55.4%**	13 121	10 611	**80.9%**	14 048	12 908	**91.9%**	13 192	12 042	**91.3%**
C33-C39 Respiratory organs	6 822	4 066	**59.6%**	7 660	6 231	**81.3%**	8 575	7 813	**91.1%**	8 549	7 740	**90.5%**
C40-C41, C46-C49 Bones, articular cartilage, soft tissue & Kaposi sarcoma	503	226	**44.9%**	513	360	**70.2%**	605	510	**84.3%**	664	577	**86.9%**
C43 Malignant melanoma	1 327	398	**30.0%**	2 032	1 255	**61.8%**	3 577	2 684	**75.0%**	3 454	2 611	**75.6%**
C45 Mesothelioma	224	129	**57.6%**	249	195	**78.3%**	282	256	**90.8%**	248	222	**89.5%**
C50 Breast	9 194	6 894	**75.0%**	10 029	9 205	**91.8%**	11 233	10 770	**95.9%**	10 795	10 307	**95.5%**
C51-C58 Female genital organs	3 014	1 825	**60.6%**	3 059	2 555	**83.5%**	2 964	2 801	**94.5%**	3 026	2 843	**94.0%**

C61 Prostate	8 857	3 104	**35.0%**	8 370	5 909	**70.6%**	9 807	8 753	**89.3%**	9 302	8 415	**90.5%**
C60, C62, C63 Other male genital organs	295	149	**50.5%**	399	339	**85.0%**	473	446	**94.3%**	526	494	**93.9%**
C64-C68 Urinary tract	3 376	1 377	**40.8%**	3 960	2 922	**73.8%**	4 670	4 155	**89.0%**	4 500	4 059	**90.2%**
C69-C72 Eye & CNS	817	334	**40.9%**	901	670	**74.4%**	1 058	974	**92.1%**	965	872	**90.4%**
C73-C75 Thyroid & other endocrine glands	618	182	**29.4%**	900	591	**65.7%**	1 015	814	**80.2%**	890	754	**84.7%**
C81-C96 Hematologic tumours (incl. MDS, MPD)	4 534	2 015	**44.4%**	5 810	4 300	**74.0%**	7 506	6 507	**86.7%**	7 002	6 164	**88.0%**
C76, C80 Unknown primary and ill-defined sites	1 152	350	**30.4%**	796	434	**54.5%**	680	451	**66.3%**	634	428	**67.5%**
Total. excl. non-melanoma	54 221	28 452	**52.5%**	60 137	47 476	**78.9%**	69 117	62 309	**90.2%**	66 154	59 807	**90.4%**
Total, excl. non-melanoma, MDS, MDP	53 526	28 176	**52.6%**	59 046	46 706	**79.1%**	67 354	60 800	**90.3%**	64 576	58 430	**90.5%**

Note: Abbreviations: MDS: Myelodysplastic syndrome, MPD: Myeloproliferative Disorder, CNS: Central Nervous System
Source: Belgian Cancer Registry (BCR) data linked to data of the Intermutualistic Agency (IMA – AIM)

Figure 76 – Proportion of cancer patients discussed at multidisciplinary team meeting, per tumour group (2004-2020)



Note: Sarcomas (all): Bones, articular cartilage, soft tissue & Kaposi sarcoma
Source: Belgian Cancer Registry (BCR) data linked to data of the Intermutualistic Agency (IMA – AIM)

A paper[4] published on similar Belgian data (BCR-IMA) focused on seven different cancer types (female breast cancer, prostate cancer, lung cancer, rectal cancer, malignant melanoma, acute leukaemia and soft tissue sarcoma) in patients diagnosed between 2004 and 2011 (n= 205 062 patients). More detailed analyses in this paper provide further insight into the current results. For example, the positive trend over time in coverage rate by MDT meetings seemed independent of the stage of the disease for all cancer types, except for melanoma: in 2011, patients with stage I were less discussed (66%) in MDT than those with stage III disease (98%). This is probably due to the fact that these patients are not automatically referred to a hospital but are often diagnosed and treated ambulatory, particularly for non-advanced stages (in ambulatory dermatology practices). In this case, diagnoses are reported directly to the BCR by the laboratory for pathological anatomy.

In general, age seemed to play an important role in considering a patient for a MDT discussion; elderly patients (i.e., ≥80 years) were less often discussed during a MDT meeting for all cancer types. This underuse of MDT meetings for elderly patients is regrettable: even when a patient is unfit to undergo a curative treatment, an MDT meeting remains extremely useful to determine in a multidisciplinary way which strategy could be helpful for the patient taking into account the results of the geriatric assessment and the frailty of the patient, whatever its intent, curative or palliative.

Regional comparison

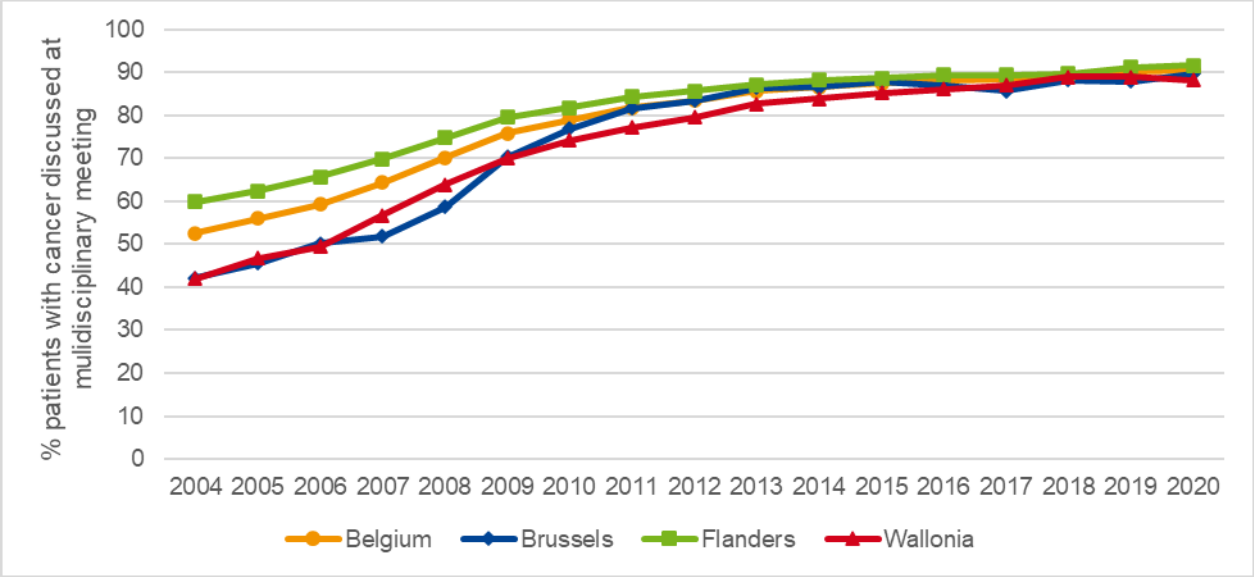
The clear regional differences in MDT that were observed at the introduction of the MDT meetings in the nomenclature for reimbursement (i.e. 2004, Flanders 59.8%, followed by Brussels 42.1% and Wallonia 42.0%) tend to diminish. Cancer patients diagnosed in 2020 were only slightly more frequently discussed at the MDT in Flanders (91.6%), followed by Brussels (89.3%) and Wallonia (88.2%) (Table 37 and Figure 77).

Table 37 – Proportion of cancer patients discussed at multidisciplinary team meeting, per region (2004-2020)

	2004			2010			2019			2020		
	N Patients	N MDT	**% MDT**	N Patients	N MDT	**% MDT**	N Patients	N MDT	**% MDT**	N Patients	N MDT	**% MDT**
Belgium	54 221	28 452	**52.5%**	60 137	47 476	**78.9%**	69 117	62 309	**90.2%**	66 154	59 807	**90.4%**
Brussels	4 339	1 825	**42.1%**	4 891	3 760	**76.9%**	5 022	4 408	**87.8%**	4 663	4 165	**89.3%**
Flanders	31 847	19 046	**59.8%**	36 024	29 465	**81.8%**	41 724	38 003	**91.1%**	40 717	37 310	**91.6%**
Wallonia	18 035	7 581	**42.0%**	19 222	14 251	**74.1%**	22 371	19 898	**88.9%**	20 774	18 332	**88.2%**

Source: Belgian Cancer Registry (BCR) data linked to data of the Intermutualistic Agency (IMA – AIM)

Figure 77 – Proportion of cancer patients discussed at multidisciplinary team meeting, per Region (2004-2020)



Source: Belgian Cancer Registry (BCR) data linked to data of the Intermutualistic Agency (IMA – AIM)

Impact of COVID-19 pandemic

Unknown.

Key points

- Since the introduction of specific nomenclature codes for the multidisciplinary team meeting (MDT, MOC-COM) in 2003, a rapid increase in its use is noticed for all cancer types. Overall, about 90.4% of cancer patients diagnosed in 2020 were discussed at the MDT within one month before until six months after incidence date (compared to 52.5% in 2004 and 78.9% in 2010).
- There is variability in use of the MDT between different cancer types (highest in breast cancer with 95.5%, lowest in malignant melanoma of the skin (75.6% in 2020) and unknown primary and ill-defined sites cases with 67.5% in 2020).
- An increasing use of the MDT is noticed for all three Regions throughout the period 2004-2020.
- Moreover, initial (i.e. in 2004) marked regional variability in use of the MDT, with the highest results in Flanders, has clearly reduced in the more recent years. In 2020 cancer patients are only slightly more frequently discussed at the MDT in Flanders (91.6%), followed by Brussels (89.3%) and Wallonia (88.2%).

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5 QUALITY – PEOPLE-CENTRED CARE

5.1 Patients experience with ambulatory healthcare service (QP-1)

5.1.1 Documentation sheet

Description	QP-1: Physician spending enough time with patients during the consultation (% of respondents, contact with doctor (GP or SP))
Calculation	**Numerator**: number of respondents (≥ 15 years old) who answered to the HIS (2013 or 2018) and who reported they had a good relational experience during the last contact with either a general practitioner (GP) or a specialist (SP) in ambulatory care (GP or specialist depending on which ambulatory health care provider was contacted last). **Denominator**: number of respondents (≥ 15 years old) who answered to the HIS and who had a contact with either a GP or a specialist in the 12 months preceding the date of the interview.
Rationale	Person-centred care is supported by good provider-patient communication so that patient's needs and preferences can be addressed and that patients understand and participate in their own care.[1] Unfortunately, good communication is not easy and requires several competencies (listening, explaining, courtesy…). The measurement of these skills is a challenge and several institutes tackle this issue in their surveys. In 2011, the OECD edited a questionnaire on patient experiences with some questions related to the quality of the consultation.[2] On the request of the Federal Public Service Public Health, the Belgian Scientific Institute of Public Health (Sciensano) includes since the Health interview survey 2013 the OECD instrument dedicated to the patient experiences with ambulatory care.
Data source	HIS 2013, HIS 2018
Technical definitions	**Question based on the OECD module[2]:** Now, refer to the last time you had a consultation either with a GP; either with a specialist: QP1. Did this doctor spend enough time with you?
International comparability	Yes, data based on an OECD module, questions are comparable in all countries but with caution because the way in which the information in different countries is collected (special survey vs overall health survey, sampling scheme, survey organisation, etc.) may have an impact on the outcome of the result.
Limitations	It remains subjective assessment. Even if respondents without contact with a physician during the last 12 months were excluded, the delay between consultation and survey can be long.

	Focus on ambulatory care only; home visits by GPs excluded. Less than 15 years are excluded.
Dimensions	People-centred care; Ambulatory care
Related indicator	None
Reviewer	See KCE report 352

5.1.2 Results

QP1. Did the doctor spend enough time with you?

According to the Belgian HIS 2018, 97.5% (95% Confidence Interval (CI): 97.0-97.9) of patients mentioned their doctor (GP or specialist) spent enough time with them during the consultation; this percentage equals that of 2013 (Table 38). The level of satisfaction with time spent by the doctor is slightly lower for specialist than for GP and there is a slight decrease in satisfaction among specialists in 2018 compared to 2013 (Table 40).

A lower satisfaction is reported by young adults (25-44 years: ~96%) than by the very young (15-24 years: 98.3%) and the oldest (≥45 years: ≥97%) (Table 38) but there is no major differences in satisfaction by gender (Table 39).

Satisfaction levels are still slightly lower in Brussels than in the other regions in 2018 (Table 41).

By province in 2018, the stratification with time spent by the doctor is the highest in West-Vlaanderen (99.0%) and Antwerpen (98.5%) and the lowest in Liège (96.1%) and Brussels (95.9%) (see Figure 78).

Table 38 – Proportion of satisfied patients (15 years old and plus) about the time spent by their physician during consultation, by age-group, by year

	2013		2018	
Age group	**%***	**95% CI**	**%***	**95% CI**
15-24	98.1	96.8;99.4	98.3	96.7;99.9
25-34	97.0	95.7;98.3	96.1	94.6;97.6
35-44	97.8	96.3;99.3	96.5	95.2;97.8
45-54	96.9	95.4;98.5	98.0	97.2;98.8
55-64	97.3	97.2;99.2	98.1	97.2;99.0
65-74	98.2	96.0;99.0	98.1	97.2;99.0
75+	97.5	96.0;99.0	97.0	95.4;98.5
Total	**97.5**	**96.9;98.0**	**97.5**	**97.0;97.9**

*Data: Sciensano, *weighted percentage*

Table 39 – Proportion of satisfied patients (15 years old and plus) about the time spent by their physician during consultation, by gender, by year

	2013		2018	
	%*	95% CI	%*	95% CI
Men	97.7	97.0;98.5	97.6	96.9;98.3
Women	97.3	96.6;98.0	97.3	96.7;97.9
Total	**97.5**	**96.9;98.0**	**97.5**	**97.0;97.9**

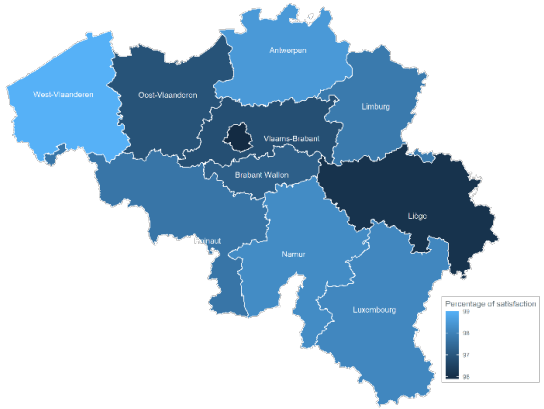
*Data: Sciensano, *weighted percentage*

Table 40 – Proportion of satisfied patients (15 years old and plus) about the time spent by their physician during consultation, by type of specialisation, by year

	2013		2018	
	%*	95% CI	%*	95% CI
GP	97.5	97.2;98.3	98.0	97.6;98.3
Specialist	96.4	95.2;97.7	95.2	93.8;96.5

*Data: Sciensano, *weighted percentage*

Figure 78 – Percentage* of satisfaction with time spent by the doctor, by province, 2018



*Data: Sciensano, *weighted percentage, Figure: KCE*

Table 41 – Proportion of satisfied patients (15 years old and plus) about the time spent by their physician during consultation, by region, by year

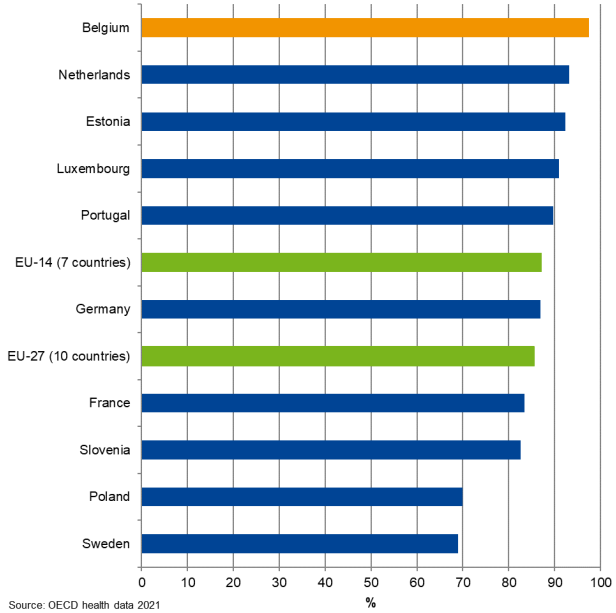
Region	2013		2018	
	%	95% CI	%	95% CI
Belgium	97.5	96.9;98.0	97.5	97.0;97.9
Brussels	96.0	94.7;97.2	95.9	94.9;97.0
Flanders	97.9	97.1;98.6	97.8	97.2;98.5
Wallonia	97.2	96.2;98.1	97.2	96.4;98.0

Source: Health Interview Survey, Belgium, 2013;2018.[3]

International comparison

The questionnaire used in the Belgian health interview survey is also used by other countries. This allows some comparisons such as performed by the OECD in the report 'Health at a Glance' published in 2021.[4] Twenty countries are compared. Data concern all physicians without distinction between general practitioners and specialists and comparisons are approximate as the years of data collection are not the same in all countries (years were as close to 2020 as possible). Compared with 7 or 10 countries, Belgium ranks first for patient satisfaction related to the time spent by their physician during consultation.

Figure 79 – Proportion of satisfied patients concerning the time spent by their physician during consultation: international comparison (2013-2020 or nearest year)



Sources: Health at a Glance, OCDE, 2021 [4]– Health Survey, Belgium, 2018.
1. Data from national sources. 2. Data refer to patient experiences with regular doctor or regular practice.

Key points

- **The patient satisfaction is high regardless of the age group, gender and region.**
- **The level of satisfaction with time spent by the doctor is slightly lower for specialist than for GP and there is a slight decrease in satisfaction among specialists in 2018 compared to 2013.**
- **Comparison with other countries showed that Belgium ranks first for patient satisfaction related to the time spent by their physician during the consultation.**

References

1. AHRQ. Patient Safety Indicators Resources. Agency for Healthcare Research and Quality; 2011. 2012, 21 Feb Available from: http://www.qualityindicators.ahrq.gov/Modules/psi_resources.aspx
2. OECD. Health at a glance 2011. 2011. OECD Health Policy Studies
3. Van der Heyden J, Tafforeau J, Gisle I, Drieskens S, Demarest S, Charafeddine R. Enquête de santé 2013. Rapport 3: Utilisation des services de santé et des services sociaux. Résumé des principaux résultats. Brussels: Institut de santé publique; 2015.
4. OECD. Health at a Glance 2021. 2021.

5.2 Patient reported experience with care (QP-8; QP-9; QP-10; QP-11; QP-12)

5.2.1 Documentation sheet

Description	QP-8: The proportion of patients involved as much as they want to be in decisions about their care QP-9: The proportion of patients discussing with the healthcare professionals involved in their care what is most important for them in managing their own health and wellbeing QP-10: The proportion of patients rating their last consultation with healthcare professional (physician, nurse,…) as good to excellent QP-11: The proportion of patients reporting they have a care plan that takes into account all their health and well-being needs QP-12: The proportion of patients reporting they always receive useful information at the time they need it to help them manage their health and wellbeing
Calculation	The denominator is the number of patients living with chronic conditions who participated to the study
Rationale	These indicators are taken from the PaRIS study. PaRIS (Patient Reported Indicator Survey) is an international study initiated by the Organisation for Economic Cooperation and Development (OECD).[1] Its objective is to develop and use standardised tools to collect and measure patients' health outcomes (PROMs) and experiences of care (PREMs) during their care at the primary care level. The project aims to understand the extent to which the care provided by GPs meets the needs of the population, according to the population. The results will be compared at the national and international levels. The project will provide essential information to policy makers and practitioners on what is important for patients in their care, to optimise our care system, making it more patient-centred. Sciensano is in charge of the implementation of the survey in Belgium. The pilot phase took place in 2022. Ten general practices participated on a voluntary basis following a postal invitation. Their participation consisted in filling in a questionnaire on the way the practice operates and the way care is organised, and in creating a sample of 170 patients based on two eligibility criteria (being 45 years old or older and having consulted a GP in the last 6 months). The patients are invited by mail to answer a questionnaire as well. The questionnaire consists solely of self-reported data on demographic and socio-economic data, health behaviours, health outcomes (PROMs) and experiences of care (PREMs). The target of 50 patients per practice was achieved, with a participation rate of 40%, giving an average of 68 patients per practice. The main study will take place during 2023. The objective is to have 100 general practices across the country and 75 patients per practice. The same methodology as the pilot study will be used. The results of the main survey will be available in mid-2024.
Data source	PaRIS, pilot study
Technical definition	Not applicable
International comparability	The results of the pilot survey are not internationally comparable.

Limitations	Only data from the pilot study was available at the time of the HSPA and data were self-reported by the patients. It means that the results presented below have to be interpreted with caution as they do not necessarily generalisable to the entire Belgian population of people living with chronic conditions.
Dimension	Quality (as an indicator of people-centred care)
Related indicators	None
Reviewer	Amelie Van Vyve

5.2.2 Results

5.2.2.1 QP8: The proportion of patients involved as much as they want to be in decisions about their care (ref PaRIS P3CEQ2)

The majority of patients are involved as much as they want in decisions about their care (98.4%). The differences between regions are small, with 99.0% of satisfied patients in Wallonia, 98.2% in Flanders and 97.1% in Brussels (Table 42).

The proportion of women satisfied with their involvement in decisions about their care is lower than men (98.5% vs 99.1%) (Table 43) and there is no major difference of satisfaction between age groups (Table 44).

In terms of income level, we observe that richer people (2 700€ a month or more) are more frequently 'always' satisfied with their involvement than poorer people (Table 45).

Table 42 – Proportion of patients involved as much as they want in decisions about their care, by region, 2022 (n=511)

		Brussels	Flanders	Wallonia	Belgium
Not at all	**Freq**	1	5	2	8
	%	2.9	1.8	1.0	1.6
To some extent	**Freq**	5	48	21	74
	%	14.3	17.3	10.6	14.5
More often than not	**Freq**	11	41	77	129
	%	31.4	14.7	38.9	25.2
Always	**Freq**	18	184	98	300
	%	51.4	66.2	49.5	58.7
Total (to some extent, more often than not, always)	**Freq**	**34**	**273**	**196**	**503**
	%	**97.1**	**98.2**	**99.0**	**98.4**
Total	**Freq**	35	278	198	511
	%	6.9	54.4	38.8	100

N Missing = 177

Table 43 – Proportion of patients involved as much as they want in decisions about their care, by sex, 2022 (n=511)

		Female	Male	Non-binary	Other	Prefer not to say
Not at all	**Freq**	4	2	0	1	1
	%	1.5	0.93	0.0	14.3	5.3
To some extent	**Freq**	30	39	0	1	4
	%	11.2	18.1	0.0	14.3	21.1
More often than not	**Freq**	68	52	0	4	5
	%	25.4	24.1	0.00	57.1	26.3
Always	**Freq**	166	123	1	1	9
	%	61.9	56.9	100	14.3	47.4
Total (to some extent, more often than not, always)	**Freq**	**264**	**214**	**1**	**6**	**18**
	%	**98.5**	**99.1**	**100**	**85.7**	**94.7**
Total	**Freq**	268	216	1	7	19
	%	52.5	42.3	0.20	1.4	3.7

N Missing = 177

Table 44 – Proportion of patients involved as much as they want in decisions about their care, by age, 2022 (n=503)

		<44 years old	45-49 years old	50-54 years old	55-59 years old	60-64 years old	65-69 years old	70-74 years old	75-79 years old	80-84 years old	>85 years old	Not answered
Not at all	**Freq**	1	1	0	0	3	1	0	0	1	1	0
	%	100	2.5	0	0	2.6	0.93	0	0	4.6	4.8	0
To some extent	**Freq**	0	7	6	12	10	14	11	7	7	0	0
	%	0.0	17.5	11.1	11.1	8.6	13	12	12.3	31.8	0	0
More often than not	**Freq**	0	7	13	10	17	22	26	13	8	9	4
	%	0.0	17.5	24.1	9.3	14.7	20.4	28.3	22.8	36.4	42.9	20
Always	**Freq**	0	25	35	47	61	49	38	30	4	7	4
	%	0.0	62.5	64.8	43.5	52.6	45.4	41.3	52.6	18.2	33.3	20
Total (to some extent, more often than not, always)	**Freq**	**0**	**39**	**54**	**69**	**88**	**85**	**75**	**50**	**19**	**16**	**8**
	%	**0.0**	**97.5**	**100**	**100**	**96.7**	**98.8**	**100**	**100**	**95.0**	**94.1**	**1.6**
Total	**Freq**	1	40	54	69	91	86	75	50	20	17	503
	%	0.20	8.0	10.7	13.7	18.1	17.1	14.9	9.9	3.4	3.4	100

N Missing = 185

Table 45 – Proportion of patients involved as much as they want in decisions about their care, by income level, 2022 (n=504)

		1 700€ a month or less	Between 1 700€ € and 2 700€ a month	2 700€ a month or more	I don't know	Prefer not to say
Not at all	**Freq**	3	3	0	2	0
	%	2.6	2.21	0.0	11.1	0.0
To some extent	**Freq**	20	20	19	5	10
	%	17.1	14.7	11.7	27.8	14.3
More often than not	**Freq**	38	36	34	2	17
	%	32.5	26.5	20.9	11.1	3.4
Always	**Freq**	56	77	110	9	43
	%	47.9	56.6	67.5	50.0	8.5
Total (to some extent, more often than not, always)	**Freq**	**114**	**133**	**163**	**16**	**70**
	%	**97.4**	**97.8**	**100**	**88.9**	**13.9**
Total	**Freq**	117	136	163	18	70
	%	23.2	27.0	32.3	3.6	13.9

N Missing = 184

5.2.2.2 QP 9: Proportion of patients discussing with the healthcare professionals involved in their care what is most important for them in managing their own health and wellbeing (ref PaRIS P3CEQ1)

The majority of patients (97.9%) are involved in discussions about what is most important in managing their health and wellbeing. The differences between regions are small, with 98.0% of patients who are satisfied in Wallonia, followed by 97.8% in Flanders and 97.1% in Brussels (Table 46).

The proportion of males involved in discussions about what is most important in managing their health and wellbeing is equal than in women (men: 95.8%; women: 95.6%) (Table 47). In addition, people aged between 65-79 years are more frequently involved than younger patients (Table 48).

However, if we look at the category 'always' involved, we see that the conclusions are somewhat different. Women and people aged 60-64 and 75-79 years are more frequently "always" involved than other patients.

Table 46 – To what extent patients discussed about what is the most important in managing their own health and well-being, by region, 2022 (n=514)

		Brussels	Flanders	Wallonia	Belgium
Not at all	**Freq**	1	16	6	23
	%	2.9	5.7	3.0	4.5
To some extent	**Freq**	7	98	47	152
	%	20.0	35.1	23.5	29.6
More often than not	**Freq**	13	65	81	159
	%	37.1	23.3	40.5	30.9
Always	**Freq**	14	100	66	180
	%	40.0	35.8	33.0	35.0
Total (to some extent, more often than not, always)	**Freq**	**34**	**273**	**196**	**503**
	%	**97.1**	**97.8**	**98.0**	**97.9**
Total	**Freq**	35	279	200	514
		6.81	54.28	38.91	100

N Missing = 174

Table 47 – To what extent (some to always) patients discussed about what is the most important in managing their own health and well-being, by sex, 2022 (n=514)

		Female	Male	Non-binary	Other	Prefer not to say
Not at all	**Freq**	12	9	0	1	1
	%	4.4	4.2	0.0	14.3	5.3
To some extent	**Freq**	77	66	0	2	7
	%	28.3	30.7	0.0	28.6	36.8
More often than not	**Freq**	81	70	0	2	6
	%	29.8	32.6	0.0	28.6	31.6
Always	**Freq**	102	70	1	2	5
	%	37.5	32.6	100	28.6	26.3
Total (to some extent, more often than not, always)	**Freq**	260	206	1	6	18
	%	95.6	95.8	100	85.7	94.7
Total	**Freq**	272	215	1	7	19
	%	52.5	42.3	0.20	1.4	3.7

N Missing = 174

Table 48 – To what extent patients discussed about what is the most important in managing their own health and well-being, by age, 2022 (n=514)

		<44 years old	45-49 years old	50-54 years old	55-59 years old	60-64 years old	65-69 years old	70-74 years old	75-79 years old	80-84 years old	>85 years old
Not at all	**Freq**	1	3	3	4	3	1	3	1	2	2
	%	100	7.3	5.6	0	2.6	0.93	0	0	4.6	4.8
To some extent	**Freq**	0	12	19	23	25	29	22	11	5	4
	%	0	29.3	35.2	11.1	8.6	13	12	12.3	31.8	0
More often than not	**Freq**	0	14	19	17	17	32	26	17	8	5
	%	0	34.1	35.2	9.3	14.7	20.4	28.3	22.8	36.4	42.9
Always	**Freq**	0	12	13	26	44	29	23	20	4	7
	%	0	29.3	24.1	43.5	52.6	45.4	41.3	52.6	18.2	33.3
TOTAL (to some extent, more often than not, always)	**Freq**	**0**	**38**	**51**	**66**	**86**	**90**	**71**	**48**	**17**	**16**
	%	**0.0**	**92.7**	**94.4**	**94.3**	**96.6**	**98.9**	**95.9**	**98.0**	**89.5**	**88.9**
Total	**Freq**	1	41	54	70	89	91	74	49	19	18
	%	0.20	8.1	10.7	13.8	17.6	18.0	14.6	9.7	3.8	3.6

N missing = 182

People on lower incomes are more frequently involved in discussions about what is most important in managing their health and wellbeing than people on higher incomes. However, people on higher incomes are more likely to be "always" involved than people in lower incomes (Table 49).

Table 49 – To what extent patients discussed about what is the most important in managing their own health and well-being, by income level, 2022 (n=507)

		1 700€ a month or less	Between 1 700€ € and 2 700€ a month	2 700€ a month or more	I don't know	Prefer not to say
Not at all	**Freq**	3	6	13	1	0
	%	2.5	4.4	7.9	5.6	0.0
To some extent	**Freq**	42	49	36	4	19
	%	35.0	36.3	22.0	22.2	27.1
More often than not	**Freq**	36	35	50	7	29
	%	30.0	25.9	30.5	38.9	41.4
Always	**Freq**	39	45	65	6	22
	%	32.5	33.3	39.6	33.3	31.4
Total (to some extent, more often than not, always)	**Freq**	**117**	**129**	**151**	**17**	**70**
	%	**97.5**	**95.6**	**92.1**	**94.4**	**100**
Total	**Freq**	120	135	164	18	70
	%	23.7	26.6	32.4	3.6	13.8

N missing = 181

5.2.2.3 QP10: Proportion of patients rating last consultation with healthcare professional (physician, nurse,…) as good to excellent (ref PaRIS CWF119)

In Belgium, 96.6% of patients rated their last consultation as good to excellent. People living in Wallonia rated their last consultation as less good (95.9%) than in the other regions (Brussels 97.8% and Flanders 97.0%) (Table 50). No major difference was observed between gender, age and level of income. With the possible exception of the 45-49 age group, who rate their last consultation as good or excellent less frequently than other age groups (71.3%). (Table 51, Table 52, Table 53).

Table 50 – Proportion of patients rating last consultation with healthcare professional good to excellent, by region, 2022 (n=651)

		Brussels	Flanders	Wallonia	Belgium
Excellent	**Freq**	16	104	65	185
	%	34.8	28.8	26.6	28.4
Very good	**Freq**	25	166	111	302
	%	54.3	46.0	45.5	46.4
Good	**Freq**	4	80	58	142
	%	8.7	22.2	23.8	21.8
Total good to excellent	**Freq**	**45**	**350**	**234**	**629**
	%	**97.8**	**97.0**	**95.9**	**96.6**
Fair	**Freq**	1	11	9	21
	%	2.2	3.0	3.7	3.2
Poor	**Freq**	0	0	1	1
	%	0.0	0.0	0.4	0.2
Total	**Freq**	46	361	244	651
	%	7.1	55.5	37.5	100

N missing = 38

Table 51 – Proportion of patients rating last consultation with healthcare professional good to excellent, by gender, 2022 (n=649)

		Female	Male	Non-binary	Other	Prefer not to say
Excellent	**Freq**	90	88	0	2	5
	%	25.3	33.0	0	28.6	27.8
Very good	**Freq**	171	120	1	3	7
	%	48.0	44.9	100	42.9	38.9
Good	**Freq**	81	53	0	2	6
	%	22.8	19.9	0	28.6	33.3
Total good to excellent	**Freq**	**342**	**261**	**1**	**7**	**18**
	%	**96.1**	**97.8**	**100**	**100**	**100**
Fair	**Freq**	13	6	0	0	0
	%	3.7	2.2	0	0	0
Poor	**Freq**	1	0	0	0	0
	%	0.3	0	0	0	0
Total	**Freq**	356	267	1	7	18
	%	54.9	41.1	0.2	1.1	2.8

N missing = 20

Table 52 – Proportion of patients rating last consultation with healthcare professional good to excellent, by age, 2022 (n=645)

		<44 years old	45-49 years old	50-54 years old	55-59 years old	60-64 years old		65-69 years old	70-74 years old	75-79 years old	80-84 years old	>85 years old
Excellent	**Freq**	1	20	21	27	36	35	29	10	2	2
	%	50	25.0	26.3	25.7	31.9	34.3	32.2	18.2	9.1	11.8
Very good	**Freq**	0	30	40	44	53	40	45	33	10	6
	%	0.0	37.5	50.0	41.9	46.9	39.2	50	60	45.5	35.3
Good	**Freq**	1	7	19	29	20	24	12	11	9	8
	%	50.0	8.8	23.8	27.6	17.7	23.5	13.3	20	40.9	47.1
Total good to excellent	**Freq**	**2**	**57**	**80**	**100**	**109**	**99**	**86**	**54**	**21**	**16**
	%	**100**	**71.3**	**100**	**95.2**	**96.5**	**97.1**	**95.6**	**98.2**	**95.5**	**94.1**
Fair	**Freq**	0	2	0	5	4	3	3	1	1	1
	%	0.0	2.5	0.0	4.8	3.5	2.9	3.3	1.8	4.5	5.9
Poor	**Freq**	0	0	0	0	0	0	1	0	0	0
	%	0.0	0.0	0.0	0	0.0	0.0	1.1	0	0.0	0
Total	**Freq**	2	59	80	105	113	102	90	55	22	17
	%	0.31	9.1	12.4	16.3	17.5	15.8	14.0	8.5	3.4	2.6

N missing=44

Table 53 – Proportion of patients rating last consultation with healthcare professional good to excellent, by income level, 2022 (n=651)

		1 700€ a month or less	Between 1 700€ and 2 700€ a month	2 700€ a month or more	I don't know	Not answered	Prefer not to say
Excellent	**Freq**	39	59	66	3	1	17
	%	27.9	33.0	30.1	15.0	14.3	19.8
Very good	**Freq**	62	87	104	8	2	39
	%	44.3	48.6	47.5	40.0	28.6	45.3
Good	**Freq**	34	30	44	5	4	25
	%	24.3	16.8	20.1	25.0	57.1	29.1
Total good to excellent	**Freq**	**135**	**176**	**214**	**16**	**7**	**81**
	%	**96.4**	**98.3**	**97.7**	**80.0**	**100**	**94.2**
Fair	**Freq**	4	3	5	4	0	5
	%	2.9	1.7	2.3	20.0	0.0	5.8
Poor	**Freq**	1	0	0	0	0	0
	%	0.7	0.0	0.0	0.0	0.0	0.0

Total	**Freq**	140	179	219	20	7	86
	%	21.5	27.5	33.6	3.1	1.1	13.2

N missing = 26

5.2.2.4 QP11: Proportion of patients reporting they have a care plan that takes into account all their health and well-being needs (ref PaRIS P3CEQ7)

Only 33.9% of Belgians report having a care plan that takes into account all their health and well-being. This is more frequently the case in Wallonia (54.9%) than in Brussels (40.0%) or Flanders (18.3%) (Table 54). Men reported more frequently having a care plan than women (Male: 40.0%; Female: 30.5%) (Table 55).

Older people report having a care plan more frequently than younger people (Table 56) and people on lower incomes report having a care plan more frequently than people on higher incomes (lowest income level: 43.5%; highest income level: 26.8%) (Table 57).

Table 54 – Proportion of patients reporting they have a care plan that takes into account all their health and well-being needs by region, 2022 (n=508)

		Brussels	Flanders	Wallonia	Belgium
Yes	**Freq**	**14**	**51**	**107**	**172**
	%	**40.0**	**18.3**	**54.9**	**33.9**
No	**Freq**	15	166	60	241
	%	42.9	59.7	30.8	47.4
Not sure	**Freq**	6	61	28	95
	%	17.1	21.9	14.4	18.7
Total	**Freq**	35	278	195	508
	%	6.9	54.7	38.4	100

N missing = 181

Table 55 – Proportion of patients reporting they have a care plan that takes into account all their health and well-being needs by gender, 2022 (n=508)

		Female	Male	Non-binary	Other	Prefer not to say
Yes	**Freq**	**81**	**88**	**0**	**0**	**3**
	%	**30.5**	**40.0**	**0.0**	**0**	**20.0**
No	**Freq**	129	99	1	4	8
	%	48.5	45.0	100	66.7	53.3
Not sure	**Freq**	56	33	0	2	4
	%	21.1	15	0.0	33.3	26.7
Total	**Freq**	266	220	1	6	15
	%	52.4	43.3	0.20	1.2	3.0

N missing = 181

Table 56 – Proportion of patients reporting they have a care plan that takes into account all their health and well-being needs by age-group, 2022 (n=508)

		<44 years old	45-49 years old	50-54 years old	55-59 years old	60-64 years old	65-69 years old	70-74 years old	75-79 years old	80-84 years old	>85 years old	Not answered
Yes	**Freq**	**1**	**11**	**11**	**19**	**30**	**30**	**26**	**20**	**13**	**8**	**3**
	%	**100**	**27.5**	**20.8**	**26.0**	**33.3**	**34.1**	**35.1**	**42.6**	**65.0**	**47.1**	**60.0**
No	**Freq**	0	21	27	39	48	37	36	19	6	7	1
	%	0	52.5	50.9	53.4	53.3	42.0	48.6	40.4	30.0	41.2	20.0
Not sure	**Freq**	0	8	15	15	12	21	12	8	1	2	1
	%	0	20.0	28.3	20.5	13.3	23.9	16.2	17.0	5.0	11.8	20.0
Total	**Freq**	1	40	53	73	90	88	74	47	20	17	5
	%	0.20	7.9	10.4	14.4	17.7	17.3	14.6	9.3	3.9	3.3	1.0

N missing = 181

Table 57 – Proportion of patients reporting they have a care plan that takes into account all their health and well-being needs by income level, 2022 (n=508)

		1 700€ a month or less	Between 1 700€ and 2 700€ a month	2 700€ a month or more	I don't know	Not answered	Prefer not to say
Yes	**Freq**	**50**	**41**	**45**	**7**	**1**	**28**
	%	**43.5**	**31.1**	**26.8**	**38.9**	**20.0**	**40.0**
No	**Freq**	52.0	64.0	97.0	7	3	18
	%	45.2	48.5	57.7	38.9	60.0	25.7
Not sure	**Freq**	13	27	26	4	1	24
	%	11.3	20.5	15.5	22.2	20.0	34.3
Total	**Freq**	115	132	168	18	5	70
	%	22.6	26.0	33.1	3.5	1.0	13.8

N missing = 181

5.2.2.5 *QP12: The proportion of patients reporting they always receive useful information at the time they need it to help them manage their health and wellbeing (ref PaRIS P3CEQ9)*

In Belgium, only 46.0% of patients reported always receiving useful information at the time they need it to help them manage their health and wellbeing. This proportion is lower in Wallonia (42.2%) than in Flanders (47.2%) and Brussels (58.8%) (Table 58).

Table 58 – The proportion of patients reporting they always receive useful information at the time they need it to help them manage their health and wellbeing, by region, 2022 (n=498)

		Brussel	Flanders	Wallonia	Belgium
I always receive enough information	**Freq**	**20**	**125**	**84**	**229**
	%	**58.8**	**47.2**	**42.2**	**46.0**
I do not receive any information	**Freq**	0	15	10	25
	%	0.0	5.7	5.0	5.0
I often receive enough information	**Freq**	11	66	77	154
	%	32.4	24.9	38.7	30.9
I receive too much information	**Freq**	0	5	0	5
	%	0.0	1.9	0.0	1.0
I sometimes receive enough information	**Freq**	3	36	24	63
	%	8.8	13.6	12.1	12.7
Not sure	**Freq**	0	18	4	22
	%	0.0	6.8	2.0	4.4
Total	**Freq**	34	265	199	498
	%	6.8	53.2	40.0	100

N Missing = 191

Men are more likely than women to report that they always receive useful information (Table 59).

Table 59 – The proportion of patients reporting they always receive useful information at the time they need it to help them manage their health and wellbeing, by gender, 2022 (n=498)

		Female	Male	Non-binary	Other	Prefer not to say
I always receive enough information	**Freq**	**114**	**104**	**1**	**3**	**7**
	%	**43.7**	**49.5**	**100**	**42.9**	**36.8**
I do not receive any information	**Freq**	12	11	0	0	2
	%	4.6	5.2	0.0	0.0	10.5
I often receive enough information	**Freq**	89	59	0	1	5
	%	34.1	28.1	0.0	14.3	26.3
I receive too much information	**Freq**	3	2	0	0	0
	%	1.2	0.95	0.0	0.0	0.0
I sometimes receive enough information	**Freq**	35	25	0	2	1
	%	13.4	11.9	0.0	28.6	5.3
Not sure	**Freq**	8	9	0	1	4
	%	3.1	4.3	0.0	14.3	21.1
Total	**Freq**	261	210	1	7	19
	%	52.4	42.2	0.2	1.4	3.8

N Missing = 191

People aged between 55 and 64 are more likely to report always receiving sufficient information than other age groups (Table 60). In addition patients in higher income categories are the most likely to report always having the information they need (Table 61).

Table 60 – The proportion of patients reporting they always receive useful information at the time they need it to help them manage their health and wellbeing, by age-group, 2022 (n=498)

		<44 years old	45-49 years old	50-54 years old	55-59 years old	60-64 years old	65-69 years old	70-74 years old	75-79 years old	80-84 years old	>85 years old	Not answered
I always receive enough information	Freq	0	15	21	37	47	39	37	21	2	7	3
	%	0	40.5	41.2	51.4	54.0	46.4	49.3	42.9	10.5	41.2	50.0
I do not receive any information	Freq	1	1	4	2	4	4	3	2	3	0	1
	%	100	2.7	7.8	2.8	4.6	4.8	4.0	4.1	15.8	0.0	16.7
I often receive enough information	Freq	0	15	20	21	21	24	20	17	9	6	1
	%	0.0	40.5	39.2	29.2	24.1	28.6	26.7	34.7	47.4	35.3	16.7
I receive too much information	Freq	0	0	0	1	2	1	1	0	0	0	0
	%	0.0	0.0	0.0	1.4	2.3	1.2	1.3	0.0	0.0	0.0	0.0
I sometimes receive enough information	Freq	0	6	4	9	9	11	10	6	4	3	1
	%	0.0	16.2	7.8	12.5	10.3	13.1	13.3	12.2	21.1	17.6	16.7
Not sure	Freq	0	0	2	2	4	5	4	3	1	1	0
	%	0.0	0.0	3.9	2.8	4.6	6.0	5.3	6.1	5.3	5.9	0.0
Total	Freq	1	37	51	72	87	84	75	49	19	17	6
	%	0.2	7.4	10.2	14.5	17.5	16.9	15.1	9.8	3.8	3.4	1.2

N Missing = 191

Table 61 – The proportion of patients reporting they always receive useful information at the time they need it to help them manage their health and wellbeing, by income level, 2022 (n=498)

		1 700€ a month or less	Between 1 700€ and 2 700€ a month	2 700€ a month or more	I don't know	Not answered	Prefer not to say
I always receive enough information	Freq	48	68	77	5	2	29
	%	40.7	51.5	48.4	29.4	40.0	43.3
I do not receive any information	Freq	6	9	7	2	1	0
	%	5.1	6.8	4.4	11.8	20.0	0.0
I often receive enough information	Freq	35	32	54	7	1	25
	%	29.7	24.2	34.0	41.2	20.0	37.3
I receive too much information	Freq	2	1	1	1	0	0
	%	1.7	0.76	0.6	5.9	0.0	0.0
I sometimes receive enough information	Freq	23	15	17	1	0	7
	%	19.5	11.4	10.7	5.9	0.0	10.4

Not sure	**Freq**	4	7	3	1	1	6
	%	3.4	5.3	1.9	5.9	20.0	9.0
Total	**Freq**	118	132	159	17	5	67
	%	23.7	26.5	31.9	3.4	1.0	13.5

N Missing = X

Key points

- **The majority of the patients are involved (to some extent to always) as much as they want in decisions about their care in Belgium in 2022 (98.4%). There are almost no differences between regions, age groups, sex or income levels. However, people with the highest income level seem on average to be more frequently 'always' satisfied than people with lower incomes.**
- **Most patients are involved (to some extent to always) in discussions about what is most important in managing their health and wellbeing (97.3% in Belgium in 2022). There are almost no differences between regions and sex but people aged 60-64 and 75-79 years are more frequently "always" involved than other patients.**
- **In Belgium in 2022, 96.6% of patients rated their last consultation as good to excellent. No major difference was observed between sex, age and level of income. With the possible exception of the 45-49 age group, who rate their last consultation as good or excellent less frequently than other age groups (71.3%).**
- **Only 33.9% of Belgians report having a care plan that takes this into account. This is more frequently the case in Wallonia (54.9%) than in Brussels (40.0%) and Flanders (18.3%).**
- **In Belgium, only 46.0% of patients reported always receiving useful information at the time they need it to help them manage their health and wellbeing. This proportion is lower in Wallonia (42.2%) than in Flanders (47.2%) and Brussels (58.8%). Men are more likely than women to report that they always receive useful information. Patients in higher income categories are the most likely to report always having the information they need.**

Reference List

1. OECD. Patient-Reported Indicator Surveys (PaRIS) [Web page].Paris, France: Organisation for Economic Co-operation Development;2021 [cited 8 December 2021]. Available from: https://www.oecd.org/health/paris/

5.3 Average percentage of positive patient-reported experience in maternity, C/D bed or daycare (QP13)

5.3.1 Documentation sheet

Description	Average percentage of positive patient-reported experience in maternity, C/D bed or daycare (%)
Calculation	Numerator: Number of positive patient-reported experiences in maternity, C/D bed or daycare Denominator: Number of patient-reported experiences in maternity, C/D bed or daycare Population: All general hospitals participating voluntarily in the P4P programme granting them a specific budget based on results of quality indicators
Rationale	In 2015, the Belgian federal government and federated entities agreed on a joint plan to develop an integrated and people-centred care system with a focus on people with chronic diseases.[1] Since 2018, this plan has included the financing of various pilot projects around patient empowerment, carers' support, case management, concentration and coordination. The government is currently developing a new inter-federal plan for integrated care. This plan should become the driving force behind a transition widely supported by the various competent authorities and the care and welfare sectors. Patient satisfaction is also increasingly taken into account in the financing of care in Belgium, in particular through the integration of patient-reported experience measures (PREMs) in the Pay for Performance (P4P) programme of hospitals (see below) based on existing initiatives of VIKZ (using the survey "Vlaamse PatiëntenPeiling" developed by VPP), BSM, PAQS (Plateforme pour l'Amélioration continue de la Qualité des soins et de la Sécurité des patients) and Santhea. In P4P, quality is assessed by the authorities based on indicators regarding their structure, process and results (accreditation process, incident notification, patient-reported experience measurement, clinical processes and outcomes). In 2017–2018, 94% of hospitals participating in the P4P programme (96 out of 102) collected PREMs.[2] Patient-reported outcome measures (PROMs) has not been measured for P4P purposes. The P4P granting represents a limited part of the hospital's budget.
Data source	Data on patient-reported experiences has been collected in P4P since 2018 from various partner organisations. These partners differ between the regions and encompass a different number of hospitals. All Flemish hospitals are partnered with the Vlaams Patiëntenplatform (VPP) for measuring patient experiences in line with the Vlaams Indicatorenproject (VIP²). In Wallonia and Brussels, hospitals collaborate with BSM, PAQS, Santhea for measuring patient experiences.
Technical definitions	Because these different organizations use a variety of questionnaires and different scales to determine patient satisfaction, the percentage of positive responses was calculated to address some methodological differences. A positive experience score is defined for each scale as follows: • 2-point scale: 2 • 3-point scale: 3 • 4-point scale: 3 or higher • 5-point scale: 4 or higher • 10-point scale: 7 or higher • 11-point scale: 8 or higher

	Each hospital was required to collect a minimal number of questionnaires in order to obtain points in the P4P-program. Furthermore, for each P4P-program year, this minimal number could differ and was different for each service. It should also be noted that some hospitals, when not meeting the minimal number of required questionnaires, did not provide us with any information. C/D service: • 2018 - minimum of 300 questionnaires • 2019 - minimum of 125 questionnaires • 2020 - minimum of 250 questionnaires • 2021 - minimum of 125 questionnaires • 2022 - minimum of 125 questionnaires Maternity ward: • 2021 - minimum of 50 questionnaires • 2022 - minimum of 50 questionnaires Day hospital : • 2022 - minimum of 125 questionnaires
International comparability	No comparison
Limitations	See technical definition section
Dimension	Quality, People-centred care
Related indicators	None
Reviewer	Annemie Vlayen

5.3.2 Results

Overall, **the majority of the patients reported positive experiences in Belgian hospitals** (91.5% positive score in 2022). The experience is better in maternity wards (97.7%) than in C/D beds (96.2%) and in day care (80.6%). The experience is more or less the same in Wallonia (92.1%) and Flanders (92.0%) but less positive in Brussels (86.7%)(Table 62).

In maternity wards, the frequency of the positive experience is quite similar by region but Brussels reported less positive experience in C/D beds and daycare than Flanders and Wallonia (Table 62).

It is difficult to assess the trend over time because the indicators (and the way in which they are measured) are different from one year to the next (Table 63), but we have observed a predominantly positive experience that has been maintained over the years (Table 62).

Table 62 – Average percentage of positive experience in maternity, C/D bed or daycare, by region (2018-2022)

		2018	2019	2020	2021	2022
Belgium	Day care	NA	NA	NA	NA	80.6*
	C/D Ward	91.9	94.5	94.9	95.9	96.2
	Maternity	NA	NA	NA	97.5	97.7
	Total	91.9	94.5	94.9	96.7	91.5
Brussels	Day care	NA	NA	NA	NA	72.4*
	C/D Ward	87.7	89.1	87.9	91.3	90.5
	Maternity	NA	NA	NA	96.6	97.2
	Total	87.7	89.1	87.9	93.9	86.7
Flanders	Day care	NA	NA	NA	NA	80.2*
	C/D Ward	96.6	96.7	96.9	97.6	97.4
	Maternity	NA	NA	NA	98.1	98.4
	Total	96.6	96.7	96.9	97.9	92.0
Wallonia	Day care	NA	NA	NA	NA	83.3*
	C/D Ward	87.0	93.7	94.3	94.9	95.6
	Maternity	NA	NA	NA	97.5	97.4
	Total	87.0	93.7	94.3	96.2	92.1

*NA = Not available; Positive score = Average recommendation and satisfaction positive score;*Average costs, discharge, identification, stay and treatment positive score*

Table 63 – Average percentage of positive experience in maternity, C/D bed or daycare, by satisfaction and recommendation score, by region (2018-2022)

			2018	2019	2020	2021	2022
Belgium	Day care	Average costs	NA	NA	NA	NA	47.0
		Discharge	NA	NA	NA	NA	93.0
		Identification	NA	NA	NA	NA	77.4
		Stay	NA	NA	NA	NA	90.1
		Treatment	NA	NA	NA	NA	95.3
	C/D Ward	Recommendation	91.7	94.3	95.0	96.1	96.5
		Satisfaction	92.1	94.7	94.9	95.7	95.9
	Maternity	Recommendation	NA	NA	NA	97.7	97.6
		Satisfaction	NA	NA	NA	97.3	97.7
Brussels	Day care	Average costs	NA	NA	NA	NA	41.1
		Discharge	NA	NA	NA	NA	79.4
		Identification	NA	NA	NA	NA	73.6
		Stay	NA	NA	NA	NA	78.7
		Treatment	NA	NA	NA	NA	89.4
	C/D Ward	Recommendation	86.9	87.9	87.0	91.4	91.5
		Satisfaction	88.5	90.4	88.9	91.2	89.5
	Maternity	Recommendation	NA	NA	NA	97.1	97.5
		Satisfaction	NA	NA	NA	96.2	97.0
Flanders	Day care	Average costs	NA	NA	NA	NA	42.9
		Discharge	NA	NA	NA	NA	94.3
		Identification	NA	NA	NA	NA	76.7
		Stay	NA	NA	NA	NA	91.0
		Treatment	NA	NA	NA	NA	96.0
	C/D Ward	Recommendation	97.7	97.4	97.6	98.2	97.9
		Satisfaction	95.6	96.0	96.1	97.0	96.8
	Maternity	Recommendation	NA	NA	NA	98.8	98.8
		Satisfaction	NA	NA	NA	97.4	97.9
Wallonia	Day care	Average costs	NA	NA	NA	NA	60.7
		Discharge	NA	NA	NA	NA	92.4
		Identification	NA	NA	NA	NA	79.4
		Stay	NA	NA	NA	NA	89.3
		Treatment	NA	NA	NA	NA	94.8
	C/D Ward	Recommendation	85.4	93.0	93.9	94.8	95.5

	Satisfaction	88.6	94.5	94.7	95.0	95.6
Maternity	Recommandation	NA	NA	NA	97.4	97.0
	Satisfaction	NA	NA	NA	97.6	97.8

NA = Not available

Keypoints

- **Overall, the majority of the patients reported positive experiences in Belgian hospitals (91.5% positive score in 2022).**
- **The experience is better in maternity wards (97.7%) than in C/D beds (96.2%) and in day care (80.6%).**
- **The evolution of patient-reported experiences as reported in P4P over time showed a slight positive trend that has been maintained over the years, although there is a variability of results for the different included items.**

References

1. SPF Santé publique - Sécurité de la Chaine alimentaire et Environnement. Plan conjoint en faveur des malades chroniques. Des soins intégrés pour une meilleure santé. Belgique: 2015. Available from: https://www.health.belgium.be/fr/sante/organisation-des-soins-de-sante/reseaux-de-soins/maladies-chroniques/soins-integres-en-faveur#consultation

2. SPF santé publique - Sécurité de la chaine alimentaire et Environnement. Programma Pay for Performance (P4P) voor aglemene ziekenhuizen [Web page].Brussels;2023 [cited 6 September 2023]. Available from: https://www.health.belgium.be/nl/programma-pay-performance-p4p-voor-algemene-ziekenhuizen

APPENDIX 3. TECHNICAL SHEETS – ACCESSIBILITY OF CARE

6 FINANCIAL ACCESS TO HEALTH CARE

6.1 Compulsory health insurance coverage (% of the population entitled to compulsory insurance) (A-1)

6.1.1 Documentation sheet

Description	A-1 Compulsory health insurance coverage (% of the population entitled to compulsory insurance)
Calculation	**Numerator**: Belgian population affiliated with a sickness fund and fully compliant with administrative requirements **Denominator**: Belgian population affiliated with a sickness fund
Rationale	Belgium has made a commitment to universal health coverage (UHC), i.e. everyone should be able to obtain the health services that they need, of high quality, without risk of financial hardship in doing so.[1, 2] To meet the goals of UHC, the basis for entitlement should encompass everyone living in a country. However, in practice it is almost always more narrowly specified to exclude some groups, using criteria such as legal residence (most EU countries) or payment of contributions (most EU countries with social health insurance schemes).[3] In Belgium, the basis for entitlement is legal residence and/or the payment of contributions to the social health insurance (SHI) scheme (e.g. employees, self-employed persons, pensioners) or payment of personal contributions directly to the sickness fund (e.g. working students, self-employed persons without work) or the receipt of replacement income (e.g. unemployed persons, persons in invalidity).[2, 4] The share of the population covered provides an important, but partial, measure of access to care. It is a pre-requisite for financial protection, but should be considered jointly with the range of services covered and the degree of cost sharing for those services to assess the comprehensiveness of healthcare coverage and accessibility of healthcare.[5] Belgium has a compulsory public health insurance system, covering a wide range of services for (nearly) the entire population (employees, self-employed, civil servants, unemployed, pensioners, minimum income recipients, disabled, students, foreign nationals as well as all of their dependents).[2] Since January 2023, health coverage for prisoners and detainees has been integrated in the compulsory public health insurance. However, some vulnerable groups are not covered by the compulsory public health insurance, such as undocumented migrants, asylum seekers (depending on the status of their application), homeless people (not automatically registered). They can rely on separate systems of health coverage for a more restricted set of services. Also posted workers (people sent by their employer to carry out a service in another EU Member State on a temporary basis) residing in Belgium are not covered by the Belgian public health insurance but by the health insurance of their country of origin. The services that are covered by compulsory health insurance are described in the nationally established fee schedule. Services not included in the fee schedule are not reimbursable.
Data source	RIZIV – INAMI Statistics on Belgian population affiliated with a sickness fund.[6]

Technical definitions	Each year two snapshots are taken of the Belgian population affiliated with a sickness fund at 30/6 and 31/12. For this indicator the situation on 30/6 is used. The Belgian population affiliated with a sickness fund can be further subdivided in individuals fully compliant with administrative requirements and individuals currently not insured. An uninsured person is defined as someone who is affiliated with a sickness fund, but not entitled to compulsory health insurance. The main reason is that administrative and/or financial requirements are not fulfilled.
International comparability	OECD health statistics on population coverage
Limitations	Specific vulnerable groups without coverage in the compulsory public health insurance are not included in the data, because they are not affiliated with a sickness fund. These include undocumented migrants, asylum seekers (depending on the status of their application), and homeless people (not automatically registered). These groups can rely on separate systems of health coverage for a more restricted set of services (*"urgent medical assistance" / "dringende medische hulp" / "l'aide médicale urgente"*). In accordance with international law, posted workers (people sent by their employer to carry out a service in another EU Member State on a temporary basis) residing in Belgium are not covered by the Belgian public health insurance but by the health insurance of their country of origin. Employees in international organisations located in Belgium may also not be covered by the Belgian compulsory public health insurance, but rely on their own separate health insurance coverage. No good data exist to capture the size of these population groups not covered by the compulsory public health insurance. Moreover, people in transition between coverage from the Belgian compulsory health insurance and this private health insurance may be recorded as uninsured in the RIZIV – INAMI statistics. In the other direction, in accordance with international law, Belgians residing abroad may in certain instances remain affiliated with a sickness fund and insured through the Belgian system.
Dimension	Accessibility
Related indicators	A-2 Out-of-pocket (OOP) payments (% of current expenditure on health) A-4 Households facing catastrophic out-of-pocket payments (% of respondents, HBS) A-6 People with self-reported unmet needs for medical examination due to financial reasons (% of respondents, EU-SILC) A-7 People with self-reported unmet needs for dental examination due to financial reasons (% of respondents, EU-SILC)
Reviewers	Dorothée Nevens (RIZIV – INAMI), Carine Van de Voorde (KCE)

6.1.2 Results

Belgium

Based on the available data, limited to the Belgian population affiliated with a sickness fund, population coverage of the compulsory public health insurance amounted to 99.1% in 2022. The percentage of uninsured persons was stable between 2011 and 2022 at about 1% (see Table 64).

Although coverage was near universal, barriers persist that impede full population coverage.

Table 64 – Population coverage of the compulsory public health insurance (2011-2022)

		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Belgium	**Numerator:** Persons affiliated and fully compliant	10 715 356	10 785 206	10 851 160	10 906 348	10 954 981	11 009 531	11 069 759	11 127 182	11 181 589	11 223 658	11 258 461	11 344 982
	Denominator: persons affiliated	10 823 976	10 904 425	10 969 707	11 028 464	11 073 971	11 131 460	11 184 208	11 235 495	11 292 693	11 339 850	11 373 977	11 451 564
	Indicator (%)	99.0%	98.9%	98.9%	98.9%	98.9%	98.9%	99.0%	99.0%	99.0%	99.0%	99.0%	99.1%
Regions	**Flanders**	99.4%	99.4%	99.4%	99.4%	99.4%	99.5%	99.5%	99.6%	99.6%	99.5%	99.5%	99.5%
	Wallonia	99.2%	99.2%	99.2%	99.2%	99.3%	99.3%	99.3%	99.4%	99.4%	99.4%	99.4%	99.5%
	Brussels	97.8%	97.7%	97.8%	97.8%	97.9%	97.9%	98.1%	98.3%	98.4%	98.4%	98.4%	98.7%
	Abroad	85.3%	82.9%	82.1%	82.0%	81.3%	79.9%	83.1%	83.0%	81.4%	81.1%	82.4%	83.0%
	Unknown							66.3%	67.0%	65.7%	45.4%	39.4%	57.5%
Gender	**Male**							98.7%	98.8%	98.7%	98.7%	98.7%	98.8%
	Female							99.3%	99.3%	99.3%	99.3%	99.3%	99.3%
Age category	**0-19**	99.4%	99.3%	99.4%	99.4%	99.4%	99.4%	99.4%	99.5%	99.5%	99.5%	99.5%	99.5%
	20-39	98.0%	97.8%	97.8%	97.8%	97.8%	97.7%	97.8%	98.0%	97.9%	97.8%	97.9%	98.0%
	40-59	98.9%	98.8%	98.8%	98.8%	98.8%	98.8%	98.9%	98.9%	98.9%	98.8%	98.8%	98.9%
	60-79	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%	99.8%
	80+	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	99.9%	100.0%

Source: RIZIV – INAMI[6]

Analysis by demographic characteristics, socioeconomic status

In Table 64 coverage rates were calculated for different population subgroups based on sociodemographic characteristics. Although differences were relatively minor, coverage rates were lower among males (98.8% in 2022) and among younger adults (age group 20-39, 98.0% in 2022). The latter can be partly the result of administrative red tape when individuals change status from being a dependant to a beneficiary. Anyone aged over 25 years, or under 25 years and working or receiving social benefits, must register with a sickness fund and pay contributions in order to be covered. An additional explanation is that younger adults and individuals at working age may be more mobile (with regard to activity status, place of residence, place of employment etc.) and may be more likely to find themselves in a financially precarious situation (limited savings, lack of work or informal work), elements that may raise financial and administrative barriers.

Regional comparison

The results in Table 64 show that the percentage of uninsured persons was slightly higher in Brussels (1.3%) than in Flanders (0.5%) or Wallonia (0.5%). However, the low coverage was much more visible in the group of uninsured persons living abroad, both in coverage rate and in absolute numbers of uninsured persons (not shown in Table 64). There were 37 540 uninsured individuals (or a coverage rate of 83.0%) in 2022 among persons living abroad, which was higher than the number of uninsured in any single region (34 604 in Flanders, 18 774 in Wallonia and 14 956 in Brussels). The financial and administrative burden to remain insured while abroad was probably higher while the direct benefits may be smaller, leading to a higher non-compliance rate. In absence of the population subgroup living abroad, the overall population coverage rate would increase to 99.4%. Finally, the subgroup with unknown residential information had a very low coverage rate, but was very small in absolute numbers (1 666 persons in 2022 of which 708 were not insured).

International comparison

Figure 80 and Figure 81 put the Belgian results in an European context. Most EU countries, including Belgium, report universal (100%) or near universal (over 99%) population coverage. There were some exceptions, like Romania (85.5%) or Poland (94.0%). However, it is not always clear how population coverage rates were calculated and if they are sufficiently reliable and comparable across countries.

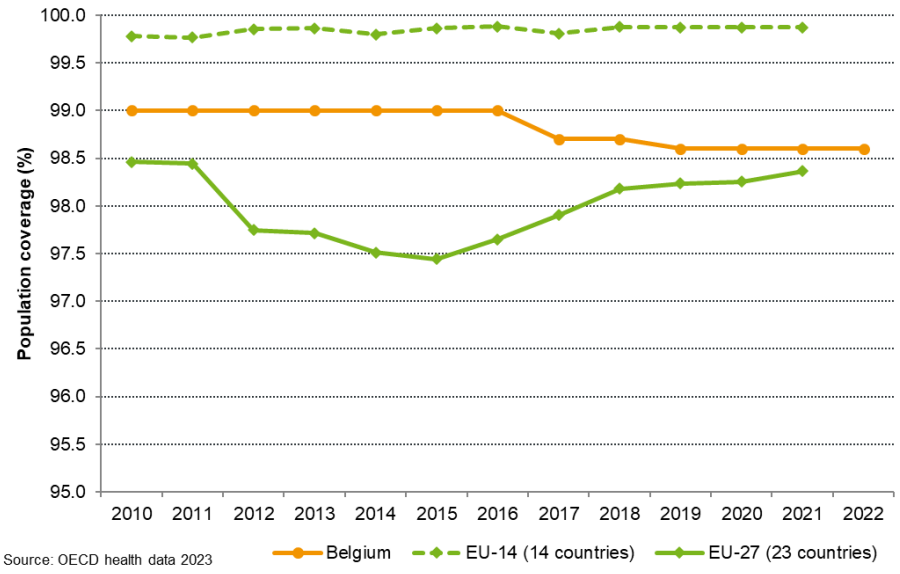
Research suggests that significant gaps in population coverage were more likely to occur in countries that base entitlement on payment of contributions to a social health insurance (SHI) scheme than in countries that base entitlement on residence.[3] Those most likely to lack coverage are unemployed, self-employed, and those working in the informal economy or in other forms of precarious employment. Many of them cannot afford to pay SHI contributions or find it difficult to pay due to administrative complexity.

In France, population coverage was increased by changing the basis for entitlement to the public health insurance in 2000 from the payment of SHI contributions to residence. In 2016, all residents – not just legal residents – were granted an automatic and permanent right to healthcare. Over time, SHI contributions have been reduced but not abolished, and persons not paying SHI contributions were not penalized by restricting their access to healthcare, but through the tax agency.[3, 7]

Impact of COVID-19 pandemic

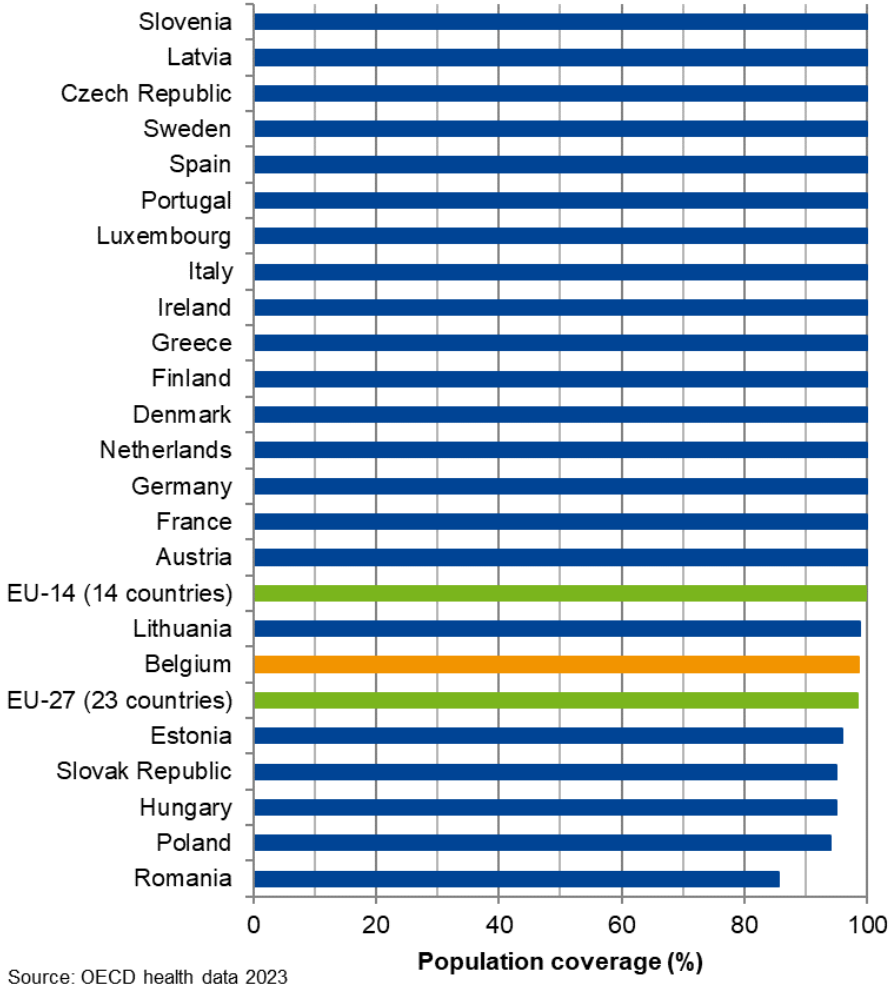
There was no impact of COVID-19 on population coverage rates.

Figure 80 – Population coverage of the public health insurance, evolution Belgium, EU-14 and EU-27 (2011-2022)



Source: OECD health data 2023

Figure 81 – Population coverage of the public health insurance in a European perspective (2022)



Source: OECD health data 2023

Key points

- **To meet the goals of universal health coverage, the basis for entitlement should encompass everyone living in a country.**
- **Population coverage in Belgium amounted to 99.1% in 2022. The percentage of uninsured persons was stable between 2010 and 2022 at about 1% (see Table 64). Although coverage was near universal, barriers persist that impede full population coverage.**
- **Differences in coverage rates across population subgroups are relatively minor, coverage rates are lower among males (98.8% in 2022), among younger adults (age group 20-39, 98.0% in 2022), and in the Brussels region (98.7%).**
- **Particularly low compliance rates are found among Belgians living abroad but still affiliated with a Belgian sickness fund.**
- **Most EU countries, including Belgium, report universal (100%) or near universal (over 99%) population coverage, although it is unclear how reliable and comparable these data are. Research suggests that significant gaps in population coverage are more likely to occur in countries that base entitlement on payment of contributions to a social health insurance scheme than in countries that base entitlement on residence, and cover all residents (not just legal residents) automatically.**

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6.2 Out-of-pocket (OOP) payments (% of current expenditure on health) (A-2); Out-of-pocket (OOP) medical spending (% of final household consumption) (A-3)

6.2.1 Documentation sheet

Description	A-2 Out-of-pocket (OOP) payments (% of current expenditure on health) A-3 Out-of-pocket (OOP) medical spending (% of final household consumption)
Calculation	A-2 Out-of-pocket (OOP) payments (% of current expenditure on health) **Numerator**: Out-of-pocket (OOP) payments **Denominator**: Current expenditure on health A-3 Out-of-pocket (OOP) medical spending (% of final household consumption) **Numerator**: Out-of-pocket (OOP) payments excluding long-term care **Denominator**: Final household consumption
Rationale	Belgium has made a commitment to universal health coverage (UHC), i.e. everyone should be able to obtain the health services that they need, of high quality, without risk of financial hardship in doing so.[1, 2] Ensuring affordable access to healthcare is at the heart of universal health coverage, and was reaffirmed numerous times as main objective of the Belgian healthcare system.[1] Healthcare is generally considered financially inaccessible when people limit or postpone the use of necessary care because of (excessively) high costs, or when they have to relinquish other basic necessities because they need care. Financial accessibility can be undermined by out-of-pocket (OOP) payments for healthcare. All countries use OOP payments to pay for some healthcare, though to varying degrees. Evidence shows that user charges are not a good instrument for directing people to use resources more efficiently and can have negative effects on equity and efficiency.[3-7] Low-income populations are disproportionately affected by increased cost sharing, as they have higher care needs, are more price sensitive and resource constrained than other income groups. Hence, OOP payments can be a barrier to accessing health services and treatments, resulting in people foregoing or delaying the use of healthcare (unmet need for healthcare, see indicators A-6 and A-7) with potential adverse consequences to their health.[1, 8] By shifting healthcare costs on to households, OOP payments can also lead to financial hardship (e.g. impoverishing or catastrophic health spending, see indicator A-4). In this latter case, people can no longer afford to meet basic needs – food, housing, electricity – because they have to pay out of pocket for healthcare.[2, 3]

Data source	System of Health Accounts (SHA)[9] accessed through OECD Health Statistics (2023), Annual national accounts accessed through Eurostat (2023), Household Budget Survey (HBS), IMA – AIM atlas (co-payments),[10] RIZIV – INAMI (Maximum billing reimbursements / *Maximumfactuur* in Dutch / *Maximum à facturer* in French (MAF))
Technical definitions	**Out-of-pocket (OOP) payments** are expenditures borne directly by a patient because public or voluntary health insurance does not cover the (full) cost of the health good or service.[11] They are identified in SHA by label *HF.3*. OOP payments include cost sharing (co-payment, coinsurance – "*ticket modérateur*" in French and "*remgeld*" in Dutch – or deductible), balance/extra billing ("*suppléments*" in French and "*supplementen*" in Dutch), self-medication and other expenditures paid directly by private households.[9] It does not include all of the patient contributions to long-term care in elderly and nursing homes. This is due to the fact that not all care provided in nursing homes (mostly used by the elderly) is classified under *healthcare* in the health accounts (the Belgian estimate is limited to the co-payments for nursing and care beds, while payments related to all other expenditures in nursing homes are considered as *social* care, and thus kept out of scope). The calculation of OOP payments in SHA also account for reimbursements of voluntary health insurance and receipt of conditional care allowances (e.g. time credits for palliative care or for heavily sick children or family members, etc…) **Current expenditure on health** equal the sum of all financing schemes, public health insurance, voluntary health insurance and OOP payments (*HF.1, HF.2, HF.3*) We identify **different types of care** as follows in the SHA: - Long-term care: *HC.3* - Inpatient care: *HC1.1 & HC2.1* - Outpatient care: *HC1.3,* excluding *HC1.3.2* - Dental care: *HC1.3.2* - Medical products: *HC5.2* - Outpatient medicines: *HC5.1* - Diagnostic tests: *HC4.1 & HC4.2* **Final household consumption** is obtained through the annual national accounts (Eurostat, NAMA_10_CO3_P3) The current macro-analysis is complemented with a micro-level analysis based on data from the Household Budget Survey.[12]
International comparability	OECD and Eurostat databases are used to calculate the same indicators for all EU countries. However, caution is needed in the comparison as SHA data are not always comparable across countries. There is a continuous process to improve the reliability of the SHA estimates as well as their comparability. This also means that time series can alter retrospectively.
Limitations	Final household consumption is available through the national accounts and does not take into account cash allowances that households get (care allowances).

	In the Belgian SHA, expenditure for long-term healthcare (HC.3) is included for the OOP spending (under the assumptions above). However, because the capacity of countries to estimate private long-term care expenditure varies widely, this category has been excluded from OOP payments for indicator A-3. Note that the definition of OOP payments in SHA, contrary to national accounts final consumption estimates, account for reimbursements of voluntary health insurance and receipt of conditional care allowances.
Dimension	Accessibility
Related indicators	A-4 Households facing catastrophic out-of-pocket payments (% of respondents, HBS) A-5 Out-of-pocket (OOP) payments for hospital care (% of total hospital care expenditures) A-6 People with self-reported unmet needs for medical examination due to financial reasons (% of respondents, EU-SILC) (ex-A-4) A-7 People with self-reported unmet needs for dental examination due to financial reasons (% of respondents, EU-SILC) (ex-A-4)
Reviewers	Dirk Moens (FOD Sociale Zekerheid – SPF Sécurité Sociale), Carine Van de Voorde (KCE)

6.2.2 Results

Belgium

Table 65 provides information on the evolution over time (2010-2021) of out-of-pocket payments expressed in million euros, as a percentage of current expenditure on health and as a percentage of final household consumption.

Total out-of-pocket (OOP) payments increased between 2010 and 2019 by 40% from €7.3 to €10.2 billion and decreased strongly in 2020 due to lockdowns and the postponement of non-urgent care in response to COVID-19. OOP payments rebounded in 2021, but remained below the level of 2019. Co-payments represented only one fifth of total estimated OOP payments in 2018. Moreover co-payments tended to grow at a slower pace than overall OOP payments (co-payments increased by 13.1% between 2010 and 2018 while OOP payments went up by 26.5% in the same period).

Public health spending also grew substantially, with 37.6% between 2010 and 2019, from €28.3 billion to €38.9 billion. There was no dip in public spending in 2020 and even a strong surge in 2021. The increase in public spending and decrease in OOP payments in 2020 were more or less of the same magnitude, so that the level of current expenditure on health was similar in 2019 and 2020, subsequently going up strongly in 2021 given the increase in both OOP payments and public spending.

Final household consumption as registered in the national accounts followed the same upward trend between 2010 and 2019, although the growth rate amounted to 30%, lower than the rate for OOP payments. There was a dip in household spending in 2020 related to COVID-19 after which household consumption rebounded to the level of 2019.

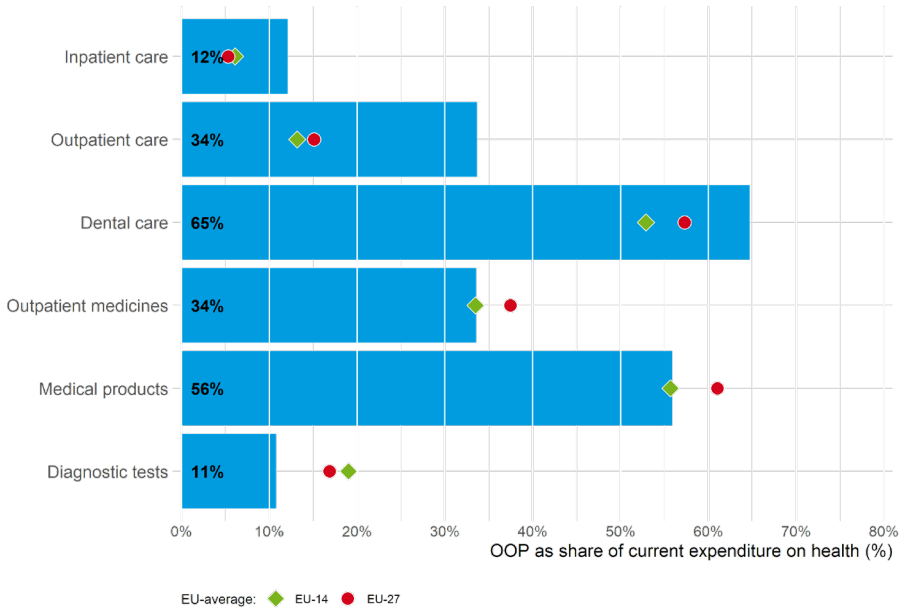
Table 65 shows that the share of out-of-pocket payments in current expenditure on health remained more or less constant around 19.6% between 2010 and 2014, after which a decline set in until 2018 (18.5%). There was a strong surge in 2019 (19.8%) followed by a drop in 2020 (17.4%) and a rebound in 2021 (17.9%). As a share of final household consumption, OOP medical spending – OOP payments excluding OOP payments for long-term care – has fluctuated around 3.9% between 2010 and 2019, implying that the growth in OOP medical spending followed more or less the overall growth in household consumption. In 2020, there was a decrease to 3.6%, because the reduction in OOP medical spending was relatively more pronounced than the overall decline in household consumption.

Table 65 – Out-of-pocket payments, current expenditure on health and final household consumption in Belgium (2010-2021)

Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
OOP payments (in million €)	7 306.2	7 635.7	7 890.0	8 202.8	8 352.5	8 558.9	8 573.6	8 842.7	9 243.7	10 234.8	8 955.9	9 908.9
OOP long-term care (in million €)	341.1	243.8	320.9	336.7	389.3	366.4	383.9	428.0	617.8	855.6	1 075.8	1 261.5
Co-payments after maximum billing reimbursements (MAF) (in million €)♣	1 702.0	1 706.0	1 774.7	1 765.4	1 789.7	1 819.5	1 821.7	1 844.8	1 924.4	1 939.1	1 710.5	1 952.6
Voluntary health insurance (in million €)	1 480.6	1 633.8	1 644.5	1 762.6	1 844.0	2 054.5	2 195.2	2 326.6	2 434.1	2 551.2	2 410.1	2 514.5
Public health insurance (in million €)	28 261.8	29 693.5	31 021.8	31 587.9	32 558.5	34 379.8	35 652.6	36 889.7	38 290.6	38 886.0	40 123.3	43 069.6
Current expenditure on health (in million €)	37 048.6	38 963.0	40 556.3	41 553.4	42 755.0	44 993.1	46 421.5	48 059.0	49 968.3	51 672.0	51 489.2	55 492.9
Final household consumption (in million €)	179 681.8	186 615.3	192 776.2	197 752.7	199 726.8	204 797.5	210 579.1	218 885.7	227 031.4	233 573.8	217 711.0	234 494.4
OOP payments as a share of current expenditure on health	19.7%	19.6%	19.5%	19.7%	19.5%	19.0%	18.5%	18.4%	18.5%	19.8%	17.4%	17.9%
Inpatient care (% OOP)	13.3%	13.8%	14.5%	14.4%	14.3%	13.8%	13.5%	13.4%	14.1%	14.8%	10.3%	12.1%
Outpatient care (% OOP)	41.0%	40.4%	39.9%	40.8%	38.6%	38.9%	38.1%	37.3%	35.4%	38.1%	34.7%	33.7%
Dental care (% OOP)	53.3%	54.6%	54.8%	54.8%	55.9%	59.4%	60.4%	63.2%	63.9%	65.2%	66.1%	64.7%
Outpatient medicines (% OOP)	37.8%	37.8%	37.0%	38.9%	38.0%	36.5%	35.4%	36.1%	35.5%	37.2%	34.6%	33.6%
Medical products (% OOP)	51.2%	50.7%	50.3%	52.9%	52.8%	58.2%	58.1%	59.0%	58.5%	59.4%	53.5%	55.9%
Diagnostic tests (% OOP)	10.9%	11.6%	10.6%	11.7%	13.1%	13.7%	13.8%	13.5%	10.9%	11.7%	12.2%	10.8%
OOP medical spending as a share of final household consumption	3.9%	4.0%	3.9%	4.0%	4.0%	4.0%	3.9%	3.8%	3.8%	4.0%	3.6%	3.7%

Notes: ♣ Co-payments are no separate category in SHA, but were calculated based on information on health expenditure covered by the compulsory public health insurance from IMA – AIM atlas[10] and MAF reimbursements from RIZIV – INAMI.
Source: OECD Health Statistics 2023 (SHA), Eurostat 2023 (national accounts), IMA-AIM Atlas (co-payments)

Figure 82 – OOP payments as a share of current spending on health by type of care (2021)



The out-of-pocket share of current spending on health differs by type of care

Table 65 and Figure 82 give information of the out-of-pocket share of current spending on health by type of care. OOP payments in 2021 were highest for dental care (64.7%) and medical products (55.9%), followed by outpatient care and outpatient medicines (both around 34%) and OOP payments for inpatient care and diagnostic tests represented 12.1% and 10.8% of current spending on health, respectively. Dental care and medical products are types of care where OOP payments are on average more important in all EU countries. Nevertheless, OOP payments for dental care were higher in Belgium than the EU averages (see Figure 82) and have increased substantially over time (see Table 65). Moreover, the level of OOP payments in Belgium was much higher than the EU-average in 2021, in spite of a substantial decline over time from 41.0% in 2010 to 33.7% in 2021. OOP payments for inpatient care were also relatively more important in Belgium than on average in other EU countries.

Burden of OOP payments on household budgets – analysis by socioeconomic status and region

A breakdown by sociodemographic or socioeconomic group is not possible using the SHA or the national accounts. Therefore, we also relied on data from the Household Budget Survey (HBS) where detailed consumption data of a sample of households are registered during an observation period of 1 month (2012-2016) or 15 days (2018-2020), including OOP payments. [2, 12]

Table 66 indicates that average annual out-of-pocket payments per household increased from €1 497 in 2012 to €1 805 in 2020 with limited variation across regions. There were, however, striking and increasing differences between households categorized by their financial means. In fact, the upward trend in out-of-pocket payments over time was entirely due to an increase in OOP payments in the two richest quintiles, while in quintiles 1 to 3 no increase was observed. A similar picture emerges when looking at the average annual out-of-pocket payments per person.

In 2020, the share of out-of-pocket payments in total household consumption amounted to 6.3% in Belgium, an increase compared to previous years. Variation across regions or income groups was limited, although the poorest quintile consistently had a share below the average.

Table 66 – Average out-of-pocket health expenditure per household and as a share of total household consumption (2012 - 2020)

			2012	2014	2016	2018	2020
Average annual OOP health expenditure per person (in €)	Belgium		636	716	689	730	808
	Regions	Flanders	615	726	644	700	798
		Wallonia	640	740	688	725	808
		Brussels	634	668	705	749	813
	Household equivalized consumption quintiles	First quintile	247	260	251	254	230
		Second quintile	415	508	410	458	466
		Third quintile	665	673	661	713	687
		Fourth quintile	801	891	991	1010	999
		Fifth quintile	1315	1563	1452	1542	2133
Average annual OOP health expenditure per household (in €)	Belgium		1497	1655	1571	1639	1805
	Regions	Flanders	1530	1738	1585	1641	1822
		Wallonia	1503	1558	1606	1688	1802
		Brussels	1317	1520	1396	1490	1725
	Household equivalized consumption quintiles	First quintile	746	772	738	723	658
		Second quintile	1029	1222	1000	1089	1083
		Third quintile	1531	1505	1410	1545	1532
		Fourth quintile	1645	1852	1991	2054	1982
		Fifth quintile	2538	2927	2717	2785	3772
OOP health expenditure as a share of total household consumption	Belgium		4.9%	5.4%	5.5%	5.5%	6.3%
	Regions	Flanders	4.9%	5.4%	5.3%	5.4%	6.2%
		Wallonia	5.0%	5.5%	5.9%	5.9%	6.4%
		Brussels	5.0%	5.3%	5.3%	5.1%	6.1%
	Household equivalized consumption quintiles	First quintile	4.4%	4.6%	4.7%	4.4%	4.2%
		Second quintile	4.6%	5.7%	4.8%	5.1%	5.3%
		Third quintile	5.6%	5.7%	5.8%	6.1%	6.0%
		Fourth quintile	5.1%	5.6%	6.6%	6.5%	6.5%
		Fifth quintile	4.8%	5.4%	5.3%	5.3%	7.2%

Data source: own calculations based on HBS data from waves 2012, 2014, 2016, 2018, 2020.
Note: Total household consumption expenditures exclude imputed rent, i.e. COICOP 042, and expenses unrelated to consumption, i.e. COICOP 129.

International comparison

Out-of-pocket payments made at the point of consuming healthcare can be a financial burden, in particular for individuals with high care needs or limited

resources. Although the out-of-pocket share of current spending on health has evolved in line with the EU averages (see Figure 83), the Belgian health system still relied more heavily on out-of-pocket payments in 2021 than neighbouring countries such as Luxembourg (8.9%), France (8.9%), the Netherlands (9.3%) and Germany (12.0%) (see Figure 84). In 2021, the out-of-pocket payment share of current spending on health in Belgium (17.9%) was just above the EU-14 average (16.5%) and just below the EU-27 average (18.2%). Twelve countries had a higher OOP share than Belgium, in particular Southern European countries – such as Spain, Italy, Portugal and Greece – and Eastern European countries – such as Bulgaria, Latvia and Poland.

Figure 85 shows the evolution of out-of-pocket medical spending – i.e. OOP payments on healthcare excluding OOP on long-term care to make results more comparable across countries – as a share of final household consumption. Both the Belgian share as the EU average shares were stable over time, but where we observe that the Belgian share decreased in 2020, we find that the EU average shares increased. The decrease in Belgium was due to a larger drop in OOP medical spending than in final household consumption, but it seems that on average in the EU the opposite was true, a larger drop in final household consumption than in OOP. In 6 EU countries, OOP payments in 2020 were at a higher level than in 2019, i.e. Greece, Hungary, Romania, Malta, Bulgaria and Slovenia.

The Belgian out-of-pocket medical share of final household consumption was consistently above the EU averages with only 7 EU countries having a higher share (see Figure 86). The Belgian share in 2021 (3.7%) largely surpassed the share in neighbouring countries such as France (1.3%), Luxembourg (1.3%), Germany (2.1%) and the Netherlands (2.1%).

Impact of COVID-19 pandemic

In Belgium, as well as in most other EU countries, OOP payments decreased due to lockdowns and the postponement of non-urgent care in response to COVID-19. The reduction as well as the rebound afterwards were significant from €10.2 billion in 2019 to €9.0 billion in 2020 and €9.9 billion in 2021 (see Table 65). Final household consumption had a similar dip and rebound due to COVID-19, but less pronounced in relative terms. Public health spending, on the other hand, was not characterized by a decrease in 2020.

In relative terms, OOP payments both as a share of current expenditure on health and OOP medical spending as a share of final household consumption had an important dip in 2020 and a small rebound in 2021. Interestingly, the EU average OOP medical spending as a share of final household consumption did not show a dip as in Belgium, but rather a small surge.

Figure 83 – OOP payments as a share of current expenditure on health, evolution Belgium, EU-14 and EU-27 (2010-2021)

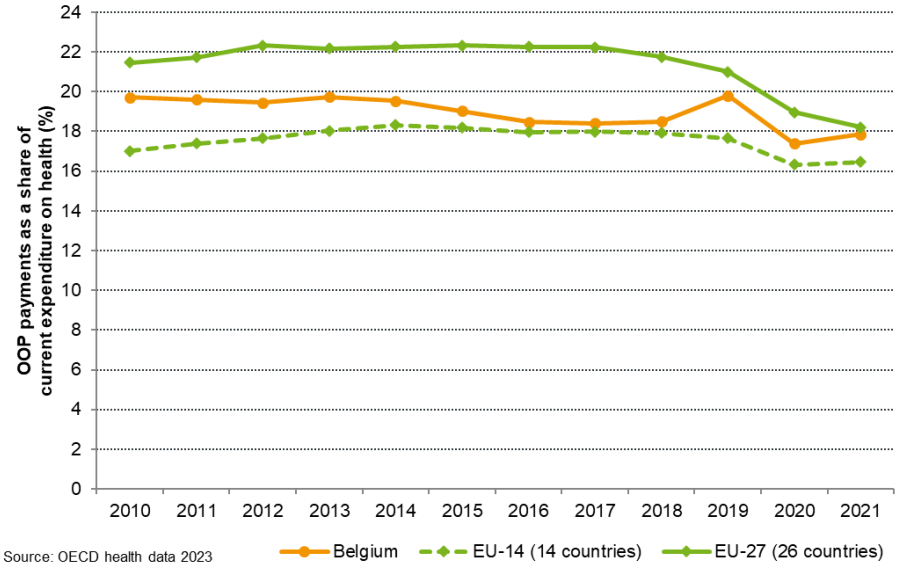
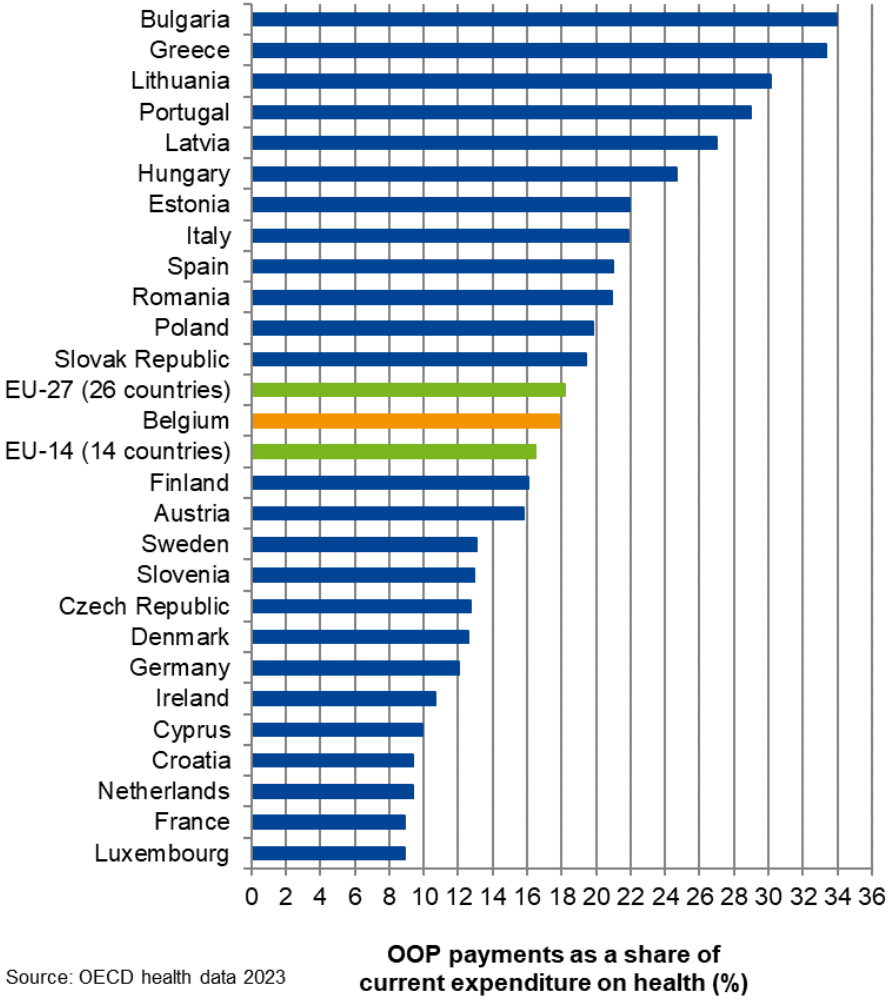
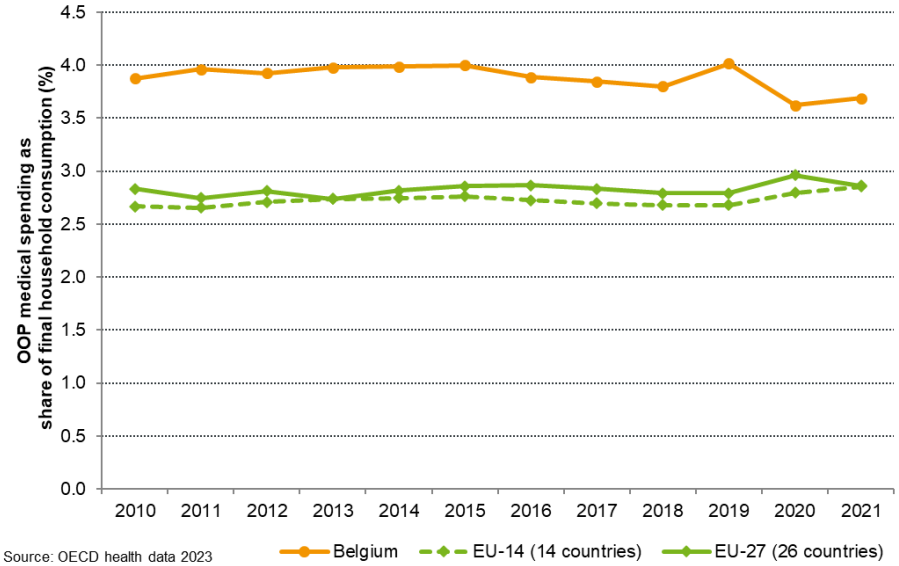


Figure 84 – OOP payments as a share of current expenditure on health in a European perspective (2021)



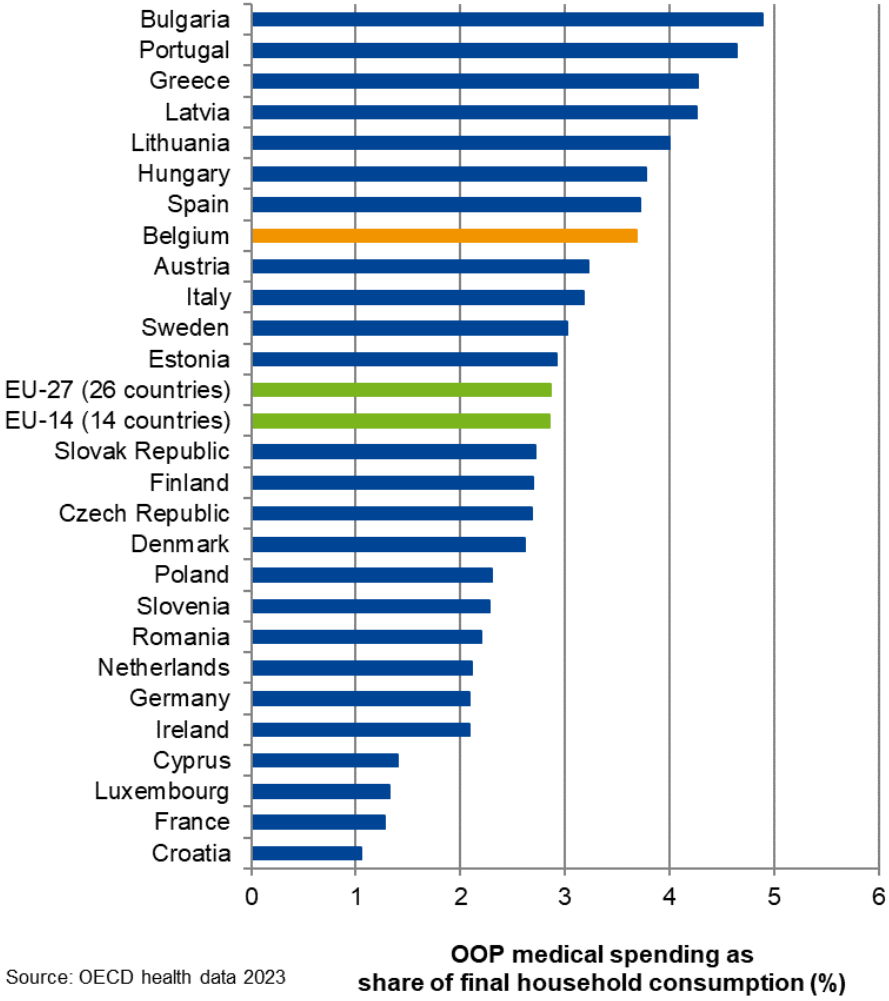
Source: OECD health data 2023

Figure 85 – OOP medical spending as a share of final household consumption, evolution Belgium, EU-14 and EU-27 (2010-2021)



Source: OECD health data 2023

Figure 86 – OOP medical spending as a share of final household consumption in a European perspective (2021)



Source: OECD health data 2023

Key points

- **Out-of-pocket payments made at the point of consuming healthcare can be a financial burden, in particular for individuals with high care needs or limited resources.**
- **OOP payments increased between 2010 and 2019 by 40% from €7.3 to €10.2 billion and decreased strongly in 2020 due to lockdowns and the postponement of non-urgent care in response to COVID-19. They rebounded in 2021, but remained below the level of 2019.**
- **Co-payments represent only one fifth of total estimated OOP payments in 2021.**
- **OOP payments as a share of current expenditure on health were around 19.6% between 2010 and 2014 and declined until 2018 (18.5%). There was a strong surge in 2019 (19.8%) followed by a drop in 2020 (17.4%) and a rebound in 2021 (17.9%). The Belgian share was in line with the EU averages, but the Belgian health system still relied more heavily on out-of-pocket payments in 2021 than neighbouring countries such as Luxembourg (8.9%), France (8.9%), the Netherlands (9.3%) and Germany (12.0%).**
- **OOP payments as a share of current expenditure on health in 2021 were highest for dental care (64.7%), medical products (55.9%), outpatient care and outpatient medicines (both nearly 34%). OOP payments for dental care, outpatient care and inpatient care were above the EU averages in 2021. OOP payments for dental care substantially increased over time.**
- **OOP medical spending as a share of final household consumption fluctuated around 3.9% between 2010 and 2019, followed by a decrease to 3.6% in 2020. The Belgian share was consistently above the EU averages and largely surpassed the share in neighbouring countries such as France (1.3%), Luxembourg (1.3%), Germany (2.1%) and the Netherlands (2.1%).**

- **OOP payments as share of household consumption were higher for households with more financial means.**

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6.3 Households facing catastrophic out-of-pocket (OOP) payments (% of respondents, HBS) (A-4)

6.3.1 Documentation sheet

Description	**Primary indicator** A-4 Households facing catastrophic out-of-pocket payments (% of respondents, HBS) **Secondary indicator** Households facing impoverishing or further impoverishing out-of-pocket payments (% of respondents, HBS)
Calculation	**Numerator**: weighted number of households who experience catastrophic out-of-pocket payments (using HBS survey weights). See rationale and technical definitions for more information on catastrophic health spending. **Denominator**: total weighted number of households included in the survey (using HBS survey weights).
Rationale	Belgium has made a commitment to universal health coverage (UHC), i.e. everyone should be able to obtain the health services that they need, of high quality, without risk of financial hardship in doing so.[1, 2] Ensuring affordable access to healthcare is at the heart of universal health coverage, and was reaffirmed numerous times as main objective of the Belgian healthcare system.[1] Healthcare is generally considered financially inaccessible when people limit or postpone the use of necessary care because of (excessively) high costs, or when they have to relinquish other basic necessities because they need care. Financial accessibility can be undermined by out-of-pocket (OOP) payments for healthcare. All countries use OOP payments to pay for some healthcare, though to varying degrees (see indicators A-2 & A-3). Evidence shows that user charges are not a good instrument for directing people to use resources more efficiently and can have negative effects on equity and efficiency.[3-7] Low-income populations are disproportionately affected by increased cost sharing, as they have higher care needs, are more price sensitive and resource constrained than other income groups. Hence, OOP payments can be a barrier to accessing health services and treatments, resulting in people foregoing or delaying the use of healthcare (unmet need for healthcare, see indicators A-6 and A-7) with potential adverse consequences to their health.[1, 8] By shifting healthcare costs on to households, OOP payments can also lead to financial hardship (e.g. impoverishing or catastrophic health spending). In this latter case, people can no longer afford to meet basic needs – food, housing, electricity – because they have to pay out of pocket for healthcare.[2, 3] Households with low incomes are consistently most likely to lack affordable access to healthcare, experiencing both catastrophic health spending and unmet need. This deepens poverty, erodes health and well-being and increases social inequalities within and across countries.[7, 9] **The incidence of catastrophic and impoverishing out-of-pocket payments are two widely used indicators of financial hardship related to healthcare use. They assess the relation between healthcare spending and ability or capacity to pay.**[10, 11] For reasons of international comparability, we follow the methodology proposed by the World Health Organization (WHO) Europe Region in its series on financial hardship (detailed in the technical definition).[3, 12] This is a capacity-to-pay approach that assumes that households need to spend part of their resources to meet basic needs, such as food, housing (rent) and utilities (electricity, water, fuel etc.). The underlying idea to implement a correction for basic needs is that poor households devote relatively more of their resources to meeting basic needs and may face a trade-off between consuming basic needs and healthcare. Only after meeting basic needs, resources are available to spend on healthcare. - **Impoverishing health spending** provides information on the impact of OOP payments on poverty. A **household is impoverished** if its total consumption spending excluding OOP payments for healthcare is below the amount needed to cover basic needs. In this case the household is unable to cover at the same time basic needs and healthcare. A **household is further impoverished** if its total consumption spending is below the amount needed to cover basic needs and it incurs OOP payments.

- **Catastrophic health spending** occurs when OOP payments exceed a predefined share of the household's capacity to pay. This is an indication that the household may no longer be able to meet basic needs. OOP payments that are impoverishing or further impoverishing are always catastrophic, but catastrophic OOP payments are not necessarily impoverishing

Data source

Household Budget Survey (HBS).[13] The HBS data Statbel (Algemene Directie Statistiek – Direction générale Statistique – Statistics Belgium) contain individual and household information for a representative sample of the population residing in Belgium. They include very detailed information on consumption expenditures (using the Classification of Individual Consumption According to Purpose (COICOP), next to basic sociodemographic (e.g. age, sex, household size, region of residence) and socioeconomic information (e.g. income, educational attainment). Generally, all consumption expenditures are registered during a period of 1 month in 2012, 2014 and 2016 and during a period of 15 days in 2018 and 2020 (with the exception of dental care costs and inpatient care costs which are registered on an annual basis since 2018).[2] Information on specific expenditures, e.g. for durables or insurance premiums, are gathered through interview questions and refer to annual amounts.

Technical definitions

For detailed information on the selected variables from the HBS database and the calculation of catastrophic and impoverishing or further impoverishing out-of-pocket payments, we refer to section 3.2.1 of the Supplement of KCE report 334.[1]

Key information in the data:

1) Information on household capacity to pay: consumption expenditures are registered in high detail at the household level. We use information on total household expenses as well as expenses for basic necessities (food, utilities and rent). Total household consumption expenditures exclude imputed rent, i.e. COICOP 042, and expenses unrelated to consumption, i.e. COICOP 129. Household consumption expenditures are considered as proxy for household resources and used to compute the household's capacity to pay.

2) Information on out-of-pocket (OOP) payments: In the HBS OOP payments for healthcare are defined as all expenses related to COICOP category 06. They can be further subdivided in 6 categories: (1) medicines with and without prescription (COICOP 0611 + 06129D), (2) medical products and equipment, such as glasses, hearing aids, wheelchairs (COICOP 0612 + 0613), (3) outpatient care (COICOP 0621), (4) dental care (COICOP 0622), (5) diagnostic tests and paramedical services (COICOP 0623), (6) inpatient care (COICOP 063). The OOP payments reflect the amount paid at the point of use and are not corrected for potential reimbursements through the sickness fund or private insurers. Information on the receipt of sickness fund reimbursements over the past 4 months is classified as an income variable (variable r14) and is not necessarily related to healthcare used in the registration period. In addition, information is available on the premiums paid for private hospital insurance (in case they are (partly) paid by the household and not in full by the employer) and on contributions to the sickness fund. Also, information on accommodation expenses for long-term care (e.g. nursing homes, rehabilitation centres) and expenses for home care (e.g. home-cleaning services, meal programmes, day-care centres, home nursing care) are registered under a separate category (COICOP 1240). In line with the WHO methodology, we do not classify these expenses as OOP payments.

3) Information on relevant groups in the population, e.g.

- **Quintiles of equivalized household consumption expenditure**. The OECD household equivalence scale is used to account for economies of scale in household consumption based on the number of adults and children included in the household. The equivalence scale is calculated as follows:

$$eqsize_h = 1 + 0.7 * (number\ of\ adults - 1) + 0.5 * (number\ of\ children\ under\ 13\ years\ of\ age)$$

Calculation of catastrophic and impoverishing healthcare expenditures

To estimate the catastrophic and impoverishing healthcare expenditures, we followed four main steps of the methodology proposed by the WHO European Region in its series on financial protection:[14] i.e. estimate of 1) the basic needs lines, 2) the basic needs expenditures levels, 3) the

capacity to pay and, 4) the incidence of impoverishing and catastrophic OOP payments. The methodology of the WHO European Region was chosen as it allows for a comparison with other countries. A detailed description of the methodology can be found in WHO (2016) and in section 3.2.5 of the Supplement of KCE report 334.[1, 15]

Step 1: basic needs lines.

A basic needs line is calculated as the average amount spent on food, housing (rent) and utilities (water, electricity and fuel used for cooking and heating) by households with equivalized total household consumption expenditures between the sample weighted 25th and 35th percentile of the distribution, which report any spending in the concerned category, rescaled using the equivalence scale (see above). These households are selected based on the assumption that they are able to meet, but not necessarily exceed, basic needs for food, housing and utilities.

Step 2: expenses for basic needs.

The household expenses for basic needs are calculated by multiplying the basic needs lines with the equivalized household size.

Step 3: capacity to pay.

A household's capacity to pay for healthcare is defined as household consumption expenditures minus basic needs expenses. When the household consumption level is insufficient to cover basic needs expenses, i.e. the household's capacity to pay is negative, the household is considered poor.

Step 4: incidence of catastrophic, impoverishing and further impoverishing OOP payments.

To calculate the **incidence of impoverishing or further impoverishing out-of-pocket payments**, the households are divided into 5 mutually exclusive categories based on the level of out-of-pocket payments in relation to the poverty line.

1. *Households without out-of-pocket payments*, irrespective of the household financial resources.
2. *Households not at risk of impoverishment*: non-poor households with out-of-pocket payments. When OOP payments are deducted from the total household consumption expenditures, the remaining financial resources are above 120% of the poverty line, implying that the household has enough means to cover basic needs.
3. *Households at risk of impoverishment*: non-poor households with out-of-pocket payments. When OOP payments are deducted from the total household consumption expenditures, the remaining financial resources are between the poverty line and 120% of the poverty line, implying that the household has enough means to cover basic needs, but with (very) limited financial leeway.
4. *Impoverished households*: non-poor households with out-of-pocket payments. When OOP payments are deducted from the total household consumption expenditures, the remaining financial resources are below the poverty line, implying that the household has not enough means to cover both basic needs and healthcare.
5. *Further impoverished households*: poor households with out-of-pocket payments. The household has not enough means to cover basic needs and OOP payments make the financial situation even more precarious.

The **incidence of catastrophic payments** can be calculated using the household's OOP payments in relation to its capacity to pay. Out-of-pocket payments are considered catastrophic when they exceed 40% of the household's capacity to pay. Hence, households that are impoverished or further impoverished always experience catastrophic out-of-pocket payments.

International comparability

Data on catastrophic health spending is available from the WHO Euro database, based on HBS data.[16] Household budget surveys are conducted in all EU Member States, but despite efforts towards harmonisation within the EU, each Member State decides the objectives, methodology and frequency of conduction of the survey which means that international comparisons of these indicators should be interpreted with caution.

Limitations	Registered OOP payments reflect payments made at the point of use, not corrected for reimbursements by sickness funds or private insurers. A distinction between covered and non-covered expenses cannot be made. The analyses and hence results are largely based on self-reported data over 1 month (in waves 2012, 2014, 2016) or 15 days (wave 2018, 2020), not necessarily representative for average consumption patterns at the micro level.[17] Response rates of the Household Budget Survey are generally low, ranging between 9% and 17%, and have fallen over time. Moreover, some vulnerable population groups are not included in the survey sample: people residing in collective facilities such as the elderly and prisoners, the homeless or refugees. It is known from other studies that these groups experience higher than average healthcare needs or difficulties in accessing healthcare.[18-20]
Dimension	Accessibility
Related indicators	A-2 Out-of-pocket (OOP) payments (% of current expenditure on health) A-3 Out-of-pocket (OOP) medical spending (% of final household consumption) A-5 Out-of-pocket (OOP) payments for hospital care (% of total hospital care expenditures) A-6 People with self-reported unmet needs for medical examination due to financial reasons (% of respondents 16+, EU-SILC) A-7 People with self-reported unmet needs for dental examination due to financial reasons (% of respondents 16+, EU-SILC)
Reviewers	Carine Van de Voorde (KCE)

6.3.2 Results

Impoverishing and further impoverishing OOP payments (secondary indicator)

Table 67 provides information on the proportion of households that were impoverished, further impoverished and at risk of impoverishment after OOP payments between 2012 and 2020. The share of households that were impoverished or further impoverished decreased between 2012 and 2020. Also the share of households at risk of impoverishment decreased over time. Households that were further impoverished, impoverished or at risk of impoverishment were almost exclusively situated in the poorest consumption quintile (see Figure 87).

The important decrease in incidence between 2016 and 2018 cannot be explained by policy changes and was likely related to the change in survey design in 2018, in which the recall period for most OOP payments was reduced from 1 month to 15 days (see documentation). In 2018 and 2020, significantly more households reported no OOP payments (about 33%) compared to previous years (between 17% and 20%).

The share of households without OOP payments had an important effect on the incidence of catastrophic and impoverishing OOP payments as households without OOP payments cannot be impoverished or further impoverished and cannot have catastrophic payments. This does not necessarily reflect a positive result as it might be related to increased unmet needs for medical or dental care (for more information on unmet needs for medical or dental care, see indicators A-6 and A-7).

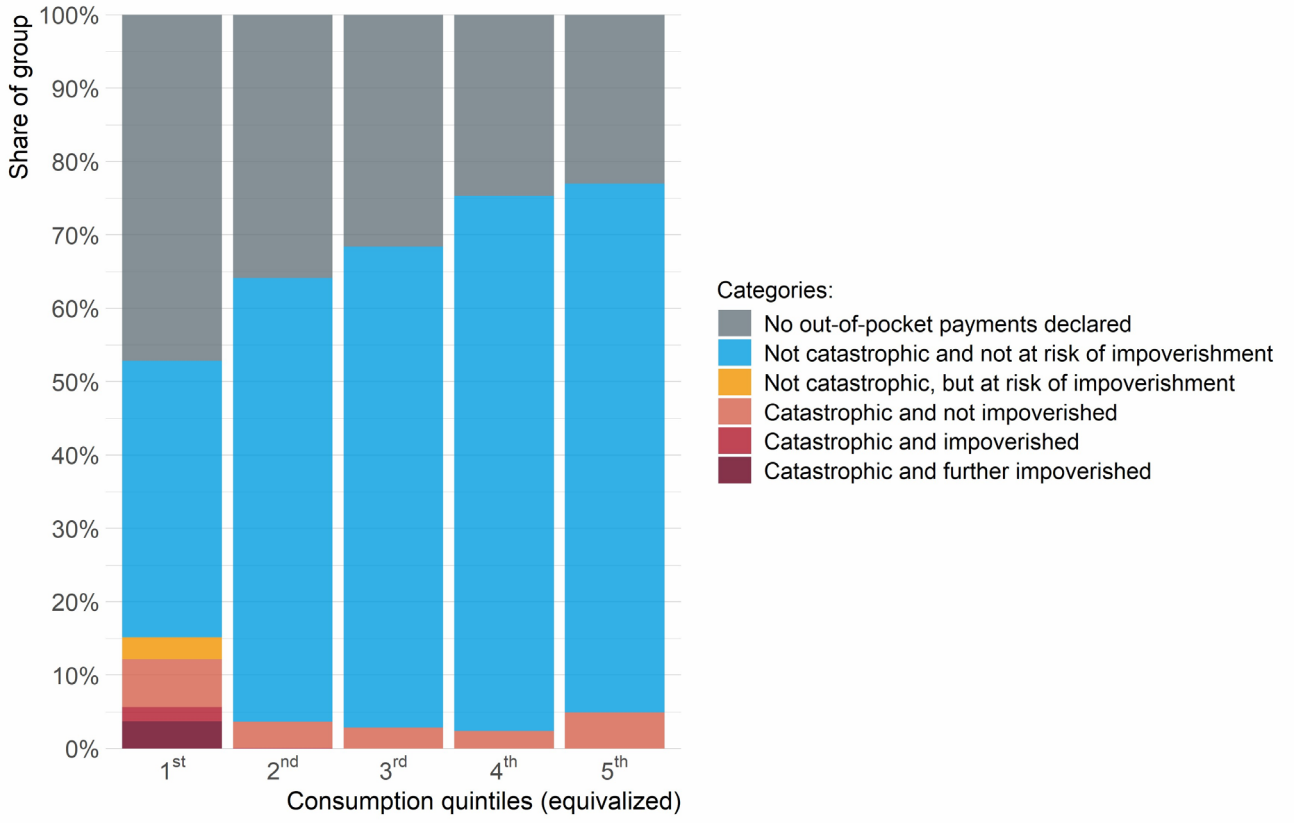
Poorer households were consistently less likely to report OOP payments than richer households (see Figure 87). In 2020 nearly half of households in the poorest quintile did not report out-of-pocket payments compared to about one quarter of households in the richest consumption quintile.

Table 67 – Proportion of households being further impoverished, impoverished, at risk of impoverishment, not at risk of impoverishment and without out-of-pocket payments (2012-2020)

	2012	2014	2016	2018	2020
Further impoverished	1.5%	1.0%	1.5%	0.6%	0.7%
Impoverished	0.6%	0.3%	0.4%	0.2%	0.4%
At risk of impoverishment	1.8%	1.7%	2.0%	0.8%	1.3%
Not at risk of impoverishment	79.1%	80.5%	76.5%	65.5%	65.1%
No out-of-pocket payments	17.1%	16.4%	19.7%	32.8%	32.5%

Note: break in series in 2018; data before and after 2018 are not comparable.
Source: own calculations based on HBS data Source: own calculations based on HBS data from Statistics Belgium (waves 2012, 2014, 2016, 2018, 2020).

Figure 87 – Relative share of households by risk category and consumption quintile (year 2020)



Source: own calculations based on HBS data from Statistics Belgium (wave 2020)

Catastrophic out-of-pocket payments (primary indicator) – incidence in Belgium

Households with **catastrophic health spending** are defined as those who spend more than 40% of their capacity to pay on healthcare. This includes households who are impoverished after out-of-pocket payments (because they no longer have any capacity to pay) and further impoverished (because they had no capacity to pay before paying out-of-pocket for healthcare).

Table 68 indicates that 4.7%, 3.9%, 5.3%, 3.8% and 5.2% of the households experienced catastrophic OOP payments in 2012, 2014, 2016, 2018 and 2020, respectively.

Catastrophic out-of-pocket payments (primary indicator) – Analysis by sociodemographic characteristics, socioeconomic status and region

In all years of the considered period, the incidence of catastrophic spending was heavily concentrated among the poorest quintile, although the concentration has diminished since the change in survey design in 2018, falling from 68% in 2012 to 60% in 2014 and 2016 and to 46% in 2018 and 2020 (see Figure 88). The share of the three richest quintiles has increased over time from 27% to 39%. Within the poorest quintile the share of households with catastrophic spending fell from 16.2% in 2012 to 12.2% in 2020 (see Table 68).

Catastrophic spending was also heavily concentrated among inactive people, unemployed people and people with a lower level of education – groups likely to overlap with households in the poorest quintile (see Table 68). Households with very low work intensity in Belgium have higher healthcare needs and often struggle to pay for health services, resulting in higher unmet need for medical and dental care due to cost.[1]

The share of households with catastrophic spending was consistently higher in Brussels than in Flanders and Wallonia with, respectively, a share of 6.7%, 4.8% and 5.3% in 2020.

Medical products, physiotherapy/rehabilitation and dental care are important drivers of catastrophic spending

The expenditures of households facing catastrophic OOP payments differed significantly from those of the general population. In 2020, the majority of OOP payments were related to spending on outpatient medicines (26%), medical products (22%) and outpatient care (19%), followed by diagnostic tests and paramedical services (15%), dental care (12%) and inpatient care (7%) (see Figure 89). Between 2012 and 2018 most shares remained relatively stable, although there was an increase in the inpatient care share in 2014, which fell again in 2016, and the dental care and diagnostic tests and paramedical services shares increased in 2016. In 2020 there was a sharp increase in the medical products share (which would include COVID-19-related spending on facemasks and disinfectants) and diagnostic tests (in particular due to spending on physiotherapy and rehabilitation). These increases were offset by a decline in the outpatient and inpatient care shares – not surprising given lockdowns and the postponement of non-urgent care in response to COVID-19.

In 2020, the main drivers of catastrophic spending were medical products (hearing aids, glasses, dentures, prostheses, orthopaedic material, facemasks etc.), diagnostic tests and paramedical services (particularly physiotherapists, rehabilitation, osteopaths, chiropractors and psychologists) and dental care (see Figure 89). The medical products share of catastrophic spending declined between 2012 and 2018 but shot up again in 2020. The diagnostic test and paramedical services share increased in 2016, while the dental care, inpatient and outpatient care shares have fluctuated. In 2018, spending on hospital care was the second main driver of catastrophic OOP payments, but the use of inpatient care and, to a lesser extent, outpatient care, were distorted in 2020 due to lockdowns and the postponement of non-urgent care in response to COVID-19. For the poorest quintile, spending on outpatient medicines was a more important contributor to catastrophic OOP payments than in other quintiles, while spending on medical products was not (see Figure 89). A more detailed analysis of catastrophic spending can be found in Bouckaert et al. (2023).[2]

Table 68 – Share of households with catastrophic out-of-pocket payments, by subgroup (2012-2020)

		2012	2014	2016	2018	2020
Belgium		4.7%	3.9%	5.3%	3.8%	5.2%
Regions	**Flanders**	3.6%	3.3%	4.0%	3.4%	4.8%
	Wallonia	6.1%	3.9%	6.3%	4.2%	5.3%
	Brussels	6.7%	7.0%	9.7%	5.0%	6.7%
Household equivalized consumption quintiles	**First quintile**	16.2%	11.7%	15.8%	8.7%	12.2%
	Second quintile	1.1%	2.1%	1.6%	2.9%	3.7%
	Third quintile	1.9%	1.6%	1.9%	3.0%	2.8%
	Fourth quintile	1.5%	1.1%	4.0%	2.0%	2.4%
	Fifth quintile	3.0%	3.1%	3.5%	2.6%	4.9%
Educational attainment of household head	**Primary degree or no degree**	9.6%	9.3%	8.6%	7.4%	8.2%
	Secondary degree	5.8%	4.7%	6.8%	4.4%	5.5%
	Tertiary degree	2.6%	1.7%	3.1%	2.7%	4.2%
Activity status household head	**Employed**	3.4%	3.1%	3.5%	3.2%	4.0%
	Unemployed	11.1%	9.1%	12.7%	8.0%	8.5%
	Inactive	10.1%	8.5%	16.4%	7.7%	10.5%
	Retired	5.4%	3.4%	4.8%	3.5%	5.9%
Sex of household head	**Males**	4.6%	3.5%	5.1%	3.3%	5.0%
	Females	5.0%	4.5%	5.7%	4.5%	5.4%
Age category of household members	**At least one member aged 65 or more**	5.2%	3.8%	5.0%	3.4%	6.2%
	All members aged below 65	4.6%	3.9%	5.5%	4.0%	4.8%

Note: break in series in 2018; data before and after 2018 are not comparable.
Source: own calculations based on HBS data from Statistics Belgium (waves 2012, 2014, 2016, 2018, 2020)

Figure 88 – Evolution of the share of households with catastrophic out-of-pocket payments, subdivided by consumption quintile

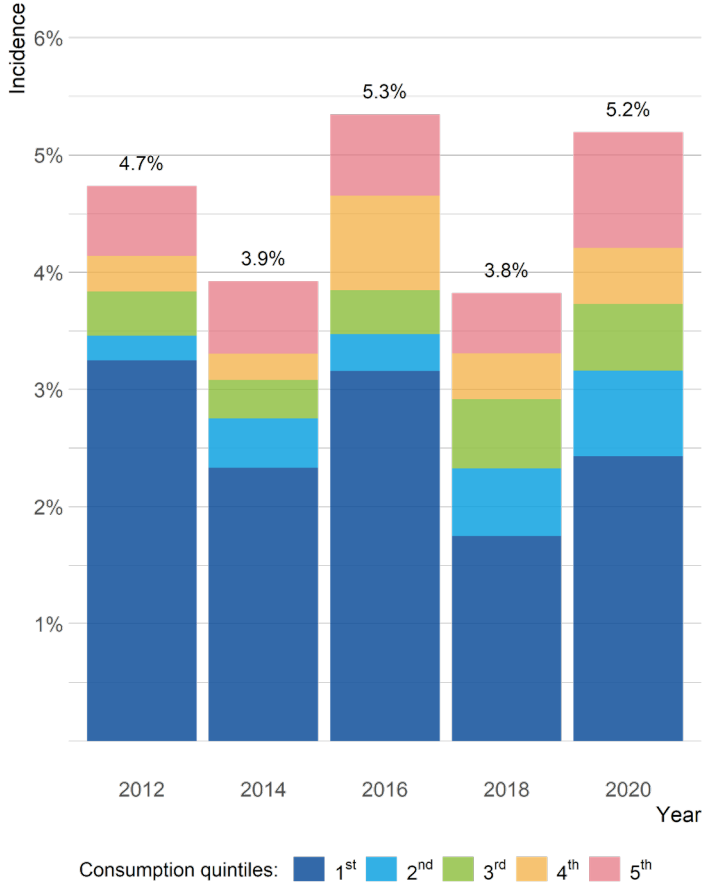
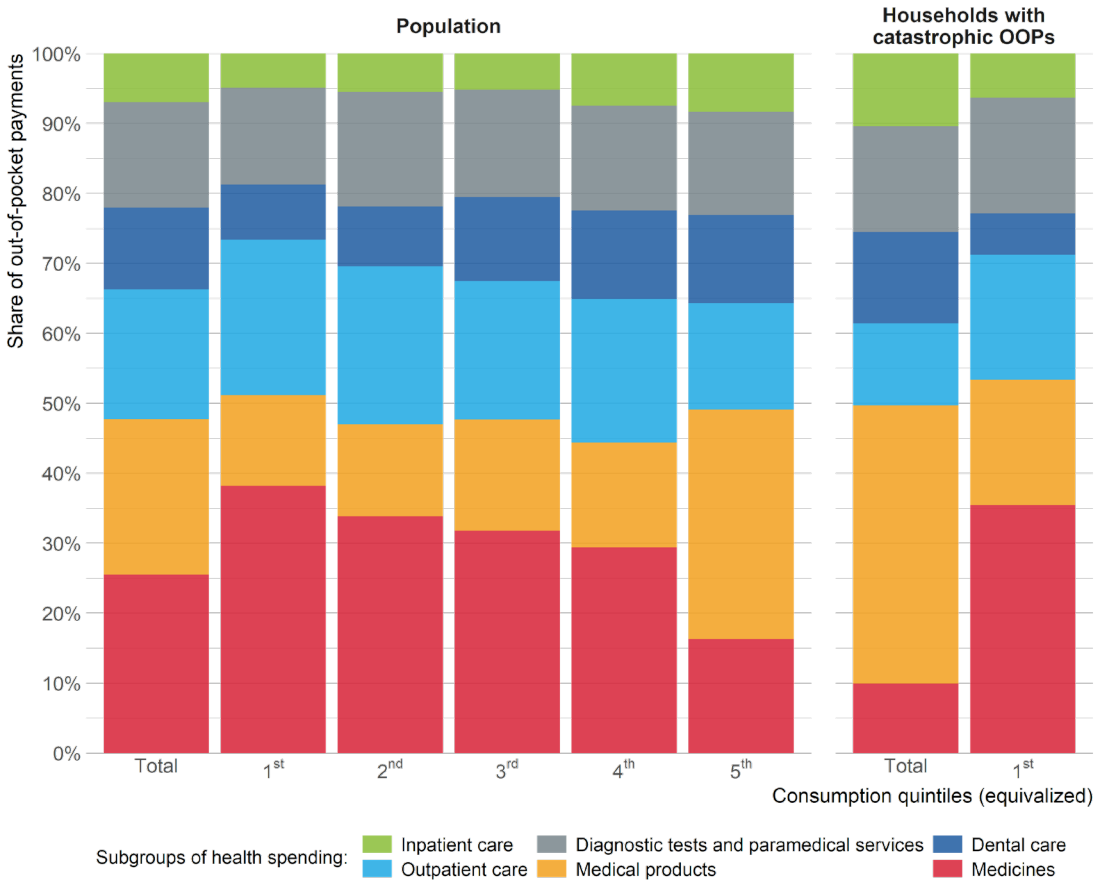


Figure 89 – Breakdown of out-of-pocket payments by health service among the population and among households with catastrophic out-of-pocket payments (year 2020)



Note: break in series in 2018; data before and after 2018 are not comparable.
Source: own calculations based on HBS data from Statistics Belgium (waves 2012, 2014, 2016, 2018, 2020).

International comparison of catastrophic health spending

Figure 90 gives an overview of the incidence of catastrophic health spending among European countries using the latest available information before the start of the COVID-19 pandemic. We use pre-pandemic figures, because most countries do not calculate this indicator yearly, and we want to avoid comparing pre-pandemic and pandemic incidence rates. The share of households with catastrophic OOP payments in Belgium for 2018 (3.8%) was situated below the EU-14 average (4.3%) and the EU-27 average (6.5%). Nevertheless, the Belgian rate exceeded those in our neighbouring countries: the Netherlands (2015: 0.5%), France (2017: 2.1%), Germany (2018: 2.4%) and Luxemburg (2019: 3.3%).

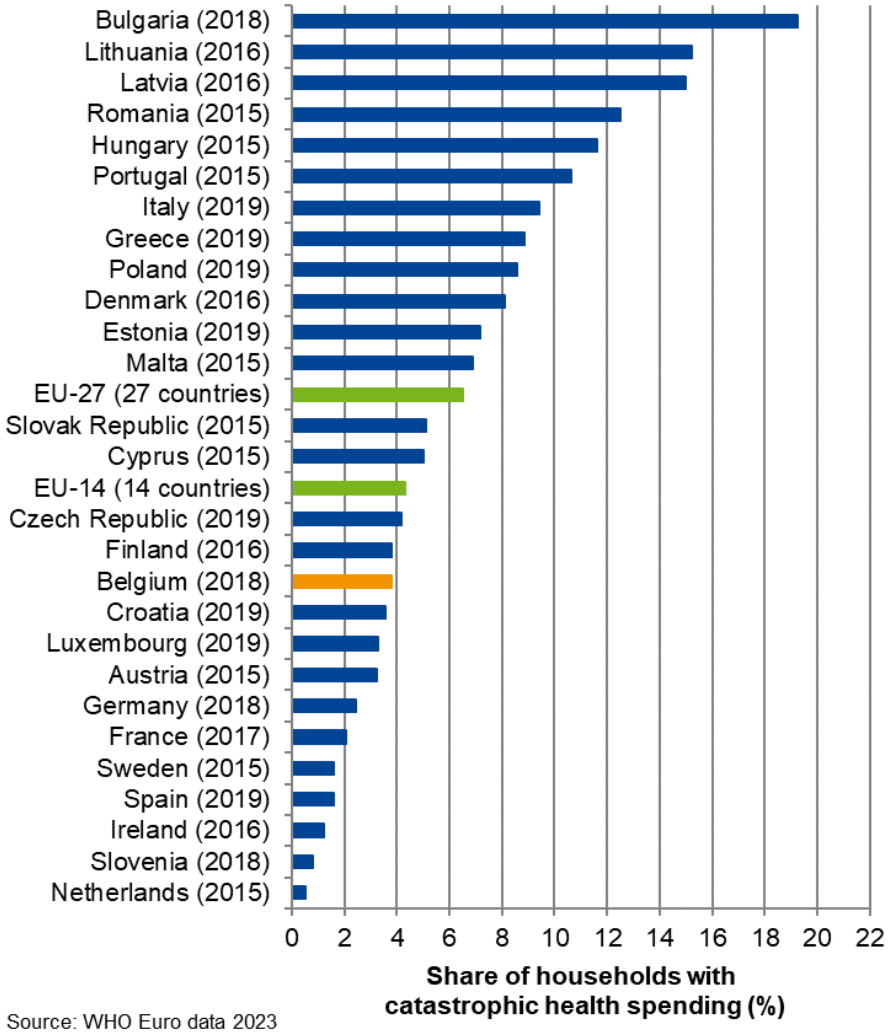
Research shows that there is an association between the share of OOP payments in current health spending and the incidence of catastrophic health spending.[3, 9] Hence, the relatively higher share of OOP payments in Belgium compared to our neighbouring countries may partly explain the higher incidence of catastrophic health spending.

Impact of COVID-19 pandemic

Although difficult to quantify, it is likely that there was an upward impact of COVID-19 on catastrophic and impoverishing health spending. The effects of COVID-19 on both indicators were threefold. First, there was an impact on the level and type of health spending. In 2020 we observed a sharp increase in the medical products share (which would include COVID-19-related spending on facemasks and disinfectants) and diagnostic tests and paramedical services (in particular due to spending on physiotherapy and rehabilitation), and a decline in the outpatient and inpatient care shares, due to lockdowns and the postponement of non-urgent care in response to COVID-19. Second, household spending was scaled back on things such as recreation, restaurants and accommodation services, and may be affected by reduced household budgets due to (temporary) unemployment. Third, the amount needed to cover basic needs was likely higher, given that expenses for food and utilities increased due to the lockdown (e.g. people spend more time at home (working, studying etc.) which pushed up utility expenses, bars and restaurants had to close which increased household spending on food).

It is not clear in what direction the first effect would alter the incidence of catastrophic and impoverishing health spending. The two latter effects, however, reduce the household's capacity to pay and increase the incidence of both catastrophic and impoverishing health spending.

Figure 90 – Catastrophic health spending in a European perspective (last available year before COVID-19)



Source: WHO Euro data 2023

Key points

- **The incidence of catastrophic health spending in Belgium amounted to 5.2% of the households in 2020.**
- **There was a higher incidence of catastrophic out-of-pocket payments among poor households with a low-educated and inactive or unemployed head.**
- **A higher incidence was found in Brussels (6.7%) than in Flanders (4.8%) and Wallonia (5.3%).**
- **Medical products, physiotherapy/rehabilitation and dental care were important drivers of catastrophic spending in 2020, while spending on inpatient care and outpatient care were lower in 2020 due to lockdowns and the postponement of non-urgent care in response to COVID 19.**
- **When comparing pre-pandemic rates of catastrophic health spending in EU countries, Belgium (3.8% in 2018) was situated below the EU-14 average (4.3%) and the EU-27 average (6.5%), but had a higher rate than its neighbouring countries.**

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6.4 Out-of-pocket (OOP) payments for hospital care (% of total hospital care expenditures) (A-5)

6.4.1 Documentation sheet

Description	A-5 Out-of-pocket (OOP) payments for hospital care (% of total hospital care expenditures)
Calculation	**Numerator**: Out-of-pocket (OOP) payments for hospital care **Denominator**: Out-of-pocket (OOP) and public health insurance payments for hospital care
Rationale	Belgium has made a commitment to universal health coverage (UHC), i.e. everyone should be able to obtain the health services that they need, of high quality, without risk of financial hardship in doing so.[1, 2] Ensuring affordable access to healthcare is at the heart of universal health coverage, and was reaffirmed numerous times as main objective of the Belgian healthcare system.[1] Healthcare is generally considered financially inaccessible when people limit or postpone the use of necessary care because of (excessively) high costs, or when they have to relinquish other basic necessities because they need care. Financial accessibility can be undermined by out-of-pocket (OOP) payments for healthcare. All countries use OOP payments to pay for some healthcare, though to varying degrees (see indicators A-2 & A-3). Evidence shows that user charges are not a good instrument for directing people to use resources more efficiently and can have negative effects on equity and efficiency.[3-7] Low-income populations are disproportionately affected by increased cost sharing, as they have higher care needs, are more price sensitive and resource constrained than other income groups. Hence, OOP payments can be a barrier to accessing health services and treatments. In hospital care, out-of-pocket payments consist of co-payments, supplements (balance/extra billing) and direct payments, e.g. non-covered services, equipment, medication or care products.[8] Supplements (e.g. fee, room, material) are paid on top of the official tariffs and can constitute an important share of the hospital cost, largely exceeding the official co-payments.[1, 8-11] Supplements (and direct payments) reduce price transparency and price security for the patient and they risk to make care inaccessible, all the more because existing protection mechanisms, such as the maximum billing (MAF) and increased reimbursement, do not apply to supplements and direct payments.[1] In order to offer affordable access to hospital care, the legislator has restricted the use of supplements. Currently fee and room supplements can only be billed if the patient has requested a single-occupancy hospital room. Fee and room supplements have been prohibited in double-occupancy hospital rooms in consecutive phases[1]: - Since 2010 room supplements are prohibited in double-occupancy hospital rooms, in classic as well as day hospitalisation. - Since 2013 also fee supplements are prohibited in double-occupancy hospital rooms for classic hospitalisation. - Since mid 2015, also fee supplements are forbidden in double-occupancy hospital rooms for day hospitalisation. In single-occupancy hospital rooms fee supplements can be charged by both conventioned and (partially or) non-conventioned specialists, with some exceptions: - when the health status of the patient or the technical conditions of the examination or treatment requires a single-occupancy room, or if special surveillance is required (Note that this includes COVID-19 patients); - when the patient is put in a single-occupancy room because there is no shared room available; - when the patient is admitted absent of his/her will to the emergency department or intensive care unit; - when a child is admitted and the accompanying parent has not explicitly signed for a single-occupancy room. Hospitals are free to set their own rules around the maximum fee supplement. Hospitals can also determine their own additional charges for the choice of a hospital single-occupancy room (room supplements), resulting in large variation in balance billing across hospitals.[8-11]

	In 2022, as a first step to reducing fee supplements, the maximum fee supplement was frozen at the hospital level.[2] Although this measure prevents further increases, it does not address differences between hospitals. The IMA hospital barometers give an overview of these maximum fee supplements per hospital.[8-11] In order to cover the additional costs of supplements, patients can take out additional coverage (voluntary health insurance, VHI). Often VHI reimburses – either partly or fully - the supplements billed in single-occupancy rooms. Additional coverage makes it easier for patients to choose for a single-occupancy room. However, given that supplements are rising, the insurance fees for an insurance policy covering single-occupancy rooms increase and risk to become unpayable for many persons. Survey data showed that take up of VHI is much more prevalent in the richest income quartile (88%) than among households at risk of poverty (42%).[2, 12]
Data source	IMA-AIM data and IMA-AIM hospital barometers.[8-11]
Technical definitions	**Hospital care** consists of inpatient care and day care (surgical, medical and oncological). Outpatient contacts in the hospital are not included. **Supplements and direct payments are treated as one category** and denoted supplements. Public health insurance payments do not include the "budgetary twelfths" (*"budgettaire twaalfden"* / *"douzièmes budgétaires"*) of the general hospital budget (*Budget van Financiële Middelen* / *Budget des Moyens Financiers*). The "budgetary twelfths" amounted to €4.7 billion in 2018, €5.1 billion in 2019, €5.1 billion in 2020 and €5.7 billion in 2021. Moreover, temporary general support to the hospitals related to COVID-19 is also not accounted for. **Region** refers to the region of the hospital, not the patient. **Single-occupancy rooms** are identified as follows: - inpatient admissions: nomenclature code 761644 - day-care admissions: presence of fee supplements, or nomenclature code 761633
International comparability	/
Limitations	The analysis is restricted to hospital care, it does not include prior or posterior outpatient care related to the hospital episode. Direct payments not on the hospital bill and unknown to IMA-AIM were not taken into account. Information on VHI coverage of the patient is not known. Hence, we cannot distinguish between patients receiving partial or full reimbursement of supplements through VHI and patients receiving no reimbursement.
Dimension	Accessibility
Related indicators	A-2 Out-of-pocket (OOP) payments (% of current expenditure on health) A-3 Out-of-pocket (OOP) medical spending (% of final household consumption) A-4 Households facing catastrophic out-of-pocket payments (% of respondents, HBS) A-6 People with self-reported unmet needs for medical examination due to financial reasons (% of respondents, EU-SILC)
Reviewers	Françoise De Wolf (IMA – AIM), Carine Van de Voorde (KCE)

6.4.2 Results

Hospital admissions in Belgium and regions

Table 69 provides information on the number of hospital admissions in Belgium and the regions. There were 1 640 074 inpatient admissions in 2021, down from 1 805 025 in 2017 and 2 148 861 day-care admissions up from 1 929 640 in 2017. Hence, the shift from inpatient care to day care that has been observed in previous studies, continued.[13] Second, there was a clear reduction in admissions due to COVID-19 in 2020 with a relative stronger impact on inpatient care. Fee supplements were charged in 19.9% of inpatient stays and 7.4% of day-care admissions in 2021.

There were some regional differences in the composition of hospital care. Flanders accounted for 57% of inpatient admissions, but 65% of day-care admissions. In Wallonia these shares were, respectively, 30% and 23%, and in Brussels 13% and 12%. The drop and rebound in activity due to COVID-19 was similar in all regions. In Wallonia, there were relatively fewer stays with fee supplements in 2021, while the share of day-care admissions with fee supplements was markedly higher in Brussels.

Table 69 – Number of inpatient and day-care admissions and share of admissions with fee supplements, by region (2017-2021)

		2017	2018	2019	2020	2021
Belgium	**Inpatient admissions**	1 805 025	1 833 667	1 805 658	1 529 656	1 640 074
	% with fee supplements	21.0%	20.7%	20.8%	19.3%	19.9%
	Day-care admissions	1 929 640	1 960 659	2 049 034	1 814 766	2 148 861
	% with fee supplements	7.7%	7.2%	7.3%	7.0%	7.4%
Flanders	**Inpatient admissions**	1 030 903	1 042 973	1 031 209	883 134	939 787
	% with fee supplements	22.5%	22.1%	22.1%	20.6%	21.5%
	Day-care admissions	1 243 788	1 268 229	1 335 759	1 196 840	1 394 382
	% with fee supplements	7.1%	6.7%	6.6%	6.4%	6.5%
Wallonia	**Inpatient admissions**	534 075	543 468	537 513	446 213	486 569
	% with fee supplements	18.2%	17.7%	17.9%	15.8%	16.1%
	Day-care admissions	462 096	470 816	482 921	412 328	504 052
	% with fee supplements	6.6%	6.2%	6.1%	5.4%	6.1%
Brussels	**Inpatient admissions**	240 047	247 226	236 936	200 309	213 718
	% with fee supplements	20.8%	21.1%	21.3%	21.0%	21.1%
	Day-care admissions	223 756	221 614	230 354	205 598	250 427
	% with fee supplements	13.2%	12.1%	13.9%	13.8%	14.6%

Source: IMA-AIM

Table 70 –Public and out-of-pocket spending in hospitals (in million €) and share of OOP payments for hospital care, by region (2018-2021)

		All admissions				Inpatient admissions				Day-care admissions			
		2018	2019	2020	2021	2018	2019	2020	2021	2018	2019	2020	2021
Belgium	**Total spending***	7 107	7 410	6 808	7 520	5 105	5 183	4 589	4 897	2 002	2 227	2 219	2 622
	Public spending*	5 758	6 029	5 647	6 199	3 963	4 020	3 612	3 816	1 795	2 009	2 035	2 384
	*Stay**	*693*	*719*	*631*	*714*	*392*	*399*	*344*	*368*	*301*	*320*	*287*	*346*
	Fee	*3 170*	*3 243*	*2 928*	*3 169*	*2 478*	*2 510*	*2 294*	*2 377*	*692*	*733*	*634*	*792*
	Pharmacy	*1 205*	*1 357*	*1 471*	*1 594*	*477*	*480*	*430*	*445*	*729*	*876*	*1 041*	*1 149*
	Material	*658*	*686*	*594*	*697*	*585*	*608*	*523*	*603*	*73*	*78*	*71*	*95*

		All admissions				Inpatient admissions				Day-care admissions			
		2018	2019	2020	2021	2018	2019	2020	2021	2018	2019	2020	2021
	Other	*32*	*24*	*23*	*24*	*31*	*23*	*21*	*23*	*1*	*1*	*2*	*2*
	OOP payments	1 349	1 381	1 161	1 320	1 142	1 163	977	1 082	207	217	184	239
	Co-payments	439	439	370	410	372	370	313	338	66	69	57	72
	Stay	*163*	*164*	*141*	*146*	*163*	*164*	*141*	*146*	*0*	*0*	*0*	*0*
	Fee	*109*	*111*	*96*	*101*	*89*	*90*	*78*	*79*	*20*	*21*	*19*	*22*
	Pharmacy	*13*	*12*	*11*	*11*	*6*	*6*	*5*	*5*	*6*	*6*	*6*	*6*
	Material	*152*	*151*	*122*	*151*	*112*	*110*	*89*	*107*	*40*	*42*	*33*	*44*
	Supplements and direct costs	910	942	791	911	769	794	664	744	141	149	127	167
	Fee	*628*	*652*	*549*	*649*	*525*	*543*	*456*	*525*	*103*	*109*	*93*	*123*
	Pharmacy	*77*	*82*	*74*	*79*	*62*	*66*	*60*	*62*	*15*	*16*	*14*	*18*
	Material	*21*	*23*	*18*	*24*	*12*	*13*	*10*	*12*	*9*	*10*	*8*	*11*
	Room	*130*	*131*	*102*	*106*	*122*	*123*	*95*	*97*	*8*	*8*	*7*	*8*
	Other	*53*	*55*	*48*	*53*	*48*	*49*	*43*	*47*	*5*	*6*	*5*	*6*
	Mean OOP per stay (in €)	€356	€358	€347	€348	€628	€642	€639	€660	€103	€104	€101	€111
	Mean co-payment per stay (in €)	€116	€114	€111	€108	€204	€204	€205	€206	€33	€33	€32	€33
	Mean supplement per stay (in €)	€240	€244	€237	€240	€424	€438	€434	€454	€70	€71	€70	€78
	OOP/total spending (%)*	19.0%	18.6%	17.1%	17.6%	22.4%	22.4%	21.3%	22.1%	10.3%	9.8%	8.3%	9.1%
Flanders	***OOP/total spending (%)****	17.7%	17.4%	15.8%	16.2%	21.2%	22.3%	20.1%	20.8%	9.8%	9.3%	7.8%	8.5%
Wallonia	***OOP/total spending (%)****	20.7%	20.1%	16.7%	17.4%	24.2%	23.9%	20.8%	21.8%	10.5%	9.8%	7.0%	8.1%
Brussels	***OOP/total spending(%)****	21.6%	21.4%	22.8%	23.2%	23.9%	24.1%	26.6%	27.3%	14.4%	13.6%	13.2%	14.2%

*Note: * Public spending (in particular regarding the stay) does not account for the budgetary twelfths, which are awarded on a monthly basis to the hospitals and are not directly attributable to a specific stay or procedure (see limitations). The budgetary twelfths constitute a large part of the hospital budget (i.e. €4.7 billion in 2018, €5.1 billion in 2019, €5.1 billion in 2020 and €5.7 billion in 2021) and their omission has a substantial impact on the reported numbers and percentages. OOP = out-of-pocket.*
Source: IMA-AIM

Hospital out-of-pocket payments

Table 70 provides information on the total amounts for hospital care charged to the public health insurance (excluding the budgetary twelfths of the general hospital budget) and the patient. Patient out-of-pocket payments are further subdivided in co-payments and supplements (including direct payments if information is available) and category of expense. This information was used to calculate the average OOP payments per stay and the share of OOP payments in total hospital care expenditures (the primary indicator).

Hospitalised patients were charged €1.32 billion in out-of-pocket payments in 2021, of which €1.08 billion was related to inpatient care and €239 million related to day care. The amount of OOP payments was slightly lower than in 2018, due to a decrease in OOP payments for inpatient care that was not fully compensated by the increase in OOP payments for day care. The decrease in OOP payments for inpatient care can be explained by the reduction in activity (see above, Table 69). When looking at the composition of OOP payments, co-payments have reduced over time from €439 million in 2018 to €410 in 2021, whereas the amount of supplements was similar in 2018 and 2021 at about €910 million. As a result, the share of supplements in OOP payments increased from 67% in 2018 to 69% in 2021. Co-payments were mostly related to the stay (for inpatient admissions), material and medical fee, each category exceeding €100 million in 2021. Fee supplements (€649 million in 2021) represented more than 70% of supplements and nearly half of all OOP payments.[s] It was the only category of supplements that actually grew over time, with other categories remaining more or less stable (pharmacy, material, other supplements) or decreasing (room supplements). Besides fee supplements, room supplements were the only other category of supplements surpassing €100 million in 2021.

COVID-19 had a profound impact on OOP payments, leading to an overall reduction of 16%, with similar contraction rates for co-payments and supplements, for inpatient care and day care. The rebound, however, was different with lower growth rates for inpatient care and co-payments compared to day care and supplements.

The amount of payments by the public health insurance (excluding the budgetary twelfths of the general hospital budget) has increased over time from €5.76 billion in 2018 to €6.20 billion in 2021, notwithstanding a sharp decrease in 2020. The increase over time was, however, in spite of a decrease in public spending on inpatient care, and entirely driven by a sharp growth of 33% in public spending on day care between 2018 and 2021. Total spending on hospital care also increased over time from €7.11 billion to €7.52 billion.

Out-of-pocket share of hospital expenditures (primary indicator)

A decline in OOP payments and an increase in total payments on hospital care resulted in a decline in the out-of-pocket share of hospital care expenditures from 19.0% in 2018 to 17.6% in 2021. This declining trend, however, conceals different effects at play. First, the OOP share of hospital care expenditures remained more or less stable between 2018 (22.4%) and 2021 (22.1%), while the OOP share of day care has decreased over time from 10.3% in 2018 to 9.1% in 2021. Second, there was a shift from inpatient care with relative higher OOP payments to day care with relatively lower OOP payments (see above, Table 69).

There was important regional variation in the out-of-pocket share of hospital expenditures, with higher rates in Brussels both for inpatient and day-care admissions. Fee supplements were not charged more frequently in Brussels than in other regions (see above, Table 69), suggesting that the amount of supplements per stay was likely higher. The overall rate in Flanders was somewhat lower than in Wallonia, partly because of a lower rate for inpatient admissions, but also because of the higher activity share of day care in Flanders. The slightly higher OOP share in hospital expenditures for inpatient care in Wallonia compared to Flanders, despite a lower frequency

[s] The IMA hospital barometers illustrate the large variation in fee supplements between hospitals, within hospitals between specialties and even within specialties between physicians and procedures.[7-10] In addition, over half (57%) of the fee supplements in 2021 were billed by conventioned physicians.[7]

to charge supplements (see above, Table 69), also suggests that supplements in Wallonia exceeded those in Flanders.

Average out-of-pocket payments per stay

Bringing together Table 69 and Table 70 allows us to calculate the average out-of-pocket payments, co-payments and supplements (and direct payments) per stay. This makes it possible to see the correspondence between the decrease in activity and amounts. On average, an inpatient stay had an OOP cost of €660 in 2021 of which €206 co-payments and €454 supplements (and direct payments). Note that these supplements were actually not spread over all stays as was done to calculate the average, but were concentrated among one fifth of the hospital stays. A day-care admission had on average an OOP cost of €110 in 2021 of which €33 co-payments and €78 supplements. Neither for inpatient admissions nor for day-care admissions, there was a drop in average OOP per stay related to COVID-19 in 2020. There was, however, an increase in 2021, largely related to a surge in (fee) supplements.

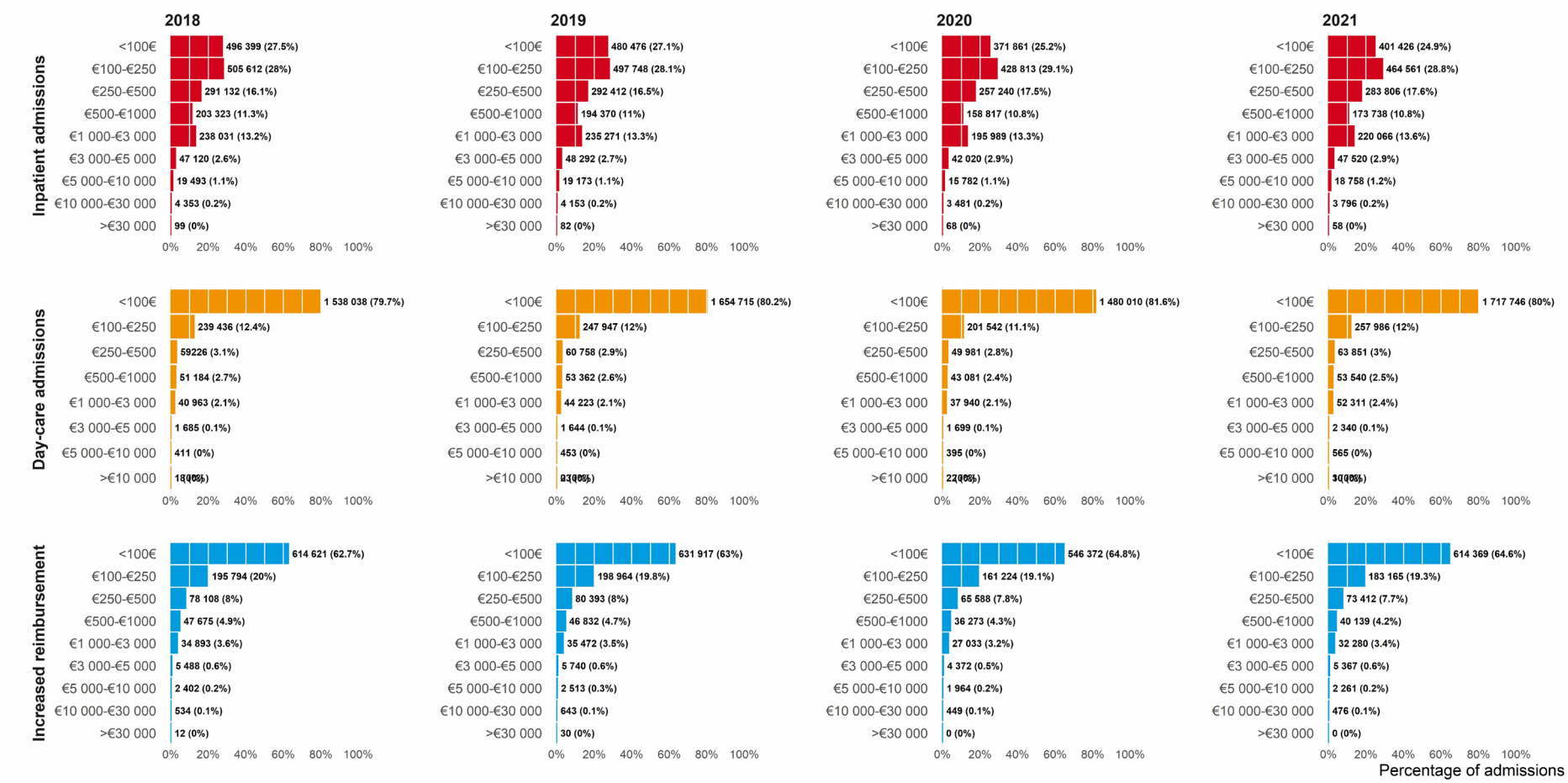
Variation in the amounts of out-of-pocket payments

Figure 91 shows that out-of-pocket payments charged for an admission were below €250 in 2021 for the majority of patients, i.e. 53.7% of inpatient admissions, 92.0% of day-care admissions and 83.8% of admissions of beneficiaries of increased reimbursement. On the other hand, the share and number of admissions with OOP payments of at least €1 000 was not negligeable. It concerned 290 198 (or 18.0%) inpatient admissions in 2021 of which 70 132 (or 4.3%) had OOP payments exceeding €3 000 in 2021, 55 247 (or 2.6%) day-care admissions in 2021, and 40 384 (or 4.2%) admissions of beneficiaries of increased reimbursement in 2021. The distribution over the different categories by magnitude of the OOP payments was similar over time.

In addition, Figure 92 present boxplots with the distribution of co-payments, supplements and OOP payments of inpatient admissions in 2021 as well as specific categories of expenses. Some of the findings that can be found in Figure 92:

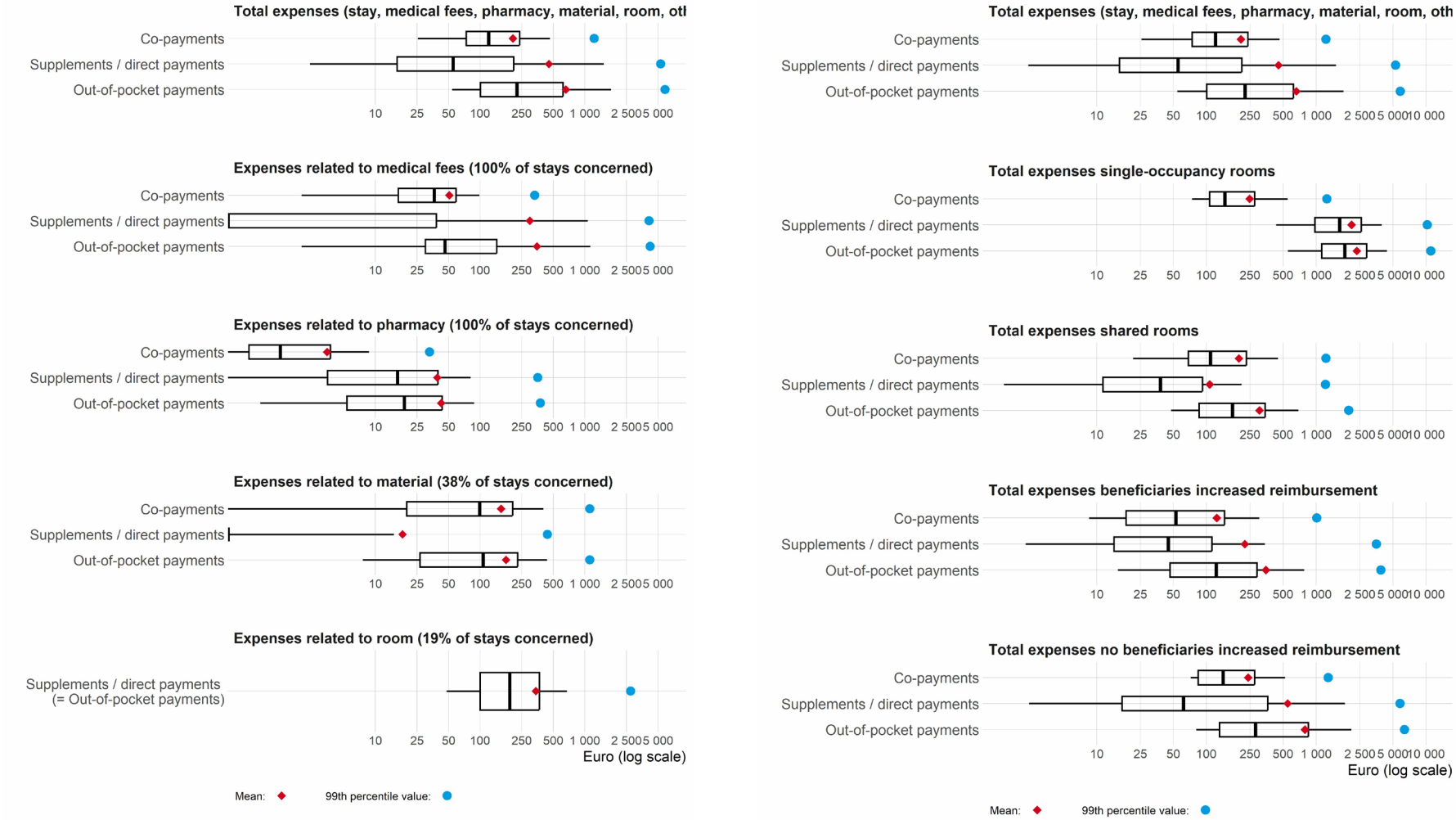
- 25% of inpatient admissions had OOP payments exceeding €619, 10% exceeding €1 777 and 1% exceeding €5 838. (Total expenses, row out-of-pocket payments)
- Fee supplements can present important costs and surpasses €1 000 for 10% of the inpatient stays. (Expenses related to medical fees, row Supplements / direct payments)
- The amount for OOP payments for single-occupancy rooms is largely determined by supplements /direct payments. On average OOP payments in single-occupancy amount to €2 348, with supplements and direct payments representing €2 100 and co-payments €247. (Total expenses single-occupancy rooms)
- The amount for OOP payments for shared rooms is largely determined by co-payments, although supplements and direct payments still amount to €107 on average. (Total expenses shared rooms)
- OOP payments are different lower for beneficiaries of increased reimbursement. Both the co-payments (€124 and €240 on average for persons benefiting or not benefitting from increased reimbursement, respectively) and supplements / direct payments are lower. Nonetheless, the distribution of OOP payments shows that 25% of the beneficiaries of increased reimbursement paid more than €289 out-of-pocket for a hospital stays, 10% more than €777 and 1% more than €3 878. (Total expenses beneficiaries increased reimbursement and Total expenses no beneficiaries increased reimbursement)

Figure 91 – breakdown of the out-of-pocket payments by magnitude of the amount, type of care and beneficiary of increased reimbursement (2018-2021)



Source: IMA-AIM

Figure 92 – Distribution of co-payments, supplements and OOP payments of inpatient admissions for different categories (2021)



Note that the whiskers of the boxplot indicate the 10th and 90th percentile. The horizontal axis has been transformed to logarithmic scale to better visualise the distribution.
Source: IMA-AIM

Table 71 – Variation in admissions in single-occupancy and shared rooms by socioeconomic status (2021)

		Inpatient admissions		Surgical day care		Medical day care		Oncological day care	
Category		Admissions	% category	Admissions	% category	Admissions	% category	Admissions	% category
All beneficiaries	Single room	285 213	17.4%	63 158	10.7%	82 276	7.6%	23 588	4.9%
	Shared room	1 354 861	82.6%	526 726	89.3%	997 582	92.4%	455 531	95.1%
Increased reimbursement*	Single room	31 940	6.6%	5 926	5.1%	8 690	3.7%	3 320	2.6%
	Shared room	450 653	93.4%	110 504	94.9%	227 812	96.3%	122 843	97.4%
No increased reimbursement	Single room	253 273	21.9%	57 232	12.1%	73 586	8.7%	20 268	5.7%
	Shared room	904 208	78.1%	416 222	87.9%	769 770	91.3%	332 688	94.3%

*Note: * Beneficiaries of increased reimbursement as share of the population was 18.9% in 2021.*[14]
Source: IMA-AIM

Variation by socioeconomic status of the beneficiary

Table 71 indicates that 29.4% of all inpatient admissions and 22.3% of all day-care admissions concerned a beneficiary of increased reimbursement (while beneficiaries to increased reimbursement represent about 18.9% of the population). There were 285 213 inpatient admissions in single-occupancy rooms, which represented 17.4% of all inpatient stays. The IMA hospital barometer indicates that there was large variation between hospitals in this regard, with shares of single-occupancy rooms in certain hospitals exceeding 50%.[8] Inpatient admissions in single-occupancy rooms were three times less likely for beneficiaries of increased reimbursement (6.6%) than for other insured persons (21.9%). For day care and in particular oncological day care, the use of single-occupancy rooms was less common. Beneficiaries of increased reimbursement had a single-occupancy room in 3.9% of the day-care admissions compared to 9.9% for other insured persons.

Figure 92 shows that inpatient admissions of beneficiaries of increased reimbursement had an average OOP cost of €348 in 2021, more than 2 times lower than the average OOP cost of other insured persons (€789). Both co-payments (€124 versus €240) and supplements (€224 versus €549) were lower.

Variation by room type

Figure 92 shows that inpatient admissions in a single-occupancy room had an average OOP cost of €2 348 in 2021, almost 8 times higher than the average OOP cost in shared rooms (€304). While co-payments were slightly higher in single-occupancy rooms, this discrepancy was almost entirely due to the charged supplements with an average and median value in single-occupancy rooms of, respectively, €2 100 and €1 632. For 1% of admissions in a single-occupancy room, supplements exceeded €10 000.

Impact of COVID-19 pandemic

There was a clear reduction in admissions due to COVID-19 with a relative stronger impact on inpatient care (see Table 69). The drop and rebound in activity due to COVID-19 was similar in all regions.

COVID-19 also had a profound impact on OOP payments, leading to an overall reduction of 16%, with similar contraction rates for co-payments and supplements, for inpatient care and day care (see Table 70). The rebound differed, however, with lower growth rates for inpatient care and co-payments compared to day care and supplements. Public spending on hospital care decreased by 6% in 2020. The combined effect was a

decrease in the OOP share of hospital expenditure from 18.6% in 2019 to 17.1% in 2020 and subsequent rebound to 17.6% in 2021 (see Table 70).

Bringing together Table 69 and Table 70 allowed us to calculate the average out-of-pocket payments, co-payments and supplement per stay. This makes it possible to see the correspondence between the decrease in activity and amounts. On average, an inpatient stay had an OOP cost of €660 in 2021 of which €206 co-payments and €454 supplements. Neither for inpatient admissions nor for day-care admissions, there was a drop in average OOP per stay in 2020. There was, however, an increase in 2021, largely related to a surge in (fee) supplements.

Key points

- **Supplements (and direct payments) are paid on top of the official tariffs and can constitute an important share of the hospital cost, largely exceeding the official co-payments. They reduce price transparency and price security for the patient and risk to make care inaccessible, all the more because existing protection mechanisms, such as the maximum billing (MAF) and increased reimbursement, do not apply to supplements and direct payments.**
- **Hospitalised patients were charged €1.32 billion in out-of-pocket payments in 2021, of which €1.08 billion was related to inpatient care and €239 million to day care.**
- **Co-payments declined over time from €439 million in 2018 to €410 in 2021, whereas the amount of supplements was similar in 2018 and 2021 at about €910 million. As a result, the share of supplements in OOP payments increased from 67% in 2018 to 69% in 2021.**
- **Fee supplements (€649 million in 2021) represented more than 70% of supplements and nearly half of all OOP payments. It was the only category of supplements that increased over time.**
- **The out-of-pocket share of hospital care expenditures (excluding the budgetary twelfths) declined from 19.0% in 2018 to 17.6% in 2021. Different effects were at play: (1) the OOP share of hospital care expenditures remained more or less stable between 2018 (22.4%) and 2021 (22.1%), while the OOP share of day care decreased over time from 10.3% in 2018 to 9.1% in 2021; (2) there was a shift from inpatient care with higher OOP payments to day care with lower OOP payments**
- **The out-of-pocket share of hospital expenditures was higher in Brussels both for inpatient care and day-care admissions, and somewhat lower in Flanders.**
- **On average, an inpatient stay had an OOP cost of €660 in 2021 of which €206 co-payments and €454 supplements (and direct payments). A day-care admission had on average an OOP cost of €110 in 2021 of which €33 co-payments and €78 supplements. There was large variation: (1) 18.0% of inpatient admissions in 2021 had OOP payments exceeding €1 000; (2) 10% of patients and 10% of beneficiaries of increased reimbursement paid more than €1 777 and €777 out-of-pocket for an inpatient stay in 2021, respectively; (3) OOP cost of inpatient admissions was on average two times lower for beneficiaries of increased reimbursement; (4) average OOP payments of inpatient stays in single-occupancy rooms were almost eight times higher than in shared rooms, mainly due to the difference in supplements.**
- **COVID-19 had a profound impact on OOP payments (reduction of 16%) and public spending on hospital care (reduction of 6%). The combined effect was a decrease in the OOP share of hospital expenditures from 18.6% in 2019 to 17.1% in 2020 and a subsequent rebound to 17.6% in 2021.**

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6.5 People with self-reported unmet needs for medical examination due to financial reasons (% of respondents, EU-SILC) (A-6); People with self-reported unmet needs for dental examination due to financial reasons (% of respondents, EU-SILC) (A-7)

6.5.1 Documentation sheet

Description	**Primary indicators** A-6 People with self-reported unmet needs for medical examination due to financial reasons (% of respondents 16+, EU-SILC); A-7 People with self-reported unmet needs for dental examination due to financial reasons (% of respondents 16+, EU-SILC) **Secondary indicator** Households with self-reported unmet needs for care (medical care, surgery, dental care, prescription medicines, eye glasses or contact lenses, mental healthcare) due to financial reasons (% of responding households, HIS)
Calculation	**Primary indicators** **Numerator**: weighted number of respondents who, according to their own assessment, needed examination or treatment for a specific type of healthcare, but delayed or forewent care with as main reason that they could not afford to pay for care (too expensive) (using EU-SILC survey weights). **Denominator**: total weighted number of respondents (16+) included in the survey (using EU-SILC survey weights). **A-6 – Medical examination or treatment** refers to individual healthcare services provided by or under direct supervision of medical doctors or equivalent professions according to national healthcare systems. Hence, this includes healthcare provided for different purposes (preventive, curative, rehabilitative, mental, long-term healthcare) and by different modes of provision (inpatient, outpatient, day, and home care). Dental care and self-medication are excluded. **A-7 – Dental examination or treatment** refers to individual healthcare services provided by or under direct supervision of dentists, stomatologists, and orthodontists. Hence, it includes diagnostic, preventive and curative dental care and excludes medical care and self-medication. **Secondary indicator** **Numerator**: weighted number of households in which, according to their own assessment, at least one person needed care (medical care, surgery, dental care, prescription medicines, eye glasses or contact lenses, mental healthcare), but delayed or forewent care with as main reason that they could not afford to pay for care (using HIS survey weights). **Denominator**: total weighted number of households included in the survey (using HIS survey weights).
Rationale	Belgium has made a commitment to universal health coverage (UHC), i.e. everyone should be able to obtain the health services that they need, of high quality, without risk of financial hardship in doing so.[1, 2] Ensuring affordable access to healthcare is at the heart of universal health coverage, and was reaffirmed numerous times as main objective of the Belgian healthcare system.[1] Healthcare is generally considered financially inaccessible when people limit or postpone the use of necessary care because of (excessively) high costs, or when they have to relinquish other basic necessities because they need care. Financial accessibility can be undermined by out-of-pocket (OOP) payments for healthcare. All countries use OOP payments to pay for some healthcare, though to varying degrees (see indicators A-2 & A-3). Evidence shows that user charges are not a good instrument for directing people to use resources more efficiently and can have

negative effects on equity and efficiency.[3-7] Low-income populations are disproportionately affected by increased cost sharing, as they have higher care needs, are more price sensitive and resource constrained than other income groups. Hence, OOP payments can be a barrier to accessing health services and treatments, resulting in people foregoing or delaying the use of healthcare (unmet need for healthcare) with potential adverse consequences to their health.[1, 8] By shifting healthcare costs on to households, OOP payments can also lead to financial hardship (e.g. impoverishing or catastrophic health spending, see indicator A-4). In this latter case, people can no longer afford to meet basic needs – food, housing, electricity – because they have to pay out of pocket for healthcare.[2, 3] Households with low incomes are consistently most likely to lack affordable access to healthcare, experiencing both catastrophic health spending and unmet need. This deepens poverty, erodes health and well-being and increases social inequalities within and across countries.[7, 9]

Data source

Eurostat, EU-SILC own calculations

Technical definitions

Primary indicators

A-6 is based on the following questions from the EU-SILC[10, 11]:

- **PH040**, identifying individuals with unmet needs for medical examination or treatment in the past 12 months.

  Question: "*Was there any time during the past 12 months when you really needed a medical examination or treatment, but that this did not occur?*"

  Response categories (up to 2017):

  1. *Yes, there was at least one occasion*
  2. *No, there was no occasion*

  Response categories (from 2018):

  1. *Yes, there was at least one occasion*
  2. *No, I had a medical examination or treatment each time I needed*
  3. *No, I did not need any medical examination or treatment*

- **PH050**, identifying the main reason for unmet needs for medical examination or treatment.

  Question: "*What was the main reason for not having a medical examination or treatment?*

  Response categories:

  1. *Could not afford to (too expensive or not covered by the insurance fund)*
  2. *Waiting list, don't have the referral letter*
  3. *Could not take time because of work, care for children or for others*
  4. *Too far to travel/no means of transportation*
  5. *Fear of doctors/hospitals/examination/treatment*
  6. *Wanted to wait and see if problem got better on its own*
  7. *Didn't know any good specialist*
  8. *Other reason*

A-7 is based on the following questions from the EU-SILC:

- **PH060**, identifying individuals with unmet needs for dental examination or treatment in the past 12 months.

  Question: "*Was there any time during the past 12 months when you really needed a dental examination or treatment, but that this did not occur?*"

  Response categories (up to 2017):

1. *Yes, there was at least one occasion*
2. *No, there was no occasion*

Response categories (from 2018):

1. *Yes, there was at least one occasion*
2. *No, I had a dental examination or treatment each time I needed*
3. *No, I did not need any dental examination or treatment*

- **PH070**, identifying the main reason for unmet needs for dental examination or treatment.

  Question: "*What was the main reason for not having a dental examination or treatment?*

  Response categories:

  1. *Could not afford to (too expensive or not covered by the insurance fund)*
  2. *Waiting list, don't have the referral letter*
  3. *Could not take time because of work, care for children or for others*
  4. *Too far to travel/no means of transportation*
  5. *Fear of doctors/hospitals/examination/treatment*
  6. *Wanted to wait and see if problem got better on its own*
  7. *Didn't know any good specialist*
  8. *Other reason*

Secondary indicator

The HIS research team constructed a household-level indicator that reflects that at least one household member forewent or delayed care (medical care, surgery, dental care, prescription medicines, eye glasses or contact lenses, mental healthcare) due to financial reasons in the past 12 months. More technical details on the methodology are available in the HIS summary report on financial accessibility of care.[12]

International comparability

Data on unmet healthcare needs are available in Eurostat based on the EU-SILC survey.[10, 11]

Limitations

The unmet needs for medical/dental examination and treatment are self-assessed. Hence it is impossible to evaluate whether or not the postponed care was related to an objective need for care (was it necessary or acute?), for how long care was postponed (forgone care or delayed until the receipt of income in the next month?), and whether the postponement is the result of spending money on basic necessities (food, utilities, rent) or on other (non-necessary) consumption.

The comparability of the results over time is challenging for the following reasons:

1. There has been a revision of the phrasing of the EU-SILC questions in the Belgian survey in 2011 and in 2018. For this reason the reported time series starts in 2011. In 2018, an additional answer category was added to questions PH040 and PH060 to distinguish between individuals without unmet needs who did and did not need healthcare in the past 12 months (see technical definition). This, however, did not led to a change of the indicator value as reported by Eurostat. Statbel, on the other hand reports a revised indicator on their website, excluding individuals without care needs (PH040=3/PH060=3) from the denominator. This adapted methodology leads to higher values for self-reported unmet needs, given a reduced denominator.
2. There have been two methodological improvements in 2019: (1) the use of administrative information to capture the majority of income concepts; (2) a revision of the survey sampling and the calculation of survey weights (accounting for more variables, including the use of administrative income information). Therefore results before and after 2019 are not comparable.

	3. The COVID-19 pandemic affected the 2020 survey in several ways: (1) from mid-March 2020 onwards, fieldwork took place by phone (CATI) instead of through face-to-face interviews (CAPI); (2) lower response rate, in particular in new sampled households; (3) progress of interviews was not equal over the survey period. All this may lead to potential bias in the results compared to other years and call for a cautious interpretation of the results.
Dimension	Accessibility
Related indicators	A-2 Out-of-pocket (OOP) payments (% of current expenditure on health) A-3 Out-of-pocket (OOP) medical spending (% of final household consumption) A-4 Households facing catastrophic out-of-pocket payments (% of respondents, HBS)
Reviewers	Rudi Van Dam (FOD Sociale Zekerheid – SPF Sécurité Sociale), Carine Van de Voorde (KCE)

6.5.2 Results A-6 – unmet needs for medical examination due to financial reasons

Belgium

Table 72 shows that the share of the population aged 16 years and over who report unmet needs for medical examination or treatment due to financial reasons increased from 1.4% in 2011 to reach a high of 2.2% in the years 2014 to 2016 after which it decreased gradually to 0.9% in 2022, the lowest incidence in the considered timeframe. Despite the break in series in 2019 (alterations to survey sampling and use of administrative income information), it seems reasonable to conclude that there has been an important declining trend in self-reported unmet needs over the past 5 years.

Analysis by demographic characteristics and socioeconomic status

In Table 72 the rate of self-reported unmet needs for medical examination or treatment was calculated in different population subgroups based on socioeconomic or sociodemographic characteristics. The most pronounced association was observed between self-reported unmet needs and levels of household income. It can be clearly seen that the likelihood of experiencing unmet needs due to financial reasons was inversely related to household income. Not only do we find the highest rates in the poorest income quintile, but also the largest volatility over time (4.1% in 2011, 7.7% in 2016 and 2.6% in 2022). The deterioration and subsequent improvement in self-reported unmet needs in the population over time is to a large extent driven by what happened in the poorest income quintile, as can be seen in Figure 93. In the richest income quintile, there seemed to be no issue of postponement of care with rates of 0.1% in 2011, 0% in 2016 and in 2022. The rates in income quintiles 3 and 4 were below the population average, whereas the rate observed in income quintile 2 was slightly above the population average.

Furthermore, we find that rates of unmet needs were higher in subgroups with lower educational attainment and among working-age individuals in inactivity or unemployment. Both socioeconomic characteristics are of course correlated with income level. In 2022, rates of unmet needs amount to 2.0%, 2.2% and 1.5% among people with primary degree or no degree, individuals in inactivity and in unemployment, respectively, compared to 0.9% in the general population.

Rates of self-reported unmet needs were relatively lower among retired individuals, i.e. 0.6% in 2022. Despite their higher care needs, they seem better protected against unmet needs for medical examination or treatment due to financial reasons. Individuals in the age groups between 35 and 65 and females were, on the other hand, more likely to forego or postpone medical care.

These socioeconomic and sociodemographic breakdown of the results are in line with the more detailed analysis in KCE report 334[1], where higher incidence rates were found among individuals in a financially precarious situation (low income, poverty risk, material deprivation, inability to cope with unexpected expenses, receipt of welfare support), among working-age

individuals without paid work, among single adults below 65 years old, among individuals in the age group 35-49 and among females aged 50-64.

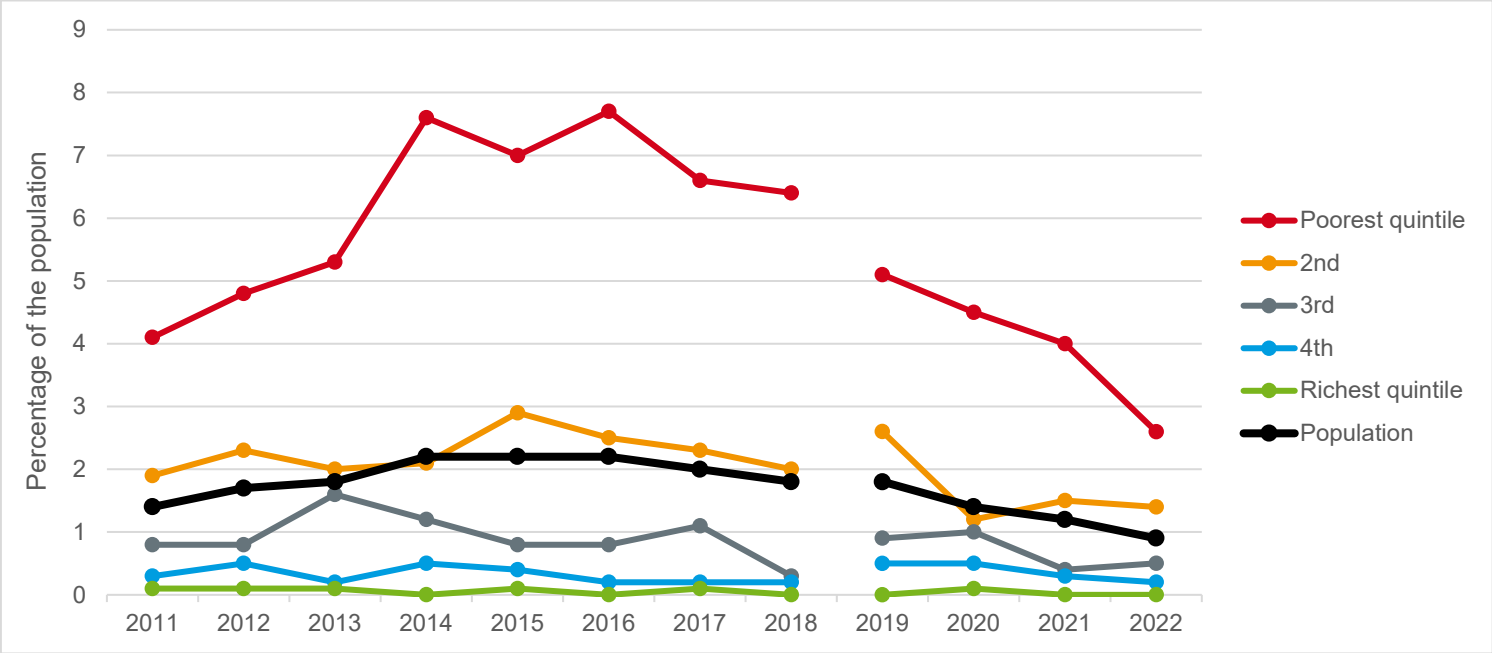
Table 72 – Self-reported unmet needs for medical examination or treatment due to financial reasons in Belgium (2011-2022) (in percentages)

		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Belgium		1.4	1.7	1.8	2.2	2.2	2.2	2.0	1.8	1.8	1.4	1.2	0.9
Regions	**Flanders**		1.0				0.8		0.8	0.9	0.4	0.7	0.2
	Wallonia		1.6				4.0		3.0	2.8	2.5	1.9	2.0
	Brussels		5.9				4.8		3.5	4.0	3.6	2.1	1.9
Household equivalized income quintiles	**First quintile**	4.1	4.8	5.3	7.6	7.0	7.7	6.6	6.4	5.1	4.5	4.0	2.6
	Second quintile	1.9	2.3	2.0	2.1	2.9	2.5	2.3	2.0	2.6	1.2	1.5	1.4
	Third quintile	0.8	0.8	1.6	1.2	0.8	0.8	1.1	0.3	0.9	1.0	0.4	0.5
	Fourth quintile	0.3	0.5	0.2	0.5	0.4	0.2	0.2	0.2	0.5	0.5	0.3	0.2
	Fifth quintile	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.1	0.0	0.0
Educational attainment	**Primary degree or no degree**	2.2	2.9	3.3	3.7	4.0	4.2	3.2	2.7	2.7	2.4	2.1	2.0
	Secondary degree	1.3	1.4	1.5	2.0	2.0	1.9	2.2	2.1	2.0	1.6	1.5	0.9
	Tertiary degree	0.7	0.6	0.7	1.2	0.9	0.9	0.7	0.6	1.0	0.7	0.5	0.4
Activity status	**Employed**	0.9	0.9	1.1	1.4	1.1	0.7	1.1	0.7	1.0	0.8	0.6	0.5
	Unemployed	4.2	6.3	7.2	7.0	7.6	7.5	7.3	6.8	5.2	5.4	5.2	1.5
	Inactive	2.2	2.5	3.0	4.1	4.7	5.2	4.2	4.1	3.5	3.3	2.7	2.2
	Retired	0.9	0.9	0.9	1.0	0.8	1.5	0.9	0.9	1.3	0.6	0.5	0.6
Gender	**Male**	1.1	1.6	1.4	2.0	1.8	2.0	1.4	1.5	1.5	1.1	1.0	0.7
	Female	1.8	1.7	2.2	2.5	2.6	2.5	2.6	2.0	2.1	1.7	1.4	1.2
Age category	**16-24**	0.7	1.2	1.0	2.4	1.8	2.4	2.4	2.0	1.9	1.7	1.4	1.1
	25-34	1.5	1.7	1.3	2.2	2.2	1.5	2.4	1.9	1.0	1.0	0.9	0.8
	35-44	2.1	2	2.6	2.8	2.6	3.3	3	2.7	2.5	1.5	1.7	0.8
	45-54	2.3	2.6	3.0	2.9	3.2	2.5	2.8	2.7	2.6	2.9	2.3	1.8
	55-64	0.9	1.6	2.1	2.3	2.8	2.7	2.5	1.8	2.1	2.0	1.2	1.3

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
65-74	1.5	1.1	1.0	1.2	1.0	1.7	0.9	0.9	1.6	0.8	0.6	0.9
75 years or over	0.3	0.7	0.5	0.8	0.7	1.3	0.4	0.6	1.2	0.5	0.4	0.2

Note: break in series in 2019 (methodological improvement survey sampling and income information).
Source: Eurostat – EU-SILC

Figure 93 – Self-reported unmet needs for medical examination or treatment due to financial reasons, by income quintile (2011-2022)



Note: break in series in 2019 (methodological improvement survey sampling and income information).

Regional comparison

The results in Table 72 indicate important regional variation with, for example, rates in 2022 of 0.2% in Flanders, 2.0% in Wallonia and 1.9% in Brussels. In the period with available regional data (2018-2022), rates were consistently below the average in Flanders and above the average in Wallonia and Brussels. In Brussels, rates were generally the highest and about twice the level of the national average.

The regional differences should, however, be considered in combination with the socioeconomic and sociodemographic characteristics described above that are associated with unmet needs and differ between the regions. There are for example regional differences in the age structure (Brussels has a younger population), the (in)activity rates (activity rate is higher in Flanders), the unemployment rate (the unemployment rate is lower in Flanders), the poverty risk (lower in Flanders), etc. For example, while Brussels accommodated about 11% of the Belgian population in 2022, about 24% of the individuals at risk of poverty lived in Brussels, contributing to a higher rate of unmet needs.

International comparison

Figure 94, Figure 95 and Figure 96 put the Belgian results in an European context. Figure 94 shows the evolution over time of the rate of self-reported unmet needs for medical examination or treatment in Belgium as well as the EU-14 and the EU-27 averages. While the Belgian rate closely matched the EU-14 average between 2011 and 2014, it followed the decline of the EU-14 average starting in 2014 with a time lag of about two years. As a result, the Belgian rate was well above the EU-14 and EU-27 average between 2015 and 2021. Since 2020, the decrease in the EU average rates levelled off and was even reversed, whereas the Belgian rate continued to decrease and was below the EU averages in 2022.

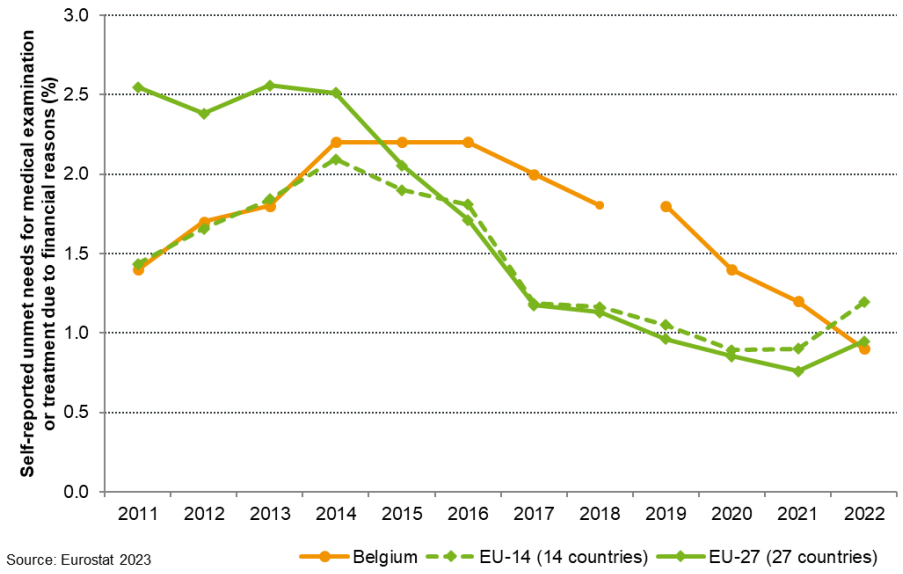
Despite the improving trend, Figure 95 shows that Belgium was not among the best performing countries and only 7 EU countries had a higher rate in 2022. Among our neighbouring countries, only France had a higher rate.

Important distributional discrepancies hide behind the average, in particular income-related differences, as was described above. While this was not only the case in Belgium, the gap between the incidence in the richest and the poorest income quintile has long been (one of) the largest among all western EU countries.[13, 14] In 2022, in spite of a major improvement over time, it was still larger than the EU-27 and EU-14 averages, only exceeded in 5 other EU countries (see Figure 100).

Impact of COVID-19 pandemic

COVID-19 had an impact on postponement of care in general, but not on the downward trend in self-reported unmet needs due to financial reasons. The COVID-19 related measures such as the lockdowns and reduction of non-urgent care had an impact on the access to medical care. The impact is particularly pronounced in the EU-SILC wave 2021, with a substantial higher share of individuals aged 16+ who needed but were unable to receive care in the past 12 months (i.e. during the course of 2020 and early 2021) for all reasons combined: 2.2% in 2020, 3.0% in 2021 and 1.6% in 2022. However, when examining the reasons of unmet needs, not financial reasons, but “other reasons” and “waiting lists” were listed as main reason for inaccessibility of care. While financial reasons were listed as main reason in 64% and 56% of the unmet needs for medical examination or treatment in 2020 and 2022, respectively, this accounted for only 40% in 2021. Other reasons and waiting lists accounted, respectively, for 37% and 17% of the self-reported unmet needs in 2021, illustrating the impact of COVID-19.

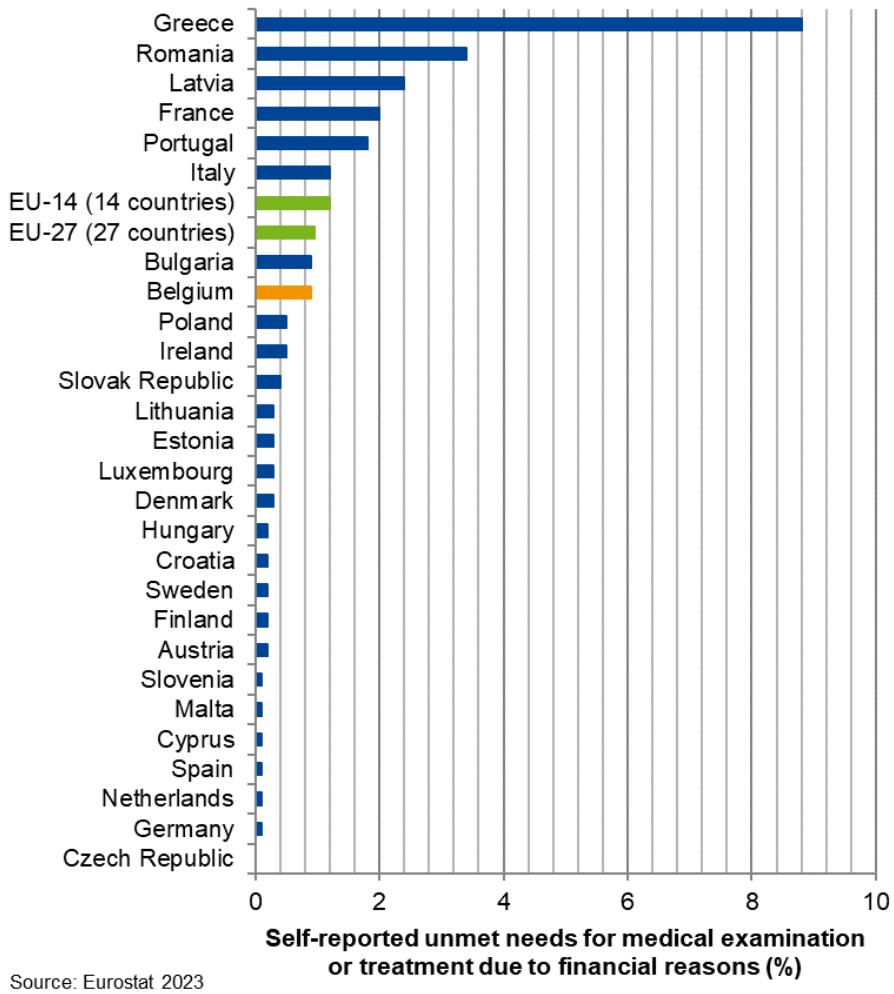
Figure 94 – Self-reported unmet needs for medical care due to financial reasons, evolution Belgium, EU-14 and EU-27 (2011-2022)



Source: Eurostat 2023

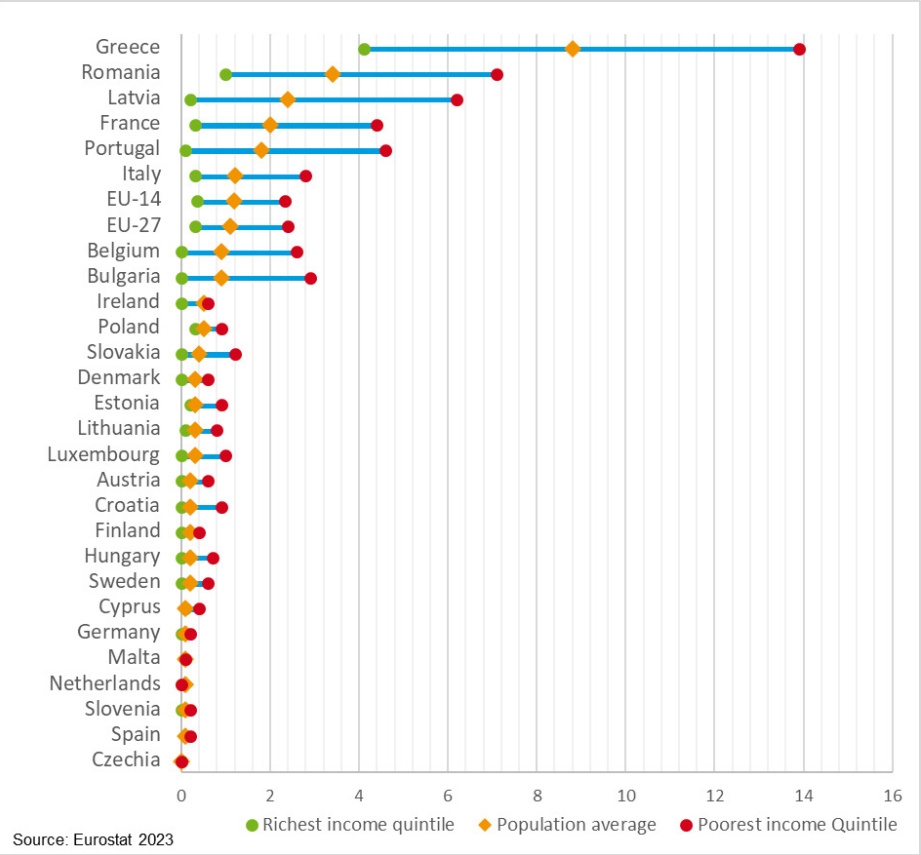
Note: break in series in 2019 (methodological improvement survey sampling and income information).

Figure 95 – Self-reported unmet needs for medical care due to financial reasons in a European perspective (2022)



Source: Eurostat 2023

Figure 96 – Gap in self-reported unmet needs for medical care due to financial reasons between richest and poorest quintile (EU-27, 2022)



Key points

- **The rate of self-reported unmet needs for medical examination and treatment due to financial reasons is an indicator for affordable access to care.**
- **The rate increased from 1.4% in 2011 to reach a high of 2.2% in the years 2014 to 2016 after which it decreased gradually to 0.9% in 2022. There has been a strong declining trend in self-reported unmet needs over the past 5 years.**
- **Important distributional discrepancies hide behind the average. The likelihood of experiencing unmet needs due to financial reasons was inversely related to household income. High rates and volatility were found in the poorest income quintile (4.1% in 2011, 7.7% in 2016 and 2.6% in 2022), while nearly no unmet needs were found in the richest income quintile. Furthermore, rates of unmet needs were higher in subgroups with lower educational attainment and among working-age individuals in inactivity or unemployment, and lower among retired individuals.**
- **There were regional differences in the rate of unmet needs: 1.9% in Brussels, 2.0% in Wallonia and 0.2% in Flanders in 2022. They can be (partly) related to differences in socioeconomic and sociodemographic characteristics in the regions.**
- **In an international perspective, Belgium has performed worse than the European average over a long period of time (2015-2021), but thanks to a persistent declining trend in the past years, the rate of unmet needs in 2022 plunged below the EU-14 and EU-27 average. Nonetheless, Belgium was not among the best performing countries, with only 7 EU countries having a higher rate in 2022 and 5 EU countries having a higher gap between the incidence in the richest and poorest income quintiles.**
- **The lockdowns and reduction of non-urgent care during the COVID-19 pandemic had an impact on postponement of care in general, but did not impact the downward trend in self-reported unmet needs for medical examination or treatment due to financial reasons.**

6.5.3 Results A-7 – unmet needs for dental examination due to financial reasons

Belgium

Table 73 shows that the share of the population aged 16 years and over who report unmet needs for dental examination or treatment due to financial reasons increased from 2.9% in 2011 to reach peaks of 3.8% in 2014 and 3.7% in 2016 after which it decreased gradually to 2.5% in 2022. Despite the break in series in 2019 (alterations to survey sampling and use of administrative income information), it seems reasonable to conclude that there has been an important declining trend in self-reported unmet needs over the past 5 years.

Analysis by demographic characteristics and socioeconomic status

In Table 73 the rate of self-reported unmet needs for dental examination or treatment was calculated in different population subgroups based on socioeconomic or sociodemographic characteristics. The most pronounced association was observed between self-reported unmet needs, on the one hand, and levels of household income and activity status, on the other hand.

It can be clearly seen that the likelihood of experiencing unmet needs due to financial reasons was inversely related to household income. Not only do we find the highest rates in the poorest income quintile, but also the largest volatility over time (7.6% in 2011, 11.5% in 2014 and 2016 and 6.6% in 2022). The deterioration and subsequent improvement in self-reported unmet needs in the population over time was to a large extent driven by what happens in the poorest income quintile, as can be seen in Figure 97. In the richest income quintile, the incidence rates were very low, ranging between 0% and 0.4%. The rates in income quintiles 3 and 4 were below the population average, whereas the rate observed in income quintile 2 was above the population average. Moreover, in quintile 2 we observe an upward trend since 2020 that necessitates future attention.

Particularly high rates of unmet needs for dental care were found among working-age individuals in unemployment (8.6% in 2022), and to a lesser extent individuals in inactivity (4.9% in 2022).

In addition, we find relatively high rates in subgroups with lower educational attainment and in the age groups between 45 and 65. As for medical care, rates were relatively lower among retired individuals.

These socioeconomic and sociodemographic breakdown of the results are in line with the more detailed analysis in KCE report 334[1], where higher incidence rates were found among individuals in a financially precarious situation (low income, poverty risk, material deprivation, inability to cope with unexpected expenses, receipt of welfare support), among working-age individuals without paid work, among single adults below 65 years old, among individuals in the age group 35-49 and among females aged 50-64.

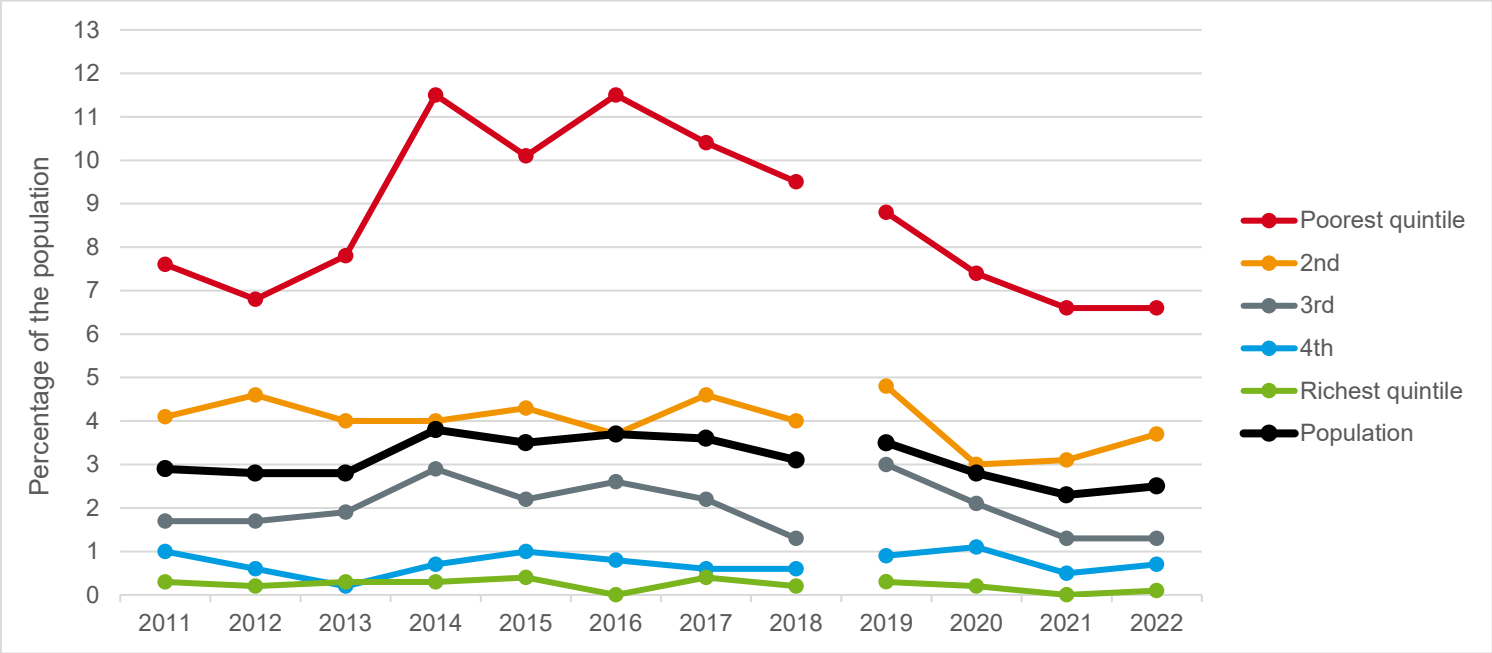
Table 73 – Self-reported unmet needs for dental examination or treatment due to financial reasons in Belgium (2011-2022) (in percentages)

		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Belgium		2.9	2.8	2.8	3.8	3.5	3.7	3.6	3.1	3.5	2.8	2.3	2.5
Regions	**Flanders**		1.7				2.1		1.9	2.1	1.1	1.3	1.1
	Wallonia		3.0				5.7		4.6	5.3	5.0	3.8	4.7
	Brussels		8.2				6.2		5.3	5.8	5.2	2.7	3.6
Household equivalized income quintiles	**First quintile**	7.6	6.8	7.8	11.5	10.1	11.5	10.4	9.5	8.8	7.4	6.6	6.6
	Second quintile	4.1	4.6	4.0	4.0	4.3	3.7	4.6	4.0	4.8	3.0	3.1	3.7
	Third quintile	1.7	1.7	1.9	2.9	2.2	2.6	2.2	1.3	3.0	2.1	1.3	1.3
	Fourth quintile	1.0	0.6	0.2	0.7	1.0	0.8	0.6	0.6	0.9	1.1	0.5	0.7
	Fifth quintile	0.3	0.2	0.3	0.3	0.4	0.0	0.4	0.2	0.3	0.2	0.0	0.1
Educational attainment	**Primary degree or no degree**	4.4	4.2	4.5	6.0	6.4	6.2	5.3	4.9	5.4	4.0	3.2	4.7
	Secondary degree	2.6	2.5	2.3	3.4	3.2	4.1	4.2	3.2	3.9	3.3	2.5	2.7
	Tertiary degree	1.6	1.5	1.8	2.2	1.6	1.4	1.3	1.4	1.7	1.5	1.5	1.2
Activity status	**Employed**	1.9	1.7	1.8	2.4	2.1	1.9	2.0	1.8	2.2	1.8	1.3	1.4
	Unemployed	8.6	10.3	9.9	12.3	9.5	10.4	12.1	13.1	12.5	9.4	9.6	8.6
	Inactive	4.0	3.9	4.7	6.6	7.2	7.5	6.6	5.6	6.3	5.3	4.5	4.9
	Retired	1.9	1.3	1.4	1.8	1.6	2.3	2.1	1.5	2.4	1.5	1.0	1.6
Gender	**Male**	2.8	2.6	2.5	3.8	3.1	3.5	3.0	2.7	3.3	2.6	2.2	2.2

		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
	Female	2.9	2.9	3.1	3.8	4.0	4.0	4.1	3.5	3.7	2.9	2.3	2.8
Age category	**16-24**	2.0	1.9	1.5	3.5	2.2	4.2	4.1	3.6	3.9	3.1	2.6	2.8
	25-34	3.5	3.1	3.1	4.9	3.3	2.6	4.6	3.2	2.6	2.4	1.7	2.0
	35-44	4.2	3.5	3.8	4.5	4.5	5.1	4.8	5.0	5.0	3.6	3.2	2.8
	45-54	3.7	4.9	4.4	4.8	4.9	4.9	4.8	4.5	5.1	4.6	4.0	4.0
	55-64	2.1	1.7	2.5	4.0	5.0	5.1	3.8	3.4	4.4	3.5	2.8	3.4
	65-74	2.2	1.4	2.1	2.3	2.2	2.6	2.8	1.5	2.6	2.1	1.4	2.1
	75 years or over	1.3	1.0	0.9	0.9	1.0	1.5	0.9	1.1	1.7	0.5	0.6	1.3

Note: break in series in 2019 (methodological improvement survey sampling and income information).
Source: Eurostat – EU-SILC

Figure 97 – Self-reported unmet needs for dental examination or treatment due to financial reasons, by income quintile (2011-2022)



Note: break in series in 2019 (methodological improvement survey sampling and income information).

Regional comparison

The results in Table 73 indicate important regional variation with for example in 2021 rates of 1.3% in Flanders, 3.8% in Wallonia and 2.7% in Brussels. In the period with available regional data (2018-2021), rates were consistently below the average in Flanders and above the average in Wallonia and Brussels.

The regional differences should, however, be considered in combination with the socioeconomic and sociodemographic characteristics described above that are associated with unmet needs and differ between the regions. There are for example regional differences in the age structure (Brussels has a younger population), the (in)activity rates (activity rate is higher in Flanders), the unemployment rate (the unemployment rate is lower in Flanders), the poverty risk (lower in Flanders), etc. For example, while Brussels accommodated about 11% of the Belgian population in 2022, about 24% of the individuals at risk of poverty lived in Brussels, contributing to a higher rate of unmet needs.

International comparison

Figure 98, Figure 99 and Figure 100 put the Belgian results in an European context. Figure 98 shows the evolution over time of the rate of self-reported unmet needs for dental examination or treatment in Belgium as well as the EU-14 and the EU-27 averages. Between 2011 and 2016, the Belgian rate

was well below the EU-14 and EU-27 average. Since 2017, the Belgian rate more or less matched the EU averages which started to decline in 2014. The downward trend in the EU average rates levelled off and has even been reversed since 2020. The Belgian rate showed a minor increase between 2021 and 2022, but it is too early to determine whether or not the reversal at the EU level will also set in in Belgium.

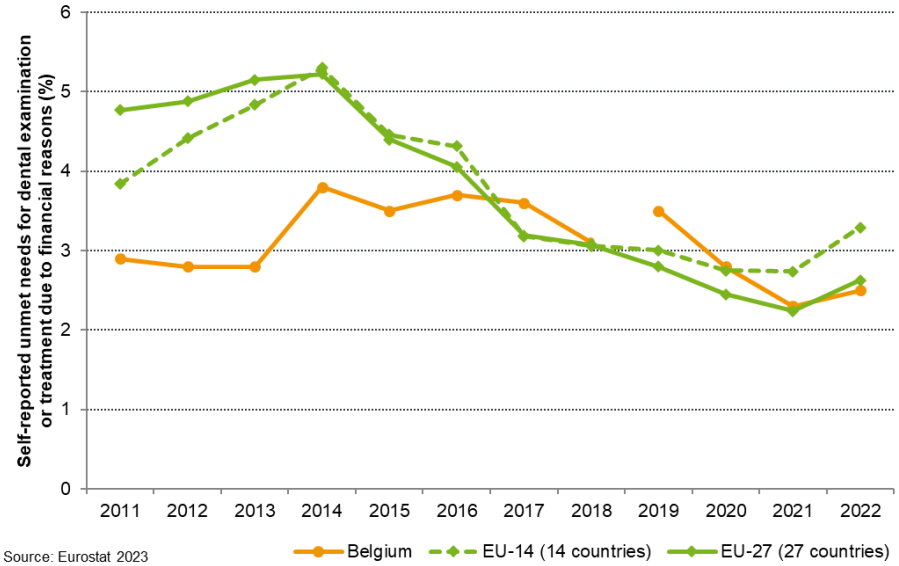
Despite the improving trend in the Belgian rate, Figure 99 shows that Belgium was not among the best performing countries and only 7 EU countries had a higher rate in 2022. Among our neighbouring countries, only France had a higher rate.

The average value obscures important income-related differences, as described above. While this was not only the case in Belgium, the gap between the incidence in the richest and the poorest income quintile has long been (one of) the largest among all western EU countries.[13] In 2022, in spite of a major improvement over time, it was still larger than the EU-27 and EU-14 averages, only exceeded in 7 other EU countries (see Figure 96).

Impact of COVID-19 pandemic

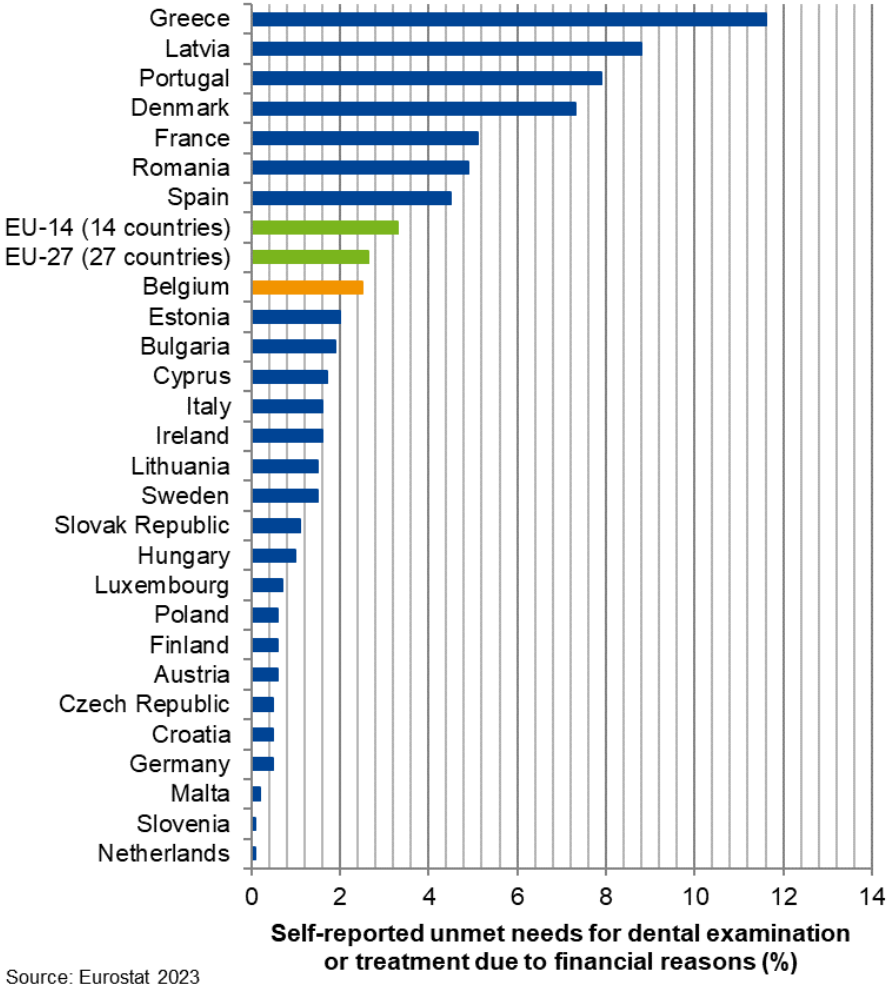
COVID-19 had an impact on postponement of care in general, but not on the downward trend in self-reported unmet needs for dental examination or treatment due to financial reasons. The COVID-19 related measures such as the lockdowns and reduction of non-urgent care had an impact on the access to dental care. The impact was particularly pronounced in the EU-SILC wave 2021, with a substantial higher share of individuals aged 16+ who needed but were unable to receive dental care in the past 12 months (i.e. during the course of 2020 and early 2021) for all reasons combined: 4.8% in 2020, 5.9% in 2021 and 3.9% in 2022. However, when examining the reasons of unmet needs, not financial reasons, but “other reasons” and “waiting lists” were listed as main reason for inaccessibility of dental care. While financial reasons were listed as main reason in 58% and 64% of the unmet needs for dental examination or treatment in 2020 and 2022, respectively, this accounted for only 39% in 2021. Other reasons and waiting lists accounted, respectively, for 44% and 10% of the self-reported unmet needs in 2021, illustrating the impact of COVID-19.

Figure 98 – Self-reported unmet needs for dental care due to financial reasons, evolution Belgium, EU-14 and EU-27 (2011-2022)



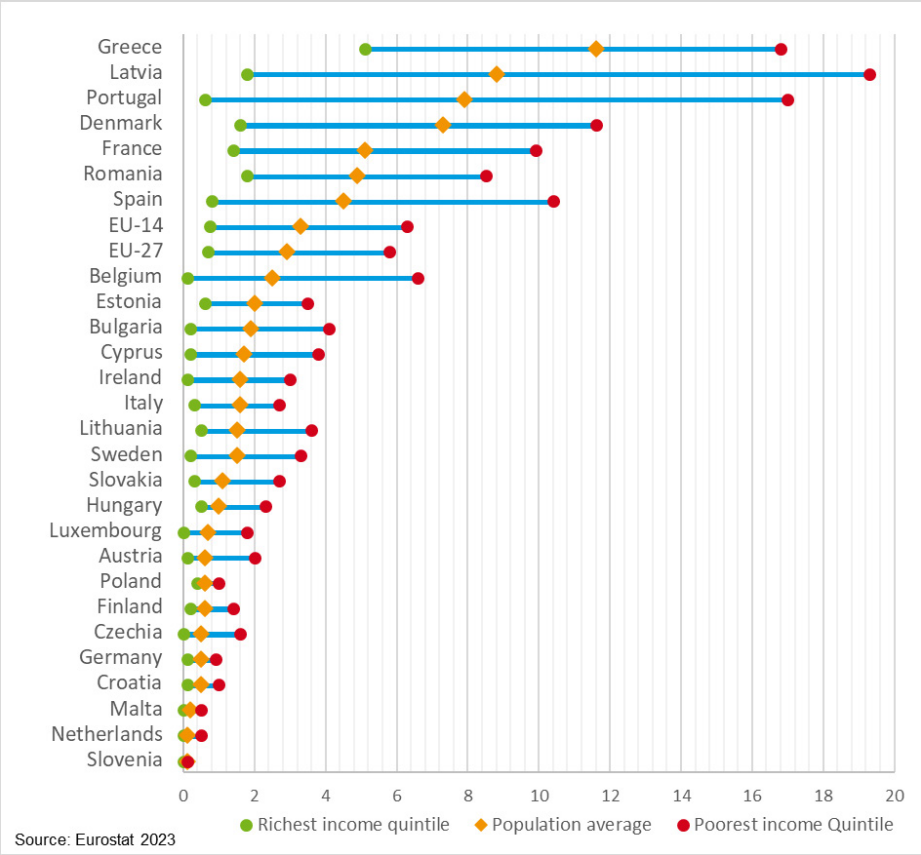
Note: break in series in 2019 (methodological improvement survey sampling and income information).

Figure 99 – Self-reported unmet needs for dental care due to financial reasons in a European perspective (2022)



Source: Eurostat 2023

Figure 100 – Gap in self-reported unmet needs for dental care due to financial reasons between richest and poorest quintile (EU-27, 2022)



Source: Eurostat 2023

Key points

- **The rate of self-reported unmet needs for dental examination or treatment due to financial reasons is an indicator for affordable access to dental care.**
- **The rate increased from 2.9% in 2011 to reach peaks of 3.8% in 2014 and 3.7% in 2016 after which it decreased gradually to 2.5% in 2022. There was a strong declining trend in self-reported unmet needs over the past 5 years.**
- **Important distributional discrepancies hide behind the average. The likelihood of experiencing unmet needs due to financial reasons was inversely related to household income. High rates and volatility were found in the poorest income quintile (7.6% in 2011, 11.5% in 2014 and 2016 and 6.6% in 2022), while low rates were found in the richest income quintile (between 0% and 0.4%). Particularly high rates of unmet needs for dental care were found among working-age individuals in unemployment (8.6% in 2022), and to a lesser extent individuals in inactivity (4.9% in 2022). In addition, relatively higher rates were observed in subgroups with lower educational attainment and in the age groups between 45 and 65 and relatively lower rates among retired individuals.**
- **There were regional differences: the rate of unmet needs for dental examination or treatment in 2021 amounted to 2.7% in Brussels, 3.8% in Wallonia and 1.3% in Flanders. These regional differences can be related to differences in socioeconomic and sociodemographic characteristics of the regions.**
- **In an international perspective, Belgian performed better than the European average between 2011 and 2016 and in line with the European average since 2016. Despite the improving trend in the past 5 years, Belgium was not among the best performing countries, with only 7 EU countries having a higher rate in 2022 and a higher gap between the incidence in the richest and poorest income quintiles.**
- **The lockdowns and reduction of non-urgent care during the COVID-19 pandemic had an impact on postponement of care in general, but did not impact the downward trend in self-reported unmet needs for dental examination or treatment due to financial reasons.**

6.5.4 Results secondary indicator postponement of care due to financial reasons (HIS)

Table 74 – Postponement of care due to financial reasons in Belgium (2001-2018) (in percentages)

		2001	2004	2008	2013	2018
Belgium		10.1	9.7	12.4	8.4	9.1
Regions	**Flanders**	5.7	5	9.6	4.8	5.4
	Wallonia	13.3	14.6	12.9	8.9	12.8
	Brussels	21.9	17.2	23.5	22.5	16.1

Source: Health Interview Survey (HIS)[12]

Belgium

Table 74 shows the share of households in which at least one household member needed care (medical care, surgery, dental care, prescription medicines, eye glasses or contact lenses, mental healthcare), but delayed or forewent care with as main reason that they could not afford to pay for care. In the 2018 Belgian Health Interview Survey, 9.1% of households reported that they had to postpone care for financial reasons, slightly more than in 2013.[12]

Analysis by demographic characteristics and socioeconomic status

The summary reports on financial accessibility of care of the Health Interview Survey report a clear association between postponement of care, on the one hand, and household income, household type and the educational attainment of the household head, on the other hand.[12] A lower

household income, being single or living in a single parent household and lower educational attainment of the household head increased the likelihood of postponing care due to financial reasons.

Regional comparison

The results in Table 74 indicate important regional variation with for example rates in 2018 of 5.4% in Flanders, 12.8% in Wallonia and 16.1% in Brussels.

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6.6 Volume of outpatient activity done by "conventioned" physicians (i.e. physicians acceding to the agreement on national tariffs) (% of outpatient consultations/contacts with practising physicians) (A-8); Volume of outpatient activity done by "conventioned" dentists (i.e. dentists acceding to the agreement on national tariffs) (% of outpatient consultations/contacts with practising dentists) (A-9)

6.6.1 Documentation sheet

Description	**Primary indicators** A-8 Volume of outpatient activity done by "conventioned" physicians (i.e. physicians acceding to the agreement on national tariffs) (% of outpatient consultations/contacts with practising physicians) A-9 Volume of outpatient activity done by "conventioned" dentists (i.e. dentists acceding to the agreement on national tariffs) (% of outpatient consultations/contacts with practising dentists) **Secondary indicators** Number of practising conventioned physicians Number of practising conventioned dentists
Calculation	**Numerator**: Number of physical contacts/consultations with conventioned practitioners **Denominator**: Number of physical contacts/consultations with conventioned and non-conventioned practitioners **A-8 – Physicians** are identified using their professional and qualification code (see technical definition) **A-9 – Dentists** are identified using their professional and qualification code (see technical definition)
Rationale	Belgium has made a commitment to universal health coverage (UHC), i.e. everyone should be able to obtain the health services that they need, of high quality, without risk of financial hardship in doing so.[1, 2] Ensuring affordable access to healthcare is at the heart of universal health coverage, and was reaffirmed numerous times as main objective of the Belgian healthcare system.[1] Under the auspices of RIZIV-INAMI, representatives of the practitioners and sickness funds negotiate official fees (and reimbursements) for healthcare services which are then fixed in "agreements" (for physicians and dentists) and "conventions" (for all other healthcare providers).[2] Practitioners who subscribe to the agreement are called "conventioned" practitioners. Practitioners who do not subscribe to it, or who only subscribe to it for some parts of the day or week, are allowed to charge more than the convention tariff (fee supplements). Patients have freedom of choice and generally receive the same reimbursement irrespective of the convention status of the practitioner (with some exceptions such as physiotherapy). Adherence to the official fees improves price transparency, gives the patient price certainty (*sécurité tarifaire / tariefzekerheid*), and contributes to affordable access. Hence, the share of activity provided by conventioned practitioners (physicians or dentists) at the official tariff is considered an indicator of financial accessibility of healthcare.[3]
Data source	IMA-AIM data and IMA-AIM report on Volume of activity by convention status.[3]
Technical definitions	**Physicians** are identified as follows:

Medical specialty	Professional code	Qualification code

Physicians / Artsen / Médecins		
General practitioners / Huisartsen / Médecins généralistes	10 to 19	003 and 004
Anaesthetists / Anesthesisten / Anesthésistes	10 to 19	100 to 137
Surgeons / Heelkundigen / Chirurgiens	10 to 19	140 to 166
Neurosurgeons / Neurochirurgen / Neurochirurgiens	10 to 19	170 to 179
Geriatricians / Geriaters / Gériatres	10 to 19	180 to 184
Specialists in neurosurgery and neuropsychiatry / Specialisten in neurochirurgie en neuropsychiatrie / Spécialistes en neurochirurgie et neuropsyhiatrie	10 to 19	192 to 195
Plastic surgeons / Plastische chirurgen / Chirurgiens plastiques	10 to 19	210 to 222
Gynaecologists / Gynaecologen / Gynécologues	10 to 19	340 to 369
Ophthalmologists / Oogartsen (oftalmologen) / Ophtalmologues	10 to 19	370 to 397
Ear, nose and throat specialists / Keel-, neus en oorartsen (otorinolaryngologen) / Spécialistes en oto-rhino-laryngologie	10 to 19	410 to 422
Urologists / Urologen / Urologues	10 to 19	450,454, 455, 459
orthopaedic surgeons / Orthopedisch chirurgen / Chirurgiens orthopédiques	10 to 19	480 to 496
Stomatologists / Stomatologen / Stomatologues	10 to 19	520 to 521
Dermatologists / Specialisten huid- en geslachtsziekten(dermato-venereologen) / Dermatologues	10 to 19	550 to 569
Internal medicine / Inwendig geneeskundigen / Spécialistes en médecine interne	10 to 19	573 to 598
Pneumologists / Longspecialisten (pneumologen) / Pneumologues	10 to 19	620 to 638
Gastroenterologists / Maag-darm specialisten (gastro-enterologen) / gastroentérologues	10 to 19	650 to 659
Oncologists / Medische oncologen / Oncologues	10 to 19	660
paediatricians / Kinderartsen/ Pédiatres	10 to 19	689 to 699
Cardiologists / Cardiologen / Cardiologues	10 to 19	730 to 739
Neuropsychiatrists / Neuropsychiaters / Neuropsychiatres	10 to 19	760 to 764
Neurologists / Neurologen / Neurologues	10 to 19	770 to 779
Psychiatrists / Psychiaters / Psychiatres	10 to 19	780 to 784

Rheumatologists / Reumatologen / Rhumatologues	10 to 19	790 to 799
Specialists in critical care / Specialisten in acute geneeskunde / Spécialistes en medécine aiguë	10 to 19	800
Physical medicine and rehabilitation specialists / Specialisten in fysische geneeskunde en revalidatie / Spécialistes en médecine physique et revalidation	10 to 19	830 to 839
Anatomical pathologist / Specialisten in pathologische anatomie / Anatomopathologues	10 to 19	870
Radiologists / Radiologen / Radiologues	10 to 19	930 to 939
Radiation therapists / Specialisten in radiotherapie / Spécialistes en radiothérapie	10 to 19	960 to 965
nuclear medicine therapists / Nucleair geneeskundigen / Spécialistes en médecine nucléaire	10 to 19	970 to 997
Dentists / Tandartsen / dentistes		
General dentists / Algemene tandartsen / Dentistes générales	30 to 39	001, 002, 003, 004
Orthodontists / Orthodontisten / Orthodontistes	30 to 39	007
Periodontist / Parodontologen/ Parodontologues	30 to 39	006
Stomatologists / Stomatologen / Médecins stomatologues	30 to 39	005

Outpatient activity is defined as follows:

- For general practitioners, the following nomenclature codes: 101010, 101032, 101054, 101076, 103110, 103132, 103213, 103235, 103412, 10343434, 103913, 104112, 104215, 104230, 104252, 104355, 104510, 104650
- For medical specialists, the following nomenclature codes: 101275, 101290, 102012, 102034, 102071, 102093, 102115, 102130, 102152, 102174, 102196, 102211, 102255, 102270, 102292, 102314, 102336, 102351, 102373, 102535, 102550, 102572, 102594, 102616, 102631, 102653, 102675, 102690, 102712, 102734, 102756, 102815, 102830, 102874, 102896, 102911, 102955, 102970, 103073, 103250, 103456, 103471, 460670, 460795
- For dentists, nomenclature codes of article 5: a contact is equal to (at least) 1 article 5 code per patient per day per dentist

Practitioners are defined as "active" if they have 500 or more consultations/contacts per year

Region is defined by place of residence of the patient

International comparability

/

Limitations

Non-conventioned (or partially conventioned) practitioners are allowed to charge fee supplements, but do not necessarily do so. By looking at the distinction between conventioned and non-conventioned (or partially conventioned) practitioners, we assess price insecurity, lack of transparency and the risk of being charged fee supplements without evaluating whether or not fee supplements were actually charged.

	Only a selection of outpatient activity, based on nomenclature codes (see technical definition), was taken into account, mainly physical consultations and contacts. Teleconsultation (which increased strongly since the COVID-19 pandemic) and other outpatient activity, such as activity in medical houses (i.e. 4.44% of beneficiaries in 2020[4]) were not taken into account, leading to an underestimation of accessibility of GP care. Also inpatient care was not considered.
Dimension	Accessibility
Related indicators	A-2 Out-of-pocket (OOP) payments (% of current expenditure on health) A-3 Out-of-pocket (OOP) medical spending (% of final household consumption) A-4 Households facing catastrophic out-of-pocket payments (% of respondents, HBS) A-5 Out-of-pocket (OOP) payments for hospital care (% of total hospital care expenditures) A-6 People with self-reported unmet needs for medical examination due to financial reasons (% of respondents, EU-SILC) A-7 People with self-reported unmet needs for dental examination due to financial reasons (% of respondents, EU-SILC)
Reviewers	Françoise De Wolf (IMA – AIM), Carine Van de Voorde (KCE)

6.6.2 Results A-8 – Volume of outpatient activity done by "conventioned" physicians

Number of conventioned GPs and medical specialists

Table 75 shows that there were 16 098 **general practitioners (GPs)** in 2021 of whom 10 914 (67.8%) were considered to be active, i.e. have 500 or more outpatient consultations per year. Among GPs who were conventioned, the share of active GPs was lower, 66.4% versus 79.2% among non-conventioned GPs. It is not surprising that there were much more non-active practitioners among conventioned practitioners, given that in absence of an explicit renunciation of the agreement, practitioners are considered to be conventioned. Overall, about 88.9% of the GPs were conventioned, decreasing to 87.1% among active GPs. While the number of GPs over time increased, there was a decline in the number of non-conventioned GPs, leading to an increasing share of conventioned GPs over time. Table 76 indicates that the convention rate was higher among female GPs and decreased with age (experience). Surprisingly, a higher share of non-conventioned GPs was found in the lowest activity quartile.

With regard to **medical specialists**, Table 75 shows that there were 25 504 practitioners in 2021 of whom 14 304 (56.1%) were considered to be active, i.e. have 500 or more outpatient consultations per year. Similarly as for GPs, the share of active practitioners was markedly lower among specialists who were conventioned, 44.3% versus 85.7% among non-conventioned (or partially conventioned) practitioners. This means that more than half of the conventioned medical specialists had no real outpatient activity, compared to less than 15% among non-conventioned (or partially conventioned) specialists. About 71.5% of the medical specialists were conventioned, while this share decreased to 56.4% among active practitioners. The share of conventioned practitioners was relatively stable over time, but convention rates differed substantially by medical specialty.[3] Table 77 indicates that the convention rate was higher among female practitioners and decreased with age (experience) and with activity volume. Hence lower convention rates were found among older practitioners and among practitioners with a higher number of consultations.

In 2018, active GPs accounted for 99.4% of the consultations, and active medical specialists for 97.6% of the consultations.[3]

Table 75 – Number of practitioners and active practitioners (>500 outpatient consultations) by convention status (years 2012, 2015, 2018, 2021)

		2012			2015			2018			2021		
		Practitioners	Active practitioners	% Active	Practitioners	Active practitioners	% Active	Practitioners	Active practitioners	% Active	Practitioners	Active practitioners	% Active
General Practitioners	Total	14 105	10 469	74.2%	14 325	10 593	73.9%	14 948	10 735	71.8%	16 098	10 914	67.8%
	Conventioned	11 858	8 568	72.3%	12 246	8 762	71.5%	12 892	9 060	70.3%	14 319	9 505	66.4%
	Partially or Non-conventioned	2 247	1 901	84.6%	2 079	1 831	88.1%	2 056	1 675	81.5%	1 779	1 409	79.2%
	% Conventioned	84.1%	81.8%		85.5%	82.7%		86.2%	84.4%		88.9%	87.1%	
All medical specialists	Total	23 755	12 626	53.2%	22 123	13 116	59.3%	24 731	13 795	55.8%	25 504	14 304	56.1%
	Conventioned	16 944	7 152	42.2%	15 882	7 286	45.9%	17 507	7 816	44.6%	18 232	8 072	44.3%
	Partially or Non-conventioned	6 811	5 474	80.4%	6 241	5 830	93.4%	7 224	5 979	82.8%	7 272	6 232	85.7%
	% Conventioned	71.3%	56.6%		71.8%	55.6%		70.8%	56.7%		71.5%	56.4%	

Source: IMA-AIM

Table 76 – Convention rate of active GPs (>500 outpatient consultations) by subgroup based on sociodemographic characteristics and volume of activity (2021)

		Conventioned	Partially conventioned	Non-conventioned
Sex	**Male**	85.0	1.2	13.8
	Female	89.6	0.8	9.6
Age	**Less than 35 years**	95.4	0.5	4.1
	35 – 44 years	88.9	1.4	9.7
	45 – 54 years	86.1	0.9	13.1
	55 – 64 years	83.1	1.3	15.6
	More than 65 years	82.6	1.0	16.4
Volume of activity	**Lowest quartile**	82.8	1.4	15.9
	Quartile 2	87.7	1.0	11.4
	Quartile 3	89.9	0.8	9.3
	Highest quartile	88.0	1.0	11.0

Source: IMA-AIM

Table 77 – Convention rate of active medical specialists (>500 outpatient consultations) by subgroup based on sociodemographic characteristics and volume of activity (2021)

		Conventioned	Partially conventioned	Non-conventioned
Sex	**Male**	54.5	10.8	34.6
	Female	58.6	9.2	32.1
Age	**Less than 35 years**	71.1	7.3	21.6
	35 – 44 years	60.7	10.2	29.1
	45 – 54 years	54.5	11.1	34.4
	55 – 64 years	50.0	10.9	39.1
	More than 65 years	53.2	7.5	39.3
Volume of activity	**Lowest quartile**	76.0	7.2	16.8
	Quartile 2	65.0	10.2	24.9
	Quartile 3	49.9	11.8	38.2
	Highest quartile	34.9	11.1	54.0

Source: IMA-AIM

Volume of outpatient activity by convention status (primary indicator) – rates in Belgium

The classic calculation method of the convention rate, based on headcounts, gives a biased assessment of the possibility to consult a conventioned practitioner and the corresponding price transparency and price certainty, for at least two reasons: (1) an important number of practitioners does not have real outpatient activity and these inactive practitioners are more likely to be conventioned, and, (2) the convention rate can differ substantially by volume of activity. Therefore, an indicator of convention status weighted by volume of activity can provide a more relevant perspective on access to outpatient care at the officially agreed tariffs.

Table 78 and Figure 101 provide information on the volume of outpatient activity by convention status. The results indicate that the share of activity by conventioned GPs has increased from 83.1% in 2012 to 87.3% in 2021. This can at least partly be explained by an increase in the attractiveness of the profession and the working conditions.[3] The activity share of partially conventioned practitioners fluctuated around 1%, while non-conventioned GPs had an activity share of 11.8% in 2021, down from 15.8% in 2012. The activity share of conventioned GPs in 2021 was in line with the convention rate of active GPs (see above, Table 75).

The activity share of conventioned and non-conventioned medical specialists fluctuated between 43% and 45%, but where the share of conventioned practitioners showed a small declining trend, the activity share of non-conventioned practitioners has gradually increased over time. The share of partially conventioned specialists covered the remaining part, decreasing from 12.3% in 2012 to 11.1% in 2021. For medical specialists the discrepancy between the different methods of defining the convention rate is striking: 71.5% of all medical specialists were conventioned in 2021 (see Table 75), the convention rate decreased to 56.4% when considering only active practitioners (see Table 75) and further fell to 44.0% when weighted by volume of outpatient activity (see Table 78 – Share in outpatient activity of active practitioners (>500 outpatient consultations) by convention status (years 2012, 2015, 2018, 2021)). From the opposite perspective, 43.6% of the active medical specialists were non-conventioned or partially conventioned in 2021, but they provided 56.0% of all consultations.

There was important variation by speciality around the average activity share of conventioned practitioners as visualized in Figure 101 for 2021, and further detailed in Table 78 – Share in outpatient activity of active practitioners (>500 outpatient consultations) by convention status (years 2012, 2015, 2018, 2021) for all studied years. The convention rate weighted by activity ranged in 2021 from as low as 11.1% for dermatologists to as high as 91.1% for oncologists, with other specialties in between, such as ophthalmologists (16.9%), gynaecologists (21.3%), urologists (35.8%), cardiologists (58.3%), paediatricians (70.7%). For 11 of the 27 considered medical specialties, less than 50% of the consultations were performed by a conventioned practitioner.

Figure 101 – Share in outpatient activity of active practitioners (>500 outpatient consultations) by convention status, subdivision by region and specialty (2021)

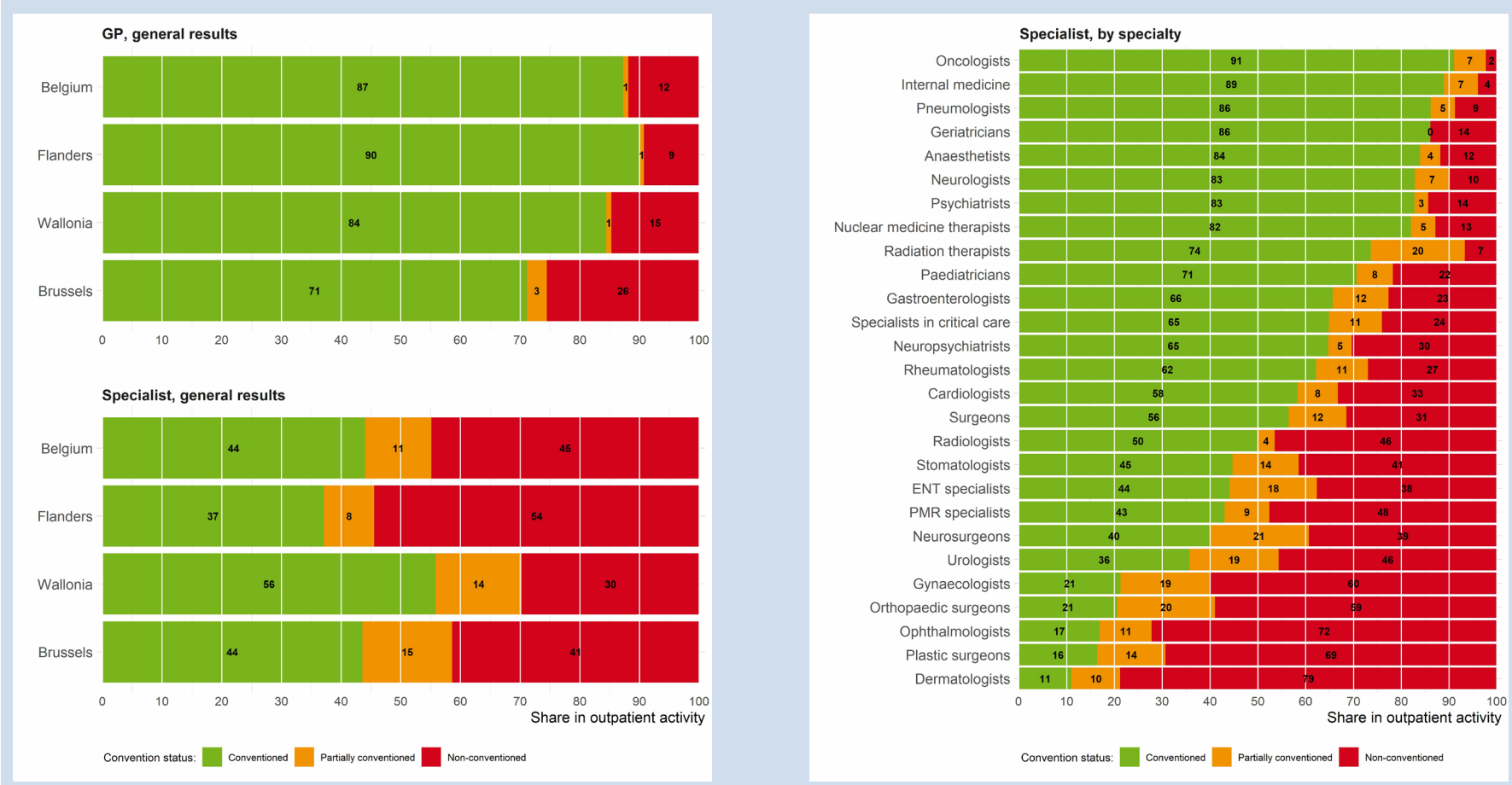

Table 78 – Share in outpatient activity of active practitioners (>500 outpatient consultations) by convention status (years 2012, 2015, 2018, 2021)

		2012	2015	2018	2021
General Practitioners	Conventioned	83.1	84.0	85.1	87.3

		2012	2015	2018	2021
	Partially conventioned	1.1	1.1	0.9	0.9
	Non-conventioned	15.8	14.8	14.0	11.8
All medical specialists	Conventioned	44.6	44.0	44.2	44.0
	Partially conventioned	12.3	12.8	11.0	11.1
	Non-conventioned	43.1	43.2	44.7	44.8
Anaesthetists	Conventioned	74.3	75.5	83.5	84.0
	Partially conventioned	7.3	6.6	4.6	4.2
	Non-conventioned	18.5	17.9	11.9	11.8
Dermatologists	Conventioned	13.4	10.5	11.2	11.1
	Partially conventioned	11.4	12.6	11.1	10.2
	Non-conventioned	75.2	76.9	77.7	78.8
Plastic surgeons	Conventioned	15.8	13.8	16.3	16.4
	Partially conventioned	11.0	9.3	12.2	14.3
	Non-conventioned	73.2	76.9	71.5	69.3
Ophthalmologists	Conventioned	24.1	20.3	17.6	16.9
	Partially conventioned	11.6	12.2	10.2	10.9
	Non-conventioned	64.3	67.6	72.2	72.2
Gynaecologists	Conventioned	19.7	19.2	20.4	21.3
	Partially conventioned	18.2	18.8	17.4	18.8
	Non-conventioned	62.1	62.0	62.2	60.0
Orthopaedic surgeons	Conventioned	33.0	27.2	23.5	20.6
	Partially conventioned	18.9	20.8	20.3	20.4
	Non-conventioned	48.1	52.0	56.1	59.0
Stomatologists	Conventioned	41.6	39.5	46.2	44.7
	Partially conventioned	11.9	13.8	9.9	13.9
	Non-conventioned	46.5	46.6	43.9	41.5
Urologists	Conventioned	40.1	36.3	39.6	35.8
	Partially conventioned	20.0	21.4	15.8	18.6
	Non-conventioned	39.9	42.3	44.6	45.6
Ear, nose and throat specialists	Conventioned	41.8	42.2	43.3	44.1
	Partially conventioned	22.5	22.1	19.7	18.2
	Non-conventioned	35.7	35.6	37.0	37.6

		2012	2015	2018	2021
Neurosurgeons	Conventioned	38.6	38.3	39.7	39.8
	Partially conventioned	21.4	21.6	19.0	20.8
	Non-conventioned	39.9	40.1	41.3	39.3
Physical medicine and rehabilitation specialists	Conventioned	48.9	45.9	45.6	43.1
	Partially conventioned	11.6	11.1	9.7	9.4
	Non-conventioned	39.5	43.0	44.7	47.6
Radiologists	Conventioned	50.7	54.7	51.4	49.9
	Partially conventioned	4.1	5.0	4.0	3.7
	Non-conventioned	45.2	40.3	44.6	46.5
Surgeons	Conventioned	52.5	53.9	54.4	56.5
	Partially conventioned	11.8	11.6	11.9	12.1
	Non-conventioned	35.7	34.4	33.7	31.5
Cardiologists	Conventioned	66.7	65.8	61.1	58.3
	Partially conventioned	8.0	9.2	8.8	8.5
	Non-conventioned	25.3	25.1	30.2	33.2
Neuropsychiatrists	Conventioned	48.9	55.2	62.7	64.7
	Partially conventioned	19.9	18.2	7.2	4.9
	Non-conventioned	31.2	26.6	30.1	30.4
Rheumatologists	Conventioned	49.1	53.1	60.5	62.2
	Partially conventioned	20.1	20.3	11.3	10.9
	Non-conventioned	30.8	26.7	28.2	27.0
Gastroenterologists	Conventioned	65.3	63.5	63.5	65.7
	Partially conventioned	13.4	14.0	11.1	11.7
	Non-conventioned	21.3	22.5	25.3	22.6
Paediatricians	Conventioned	74.8	72.3	72.0	70.7
	Partially conventioned	7.8	8.2	7.4	7.5
	Non-conventioned	17.5	19.6	20.6	21.8
Radiation therapists	Conventioned	77.5	78.1	79.7	73.6
	Partially conventioned	15.9	15.8	14.5	19.7
	Non-conventioned	6.7	6.0	5.8	6.7
Psychiatrists	Conventioned	81.0	77.8	80.9	82.8
	Partially conventioned	9.5	9.1	2.2	2.8
	Non-conventioned	9.5	13.0	16.9	14.4

		2012	2015	2018	2021
Neurologists	Conventioned	77.5	78.4	81.7	82.8
	Partially conventioned	8.0	9.0	6.8	7.3
	Non-conventioned	14.4	12.6	11.5	9.9
Nuclear medicine therapists	Conventioned	82.2	81.2	85.4	82.1
	Partially conventioned	10.0	10.0	6.0	5.1
	Non-conventioned	7.8	8.8	8.6	12.9
Oncologists	Conventioned	85.2	86.5	89.9	91.1
	Partially conventioned	10.2	10.4	7.7	6.6
	Non-conventioned	4.6	3.1	2.4	2.3
Pneumologists	Conventioned	83.4	85.2	86.5	86.1
	Partially conventioned	7.1	6.1	4.5	5.1
	Non-conventioned	9.5	8.7	9.0	8.7
Internal medicine	Conventioned	83.5	85.4	88.4	88.9
	Partially conventioned	9.1	8.9	6.7	7.2
	Non-conventioned	7.4	5.8	4.8	3.9
Geriatricians	Conventioned	92.0	89.4	83.8	86.1
	Partially conventioned	0.0	0.0	5.4	0.0
	Non-conventioned	8.0	10.6	10.8	13.9
Specialists in critical care	Conventioned	33.0	46.7	78.0	64.9
	Partially conventioned	0.0	0.0	0.0	11.1
	Non-conventioned	67.0	53.3	22.0	24.1

Source: IMA-AIM

Volume of outpatient activity by convention status (primary indicator) – analysis by region and socioeconomic status

Based on the place of residence of the patient, the volume of outpatient activity by convention status of GPs and medical specialists can be further subdivided by region.

The results in Figure 101 and Table 79 indicate that the convention rate, weighted by activity, of GPs was higher in 2021 in Flanders (90.1%) than in Wallonia (84.4%) and was substantially lower in Brussels (71.2%). Caution is needed, however, as Brussels has a higher density of medical houses that offer affordable access to GP care and which were not accounted for in these convention rates.

The results in Figure 101 and Table 80 paint a different picture regarding the convention rate, weighted by activity, of medical specialists in 2021. It was in line with the average Belgian rate in Brussels (43.6%), higher in Wallonia (55.8%) and lower in Flanders (37.1%). In addition, the share of partially conventioned practitioners was markedly higher in Brussels and in Wallonia compared to Flanders, resulting in an activity share of non-conventioned medical specialists that was almost twice as high in Flanders than in Wallonia.

According to Table 79 and Table 80, beneficiaries of increased reimbursement were more likely to consult a conventioned practitioner in 2021 (89.2% versus 86.5% for GPs and 43.6% versus 52.8% for medical specialists). However, also in this vulnerable group, more than 1 in 3 specialist consultations and 1 in 10 GP consultations were performed by a non-conventioned practitioner.

Impact of COVID-19 pandemic

There are no data to assess the impact of COVID-19.

Table 79 – Share in outpatient activity of active GPs (>500 outpatient consultations) by convention status, subdivided by region and socioeconomic status of the patient (2021)

		Conventioned	Partially conventioned	Non-conventioned
Belgium		87.3	0.9	11.8
Region	**Flanders**	90.1	0.7	9.2
	Wallonia	84.4	0.9	14.7
	Brussels	71.2	3.3	25.5
Socioeconomic status	**Increased reimbursement**	89.2	0.8	9.9
	No increased reimbursement	86.5	0.9	12.5

Source: IMA-AIM

Table 80 – Share in outpatient activity of active medical specialists (>500 outpatient consultations) by convention status, subdivided by region and socioeconomic status of the patient (2021)

		Conventioned	Partially conventioned	Non-conventioned
Belgium		44.0	11.1	44.8
Region	**Flanders**	37.1	8.4	54.4
	Wallonia	55.8	14.4	29.7
	Brussels	43.6	15.0	41.4
Socioeconomic status	**Increased reimbursement**	52.8	12.1	35.1
	No increased reimbursement	41.6	10.9	47.6

Source: IMA-AIM

Key points

- A convention rate based on headcounts gives a biased assessment of the possibility to consult a conventioned practitioner and the corresponding price transparency and price certainty, because (1) there is an important number of practitioners without real outpatient activity and these inactive practitioners are more likely to be conventioned, and (2) the convention rate can differ substantially by volume of activity. Therefore, an indicator of convention status weighted by volume of activity provides a more relevant perspective on access to outpatient care at the officially agreed tariffs.
- The share of activity by conventioned GPs was high and further increased from 83.1% in 2012 to 87.3% in 2021. The activity share of partially conventioned practitioners fluctuated around 1%, while non-conventioned GPs had an activity share of 11.8% in 2021, down from 15.8% in 2021. The activity share of conventioned GPs in 2021 was in line with the convention rate of active GPs (87.1% in 2021) and slightly lower than the convention rate of all GPs (88.9% in 2021).
- The convention rate, weighted by activity, of GPs was higher in 2021 in Flanders (90.1%) than in Wallonia (84.4%) and was substantially lower in Brussels (71.2%). 10% of GP consultations of beneficiaries of increased reimbursement were performed by a non-conventioned practitioner.
- Less than half of the consultations of medical specialists were performed by conventioned medical specialists, with a small declining trend over time. There is a large discrepancy between the different methods of defining the convention rate, with 71.5% of all medical specialists being conventioned in 2021, decreasing to 56.4% among active practitioners and further declining to 44.0% when weighted by volume of outpatient activity.
- Convention rates, weighted by activity, vary between medical specialties, ranging in 2021 from as low as 11.1% for dermatologists to as high as 91.1% for oncologists, with other specialties in between, such as ophthalmologists (16.9%), gynaecologists (21.3%), urologists (35.8%), cardiologists (58.3%) and paediatricians (70.7%). For 11 of the 27 considered medical specialties, less than 50% of the consultations were performed by a conventioned practitioner.
- The convention rate, weighted by activity, for medical specialists was around the average in Brussels (43.6%), above average in Wallonia (55.8%) and below average in Flanders (37.1%). More than 1 in 3 of specialist consultations of beneficiaries of increased reimbursement were performed by a non-conventioned practitioner.

6.6.3 Results A-9 – Volume of outpatient activity done by "conventioned" dentists

Number of conventioned dentists

Table 81 shows that there were 10 476 **dentists** in 2021 of whom 7 240 (69.1%) were considered to be active, i.e. have 500 or more outpatient patient contacts per year. Among dentists who were conventioned, the share of active dentists was low, 42.2% versus 93.9% among non-conventioned dentists. It is not surprising that there were much more non-active practitioners among conventioned practitioners, given that in absence of an explicit renunciation of the agreement, practitioners are considered to be conventioned. Less than half of the dentists was conventioned in 2021 (48.0%), a share that fell to 29.3% in the subgroup of active dentists. Put differently, less than 1 in 3 active dentists was conventioned in 2021. Over time, there has been an decrease in active conventioned dentists and an increase in partially or non-conventioned dentists.

Table 82 indicates that the convention rate in 2021 was lower among female dentists and increased with age (experience), the opposite of what was found for GPs and medical specialists. Convention rates also varied with activity volume, in particularly in the categories conventioned and partially conventioned, with lower convention rates among dentists with a higher number of contacts. Hence, lower convention rates were found among younger dentists and dentists with a higher number of contacts.

Table 81 – Number of dentists and active dentists (>500 outpatient contacts) by convention status (years 2012, 2015, 2018, 2021)

		2012			2015			2018			2021		
		Practitioners	Active practitioners	% Active	Practitioners	Active practitioners	% Active	Practitioners	Active practitioners	% Active	Practitioners	Active practitioners	% Active
Dentists	Total	8 586	6 796	79.2%	9 340	7 090	75.9%	9 516	7 203	75.7%	10 476	7 240	69.1%
	Conventioned	3 943	2 407	61.0%	3 619	2 974	82.2%	4 125	2 057	49.9%	5 024	2 121	42.2%
	Partially or Non-conventioned	4 643	4 389	94.5%	5 721	4 116	71.9%	5 391	5 146	95.5%	5 452	5 119	93.9%
	% Conventioned	45.9%	35.4%		38.7%	41.9%		43.3%	28.6%		48.0%	29.3%	

Source: IMA-AIM

Volume of outpatient activity by convention status (primary indicator) – rates in Belgium

As for GPs and medical specialists, we also conclude for dentists that (1) an important number of practitioners does not have real outpatient activity and these inactive dentists are much more likely to be conventioned, and (2) the convention rate differs by volume of activity. Therefore, an indicator of convention status weighted by volume of activity can provide a more relevant perspective on access to outpatient dental care at the officially agreed tariffs, compared to convention rates based on headcounts.

Table 83 and Figure 102 provide information on the volume of outpatient dental activity by convention status. The results indicate that the share of activity by conventioned dentists has declined from 34.3% in 2012 to 26.3% in 2021, with a particularly large decrease between 2015 and 2018. In addition, the share of activity by partially conventioned dentists has also declined over time from 29.1% in 2012 to 19.9% in 2021. Hence activity by non-conventioned dentists has strongly increased and accounted for more than half of all patients contacts in 2021. Compared to the convention rates based on headcounts (see Table 81), i.e. 48.0% among all dentists in 2021 and 29.3% among active dentists, the convention rate based on outpatient activity further fell to 26.3%. This implies that only 1 in 4 patient contacts was performed by a conventioned dentist.

There was outspoken variation by specialty around the average activity share of conventioned dentists as visualized in Figure 102 for 2021, and further detailed in Table 83 for all studied years. The convention rate, weighted by activity, ranged in 2021 from as low as 1.1% for orthodontists, 1.9% for periodontists, 29.1% for general dentists, and up to 72.5% for stomatologists. Over time the convention rates for orthodontists and periodontists have decreased up to a point that it becomes difficult if not impossible to find a conventioned orthodontist or periodontist, with the majority of these practitioners being non-conventioned. Also for general dentists, the activity share of conventioned and partially conventioned has decreased over time so that in 2021 almost half of the patient contacts was performed by non-conventioned practitioners, an increase of 60% compared to 2012. Stomatologists were the only subspeciality where convention rates, weighted by activity, have increased over time and were above 50%.

Table 82 – Convention rate of active dentists (>500 outpatient contacts) by subgroup based on sociodemographic characteristics and volume of activity (2021)

		Conventioned	Partially conventioned	Non-conventioned
Sex	**Male**	34.6	18.8	46.6
	Female	24.5	17.2	58.2
Age	**Less than 35 years**	23.8	15.6	60.7
	35 – 44 years	26.8	11.4	61.8
	45 – 54 years	28.3	15.5	56.2
	55 – 64 years	31.0	23.9	45.1
	More than 65 years	41.9	20.7	37.4
Volume of activity	**Lowest quartile**	34.6	13.8	51.6
	Quartile 2	30.1	17.3	52.6
	Quartile 3	28.2	19.7	52.1
	Highest quartile	24.4	20.9	54.7

Source: IMA-AIM

Volume of outpatient activity by convention status (primary indicator) – analysis by region and socioeconomic status

Based on the place of residence of the patient, the volume of outpatient dental activity by convention status was further subdivided by region.

The results in Figure 102 and Table 84 indicate that the convention rate, weighted by activity, of dentists was in 2021 substantially lower in Flanders (16.6%) than in Wallonia (40.4%) and in Brussels (45.5%). In Flanders, the number of contacts by non-conventioned dentists was almost 4 times the level of activity by conventioned dentists, while in Wallonia both activity shares were of the same magnitude and in Brussels, the activity share of conventioned dentists still exceeded the share of non-conventioned dentists.According to Table 84, beneficiaries of increased reimbursement were twice as likely to consult a conventioned practitioner in 2021 (22.9% versus 43.6%). However, also in this vulnerable group, more than 1 in 3 contacts with dentists were performed by a non-conventioned practitioner.

Impact of COVID-19 pandemic

There are no data to assess the impact of COVID-19.

Figure 102 – Share in outpatient activity of active dentists (>500 outpatient contacts) by convention status, subdivision by region and specialty (2021)

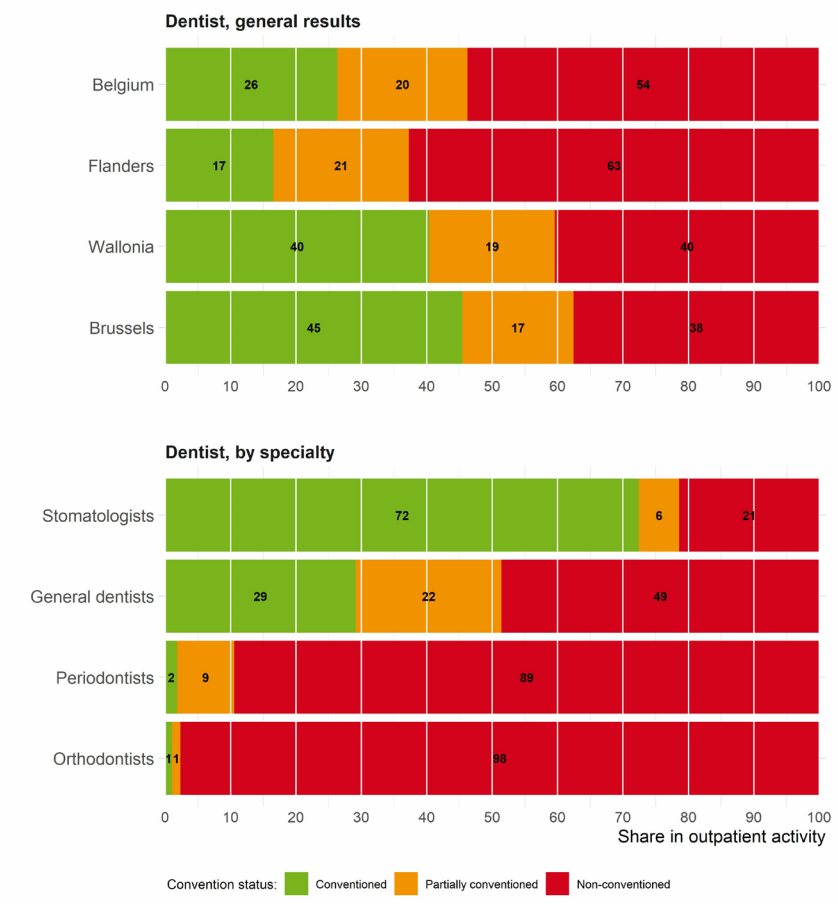

Table 83 – Share in outpatient activity of active dentists (>500 outpatient contacts) by convention status (years 2012, 2015, 2018, 2021)

		2012	2015	2018	2021
All dentists	Conventioned	34.3	35.5	26.8	26.3
	Partially conventioned	29.1	20.3	24.1	19.9
	Non-conventioned	36.6	44.2	49.2	53.8
General dentists	Conventioned	37.5	38.8	29.4	29.1
	Partially conventioned	32.1	22.5	27.0	22.3
	Non-conventioned	30.4	38.7	43.6	48.6
Orthodontists	Conventioned	4.8	3.2	2.2	1.1
	Partially conventioned	2.9	0.6	0.5	1.3
	Non-conventioned	92.3	96.3	97.3	97.6
Periodontists	Conventioned	7.9	11.2	6.4	1.9
	Partially conventioned	12.2	8.9	7.3	8.7
	Non-conventioned	79.9	79.9	86.3	89.4
Stomatologists	Conventioned	64.3	58.2	57.2	72.5
	Partially conventioned	5.1	7.6	6.8	6.1
	Non-conventioned	30.5	34.3	36.0	21.4

Source: IMA-AIM

Table 84 – Share in outpatient activity of active dentists (>500 outpatient contacts) by convention status, subdivided by region and socioeconomic status of the patient (2021)

		Conventioned	Partially conventioned	Non-conventioned
Belgium		26.3	19.9	53.8
Region	**Flanders**	16.6	20.7	62.7
	Wallonia	40.4	19.2	40.4
	Brussels	45.5	17.0	37.5
Socioeconomic status	**Increased reimbursement**	43.6	21.4	35.0
	No increased reimbursement	22.9	19.6	57.5

Source: IMA-AIM

Key points

- **A convention rate based on headcounts gives a biased assessment of the possibility to consult a conventioned dentist and the corresponding price transparency and price certainty, because (1) there is an important number of practitioners without real outpatient activity and these inactive practitioners are more likely to be conventioned, and (2) the convention rate can differ substantially by volume of activity. Therefore, an indicator of convention status weighted by volume of activity provides a more relevant perspective on access to outpatient dental care at the officially agreed tariffs.**
- **The share of activity by conventioned dentists has declined from 34.3% in 2012 to 26.3% in 2021, with a large decrease between 2015 and 2018. Hence, only 1 in 4 patient contacts was performed by a conventioned dentist. Activity by non-conventioned dentists has strongly increased and accounted for more than half of all patient contacts in 2021.**
- **Compared to the convention rates based on headcounts, i.e. 48.0% among all dentists in 2021 and 29.3% among active dentists, the convention rate based on outpatient activity further fell to 26.3%.**
- **The convention rate, weighted by activity, ranged in 2021 from as low as 1.1% for orthodontists, 1.9% for periodontists, 29.1% for general dentists, up to 72.5% for stomatologists. Over time the convention rates for orthodontists and periodontists have decreased up to a point that it becomes difficult if not impossible to find a conventioned orthodontist or periodontist. Also for general dentists, the activity share of conventioned dentists has decreased over time so that in 2021 almost half of the patient contacts was performed by non-conventioned practitioners, an increase of 60% compared to 2012.**
- **The convention rate of dentists, weighted by activity, was in 2021 substantially lower in Flanders (16.6%) than in Wallonia (40.4%) and in Brussels (45.5%). In Flanders, the number of contacts by non-conventioned dentists was almost 4 times the level of activity by conventioned dentists.**
- **Beneficiaries of increased reimbursement were twice as likely to consult a conventioned practitioner in 2021 (22.9% versus 43.6%). However, also in this vulnerable group, more than 1 in 3 contacts with dentists were performed by a non-conventioned practitioner.**

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1. Bouckaert N, Maertens de Noordhout C, Van de Voorde C. Health System Performance Assessment: how equitable is the Belgian health system? Health Services Research (HSR). Brussel: Belgian Health Care Knowledge Centre (KCE); 2020. KCE Reports 334 Available from: https://doi.org/10.57598/R334C
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7 ACCESSIBILITY – HEALTH WORKFORCE DISTRIBUTION

7.1 Practising physicians per 1000 population (A-10)

7.1.1 Documentation sheet

Description	Number of practising physicians per 1 000 population
Calculation	**Primary indicator:** • **Number of practising physicians per 1 000 population** Numerator : Number of practising physicians x 1 000 (end-of-year situation, 31/12) Denominator: End-of-year Belgian population (1st January t+1) **Secondary indicator:** • **Number of practising physicians, in FTE per 1000 population** Numerator: Number of full time equivalent (FTE) practising physicians x 1 000 (end-of-year situation, 31/12) Denominator: End-of-year Belgian population (1st January t+1) • **Number of practising physicians acceding to the agreement, in FTE per 1000 population** Numerator: Number of full time equivalent (FTE) practising physicians acceding to the agreement (conventionnés / geconventioneerde) x 1 000 (end-of-year situation, 31/12) Denominator: End-of-year Belgian population (1st January t+1) • **Number of professionally active physicians per 1000 population** Numerator: Number of professionally active physicians x 1 000 (end-of-year situation, 31/12) Denominator: End-of-year Belgian population (1st January t+1)
Rationale	The number of care providers gives important information on the medical workforce and thus the accessibility of healthcare. Together with the number of graduates, this information can be used for health providers supply planning.
Data source	Practising physicians: RIZIV–INAMI yearly statistics Professionally active physicians: Federal database of healthcare professionals (“Cadastre/Kadaster”), Federal Public Service Health, Food Chain Safety and Environment (FPS Public Health). PlanCad 2004-2016[1] and 2017-2021[2]. International comparison: OECD Health Statistics 2023
Technical definitions	To be aligned with international definitions, stomatologists are excluded from the calculations on the number of physicians (physicians in this technical sheet = OECD/WHO codes 1.1 to 1.8) and are rather included in the number of dentists (OECD/WHO code 3). Differences therefore

appear with some published RIZIV-INAMI numbers (see https://www.healthybelgium.be/en/medical-practice-variations/overall-context-of-practice-variations/healthcare-providers)

Practising physicians: Physicians are considered to be practising (RIZIV – INAMI: "profiles") if they provide more than 1 clinical service (i.e. consultations, visits, technical acts, but not prescriptions) during a given year. Physicians working as salaried in medical houses with a capitation payment system are added to those numbers. Physicians still in training are not counted. As mentioned above, it should also be noted that stomatologists are not included and can be found in A-12.

RIZIV – INAMI also calculates the number of full-time-equivalent (FTE) practising physician. Because information on their time of work is not available, FTE is calculated as the ratio between individual revenue (determined based on reimbursed RIZIV-INAMI expenditure) of a specialist compared to the P50 (median) revenue/RIZIV-INAMI expenditure of the same specialism between 45-55 years old (N.B. all results above 1 are limited to 1).

Professionally active physicians: concern physicians licensed to practice (i.e. with a visa/visum) that are registered as self-employed person into the National Institute for the Social Security of the Self-employed (NISSE) database or that are registered as salaried worker into the National Social Security Office (NSSO) database with at least 0.1 full time equivalent (FTE) per year. The threshold of 0.1 FTE per year has been established by the working group on physicians within the Planning Unit for the Supply of Healthcare Professions of the FPS Public Health.

For practising physicians, regional analysis is based on the contact address transmitted by the physician to the RIZIV-INAMI. Some of them transmitted the address of their office and others transmitted their personal address.

Limitations

For practising physicians:

- RIZIV-INAMI data published in this technical sheet slightly differ from OECD data because small corrections were done by RIZIV-INAMI after transmission of data to OECD. Differences were observed for the year 2016 for all specialties (see 'international comparability') and for GPs for the years 2012-2014/2016-2021. RIZIV-INAMI data are the correct ones.
- RIZIV-INAMI data also differ from data from the PlanCad project because of a different definition. In RIZIV-INAMI data, practising physicians must have provided more than 1 clinical service (at least two), based on the RIZIV-INAMI nomenclature while in the PlanCad project, practising physicians concern physicians registered as self-employed into the NISSE database and having provided a minimum level of services per year (at least 5% of the median amount reimbursed to self-employed physicians in the 45-54 age category, defined by medical (sub-)specialty, based on RIZIV-INAMI nomenclature, with some exceptions[t],) or registered as salaried worker into the NSSO database with at least 0.1 full time equivalent (FTE) per year and working for an active employer in the health sector. Because of a stricter threshold, data in the PlanCad projects are lower than in RIZIV-INAMI data. This also explain why the number of practising GPs presented in this technical sheet for example differ from data presented in S-19 (Projection of the number of GPs active in the healthcare sector).
- Because OECD data are based on RIZIV-INAMI data, most data presented in this technical sheet are based on RIZIV-INAMI data but the interested reader can find the details of the analyses based on the PlanCad project in Miermans P-J 2019[1] and Vivet V et al. 2023[2]

[t] For medical specialists in clinical genetics, the threshold of at least 2 RIZIV-INAMI services per year was used and for physicians without recognition (agreement), a threshold of €7 500 was used.

	• FTE are based on RIZIV-INAMI expenditure and not on the actual time of work and should therefore be interpreted with caution, especially for 2020 because the COVID-19 pandemic impacted the median income/reimbursed expenditure and therefore the resulting FTE estimates.
International comparability	OECD countries use different methodologies to calculate the same indicator (such as different minimal activity thresholds). Comparisons between countries are therefore potentially inadequate.[3] It should also be noted that for 2016, Belgian OECD data concerned the number of practicing physicians with at least one clinical service (instead of more than one).
Dimensions	Accessibility, Health workforce
Related indicators	Practising nurses (A-11), Medical graduates (S-4), Medical graduates becoming GP (S-5), Foreign-trained physicians (S-14), Physicians aged 55 years old and over (S-7), Projection of the number of contacts with GPs (s-18), Projection of the number of GPs active in the healthcare sector (S-19), Practising geriatricians (OLD-6), Practising Psychiatrists (MH-2)
Reviewers	Pascale Jonckheer, Antoine Khalil, Pascal Meeus

7.1.2 Results

Belgium

Based on RIZIV-INAMI data, there were 37 504 practising physicians in 2021 in Belgium, corresponding to a density of 3.2 per 1000 population. This number increased over time from 32 180 in 2011 (2.9 per 1000 population) to 37 504 in 2021 (3.2 per 1000 population, +11.0%, see Table 85). Expressed in FTE, it increased from 2.0 per 1000 population in 2011 to 2.2 per 1000 population in 2021 (+9.3%). The share of FTE physicians acceding to the agreement (convention rate) slightly increased from 76.9% in 2012 to 78.9% in 2021 (2011 data not available).

Based on data from the PlanCad, the density of professionally active physicians increased from 3.4 per 1000 population in 2016 to 3.6 per 1000 population in 2021 (see Table 85).

Data presented in the next sections are based on RIZIV-INAMI data but the interested reader can find details of the analyses based on the PlanCad project in Miermans P-J 2019[1] and Vivet V et al. 2023.[2]

Analyses by demographic characteristics

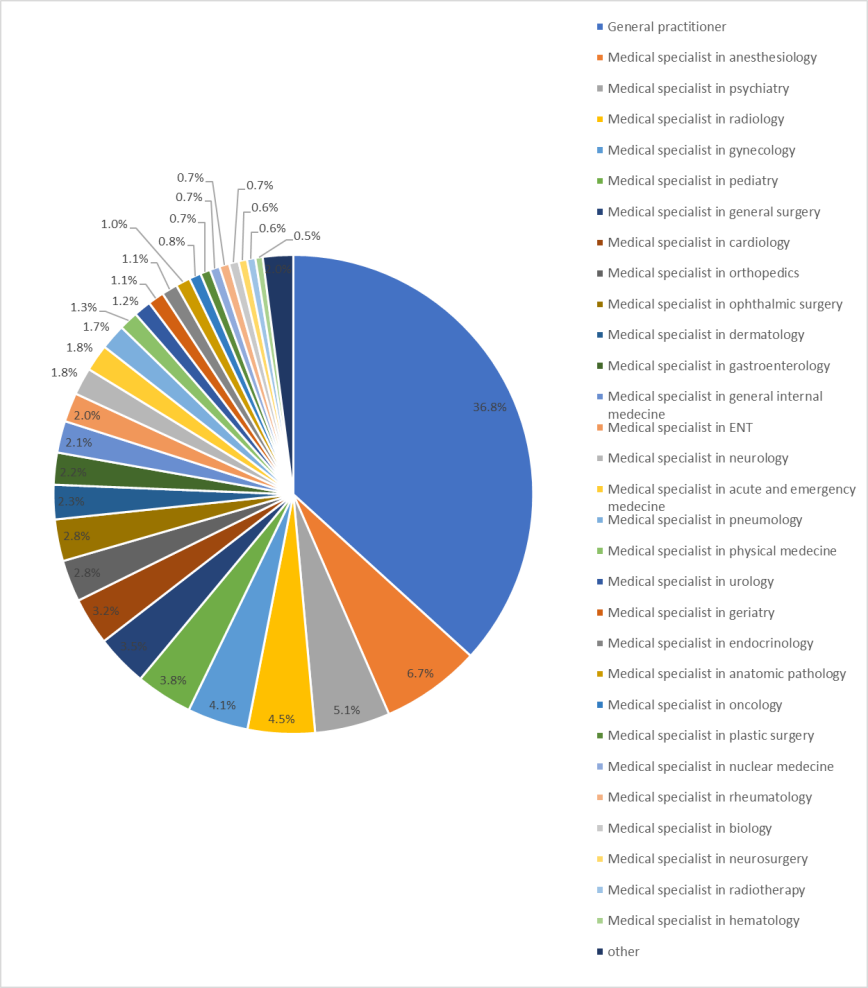
Analyses by age category or by country of origin can be found in indicators S-7 (practising physicians aged 55 years old and over) and S-14 (Foreign trained physicians).

Table 85 – Number of physicians and density per 1000 population, by categories (professionally active, practising, and practising acceding to the agreement), 2011-2021

		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Professionally active physicians*	Number						38 056	38 654	39 365	40 119	40 942	41 761
	Density**						3.4	3.4	3.4	3.5	3.6	3.6
Practising physicians	Number	32 180	32 578	32 998	33 352	34 020	34 484	35 042	35 721	36 272	36 989	37 504
	Density**	2.9	2.9	3.0	3.0	3.0	3.0	3.1	3.1	3.2	3.2	3.2
Practising physicians (in FTE)	Number	22 202.9	22 494.8	22 734.1	23 011.0	23 438.8	23 728.3	24 175.9	24 572.6	24 791.5	24 919.5	25 461.8
	Density**	2.0	2.0	2.0	2.1	2.1	2.1	2.1	2.1	2.2	2.2	2.2
Practising physicians acceding to the agreement (in FTE)	Number		17 305.9	17 472.7	17 764.9	18 175.9	18 442.0	18 765.3	19 074.5	19 239.1	19 601.8	20 091.1
	Density**		1.6	1.6	1.6	1.6	1.6	1.6	1.7	1.7	1.7	1.7

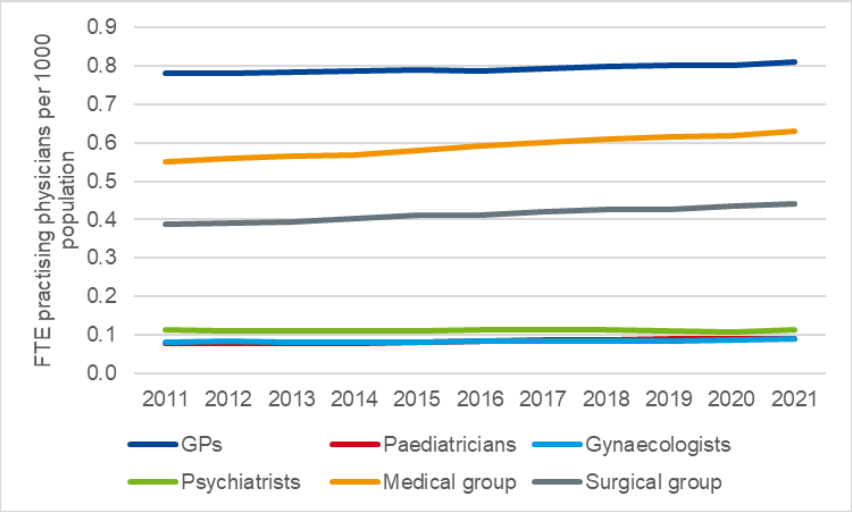
*Source: RIZIV-INAMI data, except for professionally active physicians (*PlanCad 2004-2016 and PlanCad 2017-2021). Because different sources are used (and different definitions), comparisons should be used with caution; **Number per 1000 population*

Figure 103 – Distribution of practising physicians (head count, 2021)



Source: RIZIV-INAMI data, KCE calculations

Figure 104 – Density of FTE practising physicians, by speciality, 2011-2021



Source: RIZIV-INAMI data, KCE calculations

Table 86 – Density of practising physicians (per 100 000 population), by province and medical specialty, 2021

	Antwerp	Flemish Brabant	Walloon Brabant	West Flanders	East Flanders	Hainaut	Liège	Limburg	Luxem-bourg	Namur	Brussels	Belgium
General practitioner	77.6	84.7	84.8	85.9	85.8	74.1	84.3	90.7	74.4	89.3	64.5	80.8
Medical specialist in pediatry	7.0	12.9	16.3	6.2	7.4	6.2	10.8	3.8	4.9	9.4	11.4	8.4
Medical specialist in gynaecology	8.0	12.6	15.0	7.1	7.9	8.3	10.2	7.1	7.8	8.0	10.5	9.0
Medical specialist in psychiatry	9.7	14.4	18.1	8.1	9.3	7.3	13.0	10.0	4.2	10.1	18.9	11.2
Medical specialist in general internal medicine	3.7	6.6	13.3	2.4	3.6	4.0	4.6	2.6	1.9	6.6	7.6	4.7
Medical specialist in geriatrics	2.2	2.8	2.9	3.1	2.6	2.1	2.0	2.9	2.2	1.8	1.7	2.4
Medical specialist in endocrinology	2.0	3.4	2.6	1.4	2.4	2.1	3.2	2.0	1.6	2.4	2.6	2.3
Medical specialist in oncology	1.4	2.5	2.5	1.9	1.8	1.3	1.9	1.2	1.0	2.4	2.2	1.8
Medical specialist in haematology	1.1	1.9	1.3	0.8	0.9	0.8	1.1	0.8	1.0	1.3	1.1	1.1
Medical specialist in rheumatology	0.9	1.5	2.5	1.2	1.8	1.2	1.7	1.8	0.6	2.1	1.5	1.5
Medical specialist in pneumology	3.2	5.5	5.2	3.0	4.1	2.9	4.3	3.7	2.1	5.3	3.3	3.8
Medical specialist in gastroenterology	4.3	6.5	9.1	4.6	4.6	3.1	5.3	4.1	2.1	5.4	4.6	4.7
Medical specialist in cardiology	6.5	10.0	13.7	5.1	6.5	3.8	8.9	5.7	4.6	8.3	8.2	7.0
Medical specialist in neurology	3.8	4.7	7.4	4.1	3.6	3.2	4.1	3.8	2.6	4.1	4.7	4.1
Medical specialist in physical medicine	2.7	2.6	4.5	3.8	3.5	1.9	4.6	2.2	0.8	2.1	1.6	2.8
Medical specialist in dermatology	4.0	8.1	9.4	3.7	5.4	3.2	5.9	5.0	1.6	4.4	5.8	5.1
Medical specialist in ENT	4.0	5.2	8.1	3.8	3.7	3.0	5.3	3.4	3.6	6.0	4.6	4.3
Medical specialist in radiotherapy	1.4	1.6	1.5	1.4	1.4	1.0	0.9	0.9	0.2	2.5	0.7	1.2
Medical specialist in nuclear medicine	1.1	2.4	2.4	1.2	1.5	0.8	2.1	1.2	0.9	1.7	1.4	1.5
Medical specialist in biology	1.2	1.6	2.6	1.4	1.7	0.9	0.9	1.8	0.6	2.0	1.6	1.4
Medical specialist in anatomic pathology	2.0	3.1	3.5	2.1	2.6	1.5	2.3	1.8	0.6	1.3	1.9	2.1
Medical specialist in radiology	8.5	15.3	20.2	9.5	9.0	6.2	11.8	8.4	6.7	10.5	9.3	9.9
Medical specialist in clinical genetics	0.3	1.0	0.4	0.0	0.4	0.1	0.2	0.0	0.3	0.0	0.3	0.3
Medical specialist in anaesthesiology	14.3	19.3	24.4	16.9	16.6	8.2	17.4	12.2	6.9	15.4	11.5	14.7
Medical specialist in acute and emergency medicine	3.9	5.3	8.3	2.7	2.9	3.5	5.6	2.3	3.1	4.5	4.5	4.0

Medical specialist in general surgery	7.8	12.4	11.0	5.4	8.0	5.4	8.3	6.1	4.6	9.4	6.7	7.7
Medical specialist in orthopaedics	6.7	8.3	10.2	7.2	6.8	4.6	4.5	5.9	4.6	7.4	3.8	6.2
Medical specialist in urology	2.5	3.1	3.5	3.2	3.0	1.8	2.7	2.9	0.7	2.3	1.8	2.6
Medical specialist in neurosurgery	1.4	1.8	0.9	1.2	1.4	0.8	1.4	1.5	0.2	1.6	0.7	1.3
Medical specialist in plastic surgery	1.3	1.9	3.5	1.2	2.0	1.0	1.6	0.6	0.7	1.5	1.5	1.5
Medical specialist in ophthalmic surgery	6.1	8.4	9.4	5.8	5.7	3.6	7.1	6.2	4.0	6.1	6.7	6.2
Medical specialist in neuropediatric*	*0.5*	*1.3*	*0.9*	*0.3*	*0.4*	*0.3*	*0.8*	*0.3*	*0.0*	*0.6*	*0.5*	*0.5*
Medical specialist in neuropsychiatry*	0.2	0.3	1.0	0.1	0.3	0.2	0.1	0.0	0.0	0.1	0.1	0.2
Medical specialist in internal and nuclear medicine*	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0
Medical specialist in rheumatology and physical medicine*	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Medical specialist in nuclear radiotherapy*	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.0	0.0
Medical specialist in biology and nuclear medicine*	0.7	1.1	1.4	0.6	1.6	0.5	1.1	0.5	0.3	0.0	0.9	0.9
Medical specialist in biology and anatomic pathology*	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
No specialisation - GP	0.6	0.8	2.5	0.0	0.7	1.0	0.9	0.5	0.7	0.3	1.4	0.8
No specialisation	1.5	1.8	2.7	0.5	1.6	0.7	2.5	1.5	0.4	0.4	4.4	1.7

*Source: RIZIV – INAMI data, KCE calculations; *Old specialty or mixed specialties, explaining the low density. Densities for each province was compared to Belgian density: red cells = -40%, orange: -20%; light green = +20%, dark green = +40%. No colour was added for specialties with a density below 1 per 100 000 population.*

Analyses by medical specialty and by province/region

In 2021, the three specialities among physicians with the highest density (expressed in FTE per 1000 population) are GPs (8.08 FTE per 1000 population), anaesthesiologists (1.47 FTE per 1000 population) and psychiatrists (1.12 FTE per 1000 population) (see Table 86[u], Figure 103 and Figure 104). A convention rate inferior to 50% was observed for dermatologists (21.1%), medical specialists in ophthalmic surgery (28.4%), medical specialists in plastic surgery (30.6%), gynaecologists (41.9%), and orthopaedists (42.6%) (see Table 87 and Table 88).

Table 87 – Share of practising physicians acceding to the agreement (conventioned physicians), 2021

	Practising physicians	Practising physicians in FTE	Practising physicians acceding to the agreement in FTE (Conventioned)	% Conventioned
GPs	13837	9361.8	8322.4	88.9%
Paediatricians	1631	1038.6	881.3	84.9%
Gynaecologists	1566	1046.2	438.6	41.9%
Psychiatrists	2011	1316.4	1187.3	90.2%
Medical group[v]	10595	7302.9	5433.3	74.4%
Surgical group[w]	7353	5106.9	3585.5	70.2%
Non specialised	511	289.0	242.6	84.0%

Source: RIZIV – INAMI data, KCE calculations

In head count, the number of practising physicians per 1000 population is lower in the Flemish region than in Brussels (>20%) and Wallonia (<20%). Expressed in FTE, it is Brussels that has the lowest density (see Table 89, and Figure 105) while the density of FTE practising physicians acceding to the agreement was higher in Wallonia.

Expressed in FTE, the density of practising physicians varied between provinces and medical specialties. A density 40% lower than the Belgian density (in red in Table 86) was observed for several medical specialities in the province of Luxemburg but also, in a lesser extent, in Hainaut, Limburg, and West-Flanders. On the contrary, in the Walloon Brabant and the Flemish Brabant, densities by medical specialty were generally higher (in green) than the Belgian densities. It should nevertheless be noted that a part of these analyses is based on the address of the physician's home and not based on the place of practice, which could explain the higher density in the Walloon Brabant and the Flemish Brabant.

Variations per district can be shown in Figure 106 to Figure 112 (for all FTE practising physicians, GPs, paediatricians, gynaecologists, psychiatrists, and physicians of the medical and surgical groups).

[u] Expressed per 100 000 population in this table to allow for more details

[v] Medical groups are physocians who specialise in the diagnosis and non-surgical treatment of physical disorders and diseases and includes for example medical specialists in Internal medicine in cardiology, endocrinology, gastroenterology, oncology, rheumatology, neurology, ENT, radiology, dermatology, etc. (excluding GPs, paediatricians, gynecologists, and psychiatrics, and surgeons).

[w] Surgical group are physicians who specialise in the use of surgical techniques to treat disorders and diseases and includes for example medical specialists in general surgery, in neurological surgery, in plastic surgery, in orthopaedics, in ophthalmology, in urology, in nephrology, in - General surgery - Neurological surgery - Plastic surgery - Orthopaedics - Ophthalmology - Urology, nephrology - Other types of surgery anaesthesiology, and in other types of surgery

Table 88 – Convention rate (Number of FTE practising physician who totally or partially acceded to the agreement in 2021/FTE practising physicians)

	Antwerp	Flemish Brabant	Walloon Brabant	West Flanders	East Flanders	Hainaut	Liège	Limburg	Luxem-bourg	Namur	Brussels	Belgium
General practitioner	85.0%	88.7%	73.3%	95.5%	94.2%	83.9%	90.7%	98.2%	81.7%	95.0%	78.9%	88.9%
Medical specialist in paediatrics	97.0%	79.8%	69.3%	92.5%	75.7%	91.1%	87.0%	95.6%	96.0%	84.7%	76.0%	84.2%
Medical specialist in gynaecology	30.5%	43.8%	43.5%	21.5%	31.0%	75.3%	34.0%	50.3%	4.3%	58.0%	51.7%	41.9%
Medical specialist in psychiatry	91.6%	93.2%	84.4%	98.4%	94.1%	93.3%	90.0%	82.9%	99.5%	86.9%	86.8%	90.6%
Medical specialist in general internal medicine	99.0%	98.9%	98.1%	100.0%	97.5%	99.9%	99.2%	100.0%	100.0%	99.9%	98.5%	98.9%
Medical specialist in geriatric	100.0%	93.8%	96.1%	100.0%	100.0%	100.0%	98.5%	100.0%	100.0%	100.0%	100.0%	99.0%
Medical specialist in endocrinology	99.6%	99.6%	74.2%	100.0%	99.8%	100.0%	91.9%	94.3%	100.0%	100.0%	87.5%	96.0%
Medical specialist in oncology	100.0%	100.0%	99.7%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	81.9%	97.6%
Medical specialist in haematology	100.0%	100.0%	100.0%	90.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	96.7%	98.8%
Medical specialist in rheumatology	82.6%	60.9%	81.8%	67.9%	72.6%	81.4%	88.7%	29.3%	100.0%	75.8%	80.2%	72.5%
Medical specialist in pneumology	95.0%	95.1%	79.1%	100.0%	81.2%	97.5%	95.8%	100.0%	73.0%	92.4%	80.6%	91.6%
Medical specialist in gastroenterology	78.9%	71.3%	71.5%	83.0%	55.3%	99.3%	77.7%	94.3%	100.0%	96.1%	75.7%	77.9%
Medical specialist in cardiology	68.5%	64.0%	80.3%	51.8%	44.9%	93.3%	85.0%	54.6%	77.2%	90.8%	75.0%	69.3%
Medical specialist in neurology	96.7%	92.7%	72.5%	95.5%	95.4%	94.1%	82.2%	87.0%	73.7%	91.3%	86.3%	90.2%
Medical specialist in physical medicine	63.5%	63.8%	68.2%	29.2%	26.9%	100.0%	80.3%	70.5%	100.0%	92.0%	81.4%	61.1%
Medical specialist in dermatology	12.5%	16.8%	26.2%	10.7%	18.7%	40.5%	22.9%	2.3%	43.0%	36.6%	35.1%	21.1%
Medical specialist in ENT	59.3%	69.9%	55.1%	61.9%	48.4%	75.4%	73.9%	82.9%	53.0%	81.8%	50.7%	64.0%
Medical specialist in radiotherapy	94.9%	85.3%	83.4%	100.0%	100.0%	100.0%	90.0%	99.8%	100.0%	100.0%	53.9%	93.0%
Medical specialist in nuclear medicine	100.0%	89.2%	100.0%	100.0%	100.0%	91.0%	100.0%	73.1%	100.0%	88.2%	88.6%	94.3%
Medical specialist in biology	95.7%	97.0%	90.8%	100.0%	88.7%	91.4%	99.6%	81.4%	100.0%	100.0%	100.0%	94.2%
Medical specialist in anatomic pathology	83.8%	88.8%	85.9%	92.7%	90.2%	95.8%	100.0%	76.0%	100.0%	100.0%	91.3%	90.1%
Medical specialist in radiology	19.0%	50.4%	63.6%	39.5%	25.5%	98.4%	93.5%	45.4%	96.7%	94.0%	73.2%	56.0%
Medical specialist in anaesthesiology	97.8%	97.2%	88.9%	93.8%	87.9%	98.4%	94.3%	100.0%	100.0%	98.4%	92.8%	94.7%

Medical specialist in acute and emergency medicine	100.0%	100.0%	100.0%	96.9%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	99.8%
Medical specialist in general surgery	77.5%	84.4%	68.8%	65.1%	64.0%	97.3%	81.6%	54.1%	97.3%	98.6%	77.6%	77.4%
Medical specialist in orthopaedics	32.9%	36.9%	44.9%	23.8%	21.0%	84.2%	58.4%	43.6%	89.4%	76.5%	49.0%	42.6%
Medical specialist in urology	44.3%	61.3%	44.9%	63.0%	34.7%	91.8%	55.7%	40.8%	50.5%	92.6%	66.5%	55.6%
Medical specialist in neurosurgery	50.3%	76.0%	52.7%	48.6%	28.7%	85.7%	75.5%	100.0%	100.0%	75.7%	82.4%	64.2%
Medical specialist in plastic surgery	10.4%	37.5%	44.3%	14.0%	11.0%	63.8%	32.9%	30.8%	0.0%	81.3%	42.2%	30.6%
Medical specialist in ophthalmic surgery	21.8%	24.4%	19.0%	23.4%	17.2%	48.1%	44.1%	18.7%	0.0%	32.8%	45.1%	28.4%

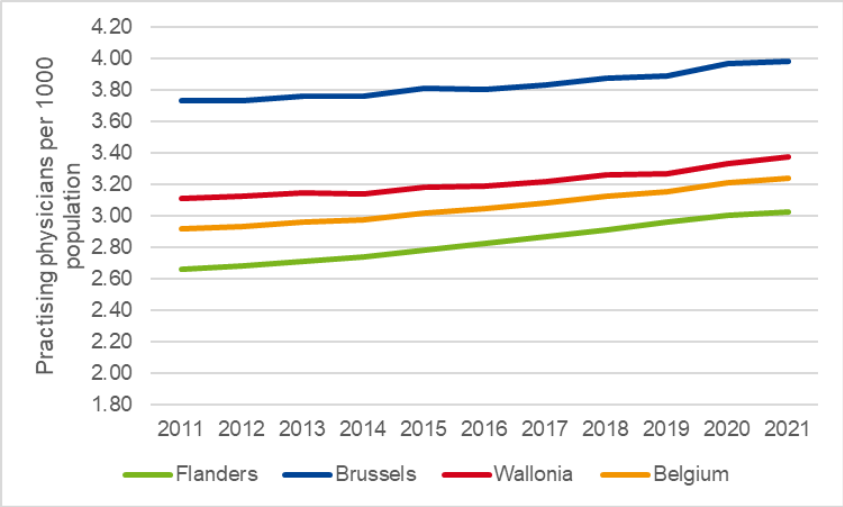
Source: RIZIV – INAMI data, KCE calculations

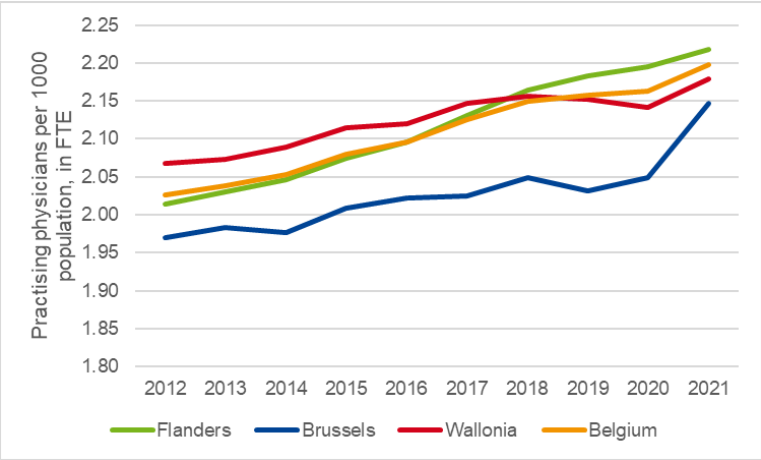
Table 89 – Density of practising physicians per 1000 population, by region, evolution 2011-2022

		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Practising physicians	Flanders	2.66	2.68	2.71	2.74	2.78	2.83	2.87	2.91	2.96	3.00	3.03
	Brussels	3.73	3.74	3.76	3.76	3.81	3.80	3.84	3.88	3.89	3.97	3.99
	Wallonia	3.11	3.13	3.14	3.14	3.18	3.19	3.22	3.26	3.27	3.34	3.37
Practising physicians (in FTE)	Flanders	1.99	2.01	2.03	2.05	2.07	2.10	2.13	2.16	2.18	2.20	2.22
	Brussels	1.97	1.97	1.98	1.98	2.01	2.02	2.02	2.05	2.03	2.05	2.15
	Wallonia	2.06	2.07	2.07	2.09	2.11	2.12	2.15	2.16	2.15	2.14	2.18
Practising physicians acceding to the agreement (in FTE)	Flanders		1.55	1.56	1.57	1.60	1.62	1.63	1.66	1.67	1.69	1.71
	Brussels		1.36	1.39	1.40	1.44	1.46	1.49	1.52	1.52	1.56	1.65
	Wallonia		1.63	1.65	1.67	1.70	1.71	1.73	1.74	1.74	1.77	1.81

Source: RIZIV – INAMI data, KCE calculations

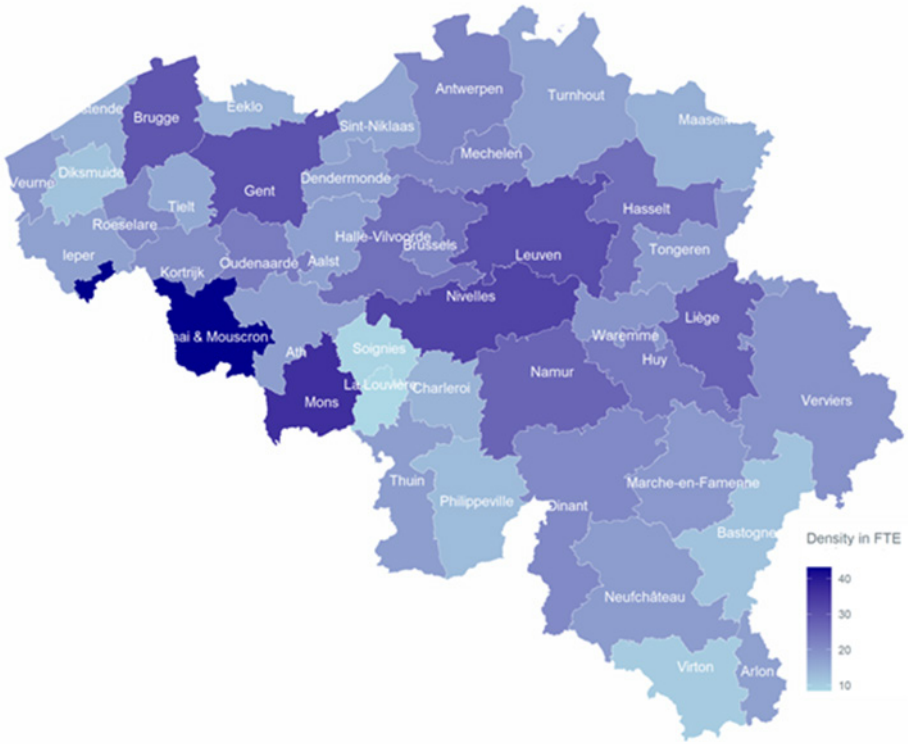
Figure 105 – Density of practising physicians (in head count and in FTE), per 1000 population, by region, evolution 2011-2021





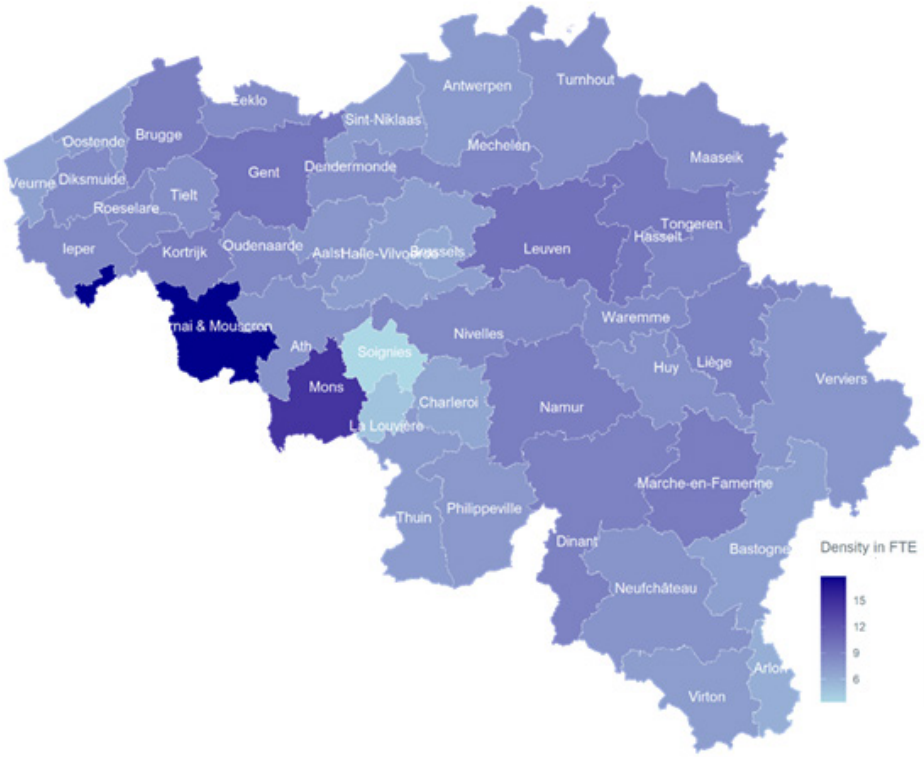
Source: RIZIV – INAMI data, KCE calculations

Figure 106 – Distribution of FTE practising physicians per 100 000 population, by district, 2021



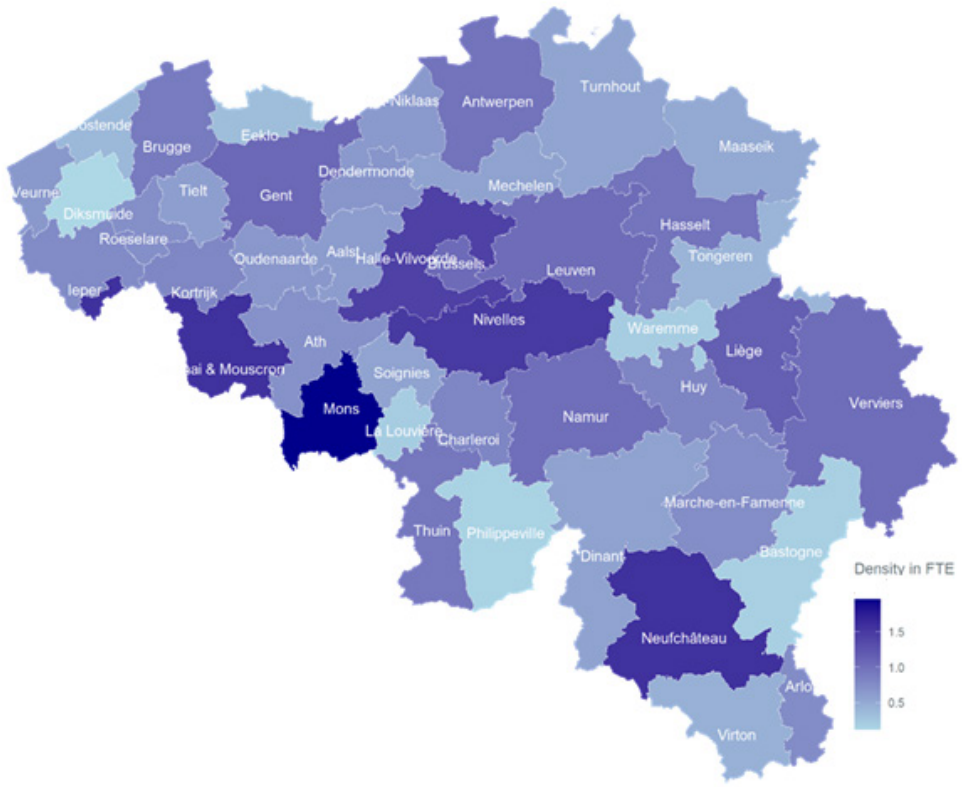
Source: RIZIV – INAMI data, KCE calculations

Figure 107 – Distribution of FTE practising GPs per 100 000 population, by district, 2021



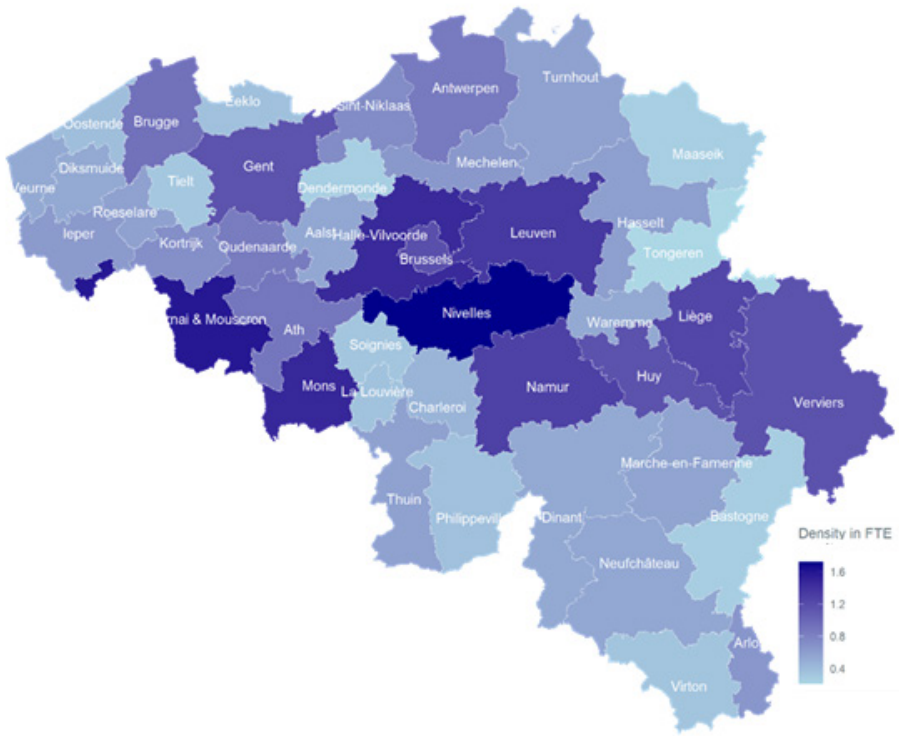
Source: RIZIV – INAMI data, KCE calculations

Figure 108 – Distribution of FTE practising gynaecologists per 100 000 population, by district, 2021



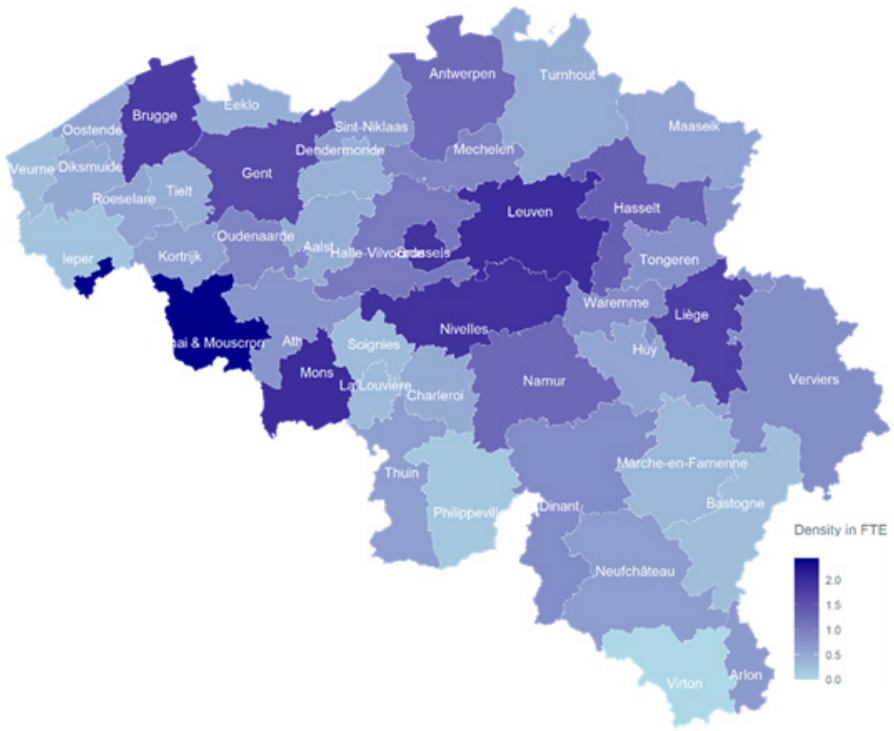
Source: RIZIV – INAMI data, KCE calculations

Figure 109 – Distribution of FTE practising paediatricians per 100 000 population, by district, 2021



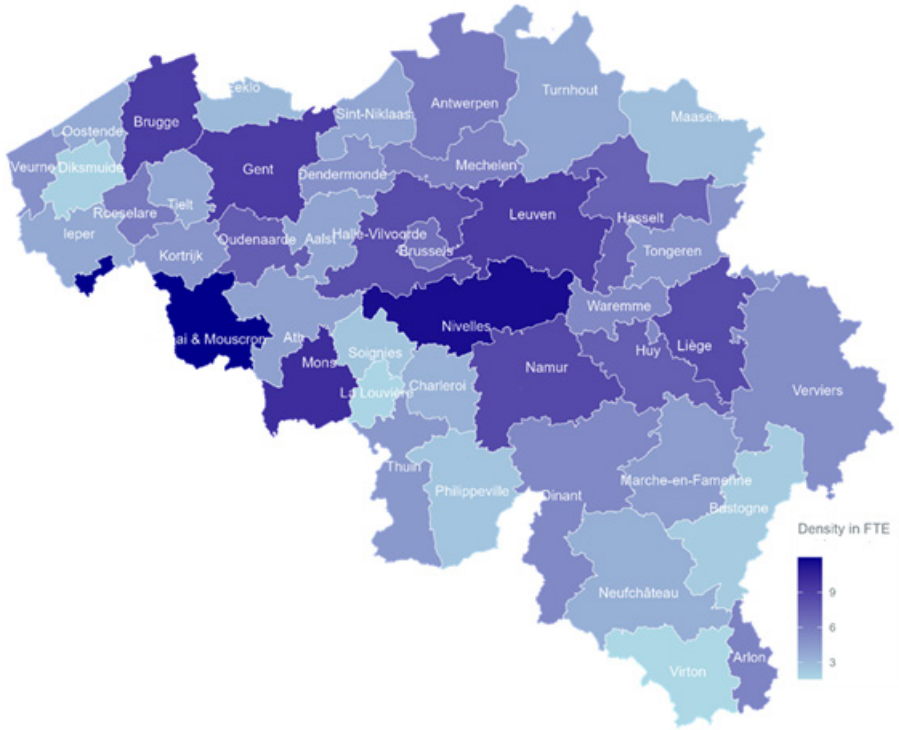
Source: RIZIV – INAMI data, KCE calculations

Figure 110 – Distribution of FTE practising medical specialists in psychiatrics per 100 000 population, by district, 2021



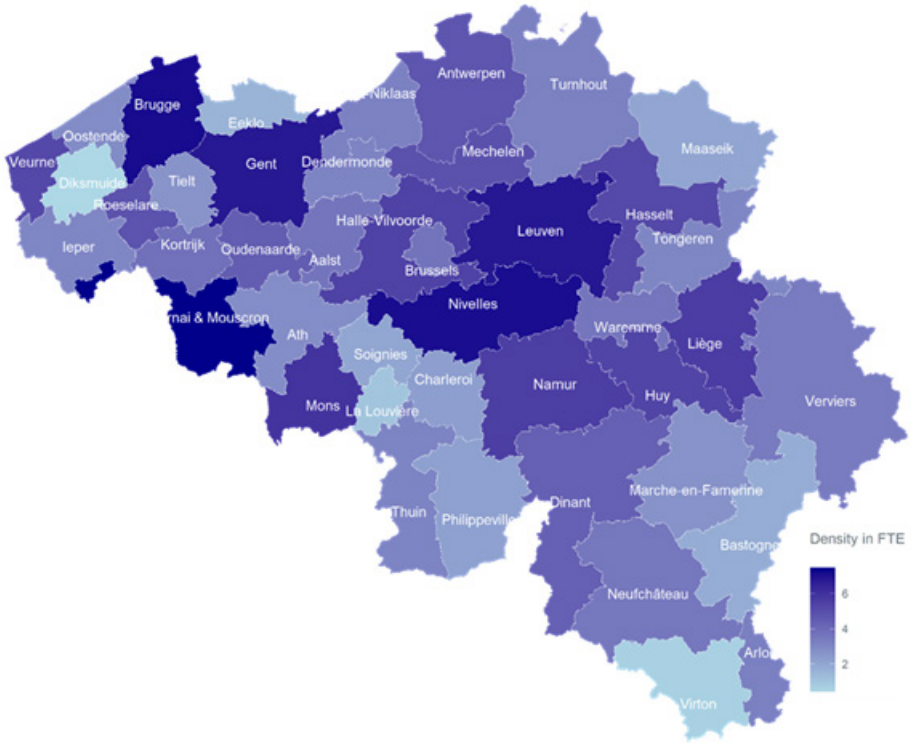
Source: RIZIV – INAMI data, KCE calculations

Figure 111 – Distribution of FTE practising medical specialists of the medical group per 100 000 population, by district, 2021



Source: RIZIV – INAMI data, KCE calculations

Figure 112 – Distribution of FTE practising medical specialists of the surgical group per 100 000 population, by district, 2021



Source: RIZIV – INAMI data, KCE calculations

International comparison

Based on the countries that report data on practising physicians to the OECD, Belgium has a lower number of practising physicians per 1 000 population than the EU averages (3.21 vs 4.03 (EU-14) and 3.84 (EU-27) in 2021, see Table 90 and Figure 113). Since 2010, the EU average of the number of practising physicians per 1 000 population has increased over the time (+13.6% for the EU-14 and +16.3% for the EU-27) while the growth rate is relatively lower in Belgium (+9.9%). It is nevertheless important to note that the definition of practising physicians varied across countries and that in some countries, it corresponded to the number of physicians licensed to practice.

Impact of the COVID -19 pandemic

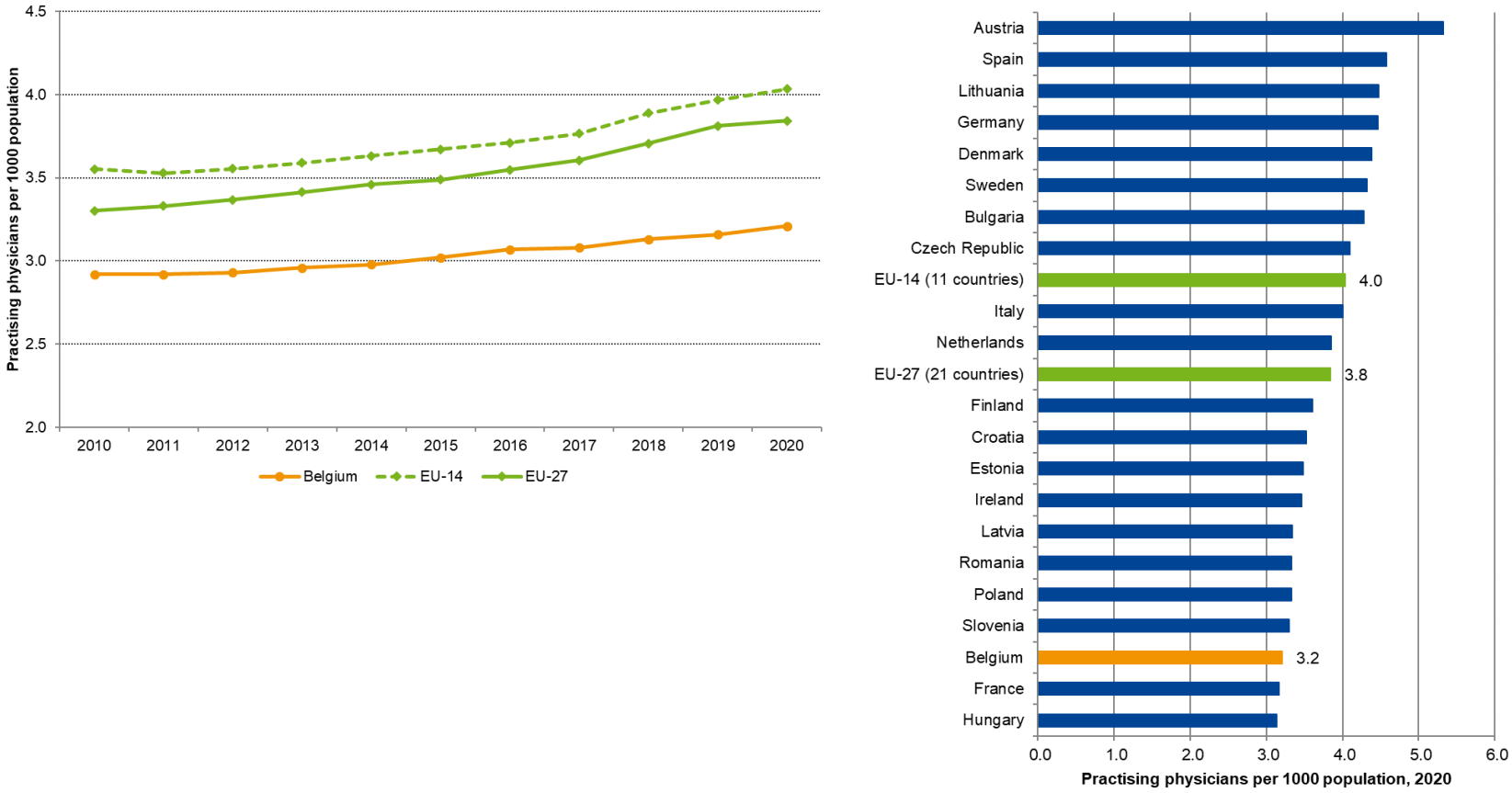
In head count, a percentage increase of 1.7% in the number of practising physicians per 1000 population can be observed between 2019 and 2020, while the average annual growth rate between 2010 and 2019 was 0.99%. In FTE, an important increase was observed between 2020 and 2021 in Brussels (+4.8%), while the average annual growth rate between 2010 and 2019 in Brussels was 0.4%. These analyses are nevertheless not sufficient to determine if this is linked to the COVID-19 pandemic. The impact of the COVID-19 pandemic on the calculation of FTE (see the limitations in the documentations sheet) could in part explain these differences.

Table 90 – Number of practising physicians per 1 000 population (2010-2021)

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Belgium	2.92	2.92	2.93	2.96	2.98	3.02	3.07	3.08	3.13	3.16	3.21
EU-14	3.55	3.53	3.55	3.59	3.63	3.67	3.71	3.77	3.89	3.97	4.03
EU-27	3.30	3.33	3.37	3.41	3.46	3.49	3.55	3.60	3.71	3.81	3.84

Source: OECD Health Statistics 2023

Figure 113 – Number of practising physicians per 1000 population: international comparison (2010-2020)



Source: OECD Health Statistics 2023

Key points

- **In 2021, there were 41 761 professionally active physicians (3.6 per 1000 population), 37 504 practising physicians (3.2 per 1000 population, +11% since 2011), and 25 461.8 FTE practising physicians (2.2 per 1000 population, +9.3% since 2011).**
- **The proportion of physicians who fully or partially acceded to the agreement (conventioned physicians, in FTE) was quite stable (78.9% in 2021). However, by medical specialty, this proportion was lower than 50% in 2021 for dermatologists (21.1%), ophthalmologic surgeons (28.4%), plastic surgeons (30.6%), gynaecologists (41.9%), and orthopaedists (42.6%).**
- **In head count, the number of practising physicians per 1000 population is lower in Flanders than in Brussels (difference ≥20%) and Wallonia (difference <20%), but when expressed in FTE, Brussels has the lowest density.**
- **Disparities between provinces can be highlighted. For a number of medical specialties, densities (expressed in FTE) lower than the Belgian density (difference ≥20% and even 40%) were mainly observed in the province of Luxembourg and, to a lesser extent, in Hainaut, Limburg, and West Flanders. Conversely, the highest densities were generally observed in Walloon Brabant and Flemish Brabant.**
- **The lower density in Brussels (in FTE) and the higher densities in Walloon Brabant and Flemish Brabant can be explained by the fact that the analysis is based on the address of contact, which mainly corresponded to the physicians' home address rather than its place of practice. This is therefore not a warning signal.**
- **Belgium has a lower density of practising physicians per 1000 population than the EU averages (3.2 compared to 4.0 and 3.8 per 1000 population in 2020 for the EU-14 and the EU-27 averages respectively). The increase between 2010 and 2021 was also lower in Belgium than the EU averages (+9.9% compared to +13.6% and +16.3% for the EU-14 and the EU-27 averages respectively). However, it is important to note that the definition of practising physicians varied between countries and that in some countries, it corresponded to the number of physicians licensed to practice.**

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7.2 Practising nurses per 1 000 population (A-11)

7.2.1 Documentation sheet

Description	**Principal indicator:** Practising nurses per 1 000 population **Secondary indicators:** Licensed to practice (LTP) and professionally active nurses per 1000 population
Calculation	**Principal indicator:** • Numerator : Number of practising nurses (active in the health sector) x 1000 (end-of-year situation, 31/12) • Denominator: Total end of year Belgian population (1st January t+1) **Secondary indicators:** • Numerator : Number of nurses licensed to practise / professionally active on the labour market x 1000 (end-of-year situation, 31/12) • Denominator: Total end of year Belgian population (1st January t+1)
Technical definition	**Principal indicator:** Practising nurses are defined as those active in the health sector. • A nurse is considered as active in the health sector when he/she is registered as self-employed into National Institute for the Social Security of the Self-employed (NISSE) database and had provided a minimum level of services per year (at least 10% of the activity level of a full time self-employed, i.e. 817 services in 2018 based on RIZIV-INAMI nomenclature) or when she/he is registered as salaried worker into National Social Security Office (NSSO) database with at least 0.1 full time equivalent (FTE) per year and is working for an active employer in the health sector.[1] **Secondary indicators:** • A licensed to practice nurse (LTP) is defined as nurses who have obtained a recognised qualification in nursing in the cadastre database (see also the differences according to the "data sources" in the section below). • A nurse is considered as professionally active when he/she is registered as self-employed person into NISSE database or when he/she is registered as salaried worker into NSSO database with at least 0.1 full time equivalent (FTE) per year. The threshold of 0.1 FTE per year has been established by the working group on nurses within the Planning Unit for the Supply of Healthcare Professions of the FPS Public Health.[1] Full-time equivalent (FTE) estimates were calculated as followed: • For employees, FTE estimates were provided by the Datawarehouse on Labour Markets and Social Protection using the annual activity rate and the activity rate provided in a healthcare sector during the last quarter of the year. • For the self-employed nurses, FTE estimates were based on the number of RIZIV-INAMI nursing services provided during the year. For 2018, the activity of a full-time self-employed nurse was considered equivalent to 8 170 RIZIV-INAMI services on an annual basis and a reimbursed amount of €75 781 (corresponding to the medians observed for the self-employed age group 45-54, based on the RIZIV-INAMI nomenclature). The resulting FTE was the mean of both computations.
Rationale	Nurses play a critical role in providing healthcare in hospitals and long-term care institutions, but also in primary care and in the home care setting. In addition, they are in most countries the largest group of healthcare professionals. Monitoring the number of practising nurses per 1000 population is therefore important in light of the accessibility and sustainability of the healthcare system. These are essential figures for workforce planning.[2]

Data source	Data source: OECD Health Statistics 2021[3]; In this OECD database: ● The number of nurses licensed to practice is based on the number of nurses who had completed a programme of nursing education (number of "diploma") in the Federal database of healthcare professionals ("Cadastre/Kadaster"), Federal Public Service Health, Food Chain Safety and Environment (FPS Public Health). The value for 2022 came from health workforce (HWF) annual statistics of the FPS Public Health.[4] ● The number of professionally active nurses on the labour market is based on the PlanCad for nurses: ○ 2010-2015 data have been estimated by using the average share for the period 2004-2009 of professionally active nurses among all nurses licensed to practice from the PlanCad for nurses 2004-2009 published in 2014 (i.e. 79.15%)[5]; ○ 2016 data comes from the PlanCad for nurses 2016 published in 2018[6]; 2017 data comes from the PlanCad for nurses 2017 published in 2019[7], 2018 data comes from the PlanCad for nurses 2004-2018 published in 2021.[1] ○ 2019-2022 data have been estimated by the share of professionally active nurses (70.68%), practising nurses (60.09%), and FTE practising nurses (51.07%) among all nurses licensed to practice in 2018 published in the PlanCad for nurses 2004-2018[1], KCE calculation ● The number of practising nurses is based on the PlanCad for nurse. ○ 2010-2015 data have been estimated by using the 2009 share of practising nurses among all professionally active nurses from the PlanCad for nurses 2004-2009 published in 2014 (i.e. 79.15%)[5]; ○ 2016 data comes from the PlanCad for nurses 2016 published in 2018[6]; 2017 data comes from the PlanCad for nurses 2017 published in 2019[7], 2018 data comes from the PlanCad for nurses 2004-2018 published in 2021[1] ○ 2019-2022 data have been estimated by the share of professionally active nurses (70.68%), practising nurses (60.09%), and FTE practising nurses (51.07%) among all nurses licensed to practice in 2018 published in the PlanCad for nurses 2004-2018[1], KCE calculation Estimates in full-time equivalent (FTE) are based on data from the PlanCad for nurses 2004-2018 published in 2021.[1] It should be noted that data from the PlanCad slightly differ from the other workforce statistics because of another extraction period and a larger selection (people with a diploma in midwifery who are registered as a nurse are included in the PlanCad).
Limitations	The number of professionally active nurses and practising nurses in 2010-2015 and 2019-2022 are based on estimates (see data sources). Practising nurses does not necessarily work as nurses (e.g. nurses who have switched to an administrative job in a hospital or a management position are also counted)
International comparability	The differences in inclusion and exclusion criteria between countries make international comparison of these data hazardous. Austria and Greece for example report only nurses working in hospital, resulting in an under-estimation. As stated above, in OECD health statistics[2] for Belgium, the 2010-2015 data on professionally active nurses and nurses practising in the health system are based on estimates.
Dimension	Accessibility (health workforce)

Related indicators	Practising physicians (A-10), nursing graduates (S-8), nurses following the bachelor routes (S-9); nurses aged 50 years old and over (S-10), foreign-trained nurses (S-16), projection of the number of nurses active in the healthcare sector (S-22); healthcare professionals who consider leaving the profession (R-1), hospital bed closures due to staff absenteeism or force majeure (R-2), nurses vacancies in hospitals (R-3)
Reviewers	Van den Heede Koen, Mahieu Timothée

7.2.2 Results

Belgium

Based on OECD health statistics, in 2018[x], there were 210 507 nurses licensed to practise, 148 782 nurses professionally active on the labour market, and 126 496 practising nurses (107 515 in FTE, based on the PlanCad for nurses 2004-2018[1]) (see Table 91). Figure 114 shows that the increase in the density of nurses per 1000 population is more important for nurses licensed to practice than for professionally active nurses or practising nurses (+22%, +9%, and +15% (+12% in FTE)) respectively between 2010 and 2018.

Based on estimates, there were about 161 364 nurses professionally active on the labour market and 137 193 practising nurses (116 607 in FTE) in 2022 (KCE calculation).

Analysis by demographic characteristics

In Table 92, results are detailed by community, region of activity, age, gender and nationality for each category of nurses (Licensed to practice, professionally active and practising nurses) in 2018. For the 126 496 (107 515 in FTE) practising nurses, around one third (30%) was aged below 35 year old and around one third (32%) above 50 years old, 14.9% were male (17% in FTE), and 6.4% had a foreign nationality (6.9% in FTE) (See also S-10 on the proportion of nurses aged 50 years old and over and S-16 on foreign-trained nurses).

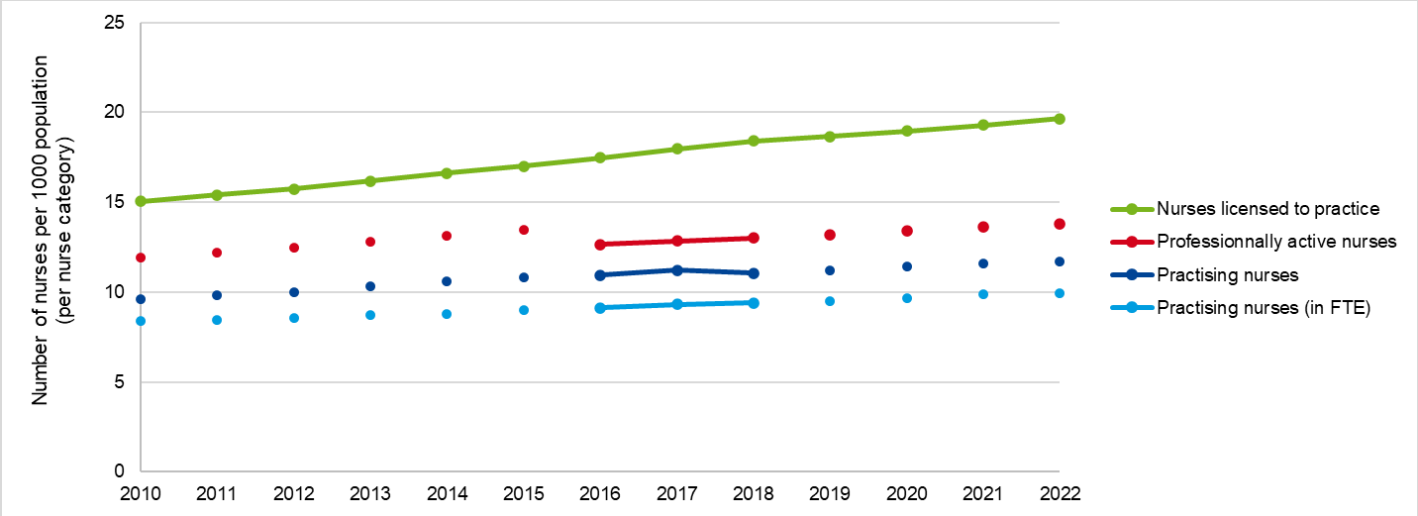
Table 91 – Number and density (per 1000 population) of nurses (all categories) in Belgium (2010-2022)

		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022*
Nurses licensed to practice	Number	**164 141**	**170 023**	**174 849**	**180 547**	**186 277**	**191 805**	**198 030**	**204 256**	**210 507**	**214 352**	**218 665**	**223 649**	**228 309***
	Density (per 1000)	**15.1**	**15.4**	**15.7**	**16.2**	**16.6**	**17.0**	**17.5**	**18.0**	**18.4**	**18.7**	**19.0**	**19.3**	**19.7**
Professionally active nurses	Number	*129 916*	*134 572*	*138 392*	*142 901*	*147 437*	*151 812*	**143 470**	**146 094**	**148 782**	*151 500*	*154 548*	*158 070*	*161 364*
	Density (per 1000)	*11.9*	*12.2*	*12.5*	*12.8*	*13.2*	*13.5*	**12.7**	**12.8**	**13.0**	*13.2*	*13.4*	*13.6*	*13.8*
Practising nurses	Number	*104 513*	*108 258*	*111 331*	*114 959*	*118 608*	*122 127*	**124 196**	**127 681**	**126 496**	*128 807*	*131 398*	*134 393*	*137 193*
	Density (per 1000)	*9.6*	*9.8*	*10.0*	*10.3*	*10.6*	*10.8*	**11.0**	**11.2**	**11.1**	*11.2*	*11.4*	*11.6*	*11.7*
Practising nurses (in FTE)	Number	*91 766*	*93 077*	*94 987*	*97 104*	*98 568*	*101 227*	**103 503**	**105 926**	**107 515**	*109 479*	*111 681*	*114 227*	*116 607*
	Density (per 1000)	*8.4*	*8.4*	*8.6*	*8.7*	*8.8*	*9.0*	**9.1**	**9.3**	**9.4**	*9.5*	*9.7*	*9.9*	*10.0*

[x] The last publication of PlanCad nurses is based on 2018.

Source: OECD Health Statistics 2023[3] (only values in bold are accurate, other values are based on estimates, see the documentation sheet), PlanCad 2004-2018 for FTE estimates[1]; FPS Public Health annual statistics for 2022 (Licensed practice nurses)[4] because the value in OECD database was provisional; KCE calculation*

Figure 114 – Density of nurses per 1000 population, per nurse category, evolution 2010-2022



*Source: ECD Health Statistics 2023[3] (only values in bold are accurate, other values are based on estimates, see the documentation sheet), PlanCad 2004-2018 for FTE estimates[1];*FPS Public Health annual statistics for 2022 (Licensed practice nurses)[4]; KCE calculation*

Analysis by activity sector

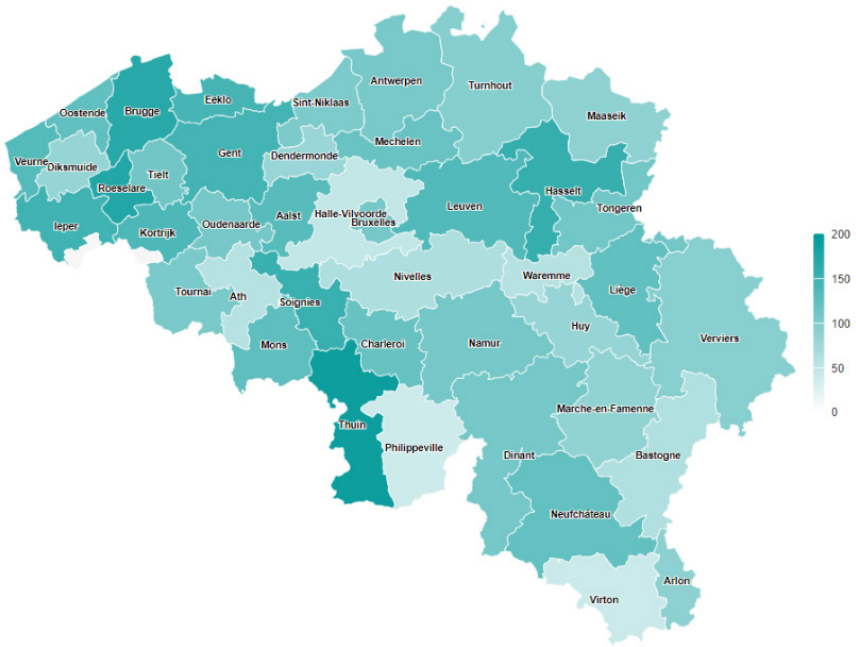
In 2018, most practising nurses worked as employees in hospitals (62.0% in FTE) followed by home care (17.9% in FTE) and nursing homes (16.8% in FTE) (see Table 94). It should also be noted that while most nurses work in hospitals, the patients to nurse ratio in hospitals is high, 9.4 in 2019, which is above what is internationally considered as a safe patient-to-nurse ratio (i.e. ≤ 8) (see QS-9). A recent KCE exploratory survey performed during the COVID-19 pandemic also showed that the number of FTE registered nurses per 30 residents in nursing homes was below nursing home staffing standards (i.e. 3.8 instead of 5), with a higher number in Flanders (4.1 FTE) compared to Wallonia (3.1 FTE). This study was nevertheless based on a limited sample of nursing homes (n = 56).[8]

Regional comparison

While 60.6% (59.1% in FTE) of practising nurses worked in Flanders in 2018, the density per 1000 population was quite similar between regions (<20% differences, i.e. 11.6 (9.7 in FTE) in Flanders, 10.7 (9.4 in FTE) in Brussels, and 10.1 (8.9 in FTE) in Wallonia) (see Table 93). The density in the German Community seems lower, i.e. 7.0 (5.4 in FTE) but this is an estimation based on the place of residence[y] (no accurate figure available).

The density of practising nurses (number per 10 000 population) is also quite well distributed across districts, with lower density (<50 per 10 000 population) observed around Brussels (Halle-Vilvoorde) or in some districts close to the borders (Virton and Philippeville) (see Figure 115).

Figure 115 – Distribution of practising nurses per 10 000 population, per district, 2018



Source: [For a healthy Belgium – Key data in healthcare – Healthcare professionals](#)[9]

[y] While we can for example easily suppose that an important proportion of nurses working in the hospital of the German Community lives outside the German Community

Table 92 – Nurses (Number and FTE) per demographic characteristics and nurses categories (2018)

		Licensed to practice*	Professionally active		Practising	
		N	N (%)	FTE	N (%)	FTE
Belgium		214 352	148 782	117 382	126 496	107 515
Age	**<25**	9626 (4.5%)	6773 (4.6%)		6358 (5%)	5894.4 (5.5%)
	25-29	21 838 (10.2%)	17 562 (11.8%)		16 211 (12.8%)	14 918.7 (13.9%)
	30-34	20 178 (9.4%)	16 772 (11.3%)		15 143 (12%)	13 119.5 (12.2%)
	35-39	20 691 (9.7%)	17 935 (12.1%)		15 572 (12.3%)	13 207.3 (12.3%)
	40-44	23 139 (10.8%)	20 231 (13.6%)		16 896 (13.4%)	14 316.4 (13.3%)
	45-49	21 692 (10.1%)	18 774 (12.6%)		15 702 (12.4%)	13 417.1 (12.5%)
	50-54	23 821 (11.1%)	20 258 (13.6%)		16 815 (13.3%)	14 072.1 (13.1%)
	55-59	25 586 (11.9%)	20 329 (13.7%)		16 611 (13.1%)	13 133.6 (12.2%)
	60-64	19 631 (9.2%)	8956 (6%)		6803 (5.4%)	5213.6 (4.8%)
	65+	28 150 (13.1%)	1192 (0.8%)		385 (0.3%)	5894.4 (5.5%)
Community**	**French Community**	87 436 (40.8%)	57 351 (38.5%)	46 726 (39.8%)	49 769 (39.3%)	43 538 (40.5%)
	Flemish Community	126 916 (59.2%)	91 431 (61.5%)	70 656 (60.2%)	76 727 (60.7%)	63 977 (59.5%)
Gender	**Males**	29 071 (13.6%)	22 278 (15%)	20 286 (17.3%)	18 798 (14.9%)	18 250 (17%)
	Females	185 281 (86.4%)	126 504 (85%)	97 096 (82.7%)	107 698 (85.1%)	89 265 (83%)
Region of activity***	**Flanders**	123 474 (57.6%)	90 622 (60.9%)	69 773 (59.4%)	76 613 (60.6%)	63 747 (59.3%)
	Wallonia	57 917 (27%)	42 079 (28.3%)	34 384 (29.3%)	36 832 (29.1%)	32 344 (30.1%)
	Brussels	19 035 (8.9%)	15 933 (10.7%)	13 146 (11.2%)	12 961 (10.2%)	11 346 (10.6%)
	Foreign or unknown	13 926 (6.5%)	148 (0.1%)	79 (0.1%)	90 (0.1%)	79 (0.1%)
Nationality	**Belgian**		139 804 (94%)	110 202 (93.9%)	118 341 (93.6%)	100 134 (93.1%)
	Non Belgian		8978 (6%)	7180 (6.1%)	8155 (6.4%)	7380 (6.9%)

*Source: PlanCad nurses 2004-2018[1]; *Results differ from* ***Error! Reference source not found.*** *because here, people with a midwife diploma registered as nurse are included. **Based on the language of the diploma and if not available, on the language of the contact; ***Based on the region of activity for salaried workers or workers with a mixed status and based on the home address for fully self-employed nurses or non-active nurses.*

Table 93 – Practising nurses in Belgium (density per 1 000 population), 31/12/2018

		Practising nurses on the health sector			
		N	Density	N (in FTE)	Density (in FTE)
Belgium		126 496	11.1	107 515	9.4
Region	Flanders	76 613	11.6	63 747	9.7
	Wallonia	36 832	10.1	32 344	8.9
	*(Including German Community)**	*539*	*7.0*	*419*	*5.4*
	Brussels	12 961	10.7	11 346	9.4
	Foreign or unknown	90	-	79	-

*Source: PlanCad nurses 2004-2018.1, density (own calculation).*Estimation based on the place of residence.*

Table 94 – Practising nurses (Number and FTE), per activity sector and per community, 31/12/2018

	Hospital		Nursing homes		Home care		Social welfare and other health sectors		Total	
	N	FTE	N	FTE	N	FTE	N	FTE	N	FTE
Flemish Community	46 862 (61.1%)	38 680 (60.5%)	14 258 (18.6%)	11 175 (17.5%)	14 849 (19.4%)	11 798 (18.4%)	3005 (3.9%)	2277 (3.6%)	76 707 (100%)	63 974 (100%)
French Community	33 237 (66.8%)	27 921 (64.1%)	8286 (16.7%)	6883 (15.8%)	9845 (19.8%)	7465 (17.1%)	1799 (3.6%)	1361 (3.1%)	49 739 (100%)	43 531 (100%)
Belgium	80 099 (63.3%)	66 601 (62.0%)	22 544 (17.8%)	18 058 (16.8%)	24 694 (19.5%)	19 263 (17.9%)	4804 (3.8%)	3638 (3.4%)	126 446 (100%)	107 505 (100%)

Source: Projection 204310-14; Some nurses worked in multiple sectors meaning that the total does not equal to the sum of the sectors

International comparison

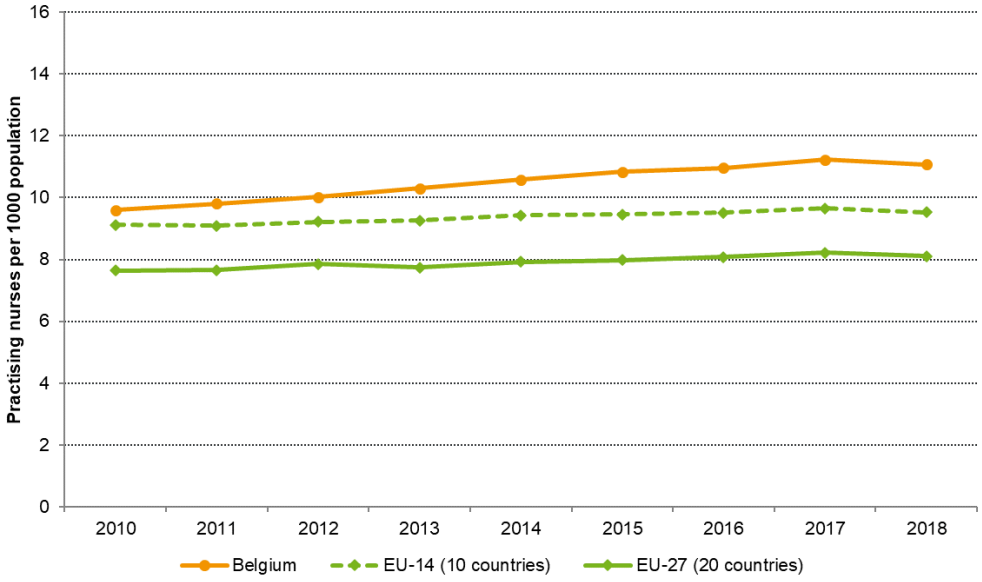
Based on OECD Health Statistics, the increase in the density of practising nurses between 2010 and 2018 was more important in Belgium than for the EU-14 and EU-27 averages (+15.4% versus +4.5% and +6.2% respectively) (see Table 95 and Figure 116). In 2018, Belgium had 11.1 nurses per 1 000 per population, which is three nurses more than the EU-27 average and 1.5 nurses more than the EU-14 average. International comparisons on practising nurses must nevertheless be used with caution as definitions differ between countries. Moreover, numbers expressed in FTE would give a better picture of the real situation.

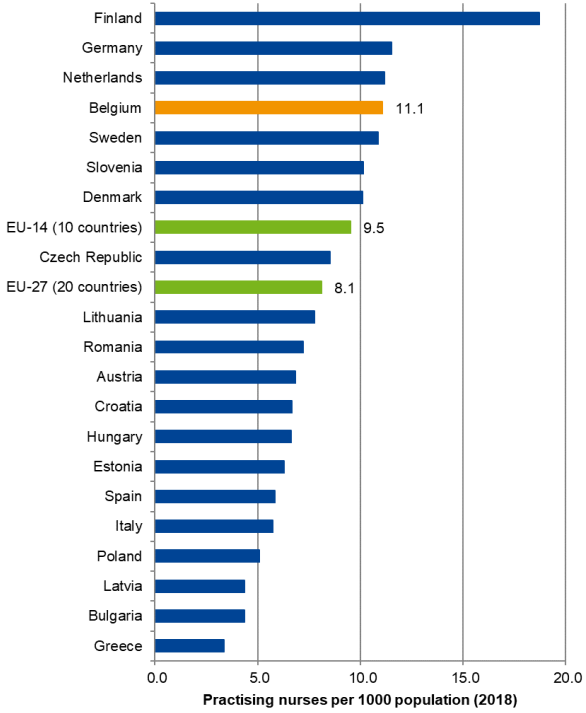
Table 95 – Density of practising nurses (number per 1000 population), in Belgium and EU averages (2010-2018)

Year	2010	2011	2012	2013	2014	2015	2016	2017	2018
Belgium	9.6	9.8	10.0	10.3	10.6	10.8	11.0	11.2	11.1
EU-14 (10 countries)	9.1	9.1	9.2	9.3	9.4	9.5	9.5	9.7	9.5
EU-27 (20 countries)	7.6	7.6	7.8	7.7	7.9	8.0	8.1	8.2	8.1

Source: OECD 2021 Health Statistics (see also the documentation sheet for details on the data sources)

Figure 116 – Practising nurses per 1000 population: international comparison (2010-2018)





Source: OECD 2021 Health statistics (see also the documentation sheet for details on the data sources)

Key points

- The PlanCad project[1], resulting of a linkage of several administrative databases, allows precise estimation of the number of nurses working in the Belgian labour market (professionally active nurses) and active in the health sector (practising nurses). The latest available PlanCad project for nurses is based on 2018.
- In 2018, there were 210 507 nurses licensed to practise, 148 782 nurses professionally active on the labour market, and 126 496 nurses practising in the healthcare sector (107 515 in FTE). Based on estimates, there were about 161 364 nurses professionally active on the labour market and 137 193 practising nurses (116 607 in FTE) in 2022 (KCE calculation).
- The density of practising nurses in Belgium in 2018 was 11.1 per 1000 population (9.4 in FTE) and was quite well distributed between regions, with 11.6 (9.7 in FTE), 10.1 (8.9 in FTE), and 10.7 (9.4 in FTE) practising nurses per 1000 population in Flanders, Wallonia and Brussels respectively. It was also quite well distributed between districts, except in some districts around Brussels (Halle-Vilvoorde) or close to the boarder (Virton and Philippeville), with a density below 5 per 1000 population. The density of practising nurses in the German Community seemed also lower, i.e. 7.0 (5.4 in FTE) practsing nurses per 1000 population but this is an estimate based on the place of residence.
- Most of practising nurses worked as employees in hospitals (62% in FTE) followed by home care (17.9% in FTE) and nursing homes (16.8% in FTE). Nevertheless, according to recent KCE surveys, the number of patients / residents per nurse in nursing homes and hospitals remain too high compared to standards / international quality norms.
- The number of practising nurses per 1 000 population in Belgium increased from 9.6 in 2010 to 11.1 in 2018. This increasing trend was also observed in other European countries but was higher in Belgium than the EU-27 and EU-14 averages (+15.4% vs +4.5% and 6.2% respectively). The number of practising nurses per 1 000 population in Belgium was above the EU-27 (+3 nurses in 2018) and EU-14 (+1.5 nurses in 2018) averages. International comparisons on practising nurses must nevertheless be used with caution as definitions differ between countries. Moreover, numbers expressed in FTE would give a better picture of the real situation.

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7.3 Practising dentists (per 1000 population) (A-12)

7.3.1 Documentation sheet

Description	Number of practising dentists per 1000 population
Calculation	**Primary indicator:** • **Number of practising dentists per 1 000 population** Numerator : Number of practising dentists x 1 000 (end-of-year situation, 31/12) Denominator: End-of-year Belgian population (1st January t+1) **Secondary indicators:** • **Number of practising dentists, in FTE per 1000 population** Numerator: Number of full time equivalent (FTE) practising dentists x 1 000 (see also the technical definitions) (end-of-year situation, 31/12) Denominator: End-of-year Belgian population (1st January t+1) • **Number of practising dentists acceding to the agreement, in FTE per 1000 population** Numerator: Number of full time equivalent (FTE) practising dentists acceding to the agreement (conventionnés / geconventioneerde) x 1 000 (end-of-year situation, 31/12) Denominator: End-of-year Belgian population (1st January t+1)
Rationale	The number of care providers gives important information on the medical workforce and thus the accessibility of healthcare. This information can be used for healthcare providers supply planning.
Data source	RIZIV–INAMI yearly statistics International comparison: OECD Health Statistics 2023[1]
Technical definition	To be aligned with international definitions, stomatologists are included in the dentists (OECD/WHO code 3). Practising dentists: Dentists are considered to be practising (RIZIV – INAMI: “profiles”) if they provide more than 1 clinical act (i.e. consultations, visits, technical acts, but no prescriptions) during a given year. Dentists still in training (undergraduates and postgraduates) are not included. Practising dentists include general dentists, periodontists, orthodontists and maxillofacial surgeons/stomatologists. RIZIV – INAMI also calculates the number of full-time-equivalent (FTE) practising dentists. Because information on their time of work is not available, FTE is calculated as the ratio between individual revenue (determined based on reimbursed RIZIV-INAMI expenditure) of a dentist compared to the P50 (median) revenue/RIZIV-INAMI expenditure of the dentists between 45-55 years old (N.B. all results above 1 is limited to 1). Regional analysis is based on the address of contact transmitted by the dentist to RIZIV-INAMI. For some of them, it is the address of the dental office while for others it is the personal address.

	Language / community is based on the language of contact with RIZIV-INAMI (i.e. either Dutch or French-speaking physicians). Some data are also available on the number of German-speaking physicians based on the postal code of the contact address. It should be noted that these German-speaking physicians are included in the Dutch / French-speaking physicians (determined based on the language of contact).
Limitations	For 2016, RIZIV-INAMI data slightly differ from OECD data because small corrections were done by RIZIV-INAMI after transmission of data to OECD (see also 'international comparability') FTE are based on RIZIV-INAMI expenditure and not on the actual time of work and should therefore be interpreted with caution, especially for 2020 because the COVID-19 pandemic impacted the median income/reimbursed expenditure and therefore the resulting FTE estimates.
International comparability	OECD countries use different methodologies to calculate the same indicator (such as different minimal activity thresholds). Comparisons between countries are therefore potentially inadequate.[2] It should also be noted that for 2016, Belgian OECD data incorrectly concerned the number of practising dentists with at least one clinical act (≥1) instead of more than one (≥2) as described in the definition.
Dimension	Accessibility, Health workforce
Related indicators	Practising physicians (A-10), Practising nurses (A-11)

7.3.2 Results

Belgium

In 2021, there were 10 862 dentists licensed to practise and 8 926 of them were practising (6 478.8 in FTE). Only 48.4% of FTE practising dentists acceded to the agreement in 2021 and this proportion decreased by 15.8 percentage points compared to 2012 (64.2% in 2012[z]).

The number of practising dentists per 1000 population increased by 9% between 2011 (0.70) and 2021 (0.77) (see Table 96).

[z] For 2011, there are no data available on the number of dentists who acceded to the agreement.

Analyses per demographic characteristic

The proportion of Dutch-speaking FTE dentists is slightly higher than French-speaking dentists (55.4% compared to 44.6%, 2021 data) and less than 1% had German as contact language with the RIZIV-INAMI (see Table 98). The proportion of FTE practising dentists aged 55 years old and over is lower for periodontists (18.6%) than for general dentists (41%), orthodontists (36%) or maxillofacial surgeons (35.1%) (see

Table 97).

Analyses per specialty, region, and province

The density of practising dentists per 1000 population was higher in Brussels than in Flanders and Wallonia between 2011-2021 (both in head counts and in FTE, see Figure 117). The provinces with the lowest densities of practising dentists were Hainaut, Luxembourg, and Namur (difference > -20% compared to the Belgian density, see Table 99).

In 2021, the proportion periodontists and orthodontists that acceded to the agreement was much lower than the proportion of general dentists who did so (11.7% vs. 2.9% vs. 52.2%). This proportion varied considerably between the various provinces: from 0 to 44.6% for periodontists, from 0 to 6.7% among orthodontists and from 28.2% to 82.1% among general dentists (see Table 100).

Table 96 – Number of dentists (general dentists, periodontists, orthodontists, and maxillofacial surgeons, Belgium, 2011-2021

		2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Licensed to practise	**Number**	8879	9031	9182	9328	9590	9859	9980	10 157	10 321	10 633	10 862
	Per 1000 population	0.80	0.81	0.82	0.83	0.85	0.87	0.88	0.89	0.90	0.92	0.94
Practising	**Number**	7777	7869	7965	8108	8291	8435	8516	8614	8697	8871	8926
	Per 1000 population	0.70	0.71	0.71	0.72	0.74	0.75	0.75	0.75	0.76	0.77	0.77
Practising, in FTE	**Number**	5787.7	5849.7	5888.7	5987.6	6151.6	6278.3	6342.3	6377.9	6422.3	6471.4	6478.8
	Per 1000 population	0.52	0.53	0.53	0.53	0.55	0.55	0.56	0.56	0.56	0.56	0.56
Practising dentists acceding to the agreement, in FTE	**Number**		3755.9	3251.4	3295.2	3425.3	3515.7	3322.8	3304.0	3279.5	3259.6	3135.3
	Convention rate		64.2%	55.2%	55.0%	55.7%	56.0%	52.4%	51.8%	51.1%	50.4%	48.4%
	Per 1000 population		0.34	0.29	0.29	0.30	0.31	0.29	0.29	0.29	0.28	0.27

Source: RIZIV – INAMI data, KCE calculation

Table 97 – Age of practising dentists, in FTE, per specialty, 2021

	FTE	mean age	FTE 55 years and over	%55 +	FTE 65 years and over	%65 +
General dentists	5712.1	48.5	2342.1	41.00%	712.0	12.47%
Periodontists	163.8	43.2	30.4	18.57%	3.1	1.89%
Orthodontists	380.1	48.1	136.8	36.00%	32.3	8.50%
Maxillofacial surgeon*	222.8	49.9	78.3	35.14%	16.8	7.54%

Source: RIZIV – INAMI data, KCE calculation;

Table 98 – Other demographic characteristics, 2021

		2021
Number of practising dentists, in FTE	Dutch-speaking*	3591.1 (55.4%)
	French-speaking*	2887.7 (44.6%)
	Incl. German-speaking**	28.4 (<1%)
Number of practising dentists per 10 000 population	Flanders	7.45
	Brussels	11.55
	Wallonia	6.89
Number of practising dentists per 10 000 population, in FTE	Flanders	5.59
	Brussels	7.40
	Wallonia	5.00

*Source: RIZIV – INAMI data, KCE calculation; *Based on the contact language (either French or Dutch); ** Based on the postal code of the contact address.*

Table 99 – Density of practising dentists (per 10 000 population), per province and specialty, 2021

	Antwerp	Flemish Brabant	Walloon Brabant	West Flanders	East Flanders	Hainaut	Liège	Limburg	Luxem-bourg	Namur	Brussels	Belgium
General dentists	4.43	5.61	6.51	4.64	4.70	3.36	5.74	5.18	3.53	3.89	6.68	4.93
Periodontists	0.13	0.22	0.07	0.18	0.24	0.05	0.18	0.10	0.00	0.11	0.08	0.14
Orthodontists	0.33	0.40	0.42	0.28	0.37	0.14	0.38	0.30	0.27	0.19	0.47	0.33
Maxillofacial surgeons*	0.23	0.26	0.25	0.23	0.24	0.10	0.05	0.22	0.05	0.24	0.18	0.19
All dentists	5.12	6.50	7.26	5.33	5.54	3.65	6.36	5.80	3.85	4.44	7.40	5.59

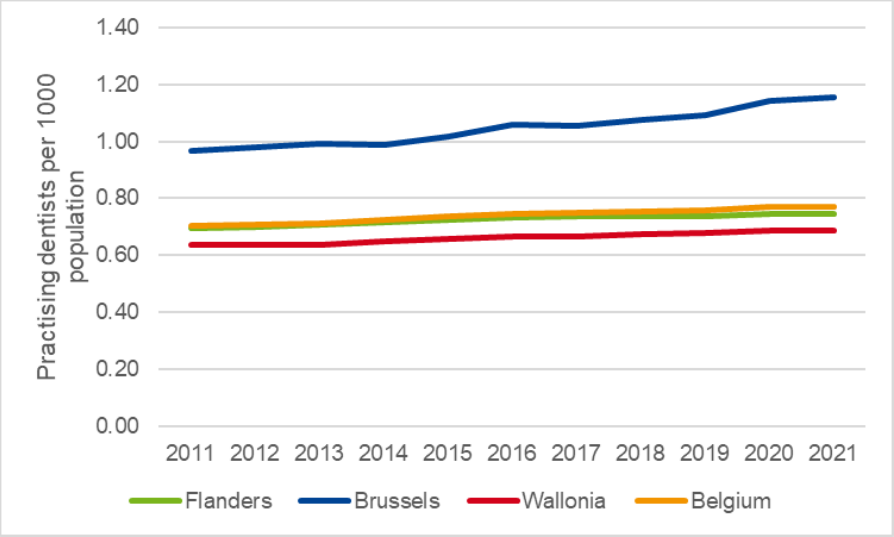
Source: RIZIV – INAMI data, KCE calculation. Densities for each province were compared to the overall Belgian density (relative difference): red cells = -40%, orange: -20%; light green = +20%, dark green = +40%.

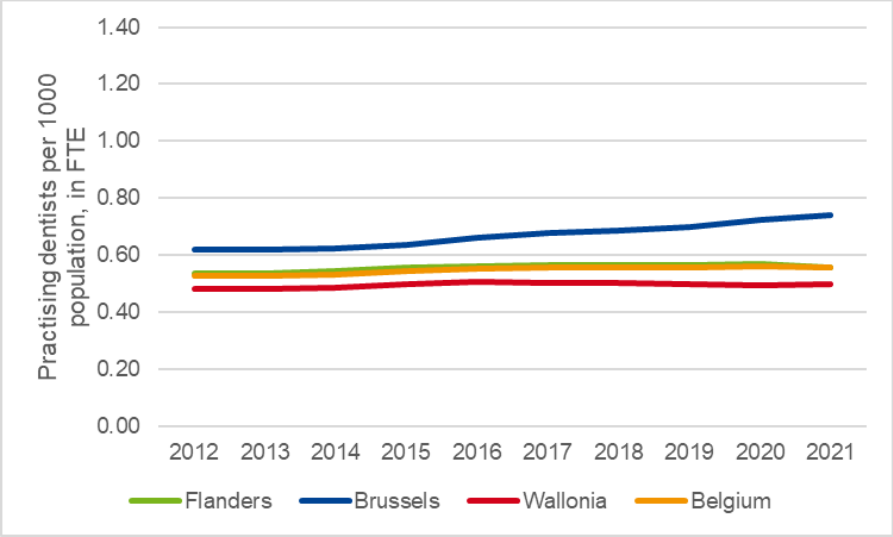
Table 100 – Convention rate (Number of FTE practising dentists who totally or partially acceded to the agreement/FTE practising dentists), per province and specialty, 2021

	Antwerp	Flemish Brabant	Walloon Brabant	West Flanders	East Flanders	Hainaut	Liège	Limburg	Luxem-bourg	Namur	Brussels	Belgium
General dentists	28.2%	46.2%	46.2%	45.8%	42.0%	58.6%	82.1%	56.7%	60.3%	58.0%	64.8%	52.2%
Periodontists	0.1%	13.4%	0.0%	16.8%	8.1%	0.0%	44.6%	0.0%	0.0%	0.0%	0.1%	11.7%
Orthodontists	4.2%	2.5%	3.5%	0.0%	0.0%	0.0%	6.7%	2.1%	3.0%	0.0%	5.5%	2.9%
Maxillofacial surgeons*	40.1%	66.2%	65.1%	53.0%	40.5%	79.0%	34.7%	53.8%	63.9%	97.9%	73.4%	56.5%
All dentists	26.5%	43.2%	43.9%	42.7%	37.7%	56.1%	76.1%	52.8%	56.3%	56.2%	60.6%	48.4%

Source: RIZIV – INAMI data, KCE calculation

Figure 117 – Density of practising dentists (in head count and in FTE), per 1000 population, per region, evolution 2011-2022





Source: RIZIV – INAMI data, KCE calculation

International comparison

The evolution in the density of practising dentists per 1000 population in Belgium is in line with the EU-27 average, with a percentage increase of +10.0% and +12.5% between 2010 and 2020 respectively. The average density based on EU-14 countries was more stable over the years (+4.0% between 2010 and 2020).

Between 2010 and 2014, the number of practising dentists per 1000 population in Belgium was close to the EU-27 average and lower than the EU-14 average. Between 2015 and 2018, the Belgian density was higher than both the EU-14 and EU-27 average. In 2019 and 2020, Belgium was between the EU -27 average (0.78 per 1000 population in 2020) and the EU-14 average (0.73 per 1000 population in 2020; see Figure 118).

Impact of the COVID-19 pandemic

No clear impact of the COVID-19 pandemic on the density of practising dentists in Belgium can be highlighted (see Figure 117).

Figure 118 – Density of practising dentists per 1000 population (in head counts): international comparison (2010-2020)

Source: OECD health data 2023

Key points

- **To allow for international comparison, OECD definitions are used. The number of practising dentists therefore also include maxillofacial surgeons/stomatologists.**
- **In 2021, there were 8 926 practising dentists (6 478.8 in FTE), with a density of 0.77 per 1000 population (0.56 in FTE).**
- **Only 48.4% of FTE practising dentists acceded to the agreement and this proportion decreased by 15.8 percentage points compared to 2012. The analysis per specialty showed that in 2021, the proportion of periodontists and orthodontists that acceded to the agreement was much lower than the proportion general dentists who did so (11.7% and. 2.9% compared to 52.2% respectively). This proportion varied considerably between the provinces and in some of them, no periodontist and orthodontist acceded to the agreement.**
- **The evolution in the Belgian density of practising dentists per 1000 population is in line with the EU-27 average, with an increase of +10.0% and +12.5% between 2010 and 2020 respectively. The average density based on EU-14 countries was more stable (+4.0%). In 2020, the Belgian density of practising dentists per 1000 population (0.77 per 1000 population) was close to the EU-27 average (0.78 per 1000 population) and above the EU-14 average (0.73 per 1000 population).**

References

1. OECD. OECD Health Statistics 2023 [Web page].2023 [cited 5 May 2023]. Available from: https://stats.oecd.org/Index.aspx?ThemeTreeId=9
2. OECD. Health at a Glance 2017: OECD Indicators. Paris: 2017. Available from: http://dx.doi.org/10.1787/health_glance-2017-en

8 ACCESSIBILITY – HEALTH SERVICES DISTRIBUTION

8.1 People with self-reported unmet need for medical care due to geographic (too far for travel or no means of transport) or waiting time reasons (% of respondents, EU-SILC) (A-13)

8.1.1 Documentation sheet

Description	**Primary indicator - EU-SILC** People with self-reported unmet need for medical examination or treatment due to • geographic reasons (too far for travel or no means of transport) • waiting time reasons (% of respondents aged 16 years and older, based on EU statistics on income and living conditions (EU-SILC), indicator 'HLTH_SILC_08') **Secondary indicators - HIS** • People who experienced delay in getting healthcare because the time to get an appointment was too long (% of respondents aged 15 years and older, based on HIS Module Patient Experiences, PE10_1) • People who experienced delay in getting healthcare due to distance or transport problems (% of respondents aged 15 years and older, based on HIS Module Patient Experiences, PE11_1)
Calculation	**Primary indicator - EU-SILC** Numerator: Number of individuals aged 16+ that answer yes for unmet medical need and give as main reason "too far to travel or no means of transport" or "waiting list" Denominator: Total number of individuals aged 16 years old and over included in the survey **Secondary indicators - HIS** Numerator: Number of individuals that answer yes to the question about delayed healthcare due to either distance/transport problems or waiting time Denominator: Total number of individuals aged 15 years and older participating to the survey
Rationale	Healthcare systems of European countries are facing increasing demands for healthcare services. Important reasons for growth in care needs include demographic changes (people are getting older), the development of medical technology (which makes it possible to treat more illnesses), increase in chronic care (people who survive acute illness because of new treatments become chronic patients), changes in the prevalence of diseases (increasing prevalence of cancer and infectious diseases) and the medicalisation of society.[1] At the same time, countries try to organise care in an efficient way, limiting the resources used. This requires choices to be made concerning health service capacity and distribution, which

	can impact accessibility. Assessing self-reported unmet needs for geographical or waiting time reasons is one way to assess whether health services distribution is adequate.
Data source	**Primary indicator - EU-SILC** Eurostat: EU-SILC: Online data code: HLTH_SILC_08 https://ec.europa.eu/eurostat/web/main/data/database Data navigation tree location: Population and social conditions > Health > Health care > Unmet needs for health care https://ec.europa.eu/eurostat/databrowser/view/HLTH_SILC_08__custom_5918717/default/table?lang=en : country data https://ec.europa.eu/eurostat/databrowser/view/HLTH_SILC_08_R/default/table?lang=en : regional data EU-SILC data are available for the years 2013-2022 **Secondary indicators – HIS/EHIS** Health Interview Survey: data available from interactive tool HISIA for the years 2013 and 2018 https://www.sciensano.be/en/projects/health-interview-survey/hisia European HIS data available from: https://ec.europa.eu/eurostat/databrowser/view/HLTH_EHIS_UN1I/default/table?lang=en
Technical definitions	**Primary indicator - EU-SILC** People with self-reported unmet need for medical care due to geographic reasons or waiting time Definition of self-reported unmet needs: Person's own assessment of whether he or she needed examination or treatment for a specific type of healthcare, but did not have it or did not seek for it. EU-SILC collects data on two types of healthcare services: medical care and dental care. Medical care refers to individual healthcare services (medical examination or treatment excluding dental care) provided by or under direct supervision of medical doctors or equivalent professions according to national healthcare systems. The questions in EU-SILC related to unmet medical need are formulated as follows: "Was there any time during the last 12 months when you personally, really needed a medical examination or treatment for a health problem but you did not receive it?" ► Yes ► No "What was the main reason for not receiving the medical examination or treatment? 1. Could not afford to (too expensive) 2. Waiting list 3. Could not take time off work/ from caring for children 4. Too far to travel or no means of transport 5. Fear of doctor/examination/treatment 6. Wanted to wait and see if problem got better on its own 7. Didn't know any good medical doctor

	8. Other reason” Statistical unit: Individuals aged 16 years old and over living in private households. Statistical population: The EU-SILC target population in each country consists of all persons living in private households. Persons living in collective households and in institutions are generally excluded from the target population. Reference Period for the unmet needs variables: the past 12 months. [2] **Secondary indicators - HIS** People who experienced delay in healthcare due to waiting time or distance or transport problems The concerned questions in HIS are part of the individual questionnaire: • “Have you experienced delay in getting healthcare in the past 12 months because the time needed to obtain an appointment was too long ?” • “Have you experienced delay in getting healthcare in the past 12 months due to distance or transport problems?” There is no age limit for participation in the survey, but these questions were asked only for those aged 15 years and older. Proxy response was not allowed for these questions. Sampling frame: The HIS is addressed to all persons residing in the country, without restrictions as to their nationality, age or legal status. The most complete sampling frame to reach this target population is the National Register. People who are not registered in the National Register, such as the homeless or illegal immigrants, can therefore not be selected for participation in the survey. For pragmatic reasons, a number of categories of persons were excluded from the sample: persons residing (and registered) in a prison or religious community with more than 8 persons and residents of an institution with the exception of residents of a residential care or nursing home. [3]
International comparability	**Primary indicator – EU-SILC** EU-SILC data are available for the following countries: EU Member States, Iceland, Norway, Switzerland, Montenegro, the former Yugoslav Republic of Macedonia, Serbia, Turkey. [2] **Secondary indicators – HIS** The concerned questions are part of the European Health Interview Survey (EHIS-Wave III). Eurostat Metadata on EHIS: https://ec.europa.eu/eurostat/cache/metadata/en/hlth_det_esms.htm
Limitations	
Dimension	Accessibility – Health services distribution
Related indicators	People with self-reported unmet needs for medical examination due to financial reasons (% of respondents, EU-SILC) Households having postponed medical care because of financial reasons (% of households, HIS)
Reviewers	Rana Charafeddine (Sciensano)

8.1.2 Results

People with self-reported unmet medical need due to geographic reasons (too far for travel or no means of transport) – Source: EU-SILC

In the EU-SILC, unmet need for medical care is defined as having at least one episode when the person did not receive a medical examination or treatment for a health problem when s/he really needed it. So, unmet need in the EU-SILC refers to forgone care only (i.e. care not received) and not to delayed care. Persons who report unmet needs must select the main reason why they did not receive the care they needed, among a range of reasons including waiting time, distance to services or transport problems, cost and some personal reasons like lack of time and fear of doctors.[4]

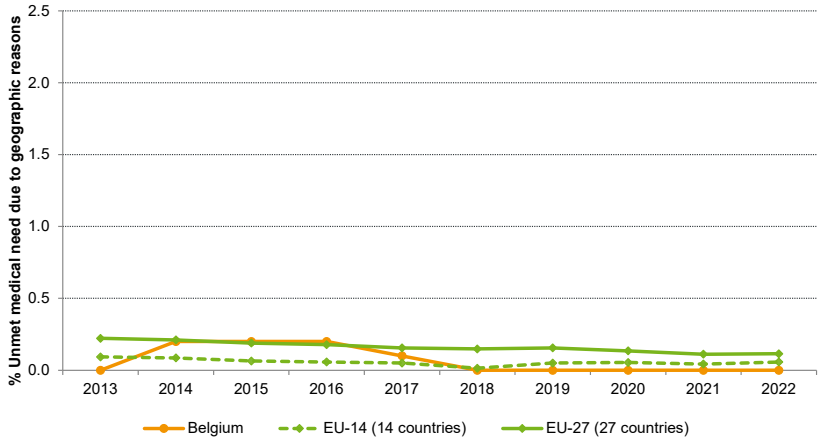
Belgium

Figure 119, based on data from EU-SILC, shows that Belgium has a zero percentage for 'unmet medical need due to geographic reasons' for the years 2018 to 2022. In the years 2014 to 2017, this percentage was slightly higher (0.2%).

Regional comparison

The percentage unmet medical need due to geographic reasons is slightly higher in Brussels and Wallonia (0.1%) than in Flanders (0.0%) (data from 2022).

Figure 119 – People with self-reported unmet medical need due to geographic reasons (too far for travel or no means of transport) (% of respondents) (2013-2022)



Source: Based on EU-SILC

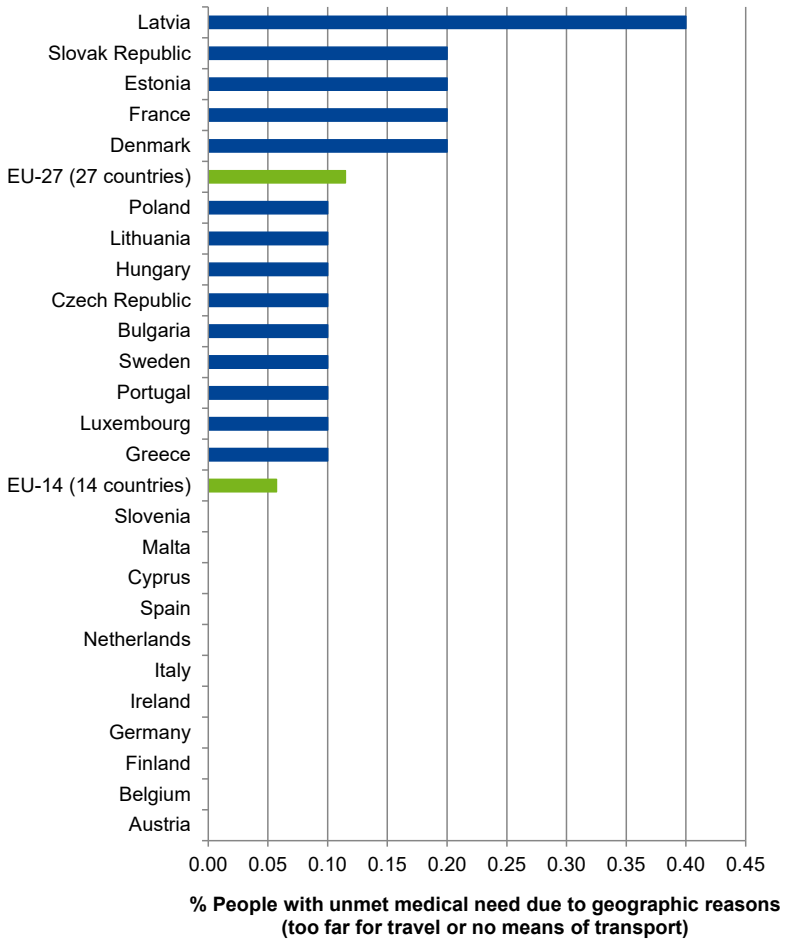
Analysis by demographic characteristics and socio-economic status

As the value of this indicator was zero in the years 2018-2022, no further analysis is done with regard to demographic (gender, age) and socio-economic variables (income level).

International comparison

Figure 120 shows the percentage of people with unmet need for medical examination due to geographic reasons in 2022 for all countries participating in EU-SILC. In eleven countries, including Belgium, the value of this indicator is zero in 2022. The EU-14 average is 0.06% and the EU-27 average is 0.11%.

Figure 120 – People with self-reported unmet medical need due to geographic reasons (too far for travel or no means of transport) (% of respondents) (2022)) – Source: EU-SILC



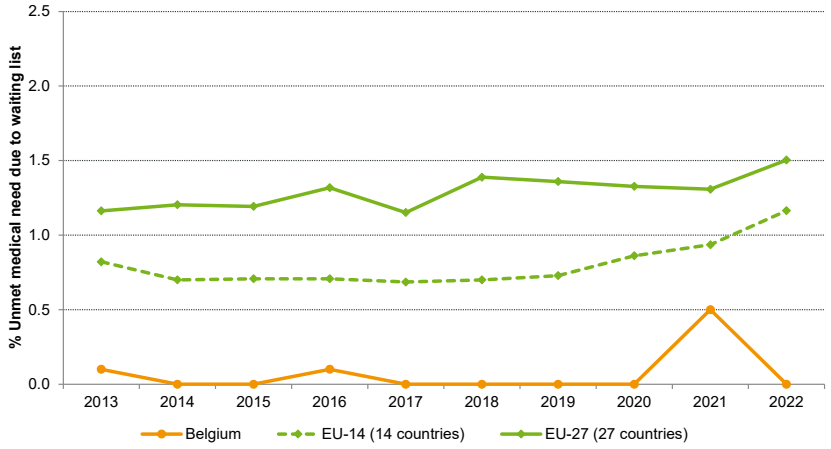
Source: Based on EU-SILC data 2022

People with self-reported unmet medical need due to waiting list – Source: EU-SILC

Belgium

Figure 121, also based on data from the EU-SILC, shows that Belgium had a zero percentage for people with self-reported unmet medical need due to waiting list for the years 2017 to 2020. In 2021 there is a small rise to 0.5%, which likely can be linked to the COVID-19 pandemic. In 2022 the percentage drops to zero again.

Figure 121 – People with self-reported unmet medical need due to waiting list (% of respondents) (2013-2022)



Source: Based on EU-SILC

Regional comparison

Whereas the self-reported unmet medical need due to waiting list reaches 0.0% for Belgium, it attains 0.1% in Wallonia and Brussels and 0.0% in Flanders (data for 2022). In 2021, where the percentage reaches 0.5% for Belgium, it attained 1.3% in Wallonia, 0.2% in Brussels and 0.0% in Flanders.

Analysis by demographic characteristics and socio-economic status

We analysed whether there were differences according to gender, age category or income quintile for the self-reported unmet medical need due to waiting time reported in 2021. (We analysed data from 2021 here, as the data for 2022 reach 0%). These more detailed data are displayed in Table 101. We see that the people in the age category 25-34 years were the least affected group (0.1%), compared to the other age groups. We also see that the people in the fifth income quintile were the least affected (0.1%) compared to the other income quintiles.

Table 101 – People with self-reported unmet medical need due to waiting list (% of respondents) – analysis by gender, age category and income quintile (2021) – EU-SILC

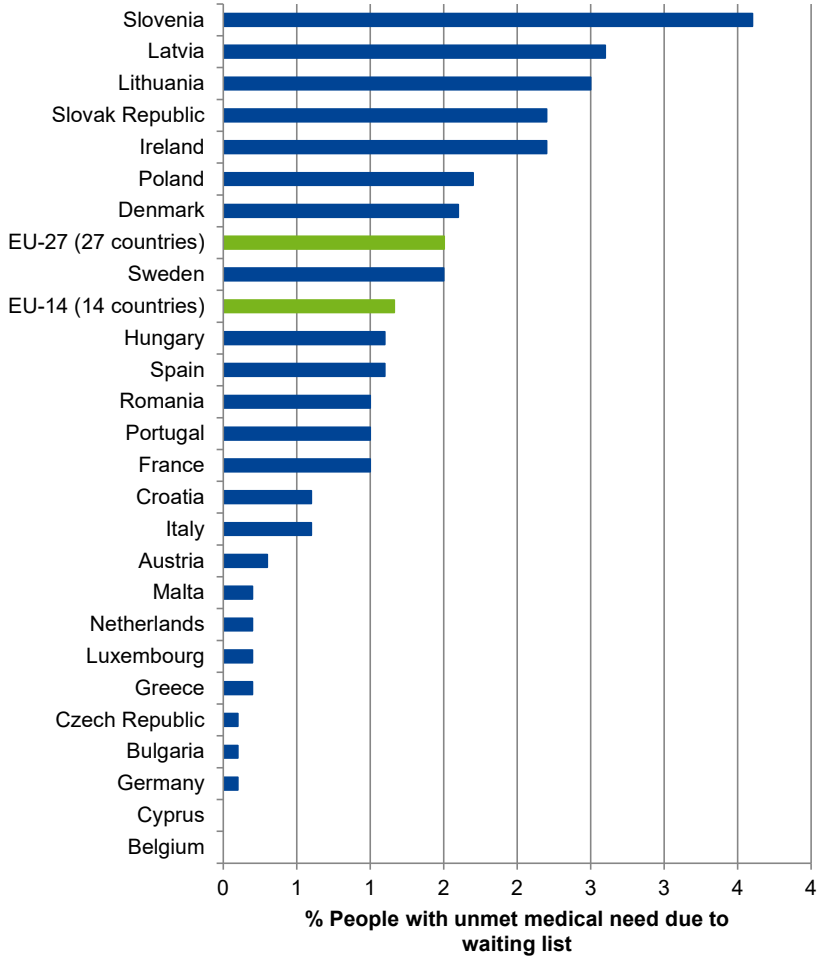
EU-SILC		% of respondents
Belgium		0.5%
Gender	Males	0.4%
	Females	0.5%
Age category	16-24	0.4%
	25-34	0.1%
	35-44	0.4%
	45-54	0.7%
	55-64	0.6%
	65-74	0.6%
	75 or over	0.6%
Income levels	First quintile	0.6%
	Second quintile	0.5%
	Third quintile	0.5%
	Fourth quintile	0.5%
	Fifth quintile	0.1%

Source: Based on EU-SILC 2021

International comparison

Figure 122 shows the international comparison for the percentage of people with unmet medical need due to waiting time in 2022. Belgium, with 0.0% ranks lowest of the list. EU-14 average is 1.2% and EU-27 average is 1.5% in 2022.

Figure 122 – People with self-reported unmet medical need due to waiting list (% of respondents) (2022) – Source: EU-SILC



Source: Based on EU-SILC data 2022

People who experienced delay in healthcare due to distance or transport problems (% of respondents) – Source: HIS

There are some important differences between the EU-SILC and the HIS questions about access to healthcare. Whereas the EU-SILC is about 'forgone' healthcare (i.e. care not received), the HIS is about 'delayed' healthcare. Furthermore, in the EU-SILC, the persons only have to give the main reason (for forgone healthcare), whilst in the HIS the question is posed in such way that distance/transport or waiting list can be considered as one of the reasons (for delayed healthcare).

Belgium

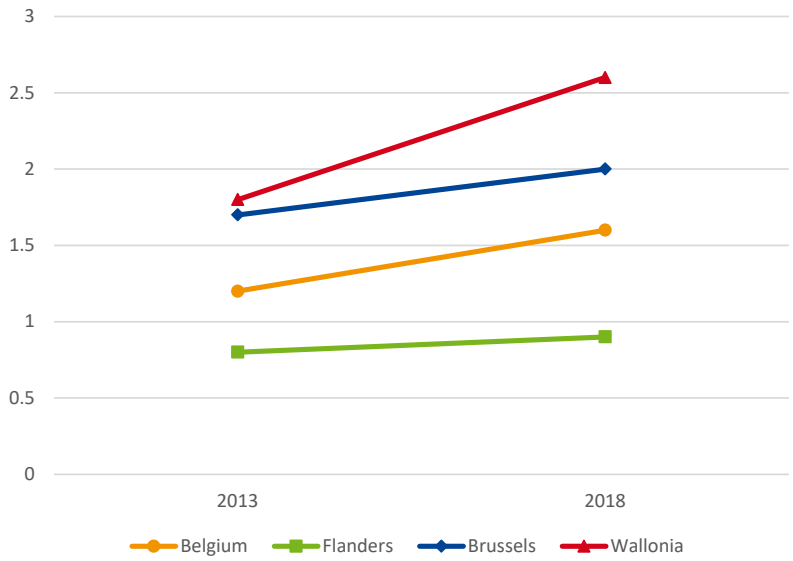
In this section we describe the indicator from the HIS which gives the percentage of the people aged 15 years and older who experienced delay in getting healthcare due to distance or transport problems. Figure 123 shows that at Belgian level there was an increase in this indicator from 1.2% in 2013 to 1.6% in 2018, the most recent year available.

Regional comparison

The percentage of people who experienced delay in getting healthcare due to distance or transport problems is highest in Wallonia (2.6% in 2018) and lowest in Flanders (0.9%). In Brussels it is 2.0% (see Figure 123). The differences between Flanders and Brussels/Wallonia are statistically significant.

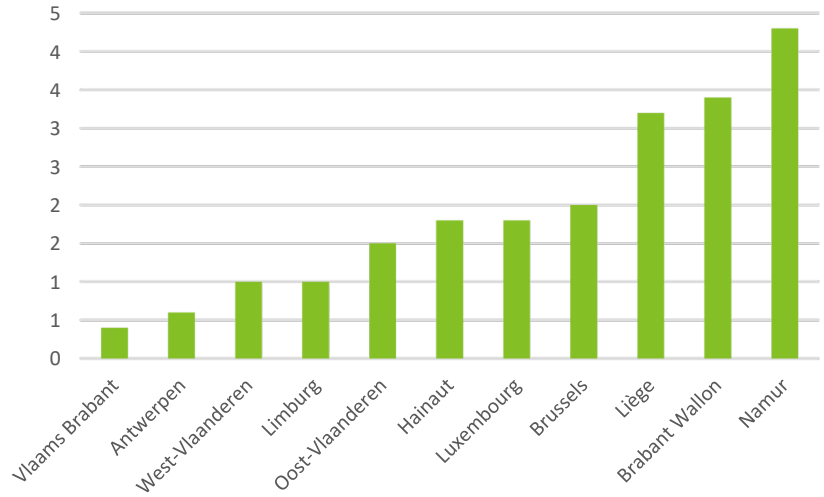
Figure 124 shows the percentage of people who experienced delay in getting healthcare due to distance or transport problems by province. The percentages in the provinces Vlaams-Brabant and Antwerpen are significantly lower than in Brussels, Liège, Brabant Wallon and Namur.

Figure 123 – People who experienced delay in getting healthcare due to distance or transport problems (% of respondents aged 15 years and older) (2013/2018)



Source: Based on HIS

Figure 124 – People who experienced delay in getting healthcare due to distance or transport problems (% of respondents aged 15 years and older) (2018) – analysis by province



Source: Based on HIS

Analysis by demographic characteristics and socio-economic status

Table 102 shows the percentage of people who experienced delayed healthcare due to distance or transport problems for the different age groups. The percentage is highest in the group of 35-44 years (2.2%) and is lowest in the group of 25-34 years (1%). However, the confidence intervals overlap, so there is no statistically significant difference.

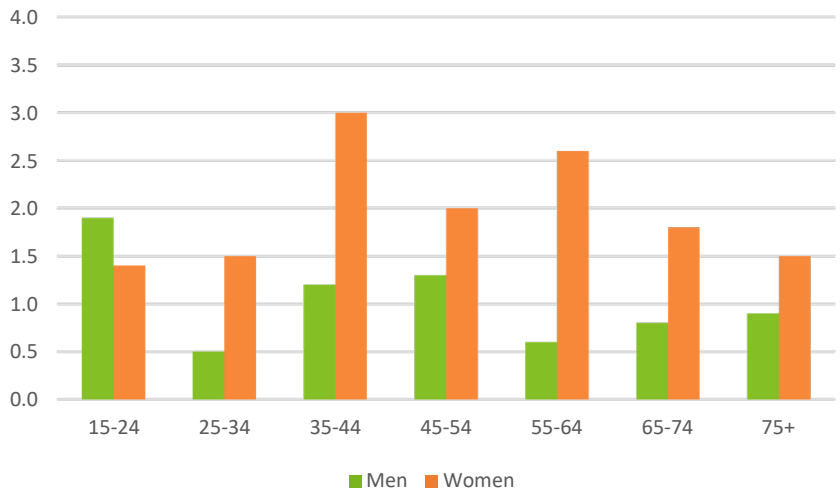
Table 102 – People who experienced delay in getting healthcare due to distance or transport problems (% of respondents) – analysis by age group (2018)

Age group	Crude %	95% CI
15-24	1.7	(0.2-3.1)
25-34	1.0	(0.4-1.7)
35-44	2.2	(0.9-3.5)
45-54	1.7	(0.8-2.5)
55-64	1.7	(0.9-2.5)
65-74	1.3	(0.5-2.1)
75+	1.3	(0.3-2.2)
Total	1.6	(1.2-1.9)

Source: Based on HIS (2018)

Figure 125 shows that the distance or transport problems are more frequent in women than in men, although the difference is not statistically significant. Across all age groups, the percentage of reported distance or transport problems attains 2.0% in women, whilst it attains 1.0% in men.

Figure 125 – People who experienced delay in getting healthcare due to distance or transport problems (% of respondents) – analysis by age group and gender (2018)



Source: Based on HIS (2018)

Table 103 shows the percentage of people who experienced delayed healthcare due to distance or transport problems by income level quintile. People in households in the lowest income quintile report most frequently that they have experienced delayed healthcare due to distance or transport problems (3.8%), whilst people in households in the highest income quintile least frequently report such problems (0.6%). The difference between the first and last quintile is statistically significant.

Table 103 – People who experienced delay in getting healthcare due to distance or transport problems (% of respondents aged 15 years and older) – analysis by income level (2018)

Income level	Crude %	95% CI
Quintile 1 (lowest income)	3.8	(2.4-5.2)
Quintile 2	2.4	(0.9-3.9)
Quintile 3	1.2	(0.5-1.9)
Quintile 4	1.5	(0.5-2.5)
Quintile 5 (highest income)	0.6	(0.2-1.0)
Total	1.6	(1.2-2.0)

Source: Based on HIS (2018)

Analysis by household composition

Table 104 shows that the occurrence of delayed healthcare due to distance or transport problems is highest in singles and one parent households (respectively 2.4% and 2.5%), whilst the occurrence is lowest in couples with children (1.0%). The difference between singles and couples with children is statistically significant.

Table 104 – People who experienced delay in getting healthcare due to distance or transport problems (% of respondents aged 15 years and older) – analysis by household composition (2018)

Household composition	Crude %	95% CI
Single	2.4	(1.5-3.2)
One parent household	2.5	(1.0-4.0)
Couple without children	1.4	(0.6-2.2)
Couple with children	1.0	(0.4-1.5)
Other or unknown	2.0	(0.3-3.8)
Total	1.6	(1.2-1.9)

Source: Based on HIS (2018)

Analysis by urbanization level

Table 105 shows that the occurrence of delayed healthcare due to distance or transport problems is highest in rural areas (2.5%), whilst it is lowest in the suburban/banlieus areas (0.9%). In the big cities/dense agglomerations and urbanized municipalities it approaches the average value of 1.6% (with respectively 1.4% in big cities/dense agglomerations and 1.8% in urbanized municipalities). The differences however are not statistically significant as the confidence intervals overlap.

Table 105 – People who experienced delay in getting healthcare due to distance or transport problems (% of respondents) – analysis by urbanisation level (2018)

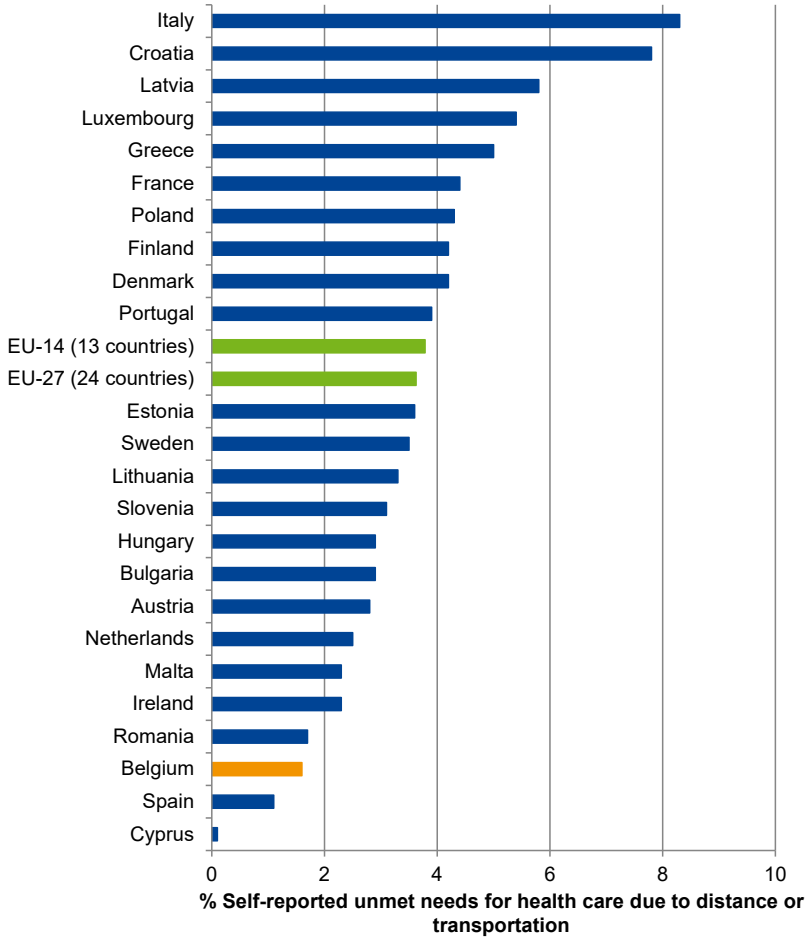
Urbanisation level	Crude %	95% CI
Big cities and dense agglomerations	1.4	(0.9-1.9)
Suburban / banlieus	0.9	(0.4-1.3)
Urbanized municipalities	1.8	(1.1-2.5)
Rural	2.5	(0.6-4.5)
Total	1.6	(1.2-1.9)

Source: Based on HIS (2018)

International comparison

According to the European Health Interview Survey (EHIS) of 2019, Belgium has a relatively low level of people with unmet need due to distance or transport problems (the same value of 1.6% as reported in the HIS (2018)) compared to other European countries (see Figure 126).

Figure 126 – People with self-reported unmet needs for healthcare due to distance or transport problems (2019) – Source: EHIS



Source: based on EHIS data 2019

People who experienced delay in healthcare because the time to get an appointment was too long (% of respondents) – Source: HIS

Belgium

Figure 127, based on the HIS, shows the percentage of the people who experienced delay in getting healthcare because the time to get an appointment was too long. This indicator attained 6.6% for Belgium in 2018.

Regional comparison

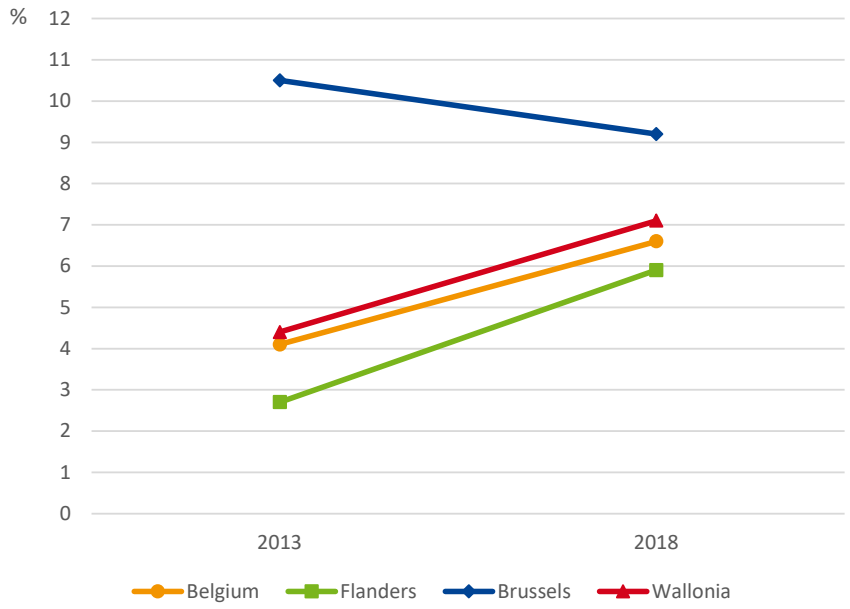
The indicator has the highest value in Brussels, where it attains 9.2% in 2018. In the same year in Wallonia, it attains 7.1% and in Flanders it is lowest with 5.9%.

Analysis by demographic characteristics and socio-economic status

In 2018, 5.7% of male respondents experienced delay in healthcare because of waiting time, whilst 7.4% of female respondents experienced such delay. However, this difference between males and females is not statistically significant.

There is no clear relationship between this indicator and the income or education level of respondents.

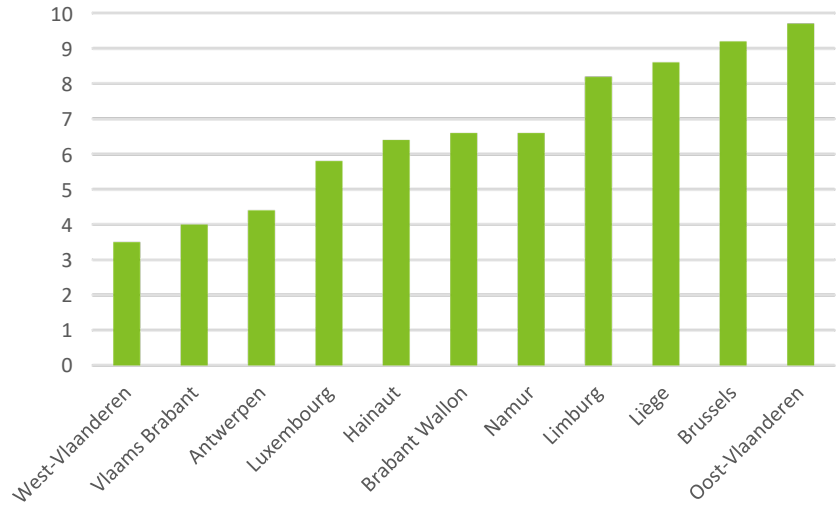
Figure 127 – People who experienced delay in getting healthcare because the time to get an appointment was too long (% of respondents aged 15 years and older) (2013/2018)



Source: Based on HIS

Figure 128 shows that there is variation between the provinces. The percentage people who experienced delay in healthcare due to waiting time is lowest in the province of West-Vlaanderen (3.5%) and highest in the provinces of Liège (8.6%), Brussels (9.2%) and Oost-Vlaanderen (9.7%). The differences between West-Vlaanderen and Liège, Brussels and Oost-Vlaanderen are statistically significant.

Figure 128 – People who experienced delay in getting healthcare because the time to get an appointment was too long (% of respondents aged 15 years and older) (2018) – analysis by province

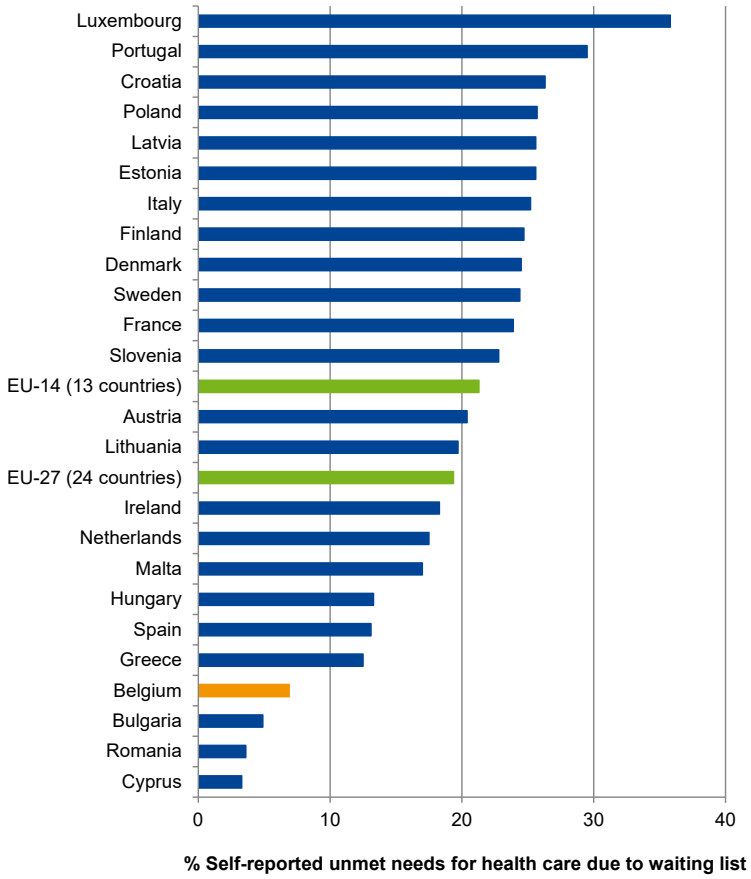


Source: Based on HIS

International comparison

According to the European Health Interview Survey (EHIS) of 2019 (see Figure 129), Belgium ranks relatively well for unmet medical need due to waiting list. For Belgium, a percentage of 6.9% is reported (relatively close to the percentage reported in the HIS (2018): 6.6%).

Figure 129 – People who experienced delay in healthcare because the time to get an appointment was too long (% of respondents) (2019) – Source: EHIS



Source: based on EHIS data 2019

Impact of COVID-19 pandemic

Time analysis of the EU-SILC data on people with self-reported unmet medical need due to waiting list shows that there is a small rise from zero in the four preceding years (2017-2020) to 0.5% in 2021. This small rise can likely be linked to the COVID-19 pandemic. In 2022 the value dropped to 0.0% again.

In contrast, but not surprisingly, there was no impact of the pandemic on the self-reported unmet medical needs due to geographic reasons (too far for travel or no means of transport).

As the data from the HIS are only available for 2013 and 2018, one cannot yet assess the impact of COVID for the indicators relying on this survey.

Key points

Unmet need due to geographic reasons (too long for travel or no means of transport)

- The EU-SILC data, which are about forgone (i.e. not received) healthcare, report a 0.0% unmet medical need due to geographic reasons (too long for travel or no means of transport) as main reason in Belgium in the period 2017-2022. Also the EU averages are low: EU-14 and EU-27 average is 0.1% for 2022.
- The HIS on the other hand, which is about delayed healthcare, reports that 1.6% of the population experienced delay in getting healthcare due to distance or transport problems as one of the reasons (data_for 2018). This percentage is signifcantly higher in Wallonia (2.6%) and Brussels (2.0%), compared to Flanders (0.9%). Persons from a household in the lowest income quintile have a significantly higher percentage for delay in healthcare for geographic reasons (3.8%) than persons from households in the highest income quintile (0.6%).

Unmet need due to waiting time

- The EU-SILC data report a 0.0% of unmet medical need due to waiting time in 2022 in Belgium. EU averages are slightly higher: EU-

14 average is 1.2% and EU-27 average is 1.5%. The year before (in 2021) it reached 0.5% in Belgium, which can likely be linked to the COVID pandemic.

- The HIS data on the other hand, report that 6% of the people aged 15 years and older experienced delay in getting healthcare because the time to get an appointment was too long (data for 2018). The percentage is significantly higher in the provinces of Liège, Brussels and Oost-Vlaanderen compared to West-Vlaanderen.
- These data on unmet need should be used with caution and further analysis is needed to fully understand the differences in magnitude and the fluctuation of these indicators between years and between surveys.

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1. Council of Europe. Health Policy. Report on Criteria for the management of waiting lists and waiting times in health care [Web page]. [cited September 2023]. Available from: https://www.coe.int/t/dg3/health/waitinglistreport_en.asp
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8.2 People with self-reported unmet need for dental care due to geographic (too far for travel or no means of transport) or waiting time reasons (% of respondents, EU-SILC) (A-14)

8.2.1 Documentation sheet

Description	People with self-reported unmet need for dental care due to - geographic reasons (too far for travel or no means of transport) - waiting time reasons based on EU statistics on income and living conditions (EU-SILC) (HLTH_SILC_09)
Calculation	Numerator: Number of individuals aged 16+ that answer yes to the unmet dental care need question and give as main reason "too far to travel or no means of transport" or "waiting list" Denominator: total number of individuals aged 16 years old and over included in the survey
Rationale	Healthcare systems of European countries are facing increasing demands for healthcare services. Important reasons for growth in care needs include demographic changes (people are getting older), the development of medical technology (which makes it possible to treat more illnesses), increase in chronic care (people who survive acute illness because of new treatments become chronic patients), changes in the prevalence of diseases (increasing prevalence of cancer and infectious diseases) and the medicalisation of society.[1] At the same time, countries try to organise care in an efficient way, limiting the resources used. This requires choices to be made concerning health service capacity and distribution, which can impact accessibility. Assessing self-reported unmet needs for geographical or waiting time reasons is one way to assess whether health services distribution is adequate.
Data source	Eurostat: EU-SILC: Online data code: HLTH_SILC_09 https://ec.europa.eu/eurostat/web/main/data/database Data navigation tree location: Population and social conditions > Health > Health care > Unmet needs for health care https://ec.europa.eu/eurostat/databrowser/view/hlth_silc_09/default/table?lang=en
Technical definitions	Self-reported unmet needs: Person's own assessment of whether he or she needed examination or treatment for a specific type of healthcare, but did not have it or did not seek for it. EU-SILC collects data on two types of healthcare services: medical care and dental care. Dental care refers to refers to individual healthcare services provided by or under direct supervision of stomatologists (dentists). Healthcare provided by orthodontists is included. The questions in EU-SILC related to unmet dental care need are formulated as follows: "Was there any time during the last 12 months when you personally, really needed a dental examination or treatment but you did not receive it?" ► Yes ► No "What was the main reason for not receiving the dental examination or treatment?

	1. Could not afford to (too expensive) 2. Waiting list 3. Could not take time off work/ from caring for children 4. Too far to travel or no means of transport 5. Fear of doctor/examination/treatment 6. Wanted to wait and see if problem got better on its own 7. Didn't know any good medical doctor 8. Other reason" Statistical unit: Individuals aged 16 years old and over living in private households. Statistical population: The EU-SILC target population in each country consists of all persons living in private households. Persons living in collective households and in institutions are generally excluded from the target population. Reference Period: for the unmet needs variables the past 12 months https://ec.europa.eu/eurostat/cache/metadata/en/hlth_silc_01_esms.htm
International comparability	EU-SILC data are available for the following countries: EU Member States, Iceland, Norway, Switzerland, Montenegro, the former Yugoslav Republic of Macedonia, Serbia, Turkey. https://ec.europa.eu/eurostat/cache/metadata/en/hlth_silc_01_esms.htm
Limitations	
Dimension	Accessibility – Health services distribution
Related indicators	
Reviewers	Rana Charafeddine (Sciensano)

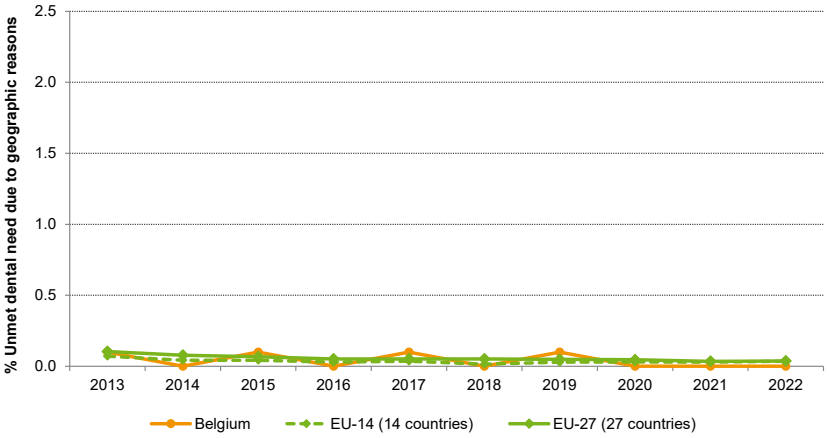
8.2.2 Results

People with unmet dental care need due to geographic reasons (too far for travel or no means of transport) (% of respondents) – Source: EU-SILC

Belgium

Figure 130 shows the percentage of people with unmet dental care need due to geographic reasons over the years 2013-2022. For Belgium, the percentage varies from zero to 0.1%. In the years 2020-2021-2022 it remains 0.0%.

Figure 130 – People with unmet dental care need due to geographic reasons (too far for travel or no means of transport) (% of respondents) (2013-2022)



Source: Based on EU-SILC

Regional comparison

No data on the Belgian regions is available for this indicator.

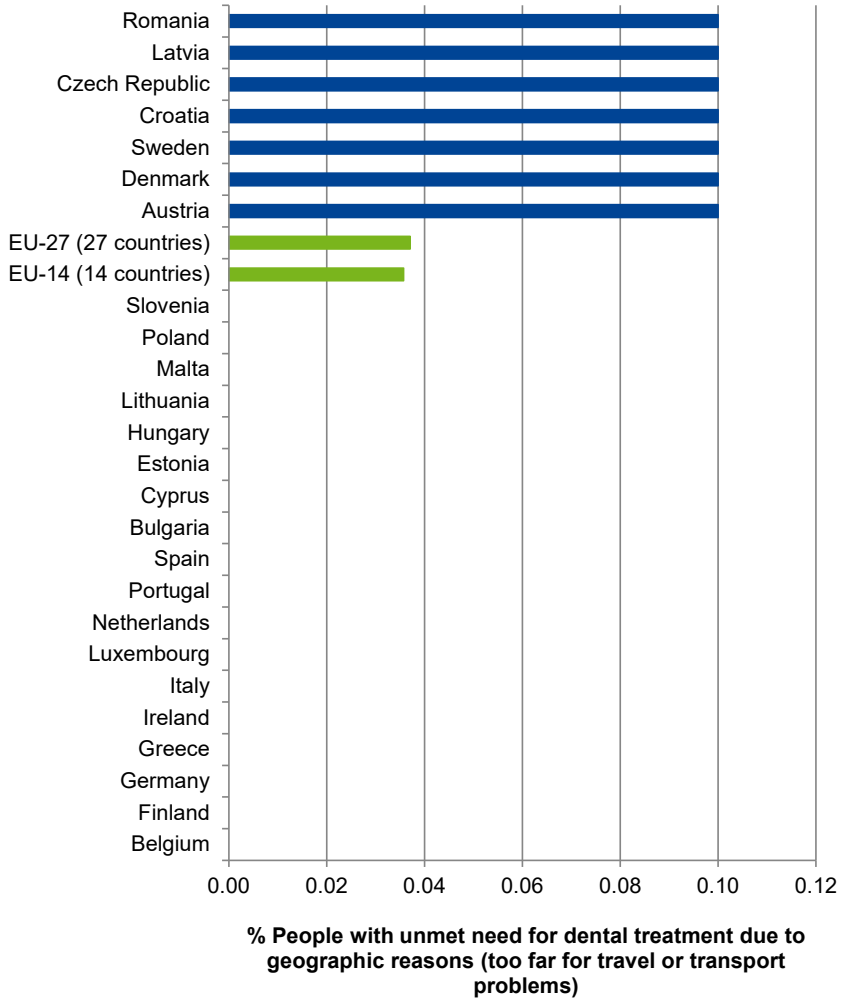
Analysis by demographic characteristics and socio-economic status

As the value of this indicator was zero in the years 2020-2021-2022, no further analysis is done with regard to demographic (age, gender) and socio-economic (income level) variables.

International comparison

Figure 131 shows the percentage of people with unmet dental care need due to geographic reasons for all countries included in the EU-SILC in 2022. For 18 countries, including Belgium, the percentage is zero. EU-14 and EU-27 average attains 0.04% in 2022.

Figure 131 – People with unmet dental care need due to geographic reasons (% of respondents) (2022) – Source: EU-SILC



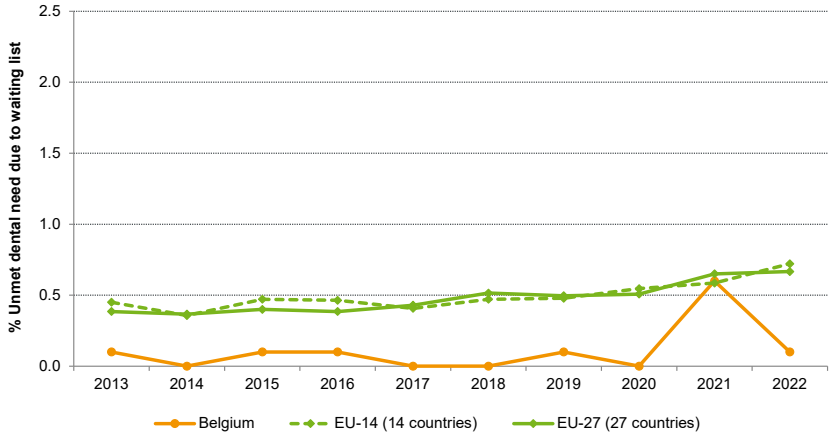
Source: Based on EU-SILC data 2022

People with unmet dental care need due to waiting time (% of respondents) – Source: EU-SILC

Belgium

Figure 132 shows the percentage of people with unmet dental care need due to waiting time for the years 2013-2022. In the period 2013-2020 the percentage for Belgium varies from zero to 0.1%. In 2021 it increased to 0.6%, coming close to but staying below the average of EU-14 and EU-27 countries. The increase in 2021 is presumably linked to the COVID-19 pandemic. In 2022 it dropped to 0.1%.

Figure 132 – People with unmet dental care need due to waiting time (% of respondents) (2013-2022)



Source: Based on EU-SILC

Regional comparison

No data on the Belgian regions is available for this indicator.

Analysis by demographic characteristics and socio-economic status

We analysed whether there are differences according to gender, age category or income quintile for the self-reported unmet dental care need due to waiting time reported in 2021. (We analysed this for the year 2021 as in 2022 the percentage is very low.) These data are displayed in Table 106. We see that the people in the age categories 25-34 years and 75+ are the least affected groups (0.2%), compared to the other age groups. We also see that the people in the fifth income quintile are the least affected (0.4%) compared to the other income quintiles (0.6%).

Table 106 – People with self-reported unmet dental care need due to waiting list (% of respondents) – analysis by gender, age category and income quintile (2021) – EU-SILC

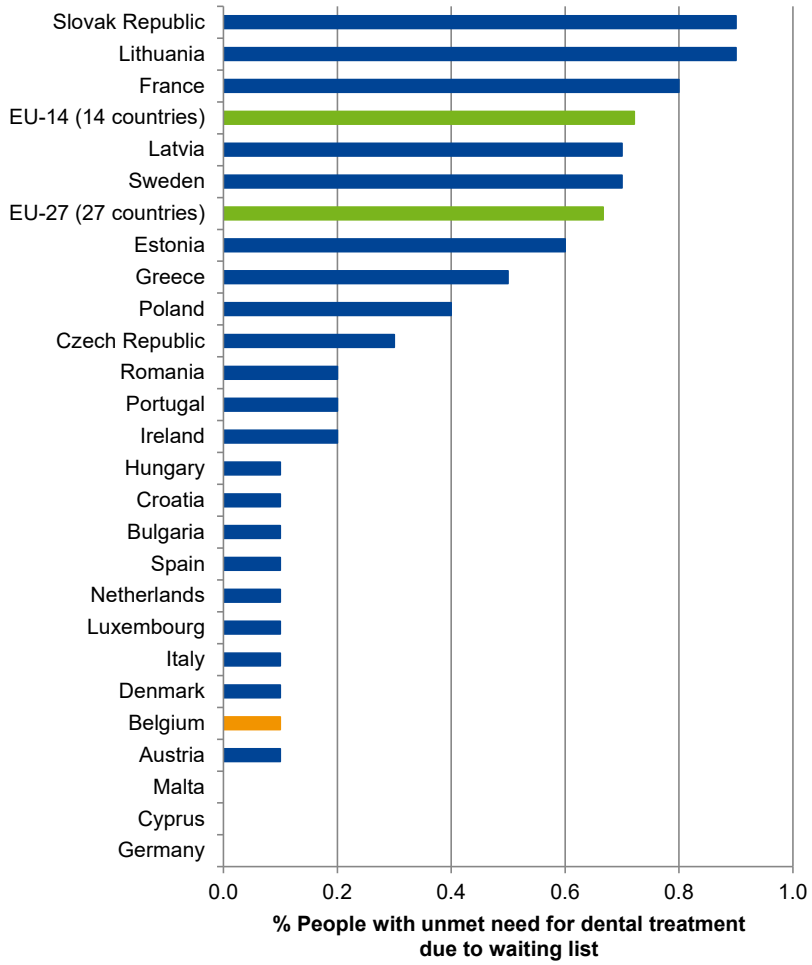
EU-SILC		% of respondents
Belgium		0.6%
Gender	Males	0.5%
	Females	0.6%
Age category	16-24	0.6%
	25-34	0.2%
	35-44	0.7%
	45-54	0.8%
	55-64	0.8%
	65-74	0.7%
	75 or over	0.2%
Income levels	First quintile	0.6%
	Second quintile	0.6%
	Third quintile	0.6%
	Fourth quintile	0.6%
	Fifth quintile	0.4%

Source: Based on EU-SILC 2021

International comparison

Figure 133 shows the percentage of people with unmet dental need due to waiting time across the countries in the EU-SILC dataset in 2022. With its 0.1% Belgium ranks better than the EU-14 and EU-27 averages of 0.7%.

Figure 133 – People with unmet dental care need due to waiting time (% of respondents) (2022) – Source: EU-SILC



Source: Based on EU-SILC data 2022

Impact of COVID-19 pandemic

Figure 132 shows the percentage of people with unmet dental care need due to waiting time for the years 2013-2022. In the period 2013-2020 the percentage for Belgium varies from zero to 0.1%. In 2021 there was an increase to 0.6%. This increase is presumably linked to the COVID-19 pandemic. In 2022 the percentage again drops to 0.1%.

No such impact was seen on the percentage of people with unmet dental care need due to distance or transport problems.

Key points

- **The percentage of people with self-reported unmet dental care need due to geographic reasons (too far for travel or no means of transport) stays close to zero in Belgium. Both the EU averages and Belgian percentages are low for the 2013-2022 period (<0.1%).**
- **The percentage of people with self-reported unmet dental care need due to waiting time reasons increased in 2021 and became close to the EU averages (EU-14 and EU-27) but remained below 1%. This increase is presumably linked to the COVID-19 pandemic. In 2022 the percentage dropped to 0.1% again.**

References

1. Council of Europe. Health Policy. Report on Criteria for the management of waiting lists and waiting times in health care [Web page]. Available from: https://www.coe.int/t/dg3/health/waitinglistreport_en.asp

8.3 Patients who experienced a waiting time of more than two weeks to get an appointment with a medical specialist (% of respondents asking an appointment in past year, HIS) (A-15)

8.3.1 Documentation sheet

Description	**Primary indicator** Patients who experienced a waiting time of more than two weeks to get an appointment with a medical specialist (% of respondents who consulted a medical specialist in past year) **Secondary indicator** Patients who experienced the waiting time to get an appointment with a specialist as a problem (% of respondents who consulted a medical specialist in past year)
Calculation	**Numerator** Primary indicator: Number of patients, aged 15 years and over, who consulted a medical specialist in past year and experienced a waiting time of more than two weeks to get an appointment Secondary indicator: Number of patients, aged 15 years and over, who consulted a medical specialist in past year and experienced the waiting time for a specialist as a problem **Denominator** Number of patients aged 15 years and over who consulted a medical specialist in past year
Rationale	Assessing waiting times is one way to evaluate whether health services distribution is adequate. Waiting times for healthcare are not systematically registered in Belgium, so analysis of the data from the HIS provide a rare but valuable opportunity to get a view on the situation in Belgium, although the data are very general and not differentiated according to specialism. The HIS is repeated every 4-5 years. Waiting times for an appointment with a medical specialist may have further increased due to the COVID-19 pandemic, however the latest data available from the HIS date from 2018, so there is currently no view yet on the impact of COVID-19 on the basis of this survey.
Data source	Health Interview Survey (HIS) conducted by Sciensano: https://www.sciensano.be/en/projects/health-interview-survey/hisia **Primary indicator** Indicator PE02_3, part of 'Patient experiences'. PE02_3 is an indicator showing the distribution of medical specialist patients according to the delay to get an appointment. One of the categories is more than 2 weeks. **Secondary indicator** Indicator PE03_3, part of 'Patient experiences'.
Technical definitions	The concerned questions in HIS are part of the individual questionnaire. The indicators on waiting time only concern consultations at the cabinet of the specialist. Home visits are not in scope. The indicators on waiting time are furthermore not relevant for telephonic consultations. The questions were posed to persons aged 15 years or older.

	"Earlier during this interview you have indicated that during the past 12 months you have consulted a specialist. I will now ask some questions about your patient experiences during the last consultation with a specialist in Belgium. Beware, contacts during a hospitalisation are not considered. Can you describe your last type of consultation?" 1. Consultation with specialist at an outpatient department of a hospital 2. Consultation with a specialist at a doctor's office 3. Telephone consultation by a specialist 4. In the past year I have not consulted a specialist in Belgium. 9. Don't know -1. No answer If answer is 3. (telephone consultation) or 4. (no consultation), then the question on waiting time is not posed. In other cases, the following question on waiting time is posed: "How quickly did you get an appointment to see this doctor?" (Open question with immediate (re)coding by interviewer into days) 1. 0 days (= same day) 2. 1 day (= next day) 3. 2 to 5 days (= couple of days) 4. 6 to 7 days (= just less than a week) 5. 8 to 14 days (= more than 1 week) 6. 15 to 30 days (= more than 2 weeks) 7. 31 to 60 days (= more than 1 month) 8. 61 to 90 days (= more than 2 months) 9. 91 days or longer (= more than 3 months) 10. I did not make an appointment, I went directly to the doctor 11. The appointment was already made during the previous consultation 99. Don't know -1. No answer Sampling frame: The HIS is addressed to all persons residing in the country, without restrictions as to their nationality, age or legal status. The most complete sampling frame to reach this target population is the National Register. People who are not registered in the National Register, such as the homeless or illegal immigrants, can therefore not be selected for participation in the survey. For pragmatic reasons, a number of categories of persons were excluded from the sample: persons residing (and registered) in a prison or religious community with more than 8 persons and residents of an institution with the exception of residents of a residential care or nursing home.[1]
International comparability	Waiting times are registered in several European countries, however, there is no direct comparison to the Belgian data from HIS as methodologies differ.

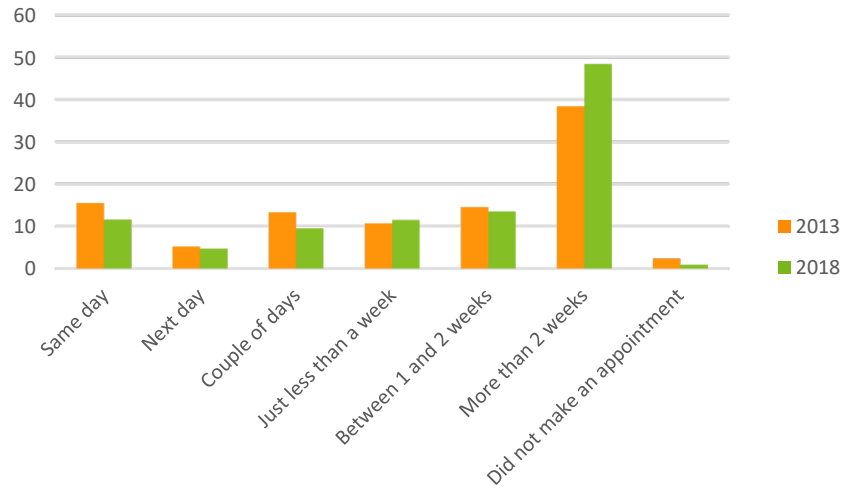
Limitations	
Dimension	Accessibility – Health services distribution
Related indicators	Waiting time for face to face contact with mental health center
Reviewers	Rana Charafeddine (Sciensano)

8.3.2 Results

Belgium

According to the last data from the HIS, 48% of the patients who consulted a medical specialist in 2018 had to wait more than two weeks to get an appointment with a specialist (see Figure 134). Compared to 2013 there was an increase of 10 percentage points (38% in 2013).

Figure 134 – Waiting time to get an appointment with the specialist (% of respondents aged 15 years and older asking an appointment in past year) (2013/2018)

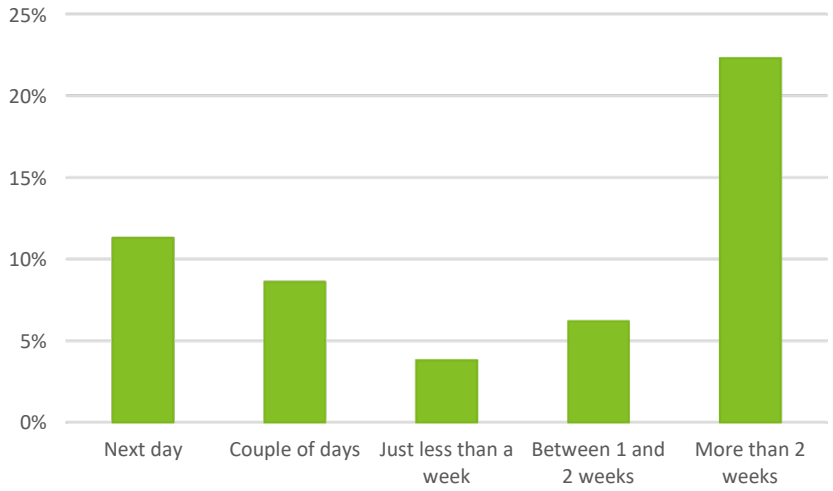


Source: Based on HIS

In 2018, 13.5% of the Belgian patients who asked an appointment with a specialist (aged 15 years and over) had a problem with the waiting time to get this appointment. In 2013, this percentage was lower: 10.2%.

The percentage patients that had a problem with the waiting time for making an appointment with a specialist correlates with the waiting time. In case the waiting time is more than 2 weeks, 22% of the patients perceives this as problematic (see Figure 135).

Figure 135 – Patients (aged 15 years and over) who had a problem with the waiting time to get an appointment to see the specialist (% of respondents aged 15 years and older asking an appointment in past year) – analysis by waiting time (2018)



Source: Based on HIS (2018)

Analysis by demographic characteristics and socio-economic status

We analysed whether there are differences according to gender, age category or income quintile for the percentage of patients who had a waiting time of more than 2 weeks to see a specialist as reported in 2018. These data are displayed in Table 107. We see that the people in the age category 75+ are the least affected by long waiting times (31.8%), compared to the other age groups. There is no clear relationship with income level.

Table 107 – Patients who experienced a waiting time of more than two weeks to get an appointment with a medical specialist (% of respondents aged 15 years and older asking an appointment in past year) – analysis by gender, age category and income quintile (2018) – HIS

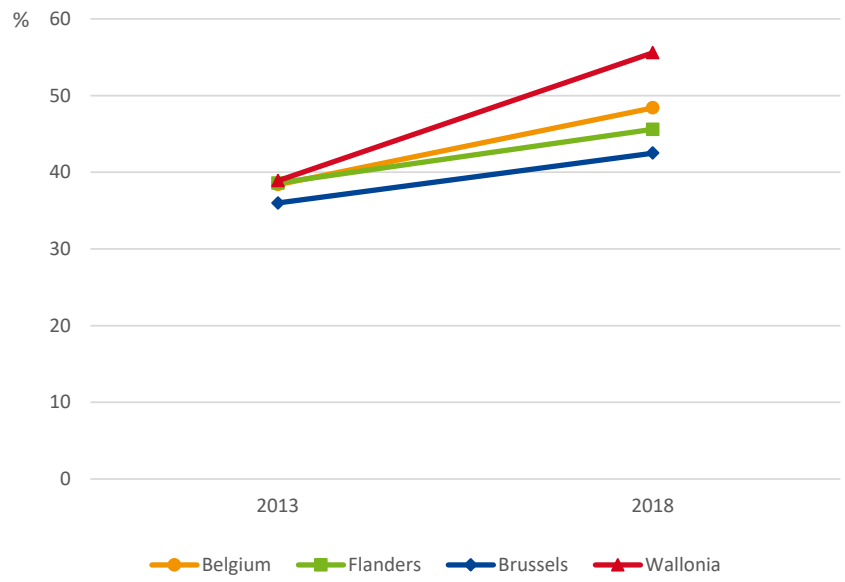
		% of respondents
Belgium		
Gender	Males	49.6
	Females	47.7
Age category	15-24	45
	25-34	48.7
	35-44	53
	45-54	49.7
	55-64	54.4
	65-74	45.8
	75 or over	31.8
Income levels	First quintile	53
	Second quintile	39.9
	Third quintile	56.4
	Fourth quintile	47
	Fifth quintile	47.1

Source: Based on HIS

Regional comparison

In 2018, the percentage of patients who had to wait more than two weeks to get an appointment with a medical specialist was highest in Wallonia (56%). In Brussels the percentage was lowest (43%). Flanders scores in between (46%). Confidence intervals are not available for these data.

Figure 136 – Patients who experienced a waiting time of more than two weeks to get an appointment with a medical specialist (% of respondents aged 15 years and older asking an appointment in past year) (2013/2018)

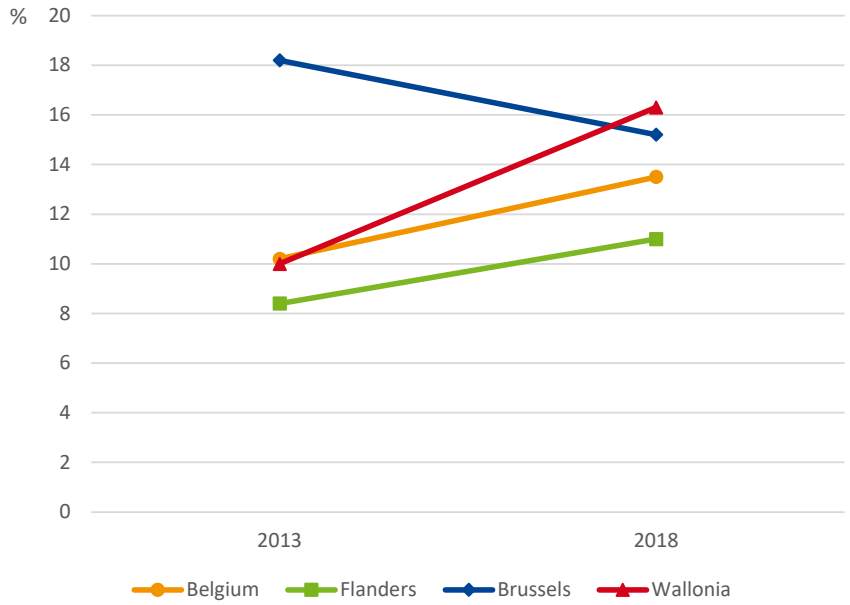


Source: Based on HIS

Compared to 2013, the percentage of patients who had a problem with the waiting time for an appointment with a medical specialist increased in all regions except for Brussels (see Figure 137).

Figure 137 – Patients (aged 15 years and over) who had a problem with the waiting time to get an appointment to see the specialist (% of

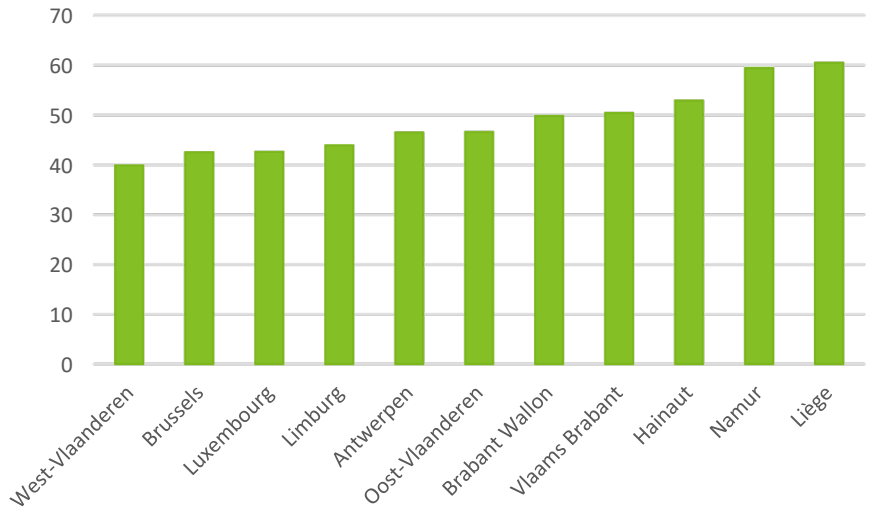
respondents aged 15 years and older asking an appointment in past year) (2013/2018)



Source: Based on HIS

The percentage of patients that had a waiting time of more than 2 weeks to see a specialist is highest in the provinces of Liège and Namur and lowest in the province of West-Vlaanderen (see Figure 138). No confidence intervals are available for these data.

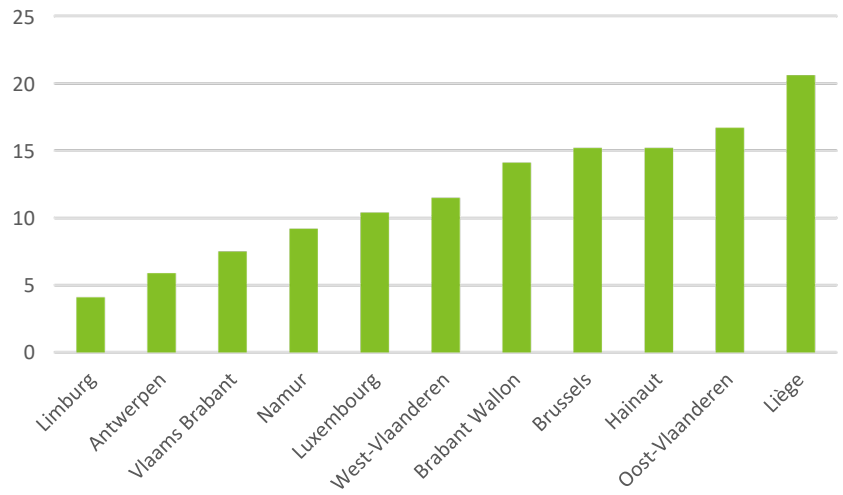
Figure 138 – Patients (aged 15 years and over) who had a waiting time of more than two weeks to see the specialist (% of respondents aged 15 years and older asking an appointment in past year) (2018) – analysis by province



Source: Based on HIS (2018)

The percentage of patients who had a problem with the waiting time for a specialist is significantly higher in Liège than in Limburg and Antwerp (see Figure 139).

Figure 139 – Patients (aged 15 years and over) who had a problem with the waiting time to get an appointment to see a specialist (% of respondents aged 15 years and older asking an appointment in past year) (2018) – analysis by province



Source: Based on HIS (2018)

Impact of COVID-19 pandemic

As the most recent data for these indicators date from 2018, no data are available to assess the impact of the COVID-19 pandemic.

Key points

- **Within the patients who asked for a consultation with a medical specialist, 48% reported that they had to wait more than 15 days to meet the specialist (data from 2018).**
- **Waiting time for a specialist consultation was considered to be a problem by 13.5% of the patients asking an appointment in 2018.**

References

1. Demarest S., Berete F., Charafeddine R., J. VdH. Methodologie. Gezondheidsenquête 2018 [Web page].2019. Available from: https://www.sciensano.be/sites/default/files/method_nl_2018.pdf

8.4 Patients who experienced a waiting time of one day or more to get an appointment with a GP (% of respondents asking an appointment in past year, HIS) (A-16)

8.4.1 Documentation sheet

Description	**Primary indicator** Patients who experienced a waiting time of one day or more to get an appointment with a GP (% of respondents aged 15 years and older having consulted a GP in the past year) **Secondary indicators** (1) Patients who experienced the waiting time to get an appointment with GP as a problem (% of respondents aged 15 years and older having consulted a GP in the past year) (2) GPs who refuse new patients (%)
Calculation	**Primary indicator** Numerator: Number of patients, aged 15 years and over, having consulted a GP in the past year and answering to have a waiting time of one day or more to get an appointment with a GP (= sum of individuals answering “Next day” + “Couple of days” + “Just less than a week” + “Between 1 week and 2 weeks” + “More than 2 weeks”) Denominator: Number of patients aged 15 years and over having consulted a GP in the past year **Secondary indicator (1)** Numerator: Number of patients, aged 15 years and over, having consulted a GP in the past year and answering to have experienced the waiting time for a GP as a problem Denominator: Number of patients aged 15 years and over having consulted a GP in the past year **Secondary indicator (2)** Numerator: GPs who refuse new patients Denominator: Number of GPs
Rationale	Assessing waiting times is one way to evaluate whether health services distribution is adequate. More and more GPs in Belgium do not accept new patients as they reached the maximum number of patients they can treat. Accessibility of GPs has become an area of concern.
Data source	**Primary indicator** Health Interview Survey (HIS) conducted by Sciensano: Indicator PE02_2, part of ‘Patient experiences’. https://www.sciensano.be/en/projects/health-interview-survey/hisia **Secondary indicator (1)**

	Health Interview Survey (HIS) conducted by Sciensano: Indicator PE03_2, part of 'Patient experiences' **Secondary indicator (2)** Rapport: analyse tijdsbesteding huisartsen. IM Associates. Study commissioned by FPS Public Health (2023) [1]
Technical definitions	**Primary indicator and secondary indicator (1)** The concerned questions in HIS are part of the individual questionnaire. The indicators on waiting time only concern consultations at the cabinet of the GP. Home visits are not in scope. The indicators on waiting time are not relevant for telephonic consultations. The questions were posed to persons aged 15 years or older: "Earlier during this interview you have indicated that during the past 12 months you have consulted a GP. I will now ask some questions about your patient experiences during the last consultation with a GP. Beware, we only consider consultations in the GP's office and consultations by telephone in Belgium. Home visits are not considered. Can you describe your last type of consultation?" 1. Consultation with general practitioner/family physician at a GP's office 2. Telephone consultation by a GP 3. During the past 12 months I had no consultation with a GP at his office and no telephone consultation (in Belgium). 9. Don't know -1. No answer In case the answer is 2. (telephone consultation) or 3. (no consultation) then the following question on waiting time is not posed. "How quickly did you get an appointment to see this doctor?" (Open question with immediate (re)coding by interviewer into days) 1. 0 days (= same day) 2. 1 day (= next day) 3. 2 to 5 days (= couple of days) 4. 6 to 7 days (= just less than a week) 5. 8 to 14 days (= more than 1 week) 6. 15 to 30 days (= more than 2 weeks) 7. 31 to 60 days (= more than 1 month) 8. 61 to 90 days (= more than 2 months) 9. 91 days or longer (= more than 3 months) 10. I did not make an appointment, I went directly to the doctor 11. The appointment was already made during the previous consultation 99. Don't know -1. No answer

	"Was the time you waited for the appointment a problem for you?" 1. Yes 2. No 9. Don't know -1. No answer Sampling frame: The HIS is addressed to all persons residing in the country, without restrictions as to their nationality, age or legal status. The most complete sampling frame to reach this target population is the National Register. People who are not registered in the National Register, such as the homeless or illegal immigrants, can therefore not be selected for participation in the survey. For pragmatic reasons, a number of categories of persons were excluded from the sample: persons residing (and registered) in a prison or religious community with more than 8 persons and residents of an institution with the exception of residents of a rest home or a rest and care home. [2]
International comparability	
Limitations	
Dimension	Accessibility – Health services distribution
Related indicators	
Reviewers	Rana Charafeddine (Sciensano)

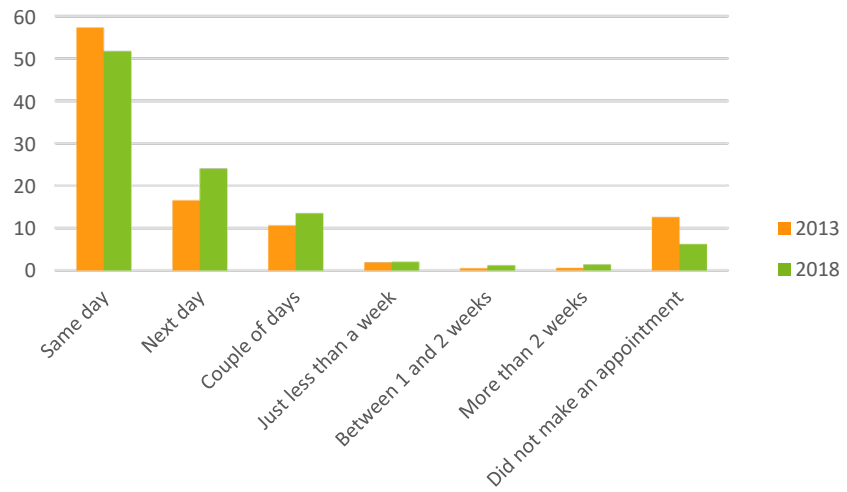
8.4.2 Results

Patients who experienced a waiting time of one day or more to get an appointment with a GP / Patients who experienced the waiting time to get an appointment with GP as a problem

Belgium

Figure 140 shows the percentage of patients (aged 15 years and over) according to waiting time to see a GP (in 2013 and 2018) in Belgium. 42% of patients had a waiting time of one day or more in 2018, compared to 30% in 2013.

Figure 140 – Waiting time to see the GP (% of respondents who consulted a GP in past year) (2013/2018)



Source: Based on HIS (2013-2018)

In 2018 3.9% of the patients in Belgium had a problem with the waiting time for making an appointment with the GP.

The percentage patients that had a problem with the waiting time for making an appointment with a GP correlates with the waiting time. In case the waiting time is only one or a couple of days, less than 10% of the patients perceives the waiting time as problematic. In case the waiting time reaches just less than a week or more, 25% of patients perceives this as problematic (weighted average calculated over the population in 'just less than a week', '1-2 weeks', and '>2 weeks') (see Figure 141).

Figure 141 – Patients (aged 15 years and over) who had a problem with the waiting time to get an appointment to see the GP (% of respondents who consulted a GP in past year) – analysis by waiting time (2018)

Source: based on HIS (2018)

Analysis by demographic characteristics and socio-economic status

We analysed whether there are differences according to gender, age category or income quintile for the percentage of patients who had a waiting time of one day or more to see a GP as reported in 2018. These data are displayed in Table 108. We see that the people in the age categories 55-64 and 75+ are slightly more affected by long waiting times (48%), compared to the other age groups. There is no clear relationship with income level.

Table 108 – Patients who experienced a waiting time of one day or more to get an appointment with a GP (% of respondents who consulted a GP in past year) – analysis by gender, age category and income quintile (2018) – HIS

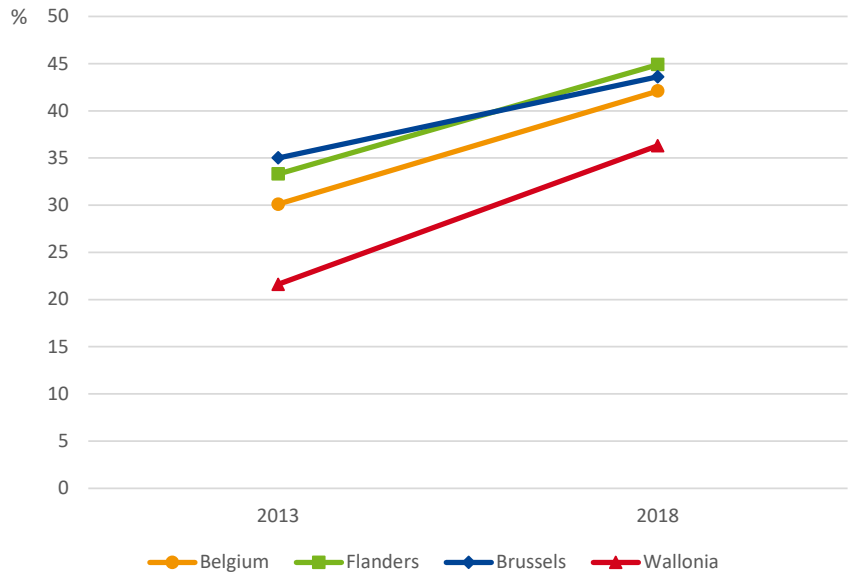
		% of respondents
Belgium		
Gender	Males	42.6
	Females	41.7
Age category	15-24	37.9
	25-34	36.3
	35-44	37.9
	45-54	42.8
	55-64	48.4
	65-74	43.7
	75 or over	48.0
Income levels	First quintile	39.5
	Second quintile	44.2
	Third quintile	46.2
	Fourth quintile	39.0
	Fifth quintile	42.0

Source: Based on HIS (2018)

Regional comparison

In all regions, the percentage of patients who had a waiting time of one day or more to see a GP is slightly higher in 2018 than in 2013. In Flanders, the percentage is highest (45% in 2018). In Brussels it reaches 44% in 2018. In Wallonia the percentage is lowest (36% in 2018).

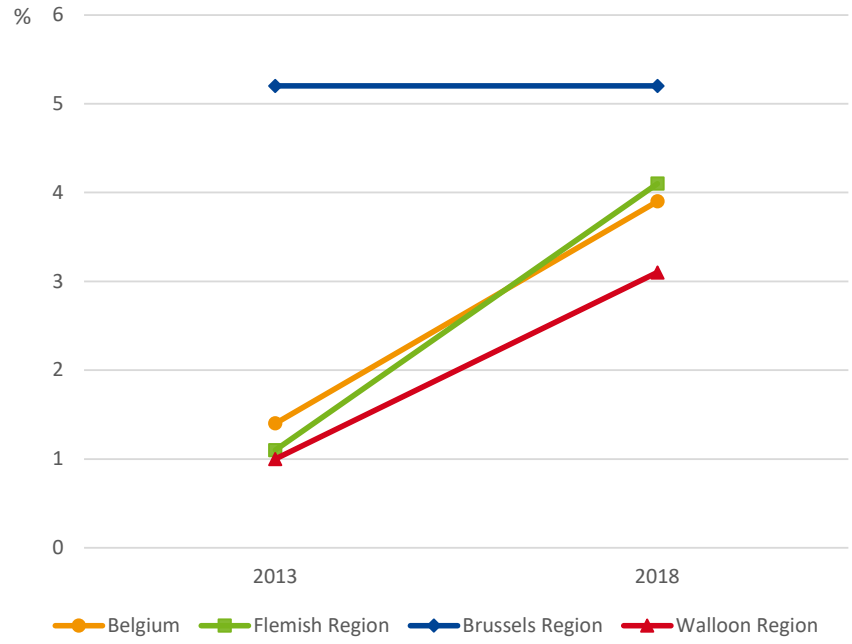
Figure 142 – Patients (aged 15 years and over) who experienced a waiting time of one day or more to see a GP (% of respondents who consulted a GP) (2013/2018)



Source: HIS (2013-2018)

In Brussels the percentage of patients who had a problem with the waiting time to get an appointment with the GP is highest with 5.2% in 2018. In Wallonia, the percentage is lowest with 3.1%. Compared to 2013, the percentage has increased in Flanders and Wallonia but remained stable in Brussels.

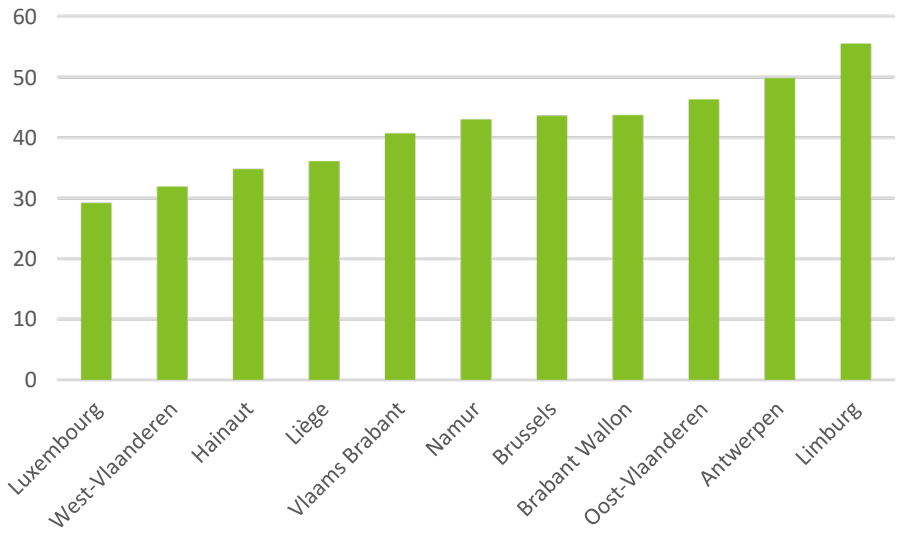
Figure 143 – Patients (aged 15 years and over) who had a problem with the waiting time to get an appointment to see the GP (% of respondents who consulted a GP) (2013/2018)



Source: Based on HIS (2013-2018)

The percentage of patients that had a waiting time of one day or more to see a GP is highest in the provinces of Limburg and Antwerpen and lowest in the province of Luxembourg and West-Vlaanderen (see Figure 144).

Figure 144 – Patients (aged 15 years and over) who experienced a waiting time of one day or more to see a GP (% of respondents who consulted a GP) (2018) – analysis by province



Source: Based on HIS (2018)

GPs who refuse new patients

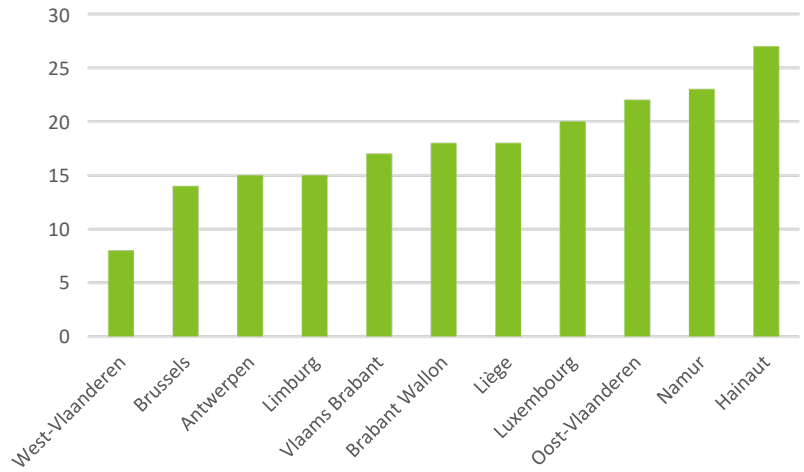
Belgium

According to a survey of 2023, 17% of GPs refuses new patients.[1] The majority of GPs (58%) accepts new patients only under certain conditions. Only 25% of GPs accepts new patients voluntarily and without conditions.

Regional comparison

Figure 145 shows the percentage GPs who refuse new patients by province in 2023. The problem is smallest in West-Vlaanderen (8%) and largest in Hainaut (27%).

Figure 145 – GPs who refuse new patients (%) (2023)



Source: IM Associates, study commissioned by FPS Public Health (2023) [1]

Key Points

- **In 2018 42% of the patients asking for an appointment with a GP reported to have a waiting time of one day or more to see the GP, compared to 30% in 2013.**
- **In case the waiting time reaches just less than a week or more, 25% of patients perceived this as problematic in 2018.**
- **In 2023 17% of GPs refuses new patients. The refusal of new patients is largest in the provinces Hainaut and Namur and lowest in West-Vlaanderen.**

References

1. IM Associates. Rapport: analyse tijdsbesteding huisartsen. In opdracht van de Minister van Volksgezondheid en de Federale Overheidsdienst Volksgezondheid, Veiligheid van de Voedselketen en Leefmilieu [Web page].2023. Available from: https://www.health.belgium.be/sites/default/files/uploads/fields/fpshealth_theme_file/20230417_nl_im_associates_-_rapport_tijdsindeling_huisartsen.pdf
2. Demarest S., Berete F., Charafeddine R., J. VdH. Methodologie. Gezondheidsenquête 2018 [Web page].2019. Available from: https://www.sciensano.be/sites/default/files/method_nl_2018.pdf

8.5 Deaths among people on waiting lists for organs (% of the population on waiting list) (A-17)

8.5.1 Documentation sheet

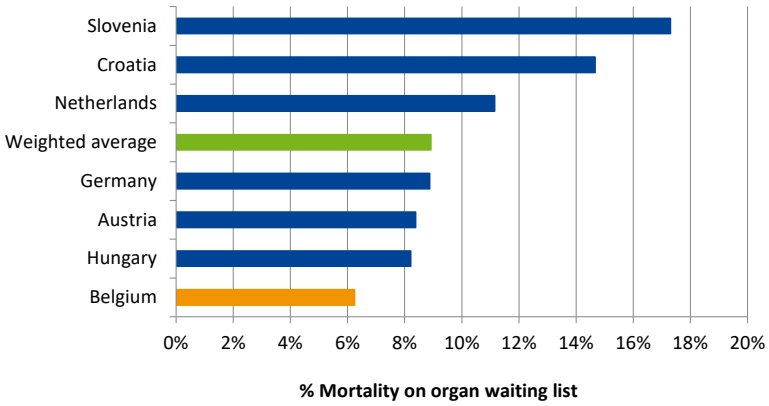
Description	Deaths among people on waiting lists for organs (% of the population on waiting list)
Calculation	Numerator: Waiting list mortality in 2022, by country, for all organs Denominator: Active waiting list (at year-end) in 2022, by country, for all organs
Rationale	1 504 persons were on the waiting list for an organ in Belgium at the year end of 2022. Not for all these patients the outcome will be favourable. Only part of them will get an organ transplant. Some of them die while on the waiting list. The longer the waiting time for transplantation, the higher the number of deaths on the waiting list likely will be. As denominator we take the number of listed patients and not the country's total population, as the incidence of conditions with need for an organ, the case mix and the proportion of listed patients varies from one country to another. These confounding factors would make the mortality rate pro capita difficult to interpret.
Data source	statistics.eurotransplant.org
Technical definitions	The waiting list concerns the following organs: kidney, heart, lung, liver, pancreas and pancreas islets Waiting list includes patients with active or non-active urgency at removal. Includes removals while waiting for living or deceased donor transplants.
International comparability	Eurotransplant has data on the following countries: Belgium, Austria, Germany, Hungary, Croatia, Netherlands, Slovenia International data on donation and transplantation in more countries is made available by the joint ONT-WHO Global Observatory on Donation and Transplantation (GODT) (https://www.transplant-observatory.org), however, these data do not comprise mortality on waiting list.
Limitations	Mortality can be split between all cause mortality and mortality due to unmet need for an organ. The latter mortality rate is most specific and most relevant, however no such detailed data are available. Mortality also varies in function of the concerned organ. Therefore, the organ mix of the waiting list has an impact on the average waiting list mortality of a country. For international comparison purposes, mortality rates by organ are more appropriate.
Dimension	Accessibility – Health services distribution
Related indicators	
Reviewers	Laurent Weekers (CHU de Liège Sart-Tilman)

8.5.2 Results

International comparison

The data presented here are from Eurotransplant, an international collaborative framework responsible for the allocation of donor organs in Austria, Belgium, Croatia, Germany, Hungary, Luxembourg, the Netherlands and Slovenia. Figure 146 shows the percentage mortality on organ waiting list in the Eurotransplant countries (except for Luxembourg). In Belgium, there was a 6.3% mortality in 2022, the lowest figure in the set of seven countries. The weighted average for the seven countries reaches 8.9%.

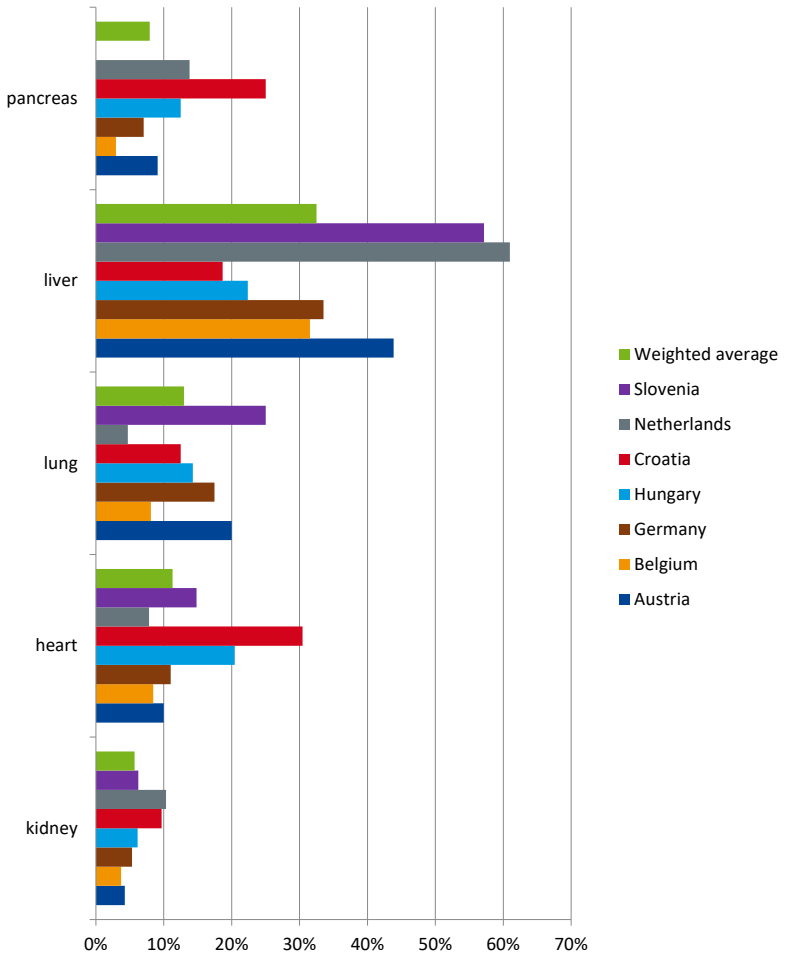
Figure 146 – Deaths among people on organ waiting list (% of persons on waiting list) in the Eurotransplant countries (2022)



Source: Eurotransplant data for 2022 [1]

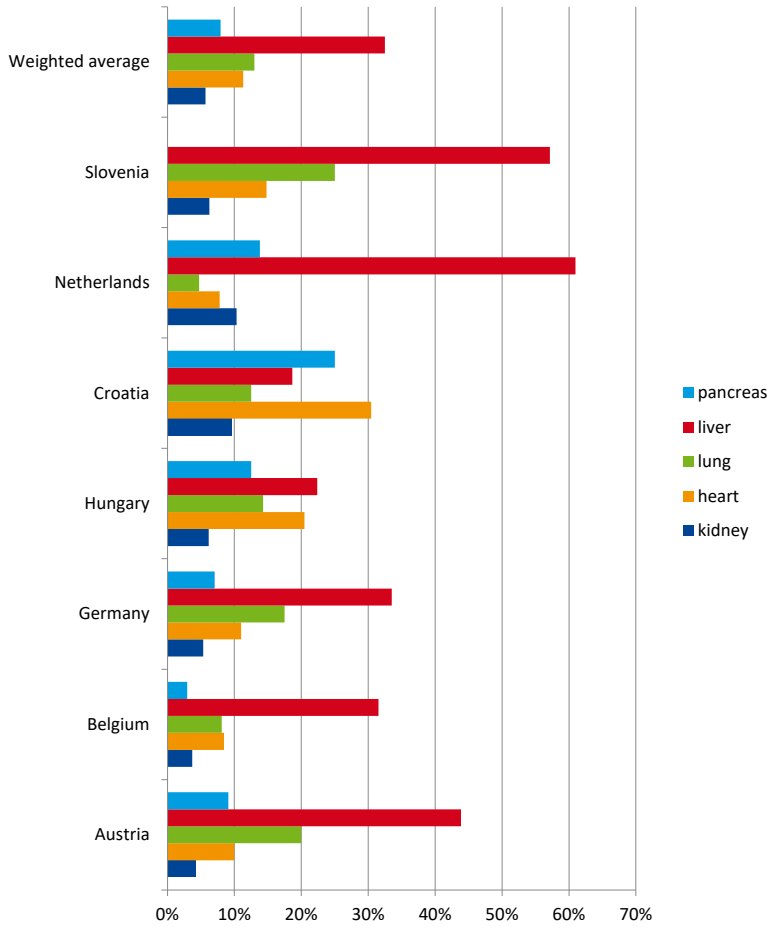
Figure 147 shows the data detailed by organ. In general we see a lower mortality for kidney and a higher mortality for liver. Compared to the other countries, Belgium obtains a relatively low mortality for pancreas, heart and kidney. This is not the case for lung (where the Netherlands do better) and liver (where Croatia and Hungary do better). For liver, Belgium has a mortality rate of 32%. Figure 148 shows the same data, but grouped by country.

Figure 147 – Deaths among people on organ waiting list (% of persons on waiting list) in the Eurotransplant countries (2022) – analysis by organ



Source: Eurotransplant data for 2022 [1]

Figure 148 – Deaths among people on organ waiting list (% of persons on waiting list) in the Eurotransplant countries (2022) – analysis by organ, grouped by country



Source: Eurotransplant data for 2022 [1]

Key points

- **In the Eurotransplant countries, Belgium has the lowest mortality on organ waiting list (6%) compared to 8.9% weighted average over the seven countries in Eurotransplant.**
- **As the mortality varies by organ, organ-specific mortality rates should be compared. For liver, the mortality is higher than 30% in Belgium.**

References

1. Eurotransplant. Statistics Report Library [Web page].2022. Available from: https://statistics.eurotransplant.org/

8.6 Population living within a radius of 20 km of the nearest hospital (% of the population) (A-18)

8.6.1 Documentation sheet

Description	**Primary indicator** Population living within a radius of 20 km of the nearest hospital (% of the population) **Secondary indicator** Women aged 15-49 years old living within 30 minutes (by car) of the nearest maternity service (only one year available: 2019)
Calculation	**Primary indicator** Numerator: Number of persons living within 20 km of the nearest hospital (with an emergency service) Denominator: Localised population in the concerned geographic entity **Secondary indicator** Numerator: the number of women aged 15-49 years old living within 30 minutes of the nearest maternity service. Denominator: total number of women aged 15-49 years old living in the same area.
Rationale	**Primary indicator** This indicator assesses the geographic accessibility of hospitals and therefore the possibility of timely access to emergency and hospital care. Assessing geographical accessibility of healthcare services is a way to evaluate whether health services distribution is adequate. **Secondary indicator** In the literature, effects of distance (or travel time) on the utilisation of maternity services have been extensively studied. An evidence review was published in 2015 [1] and no clear conclusions have been made about the association between travel time or distance between the mother's place

	of residence and maternity services and adverse outcomes. Even if most of the studies found no significant influence of travel time/distance on perinatal mortality [2 ;3] or on stillbirth [2], higher distance could lead to an increase of stress and anxiety in pregnancy.[4] Other studies show an association with increased risks of foetal heart rate anomalies, meconium-stained amniotic fluid, and antenatal hospitalisations.[3, 5] The likelihood of out-of-hospital delivery also increases with travel time.[3, 5, 6]
Data source	**Primary indicator** Statbel DataLab 2021: https://statbel.fgov.be/nl/open-data/geografische-indelingen-2021 https://statbel.fgov.be/nl/themas/datalab/geografische-indelingen#documents **Secondary indicator** National Geographic Institute; FOD – SPF; Statbel
Technical definitions	**Primary indicator** 126 hospitals with emergency service are included in the dataset, including the institutions with first aid emergencies (21-12-2020) and the specialised emergency services (01-07-2021) of the FPS Health, Safety of the Food Chain and Environment (see excel files on https://www.health.belgium.be/nl/gezondheid/organisatie-van-de-gezondheidszorg/delen-van-gezondheidsgegevens/gezondheidszorginstellingen). [7] **Secondary indicator** This indicator calculates the travel time between a woman's place of residence and the nearest maternity service using a Geographic Information System (GIS). The geographical location of each maternity service is based on the official address of the maternity service as provided by the FOD – SPF in April 2019. A total of 104 different maternity services are geocoded to the latitude and longitude of the official site address. For each maternity service, the area within an isochrone is calculated by the NGI – IGN using the Network Analysis module of ArcGIS. The area within an isochrone comprises all streets or street segments around a maternity service that can reach the maternity service within a specified time limit, taking into account traffic on the chosen time reference point. In ArcGIS, isochrones are constructed with a propriety solver, the network service area solver, based on an extension of Dijkstra's algorithm for finding shortest paths.[8] TomTom historical traffic data speed profiles are used, representing the normal traffic situation in Belgium on an average weekday: times represent average travel time by car for a specific street segment for the last two years, taking into account possible distorting factors like outlier driver behaviour, exceptional weather conditions, road works or traffic accidents.[9] From Statbel, the NGI – IGN received the number of Belgian women between 15 and 49 years old in 2016, per European Environment Agency (EEA) reference grid cell.[10] The EEA reference grid subdivides Belgium geographically in cells with a resolution of 1 km². For each of these grid cells, it is determined per maternity service if they fell within the isochrone. For cells falling partly in and partly out of the isochrone, two scenarios are defined: • Intersects area: the cell needs to be contained entirely or partially within the area to count. In this definition, the number of women that can reach a maternity service within the time limit can be overestimated because grid cells that fall partially outside of the isochrone are counted as well. • Within area: the cell needs to be contained entirely within the area to count. In this definition, the number of women that can reach a maternity service within the time limit can be underestimated because grid cells that fall partially outside of the isochrone are not counted. This definition also creates artificial areas of unreachability at the borders when these coincide with the isochrones.

	More details can be found in KCE report 323.[11] Regions are defined from the point of view of the women living in that region, i.e. all women between 15 and 49 years old in 2016 living in a reference grid cell that falls (at least partially) in the given region are considered. This implies that regional results slightly overlap, as a very limited number of reference grid cells can spread over two different regions. In addition, isochrones can spread over two different regions. A woman is considered to have access to a maternity service within 30 minutes as soon as such a maternity service falls within the isochrone, even if the maternity service is located in another region.
International comparability	No international dataset available
Limitations	**Primary indicator** It would be preferable to have an indicator which measures access time to a hospital instead of the radius (air distance) to a hospital. Furthermore, there is no evidence based maximum distance to a hospital. **Secondary indicator** This indicator gives the percentage of woman 15-49 with access to at least 1 maternity service within 30 minutes. However, the place of birth may be located further. In general, the choice of the hospital depends on women's preference and may differ from the nearest hospital of the mother's place of residence. In recent health service research, distance is commonly measured as car travel time over a road rather than the Euclidian distance between two points.[12, 13] There is, however, no guidance on what a reasonable distance or travel time is. Therefore, a coverage of maternity services in terms of (road) travel time within 30 minutes places to a certain extent an arbitrary limit on proximity. It is, however, in accordance with the travel time in studies for other countries, such as France, the Netherlands and England.[14-16] The indicator is based on the scenario that women can reach a maternity service by car and does not account for emergency transport (such as ambulance) or public transport. Moreover, we cannot identify the risk level of the pregnancy. Thus, we cannot calculate the percentage of high-risk pregnancies in women aged 15-49 years old living within 30 minutes' of the nearest hospital site with a maternity intensive care service. Finally, only Belgian maternity services are taken into account so that the number of maternity services that can be reached in 30 minutes is likely to be underestimated for women living close to the national border.
Dimension	Accessibility – Health services distribution
Related indicators	
Reviewers	Stephan Devriese (KCE)

8.6.2 Results

Population living within 20 km of the nearest hospital (% of the population)

Belgium

Overall, 99.25% of the Belgian population lives within 20 km from the nearest hospital (in 2021).

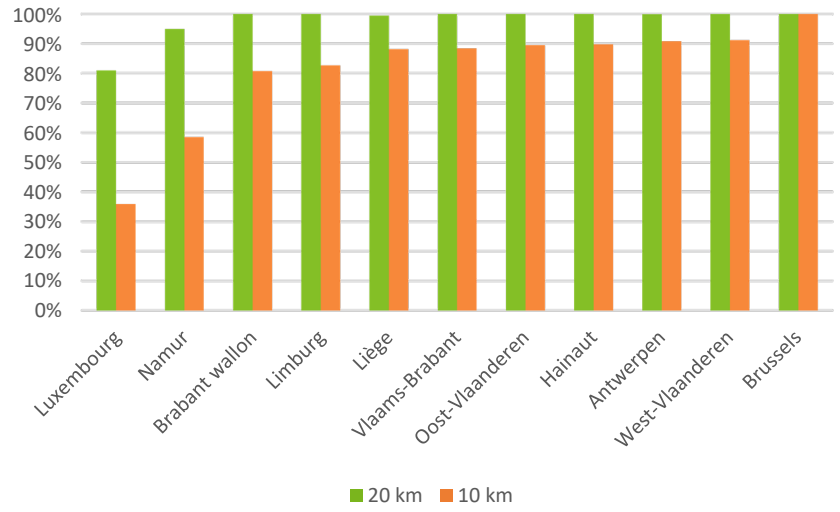
Regional comparison

In the Brussels region, 100% of the population lives within 20 km from the nearest hospital. In the Flanders region the percentage is 99.98%. In the Walloon region, it is 97.65%.

There are only four provinces where not 100 percent of the population lives within 20 km of a hospital: Luxembourg (81%), Namur (95%), Liège (99.5%) and Antwerpen (99.9%) (See Figure 149).

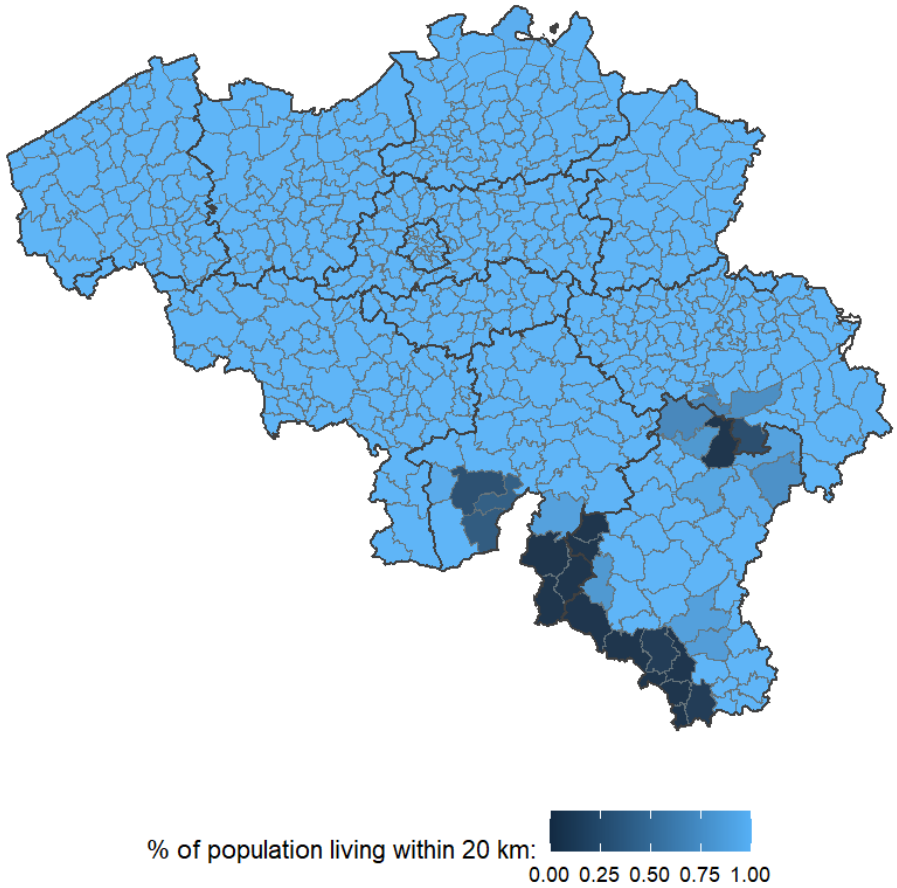
When we look at the threshold of 10 km, then there are two provinces where the percentage of people living within this distance from a hospital is particularly low: Luxembourg (36.0%) and Namur (58.5%). In Brabant wallon and Limburg it is roughly around 80%. In Liège, Vlaams-Brabant, Oost-Vlaanderen, Hainaut, Antwerpen and West-Vlaanderen it is roughly around 90%. In Brussels, 100% of the population lives within 10 km from the nearest hospital.

Figure 149 – Population living within 20 or 10 km from the nearest hospital (% of the population) (2021)



Source: Based on Statbel

Figure 150 – Population living within 20 km from the nearest hospital (% of the population) (2021)



Source: Based on Statbel

Women aged 15-49 years old living within 30 minutes of the nearest maternity service (2019)

Based on the 2016 population, more than 99% of women between 15 and 49 years old can reach one or more maternity services within 30 minutes, given normal traffic conditions on an average weekday (see Table 109 and Figure 150 for intersects area definition, Table 110 and Figure 154 for within area definition). The ones who cannot reach such a service in 30 minutes live mostly near the border and in the south of the country (no information is available on women living in these areas actually traveling across the borders to deliver). In the Brussels Capital Region, all women between 15 and 49 years old can reach one or more maternity services within 30 minutes. In Flanders, this proportion is very close to 100% (99.9% or 99.7% depending on the definition, see Table 109 and Table 110), and in Wallonia it is slightly lower (99.5% or 98.9% depending on the definition, see Table 109 and Table 110).

The 30 minutes limit represents an average traffic situation on a weekday. A 15 minutes limit can be used as a conservative limit to assess the current reachability in heavy traffic. A 15 minutes isochrone average weekday traffic is therefore considered as a stand-in for a hypothesised 30 minutes isochrone heavy traffic. In other words, we assume that the distances that can be reached within 15 minutes in average weekday traffic, take 30 minutes in heavy traffic. As heavy traffic is mostly problematic in large cities, this method clearly underestimates the distance that can be reached outside these large more congested cities. Still, globally, in Belgium, a large part of the considered population (84% to 92% depending on the definition, see Table 109 and Table 110) can reach one or more maternity services within 15 minutes, given normal traffic conditions. More importantly, this proportion is close to 100% in the Brussels Capital Region (see Table 109 and Table 110), as well as in and around large cities (see Figure 152 and Figure 155). Women who cannot reach such a service in 15 minutes live mostly away from large cities, where congestion is less an issue (see Figure 152 and Figure 155).

Finally, within 45 minutes, given normal traffic conditions on an average weekday, almost all women between 15 and 49 years old can reach one or more maternity services, in the three regions of the country (see Table 109

and Figure 153 for intersects area definition, Table 110 and Figure 156 for within area definition).

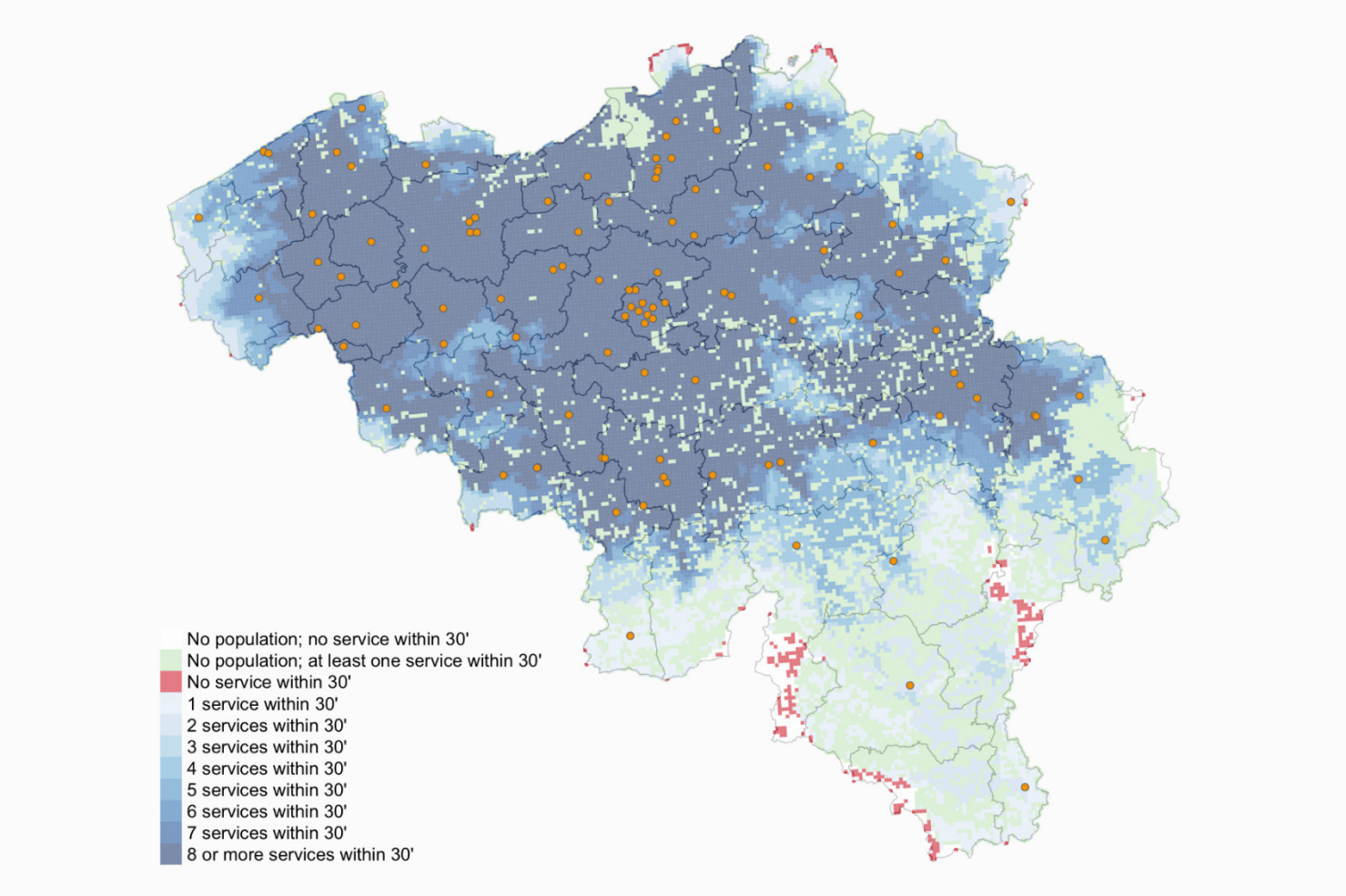
The median number of maternity services that can be reached by a woman between 15 and 49 years within 30 minutes in average traffic conditions is 11 or 13 depending on the definition used. That means that half of the population can reach at least 11 different maternity services within 30 minutes. This number is the highest in Brussels (22 or 28), the lowest in Wallonia (8 or 9) and close to the Belgian one in Flanders (12 or 14) (see Table 109 and Table 110). A large part of Flanders, Brussels and the northern part of Wallonia have access to eight or more maternity services within 30 minutes, given normal traffic conditions on an average weekday (see Figure 150 and Figure 154).[11] Using a time limit of 15 minutes, the median number of maternity services that can be reached by a woman between 15 and 49 years is still 11 or 12 in the Brussels Capital Region. It is considerably lower, but still above 1 in Wallonia and Flanders (2 in Wallonia and 2 or 3 in Flanders, depending on the definition) (see Table 109 and Table 110).

Table 109 – Intersects area definition

(ID) Indicator	Belgium	Year	Flanders	Wallonia	Brussels
Percentage of women aged 15-49 years old living within 30 minutes of the nearest maternity service	99.8%	2019	99.9%	99.5%	100%
Percentage of women aged 15-49 years old living within 15 minutes of the nearest maternity service	92.3%	2019	94.4%	85.8%	100%
Percentage of women aged 15-49 years old living within 45 minutes of the nearest maternity service	100%	2019	99.9%	99.9%	100%
Median (Q1-Q3) number of maternity services that can be reached within 30 minutes by women aged 15-49 years old	13 (8-22)	2019	14 (9-21)	9 (6-13)	28 (24-29)
Median (Q1-Q3) number of maternity services that can be reached within 15 minutes by women aged 15-49 years old	3 (2-7)	2019	3 (2-5)	2 (1-4)	12 (11-13)
Median (Q1-Q3) number of maternity services that can be reached within 45 minutes by women aged 15-49 years old	34 (22-47)	2019	37 (24-46)	23 (15-33)	55 (54-57)

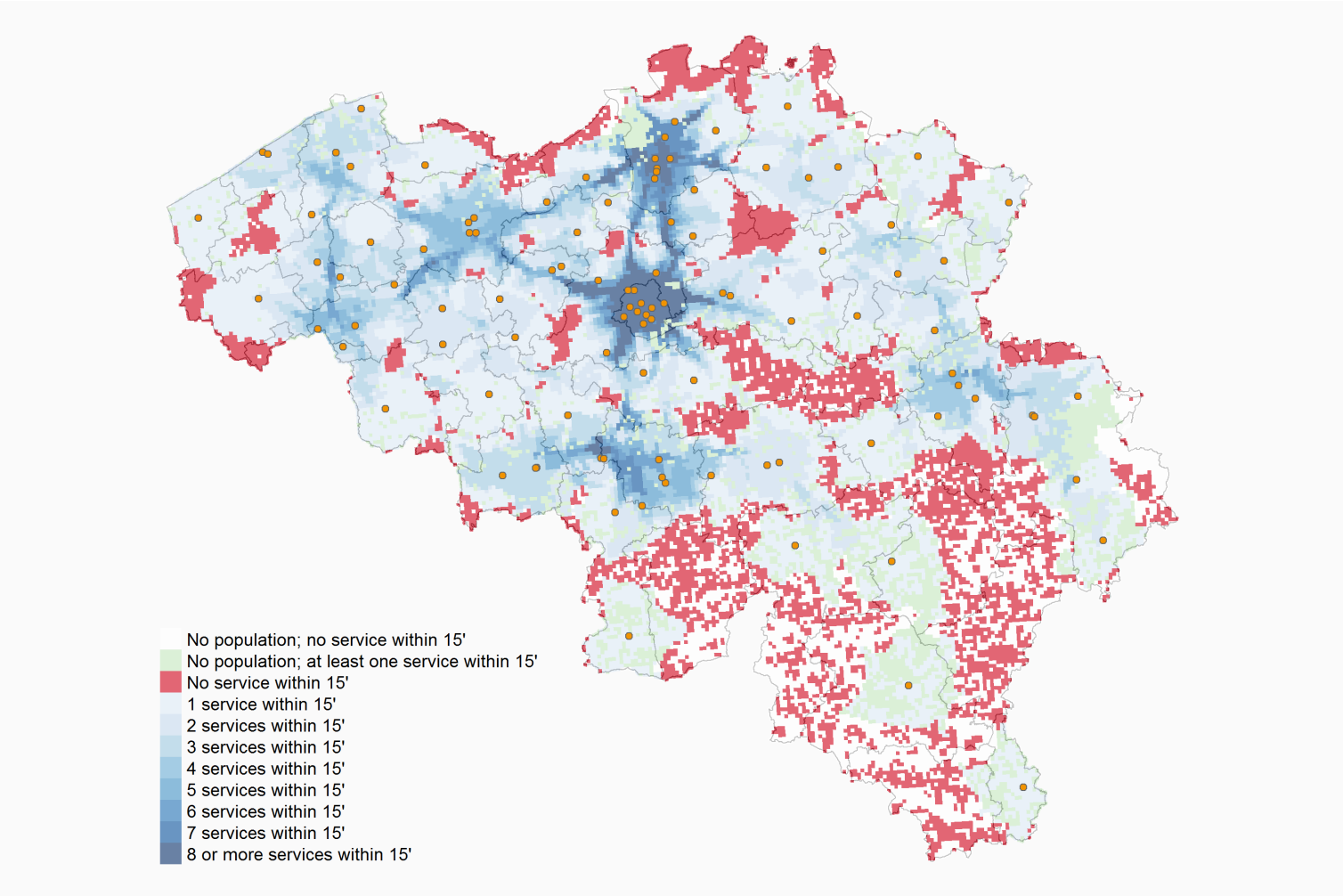
Time represents average travel time by car in normal traffic situation on an average weekday. Intersects area definition implies that the cell needs to be contained entirely or partially within the area to count in the isochrone. Q1 and Q3 stand for first and third quartile.

Figure 151 – Maternity services reachable within 30 minutes (intersects area definition)



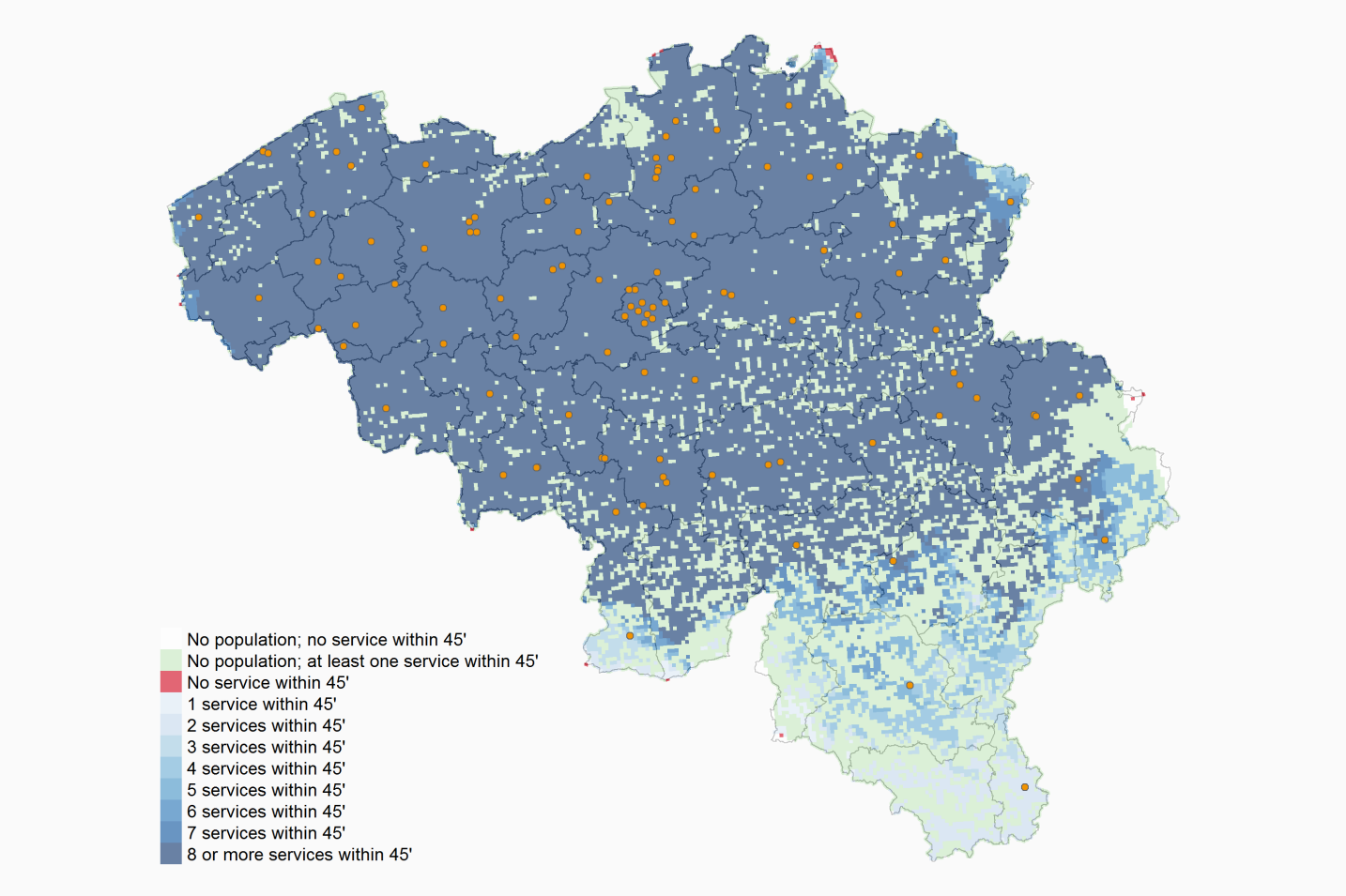
Orange dots represent maternity services April 2019. Time represents average travel time by car in normal traffic situation on an average weekday. Intersects area definition implies that the cell needs to be contained entirely or partially within the area to count in the isochrone.

Figure 152 – Maternity services reachable within 15 minutes (intersects area definition)



Orange dots represent maternity services April 2019. Time represents average travel time by car in normal traffic situation on an average weekday. Intersects area definition implies that the cell needs to be contained entirely or partially within the area to count in the isochrone.

Figure 153 – Maternity services reachable within 45 minutes (intersects area definition)



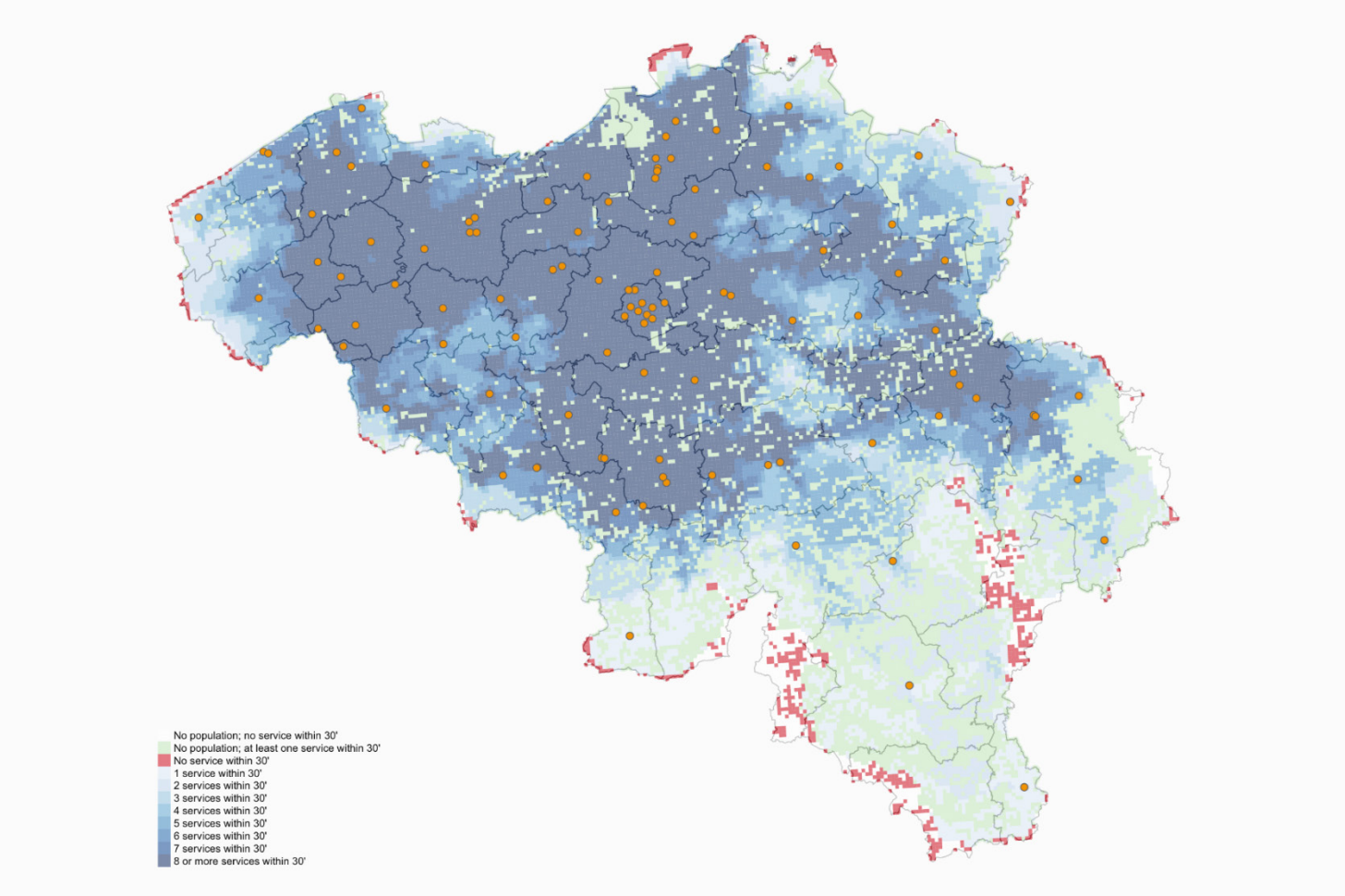
Orange dots represent maternity services April 2019. Time represents average travel time by car in normal traffic situation on an average weekday. Intersects area definition implies that the cell needs to be contained entirely or partially within the area to count in the isochrone.

Table 110 – Within area definition

(ID) Indicator	Belgium	Year	Flanders	Wallonia	Brussels
Percentage of women aged 15-49 years old living within 30 minutes of the nearest maternity service	99.4%	2019	99.7%	98.9%	100%
Percentage of women aged 15-49 years old living within 15 minutes of the nearest maternity service	84.0%	2019	84.9%	76.8%	99.9%
Percentage of women aged 15-49 years old living within 45 minutes of the nearest maternity service	99.8%	2019	99.8%	99.8%	100%
Median (Q1-Q3) number of maternity services that can be reached within 30 minutes by women aged 15-49 years old	11 (7-18)	2019	12 (7-17)	8 (5-11)	22 (20-25)
Median (Q1-Q3) number of maternity services that can be reached within 15 minutes by women aged 15-49 years old	2 (1-5)	2019	2 (1-4)	2 (1-3)	11 (10-11)
Median (Q1-Q3) number of maternity services that can be reached within 45 minutes by women aged 15-49 years old	30 (19-44)	2019	32 (22-42)	20 (13-30)	52 (51-53)

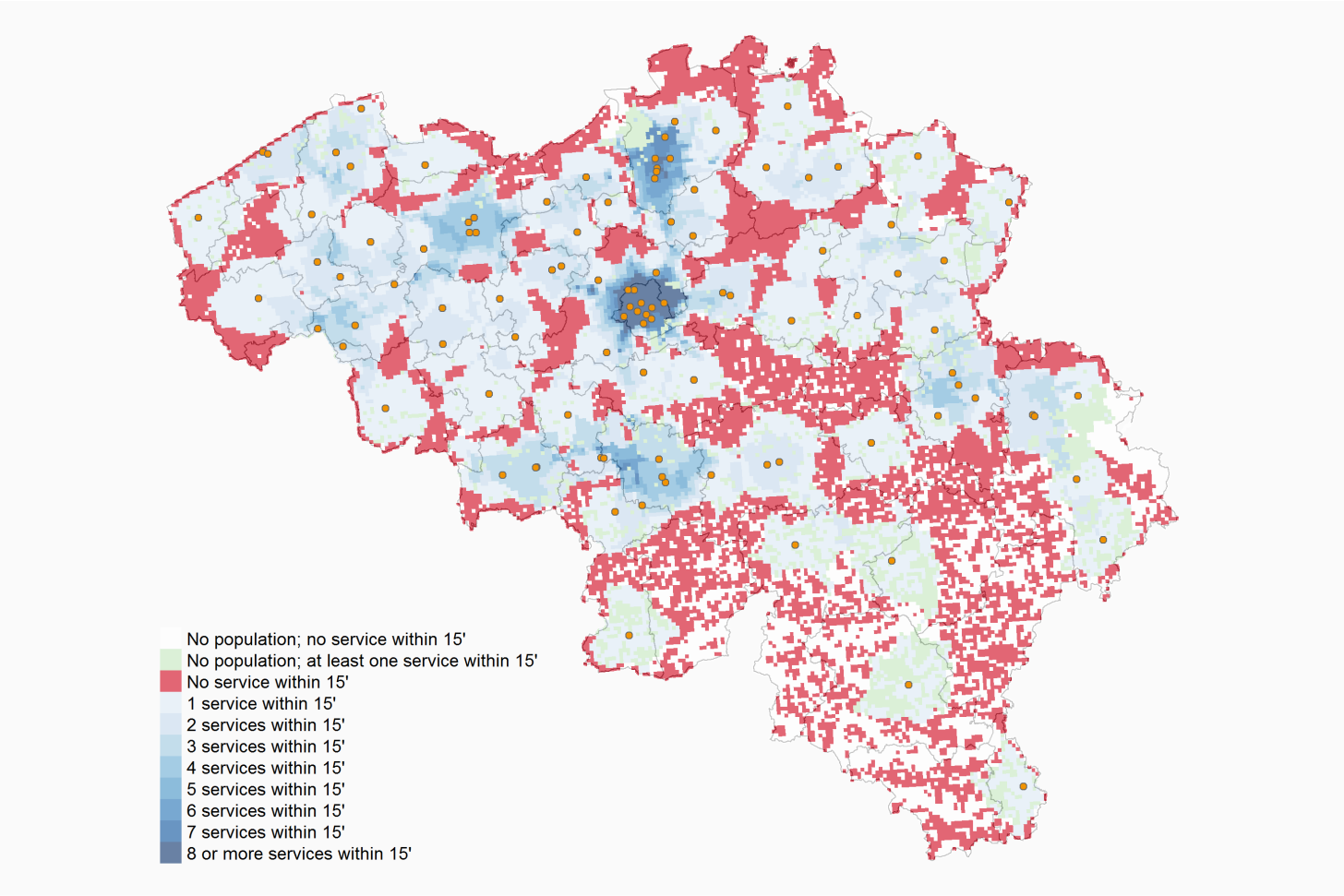
Time represents average travel time by car in normal traffic situation on an average weekday. Within area definition implies that the cell needs to be contained entirely within the area to count in the isochrone. Q1 and Q3 stand for first and third quartile.

Figure 154 – Maternity services reachable within 30 minutes (within area definition)



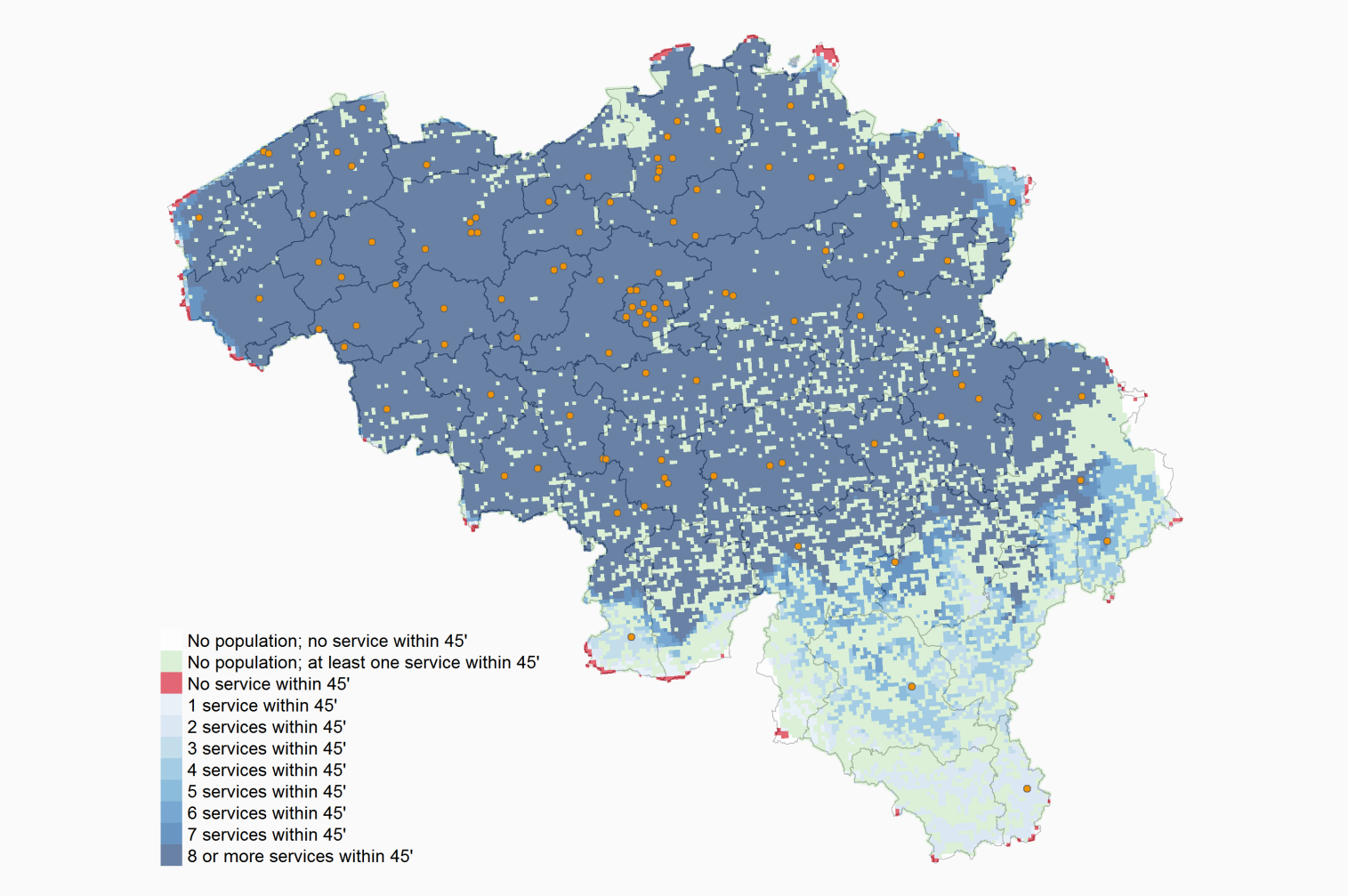
Orange dots represent maternity services April 2019. Time represents average travel time by car in normal traffic situation on an average weekday. Within area definition implies that the cell needs to be contained entirely within the area to count in the isochrone.

Figure 155 – Maternity services reachable within 15 minutes (within area definition)



Orange dots represent maternity services April 2019. Time represents average travel time by car in normal traffic situation on an average weekday. Within area definition implies that the cell needs to be contained entirely within the area to count in the isochrone.

Figure 156 – Maternity services reachable within 45 minutes (within area definition)



Orange dots represent maternity services April 2019. Time represents average travel time by car in normal traffic situation on an average weekday. Within area definition implies that the cell needs to be contained entirely within the area to count in the isochrone.

Key points

- **In 2021, 99.25% of the Belgian population lives within 20 km from the nearest hospital with emergency service (data for 2021) and 87.3% of the population lives within 10 km from the nearest hospital with emergency service.**
- **There are four provinces where not 100 percent of the population lives within 20 km of a hospital: Luxembourg (81%), Namur (95%), Liège (99.5%) and Antwerpen (99.9%).**

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APPENDIX 4. TECHNICAL SHEETS – SUSTAINABILITY OF THE HEALTH SYSTEM

9 FINANCIAL SUSTAINABILITY

9.1 Public funding of healthcare (% of current expenditure on health) (S-3)

9.1.1 Documentation sheet

Description	**Principal indicator:** Public funding of healthcare (% of current expenditure on health): Current expenditure on health according to the System of Health Accounts (SHA, OECD) expressed as a percentage financed by government/compulsory schemes for a given year. **Secondary indicators:** Public expenditure on health according to the System of Health Accounts (SHA, OECD), in million € Current expenditure on health according to the System of Health Accounts (SHA, OECD), in million € Current expenditure on health according to the System of Health Accounts, per capita (current prices and in PPP US$) Current expenditure on health according to the System of Health Accounts expressed as a percentage of the gross domestic product Revenue sources of the public sector
Calculation	All calculations are done by OECD[1] on the basis of data provided by experts from each country[2] (in compliance with EU Commission Regulations 2015/359 and 2021/1901)
Rationale	The financial sustainability comprises economic and fiscal sustainability. Trends in health expenditure financed by public authorities is an important indicator of sustainability. Fiscal sustainability refers to the capacity to collect public revenues (taxes and social contributions) to meet the public expenditure.[3] Current health expenditure and public health expenditure, as well as revenue sources, are thus complementary to reflect the financial sustainability of the system.[3] Economic sustainability refers to the growth in health expenditure as a proportion of GDP. Current expenditure are sustainable up to the point where the social cost of these expenditure exceeds the value produced. Additionally, current expenditure as a proportion of GDP allow to determine the importance of the health sector in the global economy of countries. Current health expenditure per capita, expressed in Purchasing Power Parity (PPP) US$, allow to make international comparisons.
Data source	OECD Health Statistics 2021 (https://stats.oecd.org/)[1], based on data provided by the FPS Social Security[2] (in compliance with EU Commission Regulations 2015/359 and 2021/1901)
Technical definitions	The standard international definitions for healthcare and healthcare expenditure of the OECD's System of Health Accounts (SHA) are used. SHA aims at measuring the final consumption of health goods and services. This includes spending by both public and private sources on medical services and goods, public health and prevention programmes, and overall administration of healthcare provision and financing. Current expenditure on health is broken down by healthcare function, providers and funding agents for the purpose of monitoring healthcare consumption.

	To compare spending levels between countries, per capita health expenditure are converted to a common currency (US dollar) and adjusted to take account of the different purchasing power of the national currencies, in order to compare spending levels. Economy-wide (GDP) Purchasing Power Parities (PPPs) are used as the most available and reliable conversion rates. [4] Gross Domestic Product (GDP) is defined as final consumption plus gross capital formation plus net exports. Final consumption of households includes goods and services used by households or the community to satisfy their individual needs. It includes final consumption expenditure of households, general government and non-profit institutions serving households. See SHA technical manual for all definitions[5] and specific technical note for Belgium (under information for country)[6]
International comparability	OECD and EU Member countries are at varying stages of implementing the System of Health Accounts (SHA). Therefore, the data reported in OECD Health Statistics are at varying levels of comparability.
Related performance indicators	Out-of-pocket payments
Reviewer	Dirk Moens

9.1.2 Results

Belgium

Current expenditure on health amounted to 55.5 billion € in Belgium in 2021 and accounted for 11% of Belgian Gross Domestic Product (GDP). Current expenditure on health as a percentage of the GDP over the studied period ranged between 10.2% (in 2010) and 11.20% (in 2020) and reached 11.04% in 2021 (see Table 111).

The share of public funding on current health expenditure was quite stable over the studied period, even if a slight decrease was observed in 2019 (75.3%, -1.4 percentage points compared to 2018), followed by an increase in 2020 (77.9%, +2.7 percentage points). In 2021, the share was 77.6% and first estimates calculated by OECD showed that the 2018 level would again be reached in 2022 (estimate to be used with caution, Belgian data not yet provided for 2022).

The mains revenue sources of the public sector are transfers from government domestic revenue (57.4% in 2021) and social insurance contributions (42.5%). Transfers were more important during the COVID-19 period (see Table 112 and Figure 157).

International comparison

To allow comparisons between countries, health expenditure is also expressed per capita in Purchasing Power Parities (PPP) US$. Belgium spent slightly more on health per capita than on average across EU countries (i.e. 6 022 PPP US$ in 2021 compared to 5 557 and 4 410 PPP US$ for the EU-14 and EU-27 averages respectively). An increased trends is observed both in Belgium and for the European averages (+54%, +47%, +60% between 2010-2021 in Belgium, for the EU-14 average, and for the EU-27 average respectively) (see Figure 158).

The share of public funding on current expenditure on health in Belgium was similar to the EU-14 averages and above the EU-27 averages between 2010 and 2021. This share was nevertheless lower than in our neighbouring countries.

Impact of COVID-19 pandemic

Current expenditure on health was impacted by the COVID-19 pandemic. An increase was observed in all EU countries but with a slight delay for Belgium (falling in 2020 and rising in 2021). The lower expenditure in 2020 in Belgium, not observed in other EU countries, may be explained by a drop in the consumption of (non-urgent) care (lockdown, admission freezes in residential care, postponement of care by the population, etc.) but also by

methodological differences between countries. Indeed, some income supports in the health sector in Belgium were not included in health expenditure because these measures (temporary unemployment for the salaried and covid premiums for the self-employed) where addressed to the whole population and do not specifically targeted health professions, while in other countries, some measures specifically targeted health professions and could therefore be included in health expenditure. Earlier death of frail people could also have an impact on health expenditure (e.g. less need for end-of-life care) but more analyses are needed to determine such an impact.

The increase in current expenditure per capita (in PPP US$) between 2019 and 2021 was lower in Belgium (+11%) than on average across EU-14 (+17%) and EU-27 countries (+20%).

The share of public funding on current expenditure on health increased both in Belgium and on average across EU-14 and EU-27 countries between 2019 and 2020 (+2.7%, +1.9%, and +2.7% percentage points respectively).

The increase in public funding in 2020 in Belgium is mainly related to the Covid-19 pandemic. Indeed, several additional measures financed by public funds were taken (e.g. regarding hospital funding, purchases of protective equipment and testing) while at the same time, as already explained, there has been a drop in the consumption of non-urgent care. As a result, the share of OOP decreased in 2020, and the share of public funding increased in 2020.

From 2021, the share of public funding decreased both in Belgium and for the EU-14 average while the EU-27 average continued to slightly increase. Based on first estimates calculated by OECD, Belgium seems to bounce back to a similar share than 2018 while EU averages remained higher (see Table 113 and Figure 159) but 2022 estimates must be used with caution (Belgian data not yet provided).

Table 111 – Current expenditure on health in Belgium (2010-2022)

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	*(2022)**
Public funding of healthcare (% of current expenditure on health)	76.28	76.21	76.49	76.02	76.15	76.41	76.80	76.76	76.63	75.26	77.93	77.61	*76.63*
Public expenditure on health, in million €, current prices	28 261.8	29 693.5	31 021.8	31 587.9	32 558.5	34 379.8	35 652.6	36 889.7	38 290.6	38 886.0	40 123.3	43 069.6	*46 064.9*
Current expenditure on health, in million €	37 048.6	38 963.0	40 556.3	41 553.4	42 755.0	44 993.1	46 421.5	48 059.0	49 968.3	51 672.0	51 489.2	55 492.9	*60 113.0*
Current expenditure on health per capita, current prices (in €)	3 400.3	3 529.8	3 651.4	3 723.6	3 814.3	3 990.8	4 096.7	4 224.9	4 372.8	4 497.5	4 462.3	4 789.6	*5 174.3*
Current expenditure on health per capita, in PPP US$	3 908.5	4 053.9	4 242.1	4 442.3	4 594.7	4 817.9	5 013.4	5 143.5	5 351.0	5 423.7	5 509.1	6 022.3	*6 600.0*
Current expenditure on health (% GDP)	10.20	10.36	10.50	10.58	10.61	10.80	10.79	10.80	10.86	10.80	11.20	11.04	*10.94*
Public expenditure on health (% GDP)	7.78	7.90	8.03	8.04	8.08	8.25	8.29	8.29	8.32	8.12	8.73	8.57	*8.38*

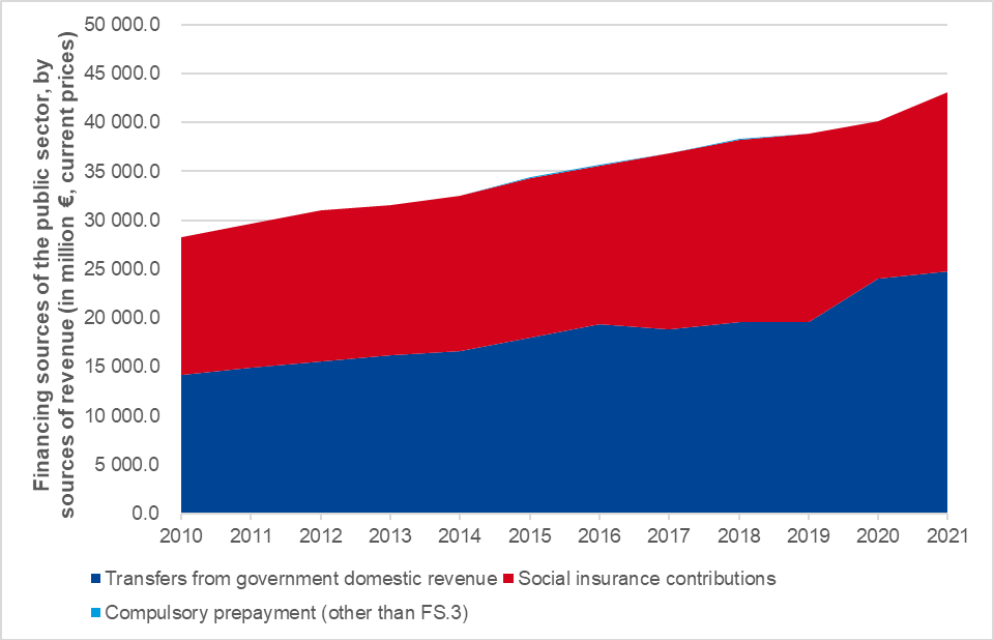
**First estimates calculated by OECD (Belgian data not yet provided, to be used with caution). Source: System of Health accounts – SHA – OECD Health Statistics 2023; GDP: Gross Domestic Product; PPP: Purchasing Power Parities.*

Table 112 – Financing sources of public sector (government and compulsory insurance) by type of revenue, in Belgium (2010-2021)

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Transfers from government domestic revenue (in million € - current prices)	14 231.7 (50.4%)	14 983.9 (50.5%)	15 578.9 (50.2%)	16 186.2 (51.2%)	16 683.7 (51.2%)	17 997.5 (52.3%)	19 413.2 (54.5%)	18 811 (51%)	19 544.9 (51%)	19 551.2 (50.3%)	24 061.1 (60%)	24 733.2 (57.4%)
Social insurance contributions	14 011.7 (49.6%)	14 692.5 (49.5%)	15 423.8 (49.7%)	15 382.5 (48.7%)	15 856.3 (48.7%)	16 363 (47.6%)	16 219.7 (45.5%)	18 058.6 (49%)	18 725.2 (48.9%)	19 314.7 (49.7%)	16 042.9 (40%)	18 316.4 (42.5%)
Compulsory prepayment (other than FS.3)	18.4 (0.1%)	17.1 (0.1%)	19.1 (0.1%)	19.2 (0.1%)	18.5 (0.1%)	19.3 (0.1%)	19.8 (0.1%)	20.2 (0.1%)	20.5 (0.1%)	20.1 (0.1%)	19.2 (0.05%)	19.9 (0.05%)

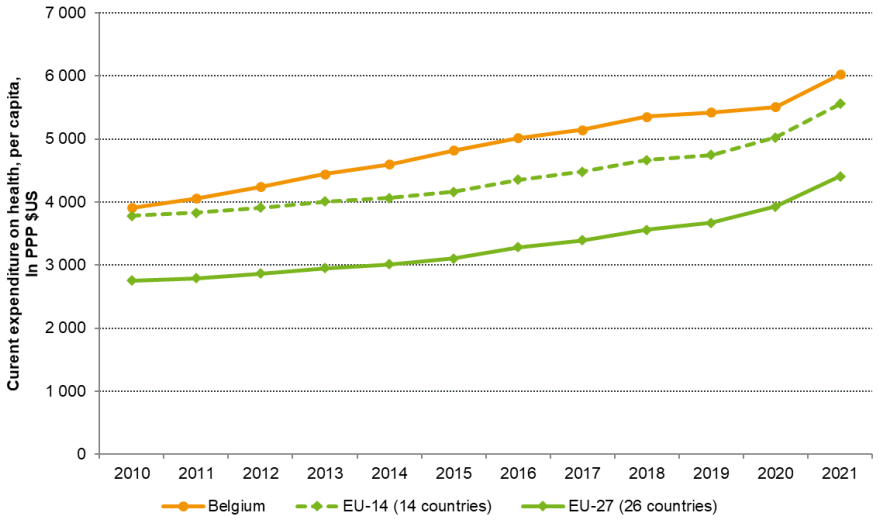
Source: System of Health accounts – SHA – OECD Health Statistics 2023.

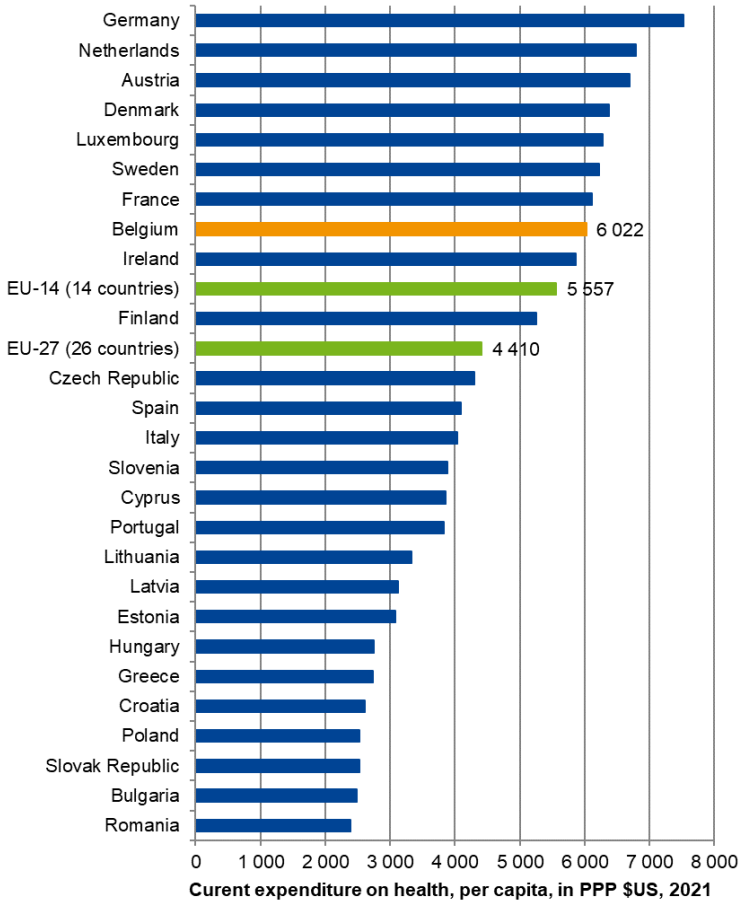
Figure 157 – Financing sources of public sector by type of revenue, Belgium (2010-2021)



Source: System of Health accounts – SHA – OECD Health Statistics 2023.

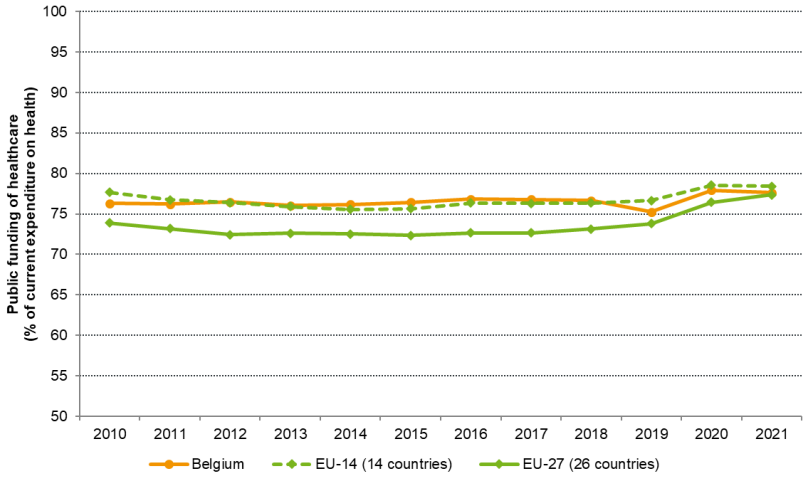
Figure 158 – Current expenditure on health expressed per capita in PPP US dollars: international comparison (2010-2021)

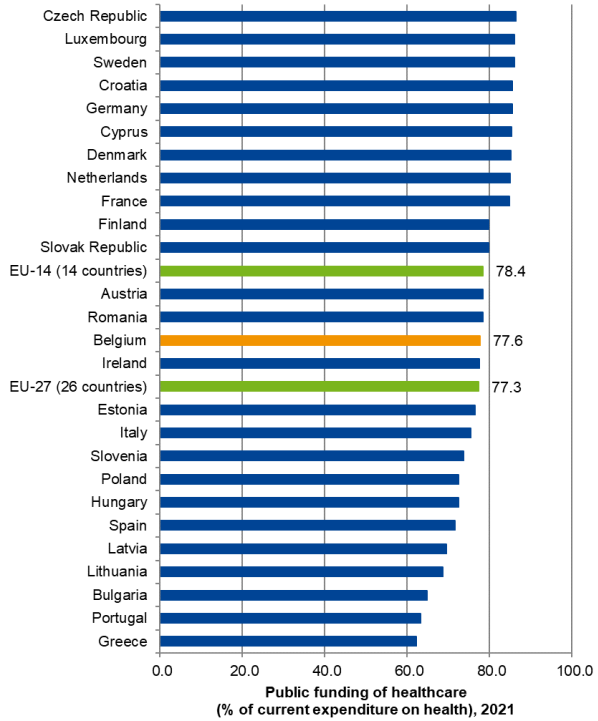




Source: OECD Health data 2023

Figure 159 – Public funding of healthcare as a percentage of current expenditure on health: international comparison (2010-2021)





Source: OECD Health Statistics 2023

Table 113 – Public funding of healthcare as a percentage of current expenditure on health (%), Belgium and EU averages, 2010-2022

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	*2022**
Belgium	76.28	76.21	76.49	76.02	76.15	76.41	76.80	76.76	76.63	75.26	77.93	77.61	*76.63*
EU-14	77.65	76.76	76.38	75.90	75.57	75.65	76.36	76.29	76.36	76.66	78.52	78.42	*77.98*
EU-27	73.88	73.17	72.41	72.61	72.52	72.33	72.67	72.66	73.15	73.77	76.43	77.34	*76.80*

**First estimates. Source: OECD Health Statistics 2023*

Key points

- **In 2021, current expenditure on health amounted to 55.5 billion € in Belgium, accounting for 11.0% of Belgian Gross Domestic Product and with 77.6% financed by the public sector.**
- **The COVID-19 pandemic caused massive disruption on health expenditure in every country but the increase in current health expenditure was only observed from 2021 in Belgium (in part due to methodologic differences with other countries). Moreover, while the current expenditure per capita in PPP US$ is usually higher in Belgium than on average across EU countries, the increase between 2019 and 2021 was lower in Belgium (+11%) than on average across EU-14 (+17%) and EU-27 countries (+20%).**
- **Due to the COVID-19 pandemic, several additional measures financed by public funds were taken (e.g. additional hospital funding, purchases of protective equipment and testing, etc.) while at the same time, there has been a drop in the consumption of non-urgent care (lockdown, admission freezes in residential care, postponement of care by the population, etc.), which decrased the share of OOPs and increased the share of public funding.**
- **Between 2010-2019, the share of public funding in Belgium was usually close to the EU-14 average and higher than the EU-27 average, and they all followed a similar stable pattern (except a small decline in 2019 in Belgium).**
- **During the COVID-19 pandemic (2020-2021), the most important increase was observed for the EU-27 average (+3.6 percentage points between 2019 and 2021 compared to +2.4 percentage points in Belgium and +1.8 percentage points for the EU-14). With this higher increase, the EU-27 reached a share close to Belgium in 2021. The share of public funding in Belgium was however lower than in the neighbouring countries (Luxembourg, Germany, the Netherlands, and France).**
- **Based on first estimates calculated by OECD, Belgium seems to bounce back in 2022 to a similar share of public funding than in 2018 while EU averages remained higher (estimates to be used with caution, Belgian data not yet provided).**

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9.2 Projection of public expenditure on health (% GDP), evolution in percentage points (S-20)

9.2.1 Documentation sheet

Description	**Primary indicator** Public expenditure on health (acute and long-term care) as % of Gross Domestic Product (GDP) **Secondary indicators** Public expenditure on acute care as % of Gross Domestic Product (GDP) Public expenditure on long-term care as % of Gross Domestic Product (GDP)
Calculation	The Study Committee on Ageing (*Comité d'Étude sur le Vieillissement, CEV – Studiecommissie voor de Vergrijzing, SCvV*) makes long-term projections of social expenditure (retirement, healthcare, work incapacity, unemployment, child care allowances, and other social expenditure), up to 2070. In what follows we focus on projections for healthcare expenditure, i.e. public expenditure on health with a distinction between acute and long-term care. These long-term projections are based on four types of assumptions: demographic, socio-economic, macroeconomic and social policy assumptions that are summarised in table 1 of the Study Committee on Ageing 2023 annual report.[1] In particular, the average growth rate of labour productivity is assumed to be 0.5% per year during the period 2023-2028, then increased to reach 1.5% per year from 2045 onwards. An alternative scenario is also calculated, with a reduced growth rate of labour productivity in the long term: labour productivity growth is assumed to be the same as in the reference scenario up to 2035 when it reaches 1.0%, then it remains equal to 1.0% per year from 2035 onwards. The long-term projections published in 2023 integrate the 2022-2070 demographic outlook established in January 2023, the 2023-2028 economic outlook published in June 2023 and all measures related to social expenditure already promulgated. Regarding healthcare expenditure, the measures taken by the government and RIZIV – INAMI to ensure that the evolution of the budget for compulsory health insurance does not exceed the real growth norm (2.5% in 2022) are included in the observed data. However, in the projections, the evolution of healthcare expenditure results from specific models and does not take into account the real growth norm. Results are presented at the Belgian level as well as separately according to the level of public authority: on the one hand the federal state including social security organisations and on the other hand the federated entities (regions and communities) and local authorities (provinces and municipalities). Since 2015 and the 6th state reform, some competencies, notably those related to long-term care, have been transferred from the federal state to the federated entities. Regarding projections for healthcare expenditure in particular, it is likely that acute and long-term care are not influenced by the same determinants and not influenced in the same way by common determinants. Therefore these two types of care are modelled separately.[2] Acute care expenditure includes acute care services covered by the compulsory health insurance (fees for GPs and medical specialists, drugs, hospitalisations, implants, physiotherapy, etc.), hospital funding and other social benefits (such as some care to disabled persons) closely related to acute care. In modelling, expenditure is expressed in real terms per capita (deflated by the GDP deflator), as a function of the following explanatory variables: - real GDP per capita (also deflated by the GDP deflator); - demographic ageing, measured as the share of age groups 65-74, 75-84 and 85+ in the total population; - the unemployment rate; - a dummy variable which captures the impact of the extension of health insurance for self-employed workers from 2008 onward;

	- one indicator on the evolution of medical technology. The acute care expenditure model is specified as a log-linear model and estimated on the basis of data for the period 1980-2019. Long-term care expenditure includes nursing care at home, stays of persons in residential care facilities for older people and in mental healthcare facilities, some other expenditure for assistance with the daily living of dependent elderly persons as well as additional insurance for non-medical care (V*laamse Zorgkas*) in Flanders. In modelling, expenditure is expressed in real terms per capita (deflated by the GDP deflator) as a function of the following explanatory variables: - real GDP per capita (also deflated by the GDP deflator); - demographic ageing, measured as the share of age groups 65-74 and 75-84 in the total population; - the life expectancy of the population groups 65-74 and 85+. The long-term care expenditure model is specified as a linear model and estimated with data for the period 1980-2019.
Rationale	Population ageing and technological progress are expected to add pressures on public expenditure on health in the coming decades.[3] At the same time, the proportion of the working-age population that contributes to finance such expenditure is expected to decrease, raising concerns about the fiscal sustainability of health and long-term care systems.[4] These long-term projections can help policy makers to consider the possible evolution of public expenditure and the impact of the main underlying drivers of healthcare costs.[5]
Data source	Study Committee on Ageing (High Council of Finance, Federal Planning Bureau)[6] The Committee is established within the High Council of Finance. The Federal Planning Bureau is responsible for the committee's technical and administrative secretariat.
International comparability	Every three years, the Aging Working Group (AWG) of the Economic Policy Committee (EPC) of the Economic and Financial Affairs (ECOFIN) Council makes long-term projections of social expenditure for the 27 EU member states as well as Norway, published in the "Ageing Report".[5] The 2021 Ageing Report integrates reforms decided up to September 2020. Nevertheless, these projections are not directly comparable to the projections from the Study Committee on Ageing because different projection models and data are used and because different assumptions are made (for more details see the Study Committee on Ageing 2021 annual report).[7] Due to that, comparison of projections for Belgium and the EU are made using projections from AWG rather than projections from the Study Committee on Ageing. For completeness a comparison between both sources is made.
Limitations	Results from the Study Committee on Ageing must be interpreted as long-term projections. They do not intend to give the best possible estimate of the near future. Projections on a more distant horizon take into account trends observed in the past but are inevitably based on assumptions. Given the degree of uncertainty of some hypotheses, analyses of sensitivity of the results to certain key parameters are needed. Rather than presenting exact figures for the future, projections constitute a decision-making aid tool and allow to frame the policy debate. Also, the distinction between acute and long-term care expenditure is not straightforward. Some expenditure on long-term care cannot be identified in the data as they are included in larger components of acute care (for instance, physiotherapist fees are always accounted for as acute care even if they concern long-term care).
Dimension	Sustainability
Related indicators	S-3 Public funding of healthcare (% of current expenditure on health)
Reviewers	Nicole Fasquelle (Federal Planning Bureau)

9.2.2 Results

Belgium

In 2022, public expenditure on health amounted to 44.0 billion € in Belgium. This represents 8.0% of the Belgian Gross Domestic Product (GDP). The major part of this expenditure (35.7 billion €, 6.5% of the GDP) is related to acute care, compared to 8.3 billion € (1.5% of the GDP) to long-term care (Table 114, Figure 160).

Public expenditure for acute care is mainly the responsibility of the federal state (5.7% of GDP compared to 0.8% for federated entities and local authorities) while the opposite is true for long-term care (0.4% of GDP for the federal state compared to 1.1% for federated entities and local authorities) (Table 114, Figure 161).

In the future, public expenditure (as a share of GDP) is foreseen to increase, up to 10.7% in 2050 and 10.8% in 2070. Long-term care expenditure will almost double in percentage of GDP (from 1.5% of GDP in 2022 to 2.8% of GDP in 2050, i.e. an increase of 1.3 percentage point of GDP). Public expenditure for acute care (in percent of GDP) is foreseen to increase by 1.4 percentage point of GDP between 2022 and 2050 (from 6.5% to 7.9% of the GDP) (Table 114, Figure 160).

According to the current division of competencies, the increase in public expenditure for acute care will be mainly supported by the federal state while the increase in public expenditure for long-term care will be supported by federated entities and local authorities (Table 114, Figure 161). Under the Special Financing Act, note that the federal state also transfers resources to the federated entities to finance some long-term care expenditure.

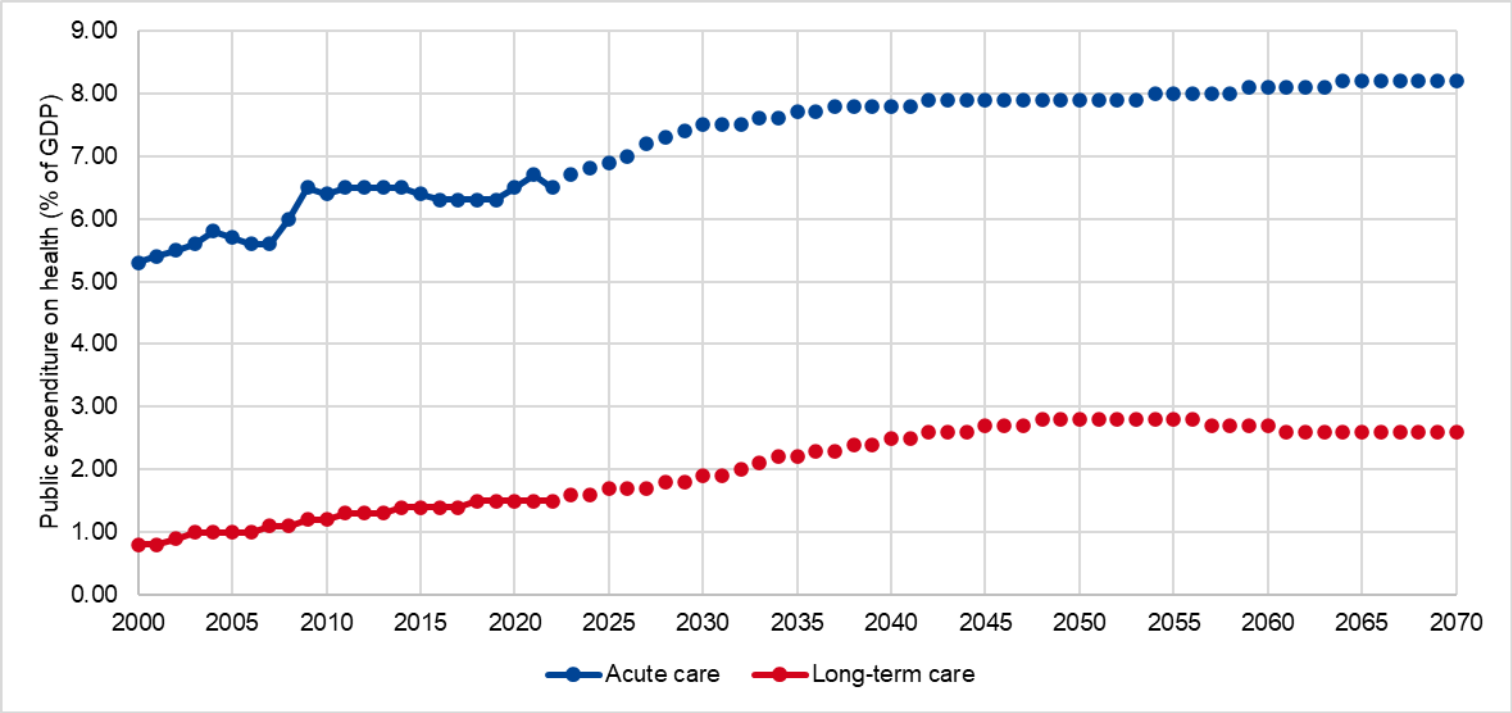
Under an alternative scenario with reduced productivity growth, public expenditure on health is expected to increase more, from 8.0% of the GDP in 2022 to 11.3% in 2070 (compared to 10.8% in the reference scenario) (Table 115).

Table 114 – Public expenditure on health in Belgium (2018-2022 and projections 2023-2070)

	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2030	2040	2050	2060	2070
Public expenditure on health (% of GDP)	7.8	7.8	8.0	8.2	8.0	8.3	8.4	8.6	8.7	8.9	9.1	9.3	10.3	10.7	10.7	10.8
Acute care	6.3	6.3	6.5	6.7	6.5	6.7	6.8	6.9	7.0	7.2	7.3	7.5	7.8	7.9	8.1	8.2
Long-term care	1.5	1.5	1.5	1.5	1.5	1.6	1.6	1.7	1.7	1.7	1.8	1.9	2.5	2.8	2.7	2.6
Public expenditure on health under the federal state (% of GDP)	5.9	6.0	6.1	6.3	6.2	6.4	6.5	6.6	6.7	6.9	7	7.2	7.7	7.9	8	8.1
Acute care	5.5	5.6	5.7	5.9	5.7	5.9	6.0	6.1	6.3	6.4	6.5	6.7	7	7.1	7.2	7.3
Long-term care	0.4	0.4	0.4	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.5	0.6	0.7	0.8	0.8	0.8
Public expenditure on health under the federated entities and local authorities (% of GDP)	1.8	1.7	1.8	1.8	1.8	1.9	1.9	1.9	1.9	1.9	2.0	2.0	2.5	2.7	2.6	2.6
Acute care	0.8	0.7	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	0.9	0.9	0.9
Long-term care (including Zorgkas in Flanders)	1.1	1.1	1.1	1.1	1.1	1.2	1.2	1.2	1.2	1.2	1.2	1.3	1.8	2	1.9	1.8

Source: Study Committee on Ageing (2023)[1], reference scenario.

Figure 160 – Public expenditure on acute and long-term care (% of GDP) in Belgium (2000-2022 and projections 2023-2070)



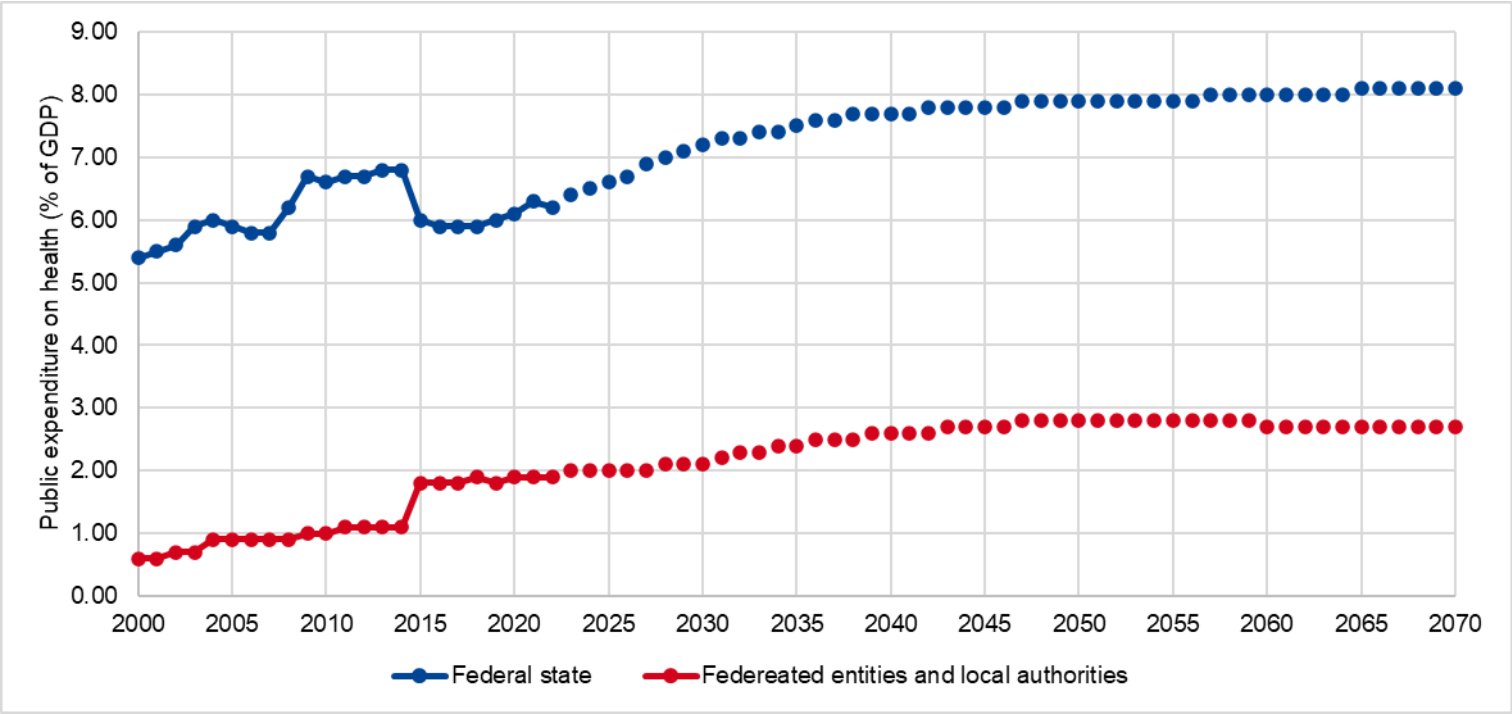
Source: Study Committee on Ageing (2023)[1], reference scenario.

Table 115 – Projections of public expenditure on health in Belgium: reference and alternative scenario

Variation 2022-2070 (GDP percentage points)	Reference scenario	Alternative scenario (S1)
Public expenditure on health	2.8	3.3
Acute care	1.7	1.9
Long-term care	1.1	1.4

Under the alternative scenario, long-term growth of labour productivity is set to 1% from 2035 onwards (compared to 1.5% from 2045 onwards in the reference scenario).
Source: Study Committee on Ageing (2023).[1]

Figure 161 – Public expenditure on health (% of GDP) under the federal state or federated entities and local authorities (2000-2022 and projections 2023-2070)



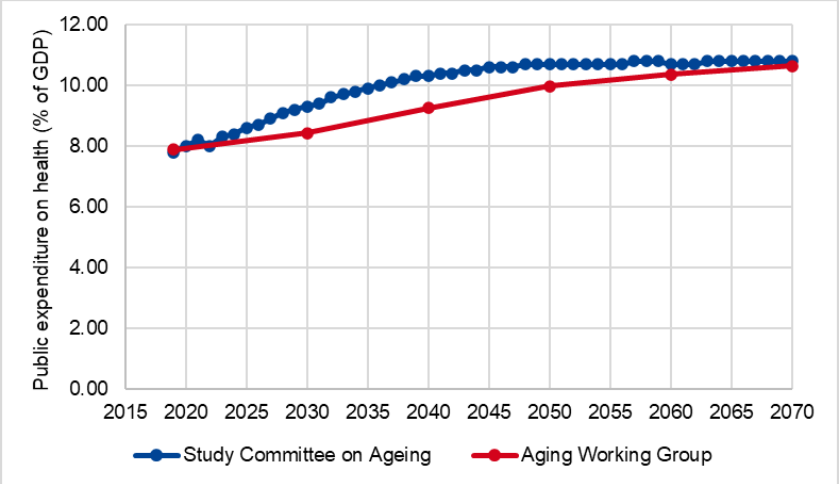
Source: Study Committee on Ageing (2023)[1], reference scenario.

International comparison

The international comparison is based on projections from the Aging Working Group (AWG) of the Economic Policy Committee (EPC) of the Economic and Financial Affairs (ECOFIN) Council that are not directly comparable to the projections of the Study Committee on Ageing, although they show a similar pattern (Figure 162).

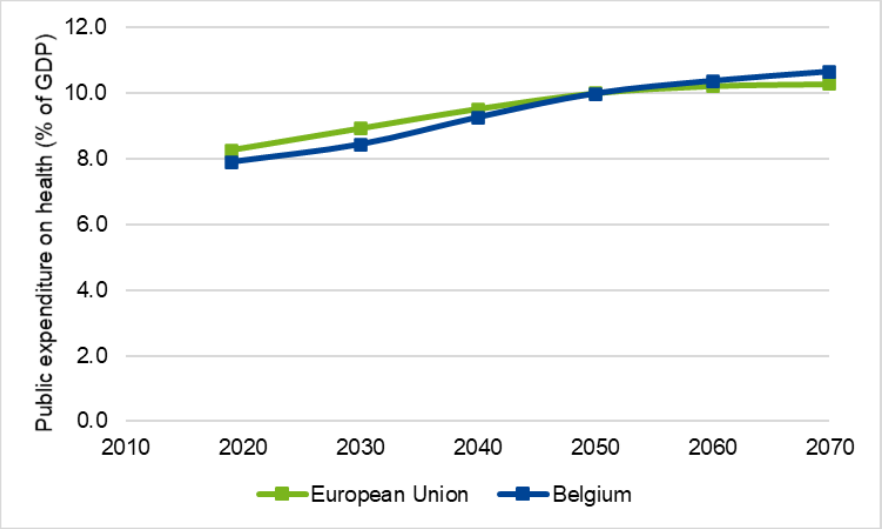
Following the European projection, in 2019, public expenditure on health in Belgium, as a percentage of the GDP, were very close to the EU average. They were projected to follow a similar trend in the short and long term (Figure 163). Nevertheless, public expenditure on long-term care (as a share of GDP) in Belgium were above the EU average, compensated by lower public expenditure on acute care than the EU average. These differences are expected to be slightly exacerbated in the future (Figure 164).

Figure 162 – Projections of public expenditure on health (% of GDP)



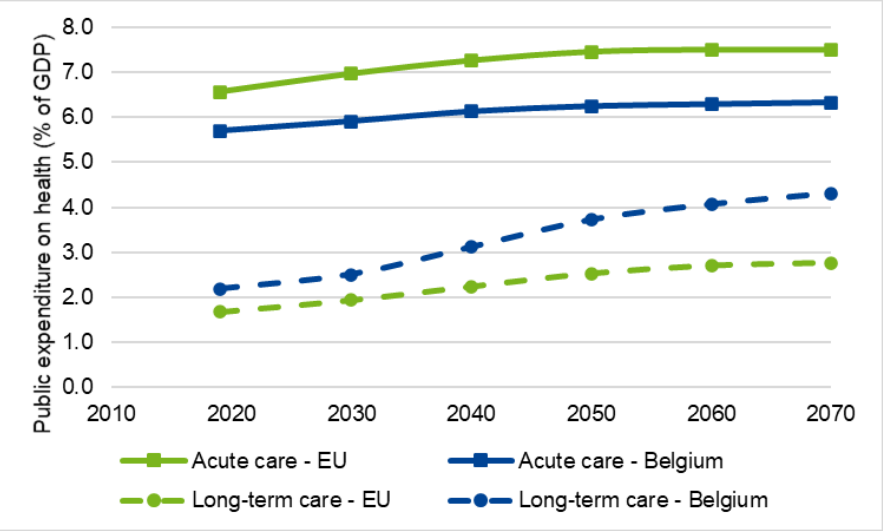
Source: Study Committee on Ageing (2023)[1] and European Commission (2021)[5]

Figure 163 – Public expenditure on health (% of GDP) in Belgium and EU (projections 2019-2070)



EU average is weighted according to GDP. Source: European Commission (2021).[5]

Figure 164 – Public expenditure on acute and long-term care (% of GDP) in Belgium and EU (projections 2019-2070)



EU average is weighted according to GDP. Source: European Commission (2021)[5]

Key points

- **In 2022, public expenditure on health amounted to 44.0 billion € in Belgium, representing 8.0% of the GDP.**
- **In 2022, public expenditure related to acute care represented 6.5% of the GDP in Belgium, public expenditure related to long-term care represented 1.5% of the GDP.**
- **In the future, public expenditure (as a share of GDP) is foreseen to increase, up to 10.7% in 2050 and 10.8% in 2070. Long-term care expenditure will almost double in % of GDP.**
- **Public expenditure on health in Belgium, as a percentage of the GDP, were very close to the EU average in 2019 and are projected to follow a similar trend in the short and long term.**
- **Following european projection, public expenditure on long-term care (as a share of GDP) in Belgium are above the EU average, compensated by lower public expenditure on acute care than the EU average.**

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9.3 Projection of public expenditure on reimbursed pharmaceuticals (S-21)

9.3.1 Documentation sheet

Description	Projected public expenditure for reimbursed pharmaceuticals up to 2033 (at current price, in 1 000 euros).
Calculation	PROMES (PROjecting Medical Spending) is a microsimulation model developed by the Federal Planning Bureau, in collaboration with RIZIV – INAMI. The model provides a detailed analytical insight in the determinants of the evolution of healthcare expenditure covered by compulsory health insurance and makes it possible to project these in the short and medium term. Expenditure for pharmaceuticals is modelled on the basis of micro data from the Permanent Sample (EPS) of IMA – AIM. The model consists of about 25 modules corresponding to different expenditure groups. In what follows, the module "pharmaceutical specialities" is used. Expenditure is modelled in three steps: estimation of the number of users by a behavioural model (step 1), estimation of the number of DDDs (defined daily doses) by multiplication with an average number of DDDs per user determined by trend extrapolation (step 2) and estimation of the expenditure by multiplication with an average cost per DDD (step 3). The estimate of the number of users is based on logistic regressions of the probability that an individual consumes a drug (from a given class) during a given month including the following exogenous characteristics (for more details, see Geerts et al. 2016 and 2018)[1, 2]: demographics (age group, gender, interaction age-gender), individual health status (general health status indicator, chronic illness/invalidity indicator, indicators on specific chronic conditions), flu epidemic (variable at the national level), socio-economic status (unemployment status, long-term unemployment status, isolated/cohabiting status, right to guaranteed income, primary work incapacity), insurance status (entitlement to increased reimbursement status, global medical file, maximum billing reimbursement), living environment (district, population density, medical density of physicians), previous care (hospitalisation in the preceding months, contacts with physicians in the preceding month) and period (year and month). Expenditure for pharmaceuticals is separated into three groups: expenditure for outpatient pharmaceuticals delivered by community pharmacies (hereafter referred to as retail pharmaceutical expenditure), outpatient pharmaceuticals delivered by hospital pharmacies to ambulatory patients (hereafter referred to as hospital outpatient pharmaceutical expenditure) and inpatient pharmaceuticals delivered by hospital pharmacies to hospitalised patients (hereafter referred to as hospital inpatient pharmaceutical expenditure). As the profile of the users (according to age, gender, health status, insurance status, etc.) strongly differs per class of pharmaceuticals, the model for retail pharmaceutical expenditure is estimated separately for 23 ATC[aa] classes of drugs and the model for hospital outpatient pharmaceutical expenditure is estimated separately for 19 ATC classes of drugs. Trends in the number of users, the average number of DDDs per user and in the average cost per DDD are extrapolated up to 2033. Since 2010, managed entry agreements (MEAs) can be concluded at the request of the pharmaceutical company. These MEAs include most of the time financial compensation mechanisms that are confidential. The use of these MEAs is rising, especially for new innovative and expensive pharmaceuticals.[3] Because the compensation mechanisms are confidential, the actual expenditure for individual medicines is unknown. MEAs' compensations are separately included in the PROMES model, so that the projections of pharmaceutical expenditure can be reduced accordingly. To do so, EPS data are linked to a dataset containing the product names and start and end dates of the periods under agreement for drugs under MEA. Then MEA and non-MEAs pharmaceutical expenditures are modelled separately (with only non-MEA retail pharmaceuticals and hospital

[aa] The ATC (Anatomical Therapeutic Chemical) classification is an international classification of medicines.

	outpatient pharmaceuticals being modelled by ATC class). Up to 2024, MEAs' compensations are estimated using RIZIV – INAMI technical estimates. For subsequent years, the estimated growth rate for the total of MEA pharmaceuticals is applied.
Rationale	Pharmaceuticals play an important role in the healthcare system and are constantly evolving. An increasing number of new pharmaceuticals enter the market every year, with a cost that can be high, having significant implications for healthcare budget. Public policy makers need to strike the right balance between access to new drugs and incentives for professionals in the sector, while recognising the limits of health budgets.[4] In Europe, the growth of pharmaceutical expenditure has been reduced for some years following the 2008 crisis, due in part to a combination of cost-containment policies and market dynamics, including generic and biosimilar competition.[5] However, growth rates have returned to higher levels more recently, that can be explained by new high cost treatments such as for Hepatitis C and some cancer drugs (in Belgium usually under MEA).[6]
Data source	Federal Planning Bureau, RIZIV – INAMI, IMA – AIM
Technical definitions	The PROMES 2.17 estimates of September 2023 are based on the EPS release 17, which includes data up to 2021. Given the large impact of COVID-19 on healthcare use, the data for 2020-2021 were not included in the care consumption regression analyses. The insured population projections were aligned with the population and households projection data from the Federal Planning Bureau and Statbel of January 2023 and with the unemployment projections from the Federal Planning Bureau of July 2023, which take into account the impact of the COVID-19 pandemic. Only individuals residing in Belgium were included in the regression analyses. To obtain projection results for the entire insured population, including the insured persons residing abroad, a specific scaling factor is applied to the projection results for each expenditure group.
Limitations	Innovative pharmaceuticals: extrapolations of average cost per DDD are based on historic data that may lead to an underestimation of the cost of innovative pharmaceuticals. Missing determinants of care consumption: the model uses data from the Permanent Sample, which does not contain information on some individual characteristics that may influence demand for care: (household) income, level of education, lifestyle (diet, alcohol and tobacco consumption, physical activity, etc.), medical background, professional situation, etc. Quality of the projection of the exogenous variables: even if the PROMES model explains the consumption of care, it was primarily designed to carry out projections and simulations of policies. Consequently, the quality of the results of the model depends not only on the "completeness" of the estimated model, but also on the quality of the projection of the exogenous variables (those which are not explained by the model). Pharmaceuticals under MEA: even if efforts were made to better estimate the future expenditure related to these pharmaceuticals, the confidential aspect of MEA remains an obstacle to good estimates.
Dimension	Sustainability
Related indicators	S-3 Public funding of healthcare (% of current expenditure on health) S-20 Projection of public expenditure on health (% GDP), evolution in percentage points
Reviewers	Joanna Geerts (Federal Planning Bureau); Karen Geurts (Federal Planning Bureau); Irina Odnoletkova (KCE)

9.3.2 Results

In 2022, public expenditure on pharmaceuticals amounts to 6.20 billion € in Belgium (see Table 116), the major parts being retail pharmaceutical expenditure (2.92 billion €) and hospital outpatient pharmaceutical expenditure (2.86 billion €). Hospital inpatient pharmaceutical expenditure is projected to amount to 420 million €.

All three types of pharmaceutical expenditure are expected to increase in the future (see Table 117 and Figure 165) but a large difference is expected in the growth path of hospital outpatient pharmaceutical expenditure compared to both other categories. Retail pharmaceutical expenditure is expected to increase by 23.5% between 2022 and 2027 and hospital inpatient pharmaceutical expenditure by 25.3%. However, hospital outpatient pharmaceutical expenditure is expected to increase by 78.4% during the same period. This outstanding difference of growth rate between hospital and retail pharmaceutical expenditure is also observed in other European countries (see for instance OECD/EU, 2020).[6]

Globally, total pharmaceutical expenditure is expected to increase by 48.9% between 2022 and 2027.

The above numbers are likely overestimated. Indeed, since 2010, managed entry agreements (MEAs) can be concluded at the applicant request. These MEAs include most of the time financial compensation mechanisms that are confidential. The use of these MEAs is rising, especially for new innovative and expensive pharmaceuticals.[3] Because the compensation mechanisms are confidential, the actual expenditure is unknown. In the MORSE report[7], RIZIV – INAMI publishes the firms' turnover for pharmaceuticals under MEAs as well as the amounts paid by the firms within the framework of these MEAs. An estimation of the average compensation rate can therefore be calculated. For the period 2014-2021, this average compensation rate was around 29%. An increase in the compensation rate can also be observed over the years (from 18.4% in 2014 to 53.8% in 2021). The report also highlights that while the increase in public expenditures for pharmaceuticals during the 2016-2021 period was 36.7%, after having deduced the compensations received from MEAs, the increase would be reduced to 16.7%.

MEAs' compensations are separately included in the PROMES model, so that the projections of pharmaceutical expenditure can be reduced accordingly. When correcting for the MEAs' compensations, pharmaceutical expenditure is projected to amount to 4.94 billion € in Belgium in Belgium in 2022 (see Table 116) and the expected growth rate between 2022 and 2027 is 36.6% (see Table 117). As most MEAs concern outpatient drugs delivered in hospital, the growth rates of expenditure for this category of pharmaceuticals in Table 117 is likely overestimated.

Table 116 – Projected public expenditure on pharmaceuticals in Belgium (2023-2033) in thousand euros

	Retail pharmacies	Hospital (outpatient)	Hospital (inpatient)	Total	Total net from MEAs' compen-sations
2022	2 923 760	2 855 060	420 044	6 198 863	4 941 662
2023	3 046 729	3 252 686	460 889	6 760 304	5 142 025
2024	3 165 004	3 620 277	480 475	7 265 756	5 574 052
2025	3 295 874	4 041 550	499 259	7 836 682	5 910 493
2026	3 455 653	4 544 139	512 838	8 512 630	6 326 381
2027	3 611 894	5 093 262	526 326	9 231 482	6 751 517
2028	3 773 644	5 665 695	540 911	9 980 250	7 196 524
2029	3 949 204	6 216 369	554 542	10 720 116	7 640 247
2030	4 143 041	6 712 153	566 596	11 421 790	8 073 527
2031	4 349 846	7 251 356	582 738	12 183 939	8 546 075
2032	4 578 510	7 726 566	600 813	12 905 889	9 003 913
2033	4 826 047	8 136 782	623 515	13 586 343	9 447 717

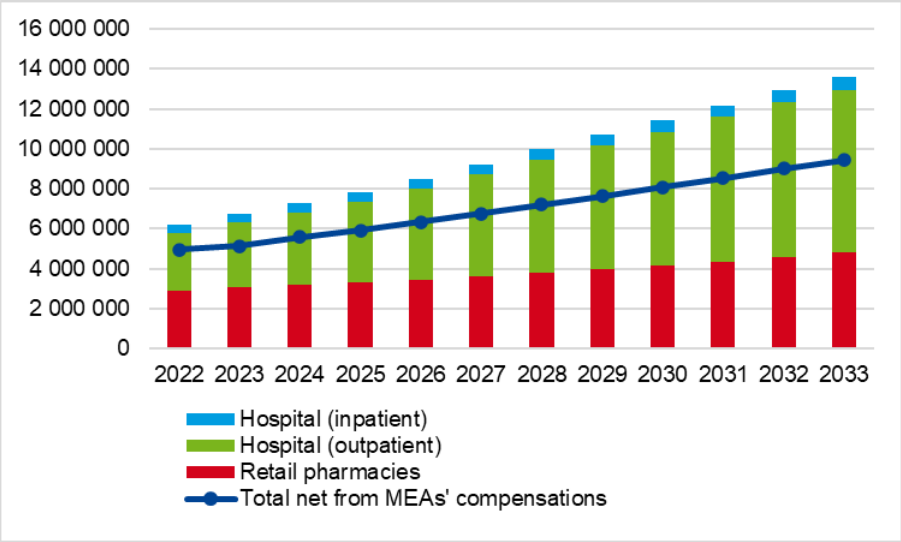
Source: Federal Planning Bureau, PROMES model estimates September 2023 based on EPS 17.

Table 117 – Projected yearly increase in public expenditure on pharmaceuticals in Belgium (2023-2033)

	Retail	Hospital (outpatient)	Hospital (inpatient)	Total	Total net from MEAs' compen-sations
2023	4.2%	13.9%	9.7%	9.1%	4.1%
2024	3.9%	11.3%	4.2%	7.5%	8.4%
2025	4.1%	11.6%	3.9%	7.9%	6.0%
2026	4.8%	12.4%	2.7%	8.6%	7.0%
2027	4.5%	12.1%	2.6%	8.4%	6.7%
2028	4.5%	11.2%	2.8%	8.1%	6.6%
2029	4.7%	9.7%	2.5%	7.4%	6.2%
2030	4.9%	8.0%	2.2%	6.5%	5.7%
2031	5.0%	8.0%	2.8%	6.7%	5.9%
2032	5.3%	6.6%	3.1%	5.9%	5.4%
2033	5.4%	5.3%	3.8%	5.3%	4.9%
Projected five-year increase					
22-27	23.5%	78.4%	25.3%	48.9%	36.6%
27-32	26.8%	51.7%	14.2%	39.8%	33.4%

Source: Federal Planning Bureau, PROMES model estimates September 2023 based on EPS 17.

Figure 165 – Projected public expenditure on pharmaceuticals in Belgium (2023-2033) in thousand euros



Source: Federal Planning Bureau, PROMES model estimates September 2023 based on EPS 17.

Key points

- **In 2022, public expenditure on pharmaceuticals amounts to 6.20 billion € in Belgium (2.92 billion € for retail pharmaceutical expenditure, 2.86 billion € for hospital outpatient pharmaceutical expenditure and 420 million € for hospital inpatient pharmaceutical expenditure).**
- **When correcting for the MEAs' compensations, pharmaceutical expenditure amounts to 4.94 billion € in Belgium in 2022.**
- **Total pharmaceutical expenditure is expected to increase by 48.9% between 2022 and 2027. When correcting for the MEAs' compensations it is expected to increase by 36.6%.**
- **A large difference is expected in the growth rate of hospital outpatient pharmaceutical expenditure (+ 78.4% between 2022 and 2027) compared to retail pharmaceutical expenditure (+23.5%) and hospital inpatient pharmaceutical expenditure (+25.3%). This result must be nuanced as most MEAs concern outpatient pharmaceuticals delivered by hospital pharmacies.**
- **Although efforts are made to model financial compensations in MEAs, the confidential nature of the compensation remains an obstacle to obtain reliable estimates.**

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10 SUSTAINABILITY – HEALTH WORKFORCE CAPACITY

10.1 Medical graduates (/100 000 population) (S-4)

10.1.1 Documentation sheet

Description	Medical graduates (with a Belgium diploma) per 100 000 population
Calculation	Numerator: Number of students graduating every year from medical faculties in Belgium (End-of-year situation 31/12). Denominator: Total population (End-of-year situation, January T+1).
Rationale	Maintaining a sufficient stock of physicians to guarantee the accessibility and quality of care requires investment in training new physicians, taking into account that it takes at least 8 years to train a general practitioner[bb] and 10-13 years to train a medical specialist. Some European countries opt for strong recruitment strategy to recruit trained physicians from abroad.[1] The World Health Organization adopted in May 2010 "The Global Code of Practice on the International Recruitment of Health Personnel"[2] to promote a more ethical recruitment of health personnel and to encourage countries to achieve greater "self-sufficiency" in the training of health workers. The number of new medical graduates (new inflow), taken together with the number of practising physicians (current situation), the number of foreign-trained physicians and the proportion of practising physicians above 55 years old (a proxy of the outflow within ten years) are thus important indicators of the sustainability of the health system. **Medical training (6 years):** Becoming a graduated physician in Belgium means having followed basic medical training consisting of a bachelor's and a master's degree (3 years each).[cc] The bachelor's degree + master's degree lead to the medical doctor degree (= graduated physicians), the starting point for the advanced master's degree for specialisation (see post-graduate training). After this 6-year cycle, students receive their physician's diploma, a licence to practice (visa/visum) delivered by the Federal Public Service Health, Food Chain Safety and Environment (FPS Public health) and a RIZIV – INAMI number (allowing reimbursement of the medical practice by the compulsory health insurance). To have access to the profession, they also have to be registered in their provincial Medical College (Ordre des Médecins / Orde der artsen). A "filter" has been introduced in the basic medical training to allow a certain correspondence between the number of students graduating in Medicine and the overall quotas for access to specialization (see below). Different "filters" were put in place across the years. In the Flemish community, an inter-university organised admission test was introduced at the beginning of basic training. In the French community, different measures have been taken, including strict number, orientation and reorientation tests. Since the academic year 2023-2024, an entrance exam combined with a numerus fixus has been but in place in both communities, limiting the number of students having access to the basic medical training. It should also be noted that the French community has introduced a limit on the percentage of non-residents (people residing aboard) who can start medical studies. From 2017, this percentage was set at 30% and from the academic year 2023-2024 up to 2029-2030, this percentage was set at 15% of the total students admitted.

[bb] General practitioners have the possibility to begin their 3 years post-graduate training the last year of their basic training.

[cc] The master's degree in medicine was revised from 4 years (240 ECTS credits) to 3 years (180 ECTS credits) in 2014-2015. This means that in academic year 2017-2018, the last cohort of students of the four-year master's degree in medicine graduated as did the first cohort of students of the three-year master's degree ('double cohort').

	Post-graduate training (3- 7 years): To be recognized as medical specialists (in general medicine or in another specialty), graduated physicians have then to follow an additional training of three to seven years, depending on the specialty. There are 47 recognized specialties, including general medicine.[3] Specialization is restricted to a limited number of candidates (system of quota, see below), who have to submit a training plan. **The system of quota** *("contingentement des médecins/contingentering van de artsen")* The federal government decided in 1997 on a system of quota to limit the number of physicians in the health care sector. RIZIV – INAMI numbers for access to specialization are restricted according to these overall quotas defined by the Federal State under the advices of the Planning Commission of Medical Supply of the FPS Public health. The quotas are known 6 years in advance so that the candidates know them before they start their studies. The system became effective in 2004, that is, after all students who had enrolled before the government decision could complete their training. Since the training of physicians is a competence of the Communities, Federal overall quotas were then subdivided between the Flemish and the French Community, proportionally to population size. For French-speaking universities, the quotas were 303 for the years 2008-2011, 356 in 2012, 390 in 2013, 410 in 2014, 492 for the years 2015-2017, 984 in 2018 (double cohort), 492 for the years 2019-2021, (575 advised in 2022 but not published in the royal decree), 607 in 2023, 586 in 2024, 585 in 2025, 514 in 2026, 612 in 2027, 744 in 2028, 929 in 2029. For Flemish universities, the overall quotas were 454 for the years 2008-2011, 534 in 2012, 585 in 2013, 615 in 2014 and 738 for the years 2015-2017, 1476 in 2018 (double cohort), 738 for the years 2019-2021, (745 advised in 2022 but not published in the royal decree), 838 in 2023, 859+69 in 2024, 860+69 in 2025, 759+152 in 2026, 905+72 in 2027, 1104 in 2028, 1144+100 in 2029.[4] The legislator had nevertheless provided for a smoothing mechanism. Such a mechanism could be negative, i.e. in the event of a one-off overrun, the quota may be increased by one year, provided that the quota is reduced by another year; or positive, i.e. allowing the possibility of postpone unfilled quotas to the following years.[5] In 2018, because the quotas had been exceeded by the French Community, the Federal government decided in a first instance to activate this mechanism to resorb the surplus (negative smoothing) but such a decision was finally abolished.[6] Only a positive smoothing mechanism in Flanders was kept (see the "+" above). Then, from the academic year 2023-2024, an entrance exam combined with a numerus fixus has been introduced in both communities to restrict the number of students starting the medical basic training.[7] Moreover, it should be noted that previously, in addition to the overall quotas, minimum quotas were also set by the Federal State. Since the Sixth State Reform, only overall quotas are now set at the Federal level. The distribution by specialisation (sub-quotas) has become a prerogative of the Federated entities. The Federated entities have set up their own planning commissions to manage the sub-quotas by specialisation. Discussions on the creation of an inter-federal planning body between the Federal State and the Federated entities are also in progress. It is also important to note that currently the quota system only applies to medical graduates with a Belgian diploma, but the law of 29 March 2019 also provides for the possibility of establishing a quota for medical graduates and specialists with a foreign diploma and provides for a two-year period to publish these quotas.[8] Some specific specializations, i.e. data management, forensic medicine and occupational medicine, fall also outside the overall quota ('out of quotas') as these are not financed through the compulsory health insurance.
Data source	Federal database of health care professionals ("Cadastre/Kadaster"), FPS Public Health OECD Health statistics
Technical definitions	The number of medical graduates is based on the number of "visa/visum" delivered by the FPS Public Health, which are registered in the federal cadastre. Only the first "visa/visum" delivered is taken into account (which differs from OECD data, see below). Data were extracted on 16 December 2022. As the database is constantly being updated and corrected, there may be differences in data depending on the date of extraction.
Limitations	This indicator also counts medical graduates with a foreign nationality or residing abroad and it is possible that some of them leave Belgium after having completed their medical training in Belgium.

	It should be noted that for some medical graduates, the country origin of the diploma is unknown. These people are not included here. They are considered in the medical graduates with a foreign diploma.
International comparability	International comparability is partially limited due to methodological differences (some countries exclude foreign graduates while other countries include them). It should also be noted that small differences appeared between Belgian data provided by the FPS Public Health and OECD data. This is due to a difference of definition, i.e. OECD data concern the number of students who have completed their medical training in a given year and is based on the number of diploma and not on the number of first “visa/visum” delivered
Dimension	Sustainability of the health system
Related indicators	Number of practising physicians; Medical graduates becoming GP (% of those with medical specialisation); Number of practising physicians above 55+ years old; Share of foreign-trained physicians; Projection of the number of contacts with GPs (Demand); Projection of the number of GPs active in the healthcare sector (Supply)
Reviewers	Pascale Steinberg, Timothée Mahieu, Nadia Benahmed

10.1.2 Results

Belgium

The numbers of medical graduates has increased more sharply than expected from the implementation of the quota system. In 2021, the number of students graduated from medical schools in Belgium almost doubled compared to 2010 (1904 and 985 respectively) (see Table 118) and there were 674 more medical graduates than the quotas (set at 1230 for 2021).

Analysis by demographic characteristics

There is a higher proportion of female medical graduates with a Belgian diploma than male ones (respectively 61.5% and 38.5% in 2021) and it is quite stable over the time. In 2021, 88.3% of these students had the Belgian nationality while it was 94% in 2010. Almost all students resides in Belgium (see Table 118).

Regional comparison

The number of medical graduates with a Belgian diploma is almost the same in the French community (1003 in 2021 vs a quota of 492) and the Flemish community (901 in 2021 vs a quota of 738).

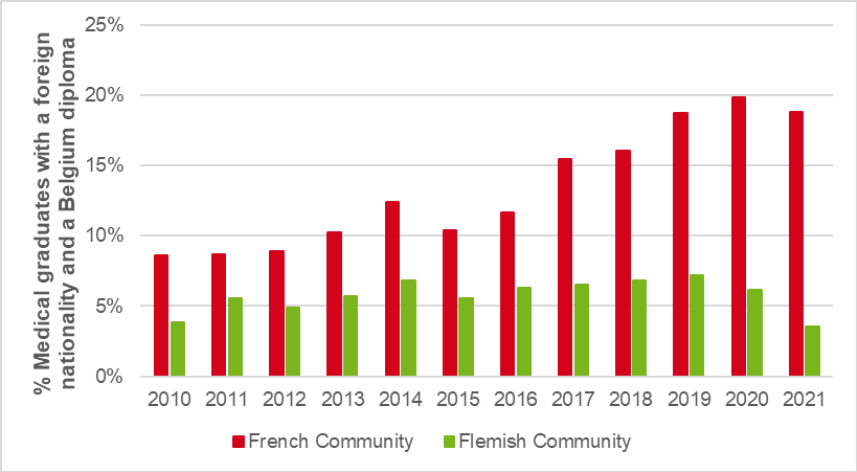
The pattern of medical graduates with a Belgian diploma and a foreign nationality (including unknown nationality) highly differs by community: a proportion between 4% and 7% for the Flemish Community, and an increasing proportion up to 20% for the French Community in 2020 (19% in 2021, see Figure 166). In the Flemish Community, most medical graduates with a foreign nationality came from the Netherlands while in the French community, halve of them had the French nationality. There was a higher variety of nationalities among medical graduates in the French Community (Morocco, Italy, Cameroon, Luxembourg, see (Figure 167). The proportion of medical graduates coming from France in the French Community increased from 3.4% in 2010 to 11.5 in 2019 and then slightly decreased to 9.6% in 2021. To tackle this problem, the French-community has limited the percentage of people residing aboard among all students admitted to the medical basic training (limited to 30% from 2017 and 15% from 2023-2024, see the documentation sheet). The proportion of medical graduates originating from The Netherlands in the Flemish Community varied between 3% (in 2021) and 7% (in 2014) during the 2010-2021 period.

Table 118 – Number of medical graduates with a Belgian diploma, by Community and by characteristics (2010-2021)

		2010	2011	2012	2013	2014	2015	2016	2017	2018*	2019	2020	2021
Belgium		985	1135	1181	1180	1292	1358	1621	1684	3283	2014	1920	1904
Community**	**French community**	408 (41.4%)	473 (41.7%)	462 (39.1%)	430 (36.4%)	573 (44.3%)	605 (44.6%)	736 (45.4%)	840 (49.9%)	1781 (54.2%)	985 (48.9%)	926 (48.2%)	1003 (52.7%)
	Flemish community	577 (58.6%)	662 (58.3%)	719 (60.9%)	750 (63.6%)	719 (55.7%)	753 (55.4%)	885 (54.6%)	844 (50.1%)	1502 (45.8%)	1029 (51.1%)	994 (51.8%)	901 (47.3%)
Gender	**Female**	652 (66.2%)	742 (65.4%)	761 (64.4%)	737 (62.5%)	780 (60.4%)	832 (61.3%)	964 (59.5%)	1006 (59.7%)	1914 (58.3%)	1179 (58.5%)	1176 (61.3%)	1171 (61.5%)
	Male	333 (33.8%)	393 (34.6%)	420 (35.6%)	443 (37.5%)	512 (39.6%)	526 (38.7%)	657 (40.5%)	678 (40.3%)	1369 (41.7%)	835 (41.5%)	744 (38.8%)	733 (38.5%)
Belgian Nationality***	**Yes**	926 (94%)	1055 (93%)	1101 (93.2%)	1086 (92%)	1167 (90.3%)	1245 (91.7%)	1470 (90.7%)	1499 (89%)	2892 (88.1%)	1752 (87%)	1674 (87.2%)	1682 (88.3%)
	No	57 (5.8%)	78 (6.9%)	76 (6.4%)	87 (7.4%)	120 (9.3%)	105 (7.7%)	142 (8.8%)	185 (11%)	389 (11.8%)	259 (12.9%)	245 (12.8%)	221 (11.6%)
	Unknown	2 (0.2%)	2 (0.2%)	4 (0.3%)	7 (0.6%)	5 (0.4%)	8 (0.6%)	9 (0.6%)	(0%)	2 (0.1%)	3 (0.1%)	1 (0.1%)	1 (0.1%)
Place of residence****	**Residence in Belgium**	966 (98.1%)	1099 (96.8%)	1150 (97.4%)	1134 (96.1%)	1257 (97.3%)	1313 (96.7%)	1568 (96.7%)	1636 (97.1%)	3135 (95.5%)	1931 (95.9%)	1846 (96.1%)	1840 (96.6%)
	Residence abroad	14 (1.4%)	29 (2.6%)	27 (2.3%)	38 (3.2%)	32 (2.5%)	39 (2.9%)	44 (2.7%)	41 (2.4%)	108 (3.3%)	56 (2.8%)	64 (3.3%)	56 (2.9%)
	Unknown	5 (0.5%)	7 (0.6%)	4 (0.3%)	8 (0.7%)	3 (0.2%)	6 (0.4%)	9 (0.6%)	7 (0.4%)	40 (1.2%)	27 (1.3%)	10 (0.5%)	8 (0.4%)

*Source: FPS Public Health, Cadastre; KCE calculation.*Double cohort due to the reduction of studies; **Based on (1) the community delivering the professional agreement. If not available, based on (2) diploma language. If not available based on (3) contact language ***At the time of data extraction (December 2022); ***At the end of the visa year (31 December);*

Figure 166 – Percentage of foreign medical graduates (excluding unknown nationality)[dd] with Belgian diploma[ee], by Community, 2010-2021



Source: FPS Public Health, Cadastre; KCE calculation. Nationality at the time of data extraction (December 2022). This may mostly have an impact on distant years (i.e. people may have acquired Belgian nationality recently).

International comparison

Belgium follows a similar pattern compared to the average observed across EU countries but between 2010 and 2015, the medical density was slightly below the EU averages (both EU-14 and EU-27) while from 2016, it was slightly above. The high density observed in Belgium in 2018 is due to the reduction of studies (double cohort in 2018) and should not be taken into account. In 2020, there were 2.3 more medical graduates in Belgium than on average across the EU-14 countries (based on 11 of these countries) and 1.3 more compared to the EU-27 average (based on 18 of these countries).

Impact of COVID-19 pandemic

Compared to 2019, the number of medical graduates decreased by 4.7% in 2020 and by 5.5% in 2021. This lower number of medical graduates could be due to a higher number of people having left the studies during the pandemic but this is also related to the double cohort created by the shortening of medical studies, impacting 2018 but also to a lesser extent 2019. Compared to 2017, the number of medical graduates is higher in 2020 and 2021.

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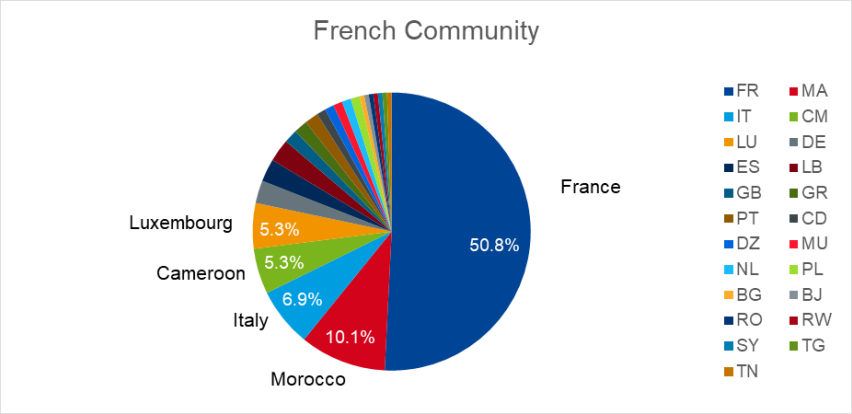
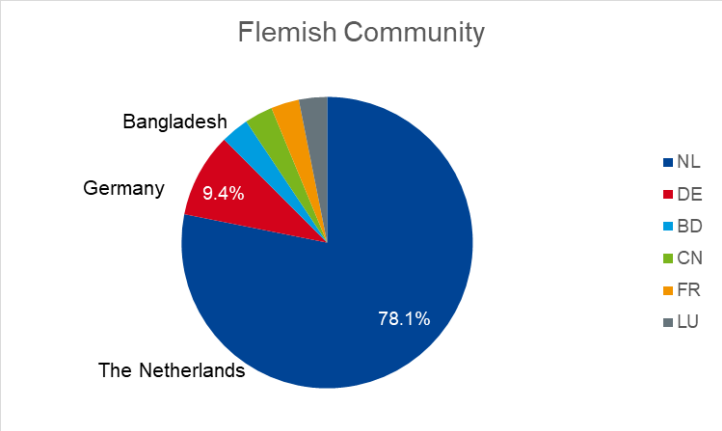
dd Percentages are similar if we include the number of medical graduates with unknown country of origin in the foreign medical graduates.

ee Number of “visa/visum” delivered to people with a foreign nationality divided by the total number of “visa/visum” (Belgian, foreigners, unknown).

Figure 167 – Nationality of foreign medical graduates with a Belgian diploma, by Community, 2021





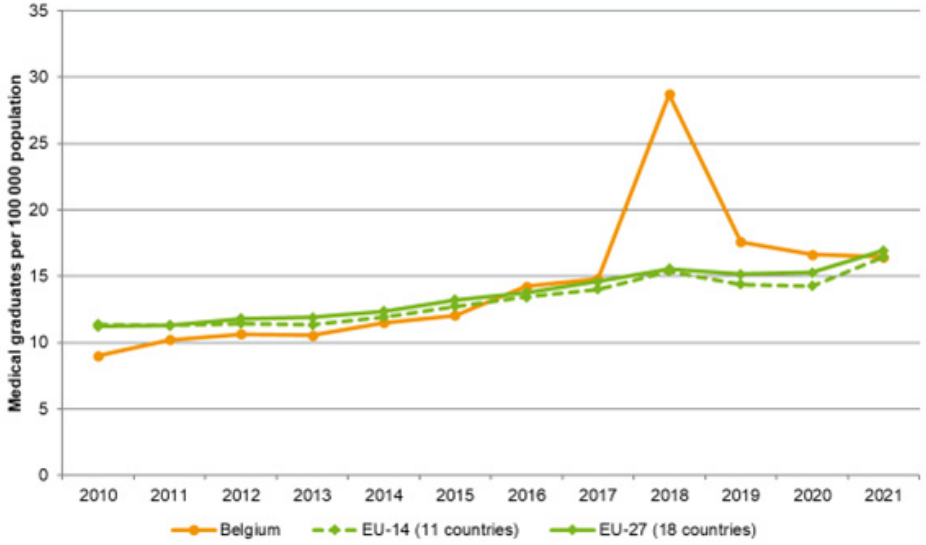
Source: FPS Public Health, Cadastre; KCE calculation

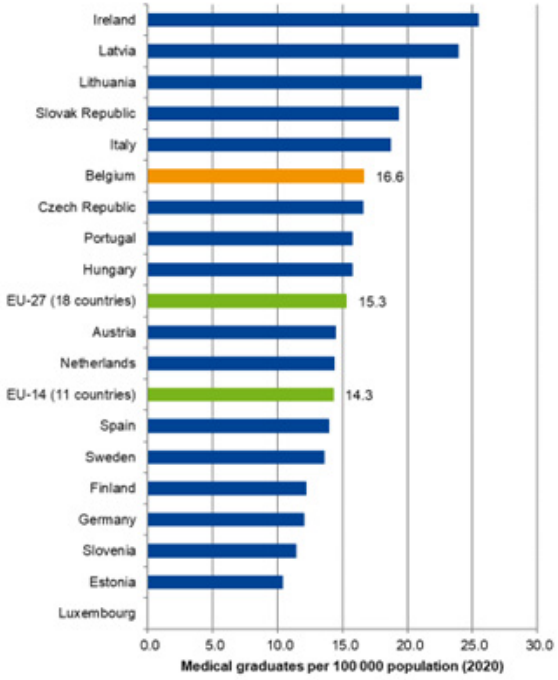
Table 119 – Medical graduates per 100 000 population, evolution 2010-2020

	2010	2011	2012	2013	2014	2015	2016	2017	2018*	2019	2020	2021
Belgium	8.99	10.19	10.62	10.54	11.50	12.05	14.24	14.80	28.72	17.58	16.61	16.43
EU-14	11.38	11.29	11.42	11.34	11.93	12.71	13.42	14.00	15.36	14.37	14.26	
EU-27	11.23	11.32	11.80	11.88	12.35	13.22	13.77	14.59	15.54	15.16	15.29	

Source: OECD Health Statistics 2023[ff] **Double cohort due to the reduction of studies*

Figure 168 – Medical graduates per 100 000 population: international comparison (2010-2020)[gg]





Source: OECD Health Statistics 2023

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ff Data extracted from OECD Health Statistics 2023 are slightly different from original data source from FPS Public Health (see the documentation sheet)

gg Because of the lack of data from other European countries in 2021, 2020 is taken as the reference in the calculation.

Key points

- The number of medical graduates has increased more than expected from the introduction of the quota system limiting access to specialisation.
- In 2021, the number of students graduating from Belgian medical schools almost doubled compared to 2010 and exceeded the overall quota by 674 students (1904 medical graduates against a quota of 1230 for 2021). The excess was more pronounced in the French Community than in the Flemish Community. Most of them had access to specialisation but in order to avoid further surpluses, additional measures were taken and an entrance exam combined with a numerus fixus was introduced from 2023-2024, limiting the number of students starting medical studies.[7]
- The pattern of medical graduates with a Belgian diploma and a foreign nationality differs greatly from one community to another: a share of between 4% and 7% in the Flemish Community (with 78% of them coming from the Netherlands in 2021) and an increasing share of up to 20% in the French Community in 2020 (with half of them coming from France).
- The density of medical graduates in Belgium follows a similar pattern to the EU-14 and EU-27 averages between 2010 and 2015, but from 2016 the density in Belgium was slightly higher. In 2021, Belgium had 2.3 more medical graduates than the average of the EU-14 countries (based on 11 of these countries) and 1.3 more than the EU-27 average (based on 18 of these countries). It should be noted, however, that many foreign medical students (mainly from France), seeking to avoid the difficulties of access to medical studies in their own country, complete their studies in Belgium and then return to their country. This is mainly a problem in the French community. For this reason, the French community has now set a limit in the percentage of people living aboard who are admitted to basic medical training in the French community.

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10.2 Medical graduates becoming GPs (S-5)

10.2.1 Documentation sheet

Description	Percentage of medical graduates becoming GP (% of those with medical specialisation)
Numerator	Number of medical graduates who have opted for a specialisation as GP two years after the basis diploma
Denominator	Total graduates with a medical specialisation (GP and other specialists) the second year after the basis diploma
Rationale	The percentage of medical graduates becoming GPs in the second year in comparison with other specialities is an indicator of attractiveness of GP practice. It should also be noted that since 2021, sub-quotas are under the competencies of federated entities (based on their estimated needs). In 2023, the objective is to have more than 40% of physicians who opt to specialise as GP (e.g. 43% in the French community).
Data source & Results source	RIZIV–INAMI
Technical definitions and limitations	*Numerator: professional code 10, competence code 005-006* or 003 or 004 *the second year after basis diploma* *Denominator: code professional 10, code competence 0xx or 1xx behalf 000 or 009 <> 0 the second year after basis diploma* Stomatologists are included. Foreign graduates are included, which explain the differences observed with the number of medical graduates registered by the FPS Public Health. Medical graduates with a Belgian diploma not registered by RIZIV-INAMI are excluded from the calculation. N.B. The choice of '2 years' is explained by the following reason: after 1 year, only 40 % of diploma are registered in a specialisation and 3 years would be too long to monitor the problematic. It should be noted that in the 2015 report, numbers were calculated for all graduates practising as GPs within 2 years after diploma while now it is the number at year 2.
International comparability	This is not an international indicator
Related performance indicators	Workforce, number of physicians and nurses, medical graduates, mean age of medical specialist
Reviewers	Antoine Khalil and Pascal Meeus

10.2.2 Results

GP's attraction is fundamental to renew the cohort of old GPs that will soon be retired. New recruitment of GPs is a challenge in comparison with other specialities. The percentage of medical graduates becoming GPs slightly improved from 2011 to reach 38.3% in 2021.

If we look at the repartition between French and Dutch graduated, the percentage of Dutch graduates becoming GPs is now lower that the percentage of French graduates becoming GPs (40.7% vs 35.9% in 2021) while it was the contrary up to 2018.

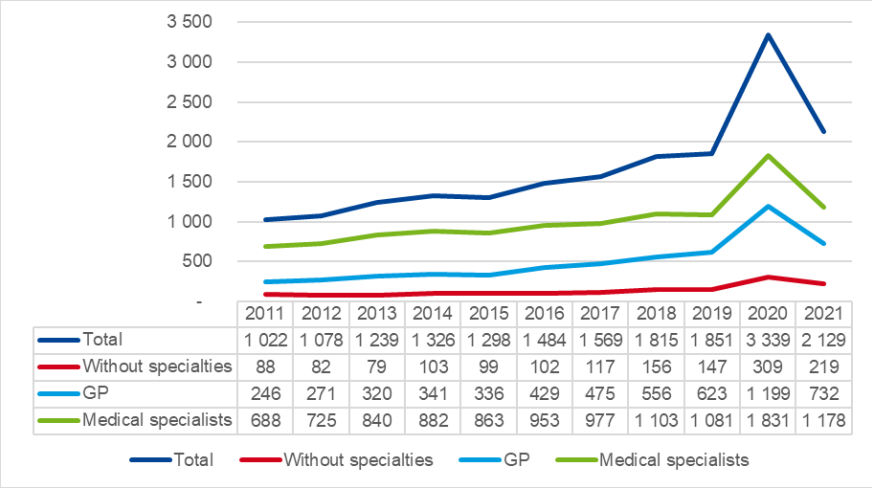
The increase in the total number of medical graduates two years after basis diploma observed in 2020 is due to the double cohort of medical graduates in 2018 (reduction of the studies, see S-4) .

Table 120 – Medical graduates practising as physician 2 years after diploma

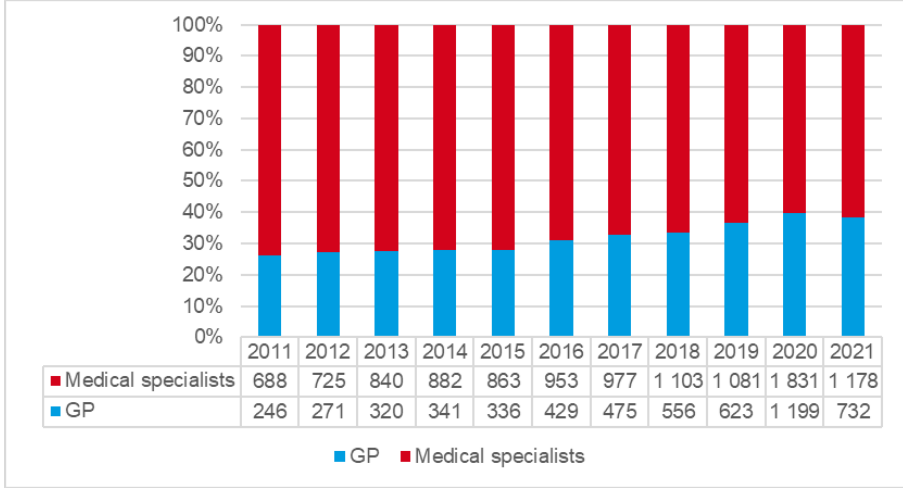
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Medical graduates 2 years after basis diploma (total)	1 022	1 078	1 239	1 326	1 298	1 484	1 569	1 815	1 851	3 339	2 129
Without specialties	88	82	79	103	99	102	117	156	147	309	219
GP	246	271	320	341	336	429	475	556	623	1 199	732
Medical specialists	688	725	840	882	863	953	977	1 103	1 081	1 831	1 178
% GP vs GP + medical specialists	26.34%	27.21%	27.59%	27.88%	28.02%	31.04%	32.71%	33.51%	36.56%	39.57%	38.32%
For NL diploma (total)	487	560	649	715	751	740	804	913	880	1 511	1 018
Without specialties	27	22	34	36	47	39	51	72	57	150	92
GP	133	162	191	200	212	243	266	306	301	487	332
Medical specialists	327	376	424	479	492	458	487	535	522	874	594
% GP vs GP + medical specialists	28.91%	30.11%	31.06%	29.46%	30.11%	34.66%	35.33%	36.39%	36.57%	35.78%	35.85%
For FR diploma (total)	535	536	537	538	539	540	541	542	543	544	545
Without specialties	61	60	45	67	52	63	66	84	90	159	127
GP	113	109	129	141	124	186	209	250	322	712	400
Medical specialists	361	349	416	403	371	495	490	568	559	957	584
% GP vs GP + medical specialists	23.84%	23.80%	23.67%	25.92%	25.05%	27.31%	29.90%	30.56%	36.55%	42.66%	40.65%

Source: RIZIV-INAMI data, KCE calculations

Figure 169 – Medical graduates becoming GP, evolution 2011-2021



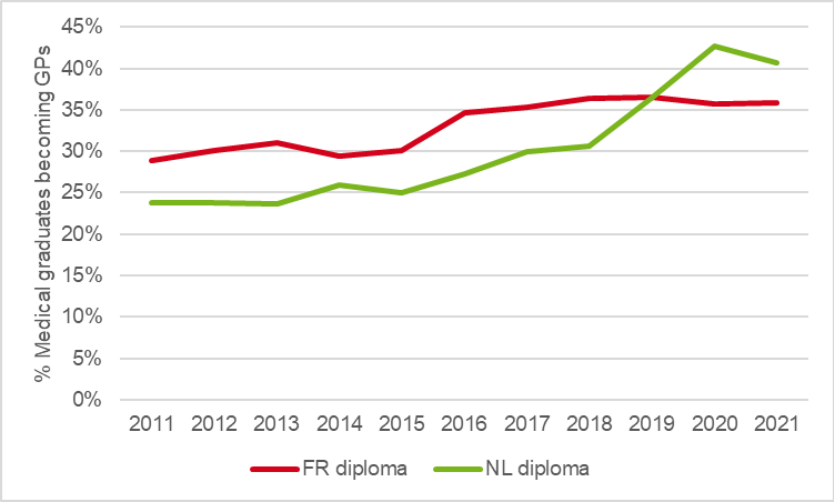
	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Total	1 022	1 078	1 239	1 326	1 298	1 484	1 569	1 815	1 851	3 339	2 129
Without specialties	88	82	79	103	99	102	117	156	147	309	219
GP	246	271	320	341	336	429	475	556	623	1 199	732
Medical specialists	688	725	840	882	863	953	977	1 103	1 081	1 831	1 178



	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Medical specialists	688	725	840	882	863	953	977	1 103	1 081	1 831	1 178
GP	246	271	320	341	336	429	475	556	623	1 199	732

Source: RIZIV-INAMI data, KCE calculations

Figure 170 – Percentage of medical graduates becoming GP, repartition for the French- and Dutch-speaking GP (based on the language of the diploma)



Source: RIZIV-INAMI data, KCE calculations

Key points

- **Since 2021, sub-quotas are under the competenties of federated entities (based on their estimated needs). In 2023, the objective is to have more than 40% of physicians who opt to specialise as GP (e.g. 43% in the French community).**
- **The percentage of medical graduates becoming GPs increased from 26.3% in 2011 to 38.3% in 2021.**
- **The efforts to increase the number of GPs can therefore been observed, especially in the French community (based on the contact language). The percentage of French medical graduates becoming GPs is now higher that the percentage of Dutch medial graduates becoming GPs (40.7% vs 35.9% in 2021), while it was the contrary up to 2018.**

10.3 Foreign-trained physicians (% of those licensed to practice) (S-14)

10.3.1 Documentation sheet

Description	**Primary indicator** Foreign-trained physicians (% of physicians licensed to practice, Stock) **Secondary indicator** Foreign-trained physicians (% of practising physicians, Stock) Medical graduates with a foreign diploma (% medical graduates receiving a visa/visum in Belgium, New inflow)
Calculation	**Primary indicator** Numerator: Number of foreign-trained physicians licensed to practice (Stock) Denominator: Total number of physicians licensed to practice (Belgian-trained physicians and foreign-trained physicians) **Secondary indicator** Numerator: Number of practising foreign-trained physicians (Stock) Denominator: Total number of practising physicians (Belgian-trained physicians and foreign-trained physicians) Number of medical graduates with a foreign diploma (New inflow) Numerator: Total number of medical graduates receiving a visa/visum in Belgium (Belgian diploma and foreign/unknown diploma, New inflow)
Rationale	Maintaining a sufficient stock of physicians to guarantee the accessibility and quality of care requires investment in training new physicians, taking into account that it takes at least 8 years to train a general practitioner[hh] and 10-13 years to train a medical specialist. Some European countries opt for strong recruitment strategy to recruit trained physicians from abroad.[1] The World Health Organization adopted in May 2010 "The Global Code of Practice on the International Recruitment of Health Personnel"[2] to promote a more ethical recruitment of health personnel and to encourage countries to achieve greater "self-sufficiency" in the training of health workers.
Data source	Federal database of health care professionals ("Cadastre/Kadaster"), Federal Public Service Health, Food Chain Safety and Environment (FPS Public health). For practising physicians (foreign-trained physicians in % of practising physicians): PlanCad 2017-2021[3] OECD Health statistics 2023
Technical definitions	Foreign-trained physicians are physicians who have obtained abroad the diploma allowing them to have a medical practice in Belgium (i.e. equivalent to the master degree to become a medical doctor). These physicians have also obtained a visa and are registered with the Medical College (Ordre des Médecins / Orde der artsen) to be entitled to practice in Belgium. People with an unknown diploma are included in foreign-trained physicians (for information, data are also presented without including them). Stock data do not include physicians with temporary visa. Practising physicians are identified based on the definition of the PlanCad project, which differ from the RIZIV-INAMI definition (see also A-10). In the PlanCad project, practising physicians concern physicians registered as self-employed into the NISSE database and having provided a

[hh] General practitioners have the possibility to begin their 3 years post-graduate training the last year of their basic training.

	minimum level of services per year (at least 5% of the median amount reimbursed to self-employed physicians in the 45-54 age category, defined by medical (sub-)specialty, based on RIZIV-INAMI nomenclature, with some exceptions[ii],) or registered as salaried worker into the NSSO database with at least 0.1 full time equivalent (FTE) per year and working for an active employer in the health sector. Because of a stricter threshold, data in the PlanCad projects are lower than in RIZIV-INAMI data. The number of medical graduates with a foreign diploma is based on the number of "visa/visum" delivered by the FPS Public Health, which are registered in the federal cadastre. Only the first "visa/visum" delivered is taken into account.
Limitations	The principal indicator refers to the share of foreign-trained physicians on all physicians with a license to practice and not on practising physicians or professionally active physicians (data not available). This indicator therefore includes physicians without active practice in Belgium.
International comparability	International comparability is partially limited due to methodological differences (some countries report licensed to practice physicians while others report practising or professionally active physicians). The data for Germany are based on nationality, not on the place of training.
Dimension	Sustainability of the health system
Related indicators	Number of medical graduates; Number of practising physicians; Number of practising physicians above 55+ years old
Reviewers	Pascale Steinberg and Timothée Mahieu

[ii] For medical specialists in clinical genetics, the threshold of at least 2 RIZIV-INAMI services per year was used and for physicians without recognition, a threshold of €7 500 was used.

10.3.2 Results

10.3.2.1 Foreign-trained physicians (% physicians licensed to practice) (Stock)

Belgium

In 2021, 72 660 physicians licensed to practice were counted in Belgium (see Table 122). About 13% of them held a foreign or an unknown diploma (9 526 foreign-trained physicians). Table 122 shows that the share of foreign-trained physicians is increasing over time in Belgium from 6.2% in 2010 to 13.1% in 2021 (+5.3 percentage points when including unknown diploma; +5.8 percentage points when excluding unknown diploma).

Analysis by demographic characteristics

The proportion of male foreign-trained physicians is slightly higher than female foreign-trained physicians (respectively 51.5% and 48.5%, Table 121). This is quite interesting to highlight since a reverse gender distribution is observed among new medical graduates with a Belgian diploma (38.5% were men and 61.5% were women in 2017). More than 70% of them are younger than 55 years old. Unsurprisingly, 84.4% of foreign-trained physicians do not have the Belgian nationality (or the nationality is unknown, et the time of data extraction) and almost 50% of them resided aboard at the end of the year they received their visa. Figure 171 shows that almost half of foreign-trained physicians come from France, The Netherlands or Romania.

Table 121 – Foreign-trained physicians by personal characteristics (2021)

		2021
Foreign-trained physicians in Belgium (including unknown diploma)		9526
Foreign-trained physicians in Belgium (excluding unknown diploma)		*8756 (92%)*
Gender	Female	4620 (48.5%)
	Male	4906 (51.5%)
Age group	<35	1304 (13.7%)
	35-44	3345 (35.1%)
	45-54	2143 (22.5%)
	55-64	1691 (17.8%)
	65-74	758 (8%)
	>74	285 (3%)
Belgian nationality*	Yes	1488 (15.6%)
	No	7924 (83.2%)
	Unknown	114 (1.2%)
Place of residence**	Residence in Belgium	3729 (39.1%)
	Residence abroad	4730 (49.7%)
	Unknown	1067 (11.2%)

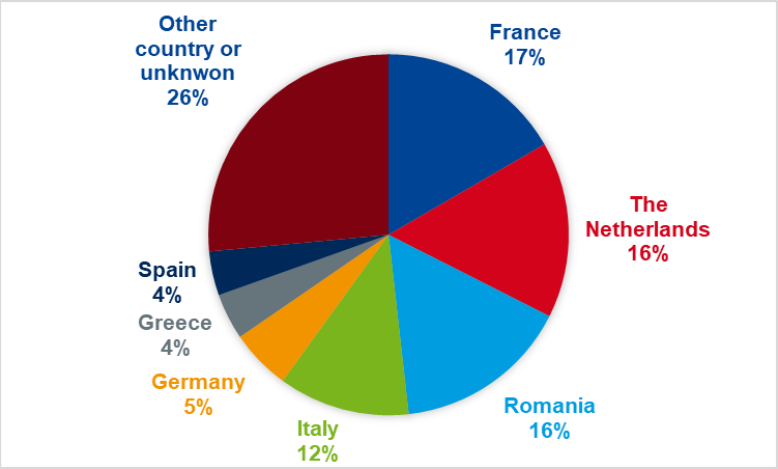
*Source: FPS Public health, Cadastre; **Belgian nationality at the time of the data extraction (December 2022); ***Residence at the end of the visa year (31/12)*

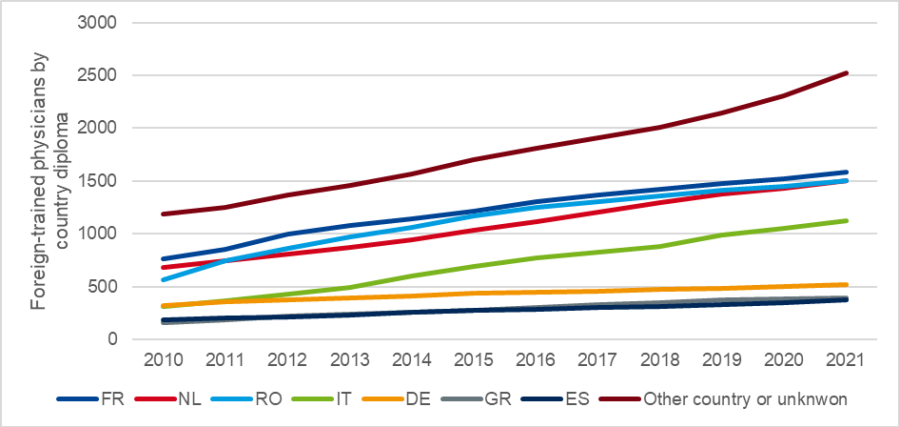
Table 122 – Number of physicians licensed to practice distributed according to the place of training (2012-2017)

		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Total physicians licensed to practice		53 335	54 650	56 039	57 270	58 646	60 151	61 849	63 537	66 778	68 866	70 692	72 660
Country diploma	Belgian diploma	49 166	49 943	50 759	51 537	52 395	53 347	54 564	55 832	58 670	60 284	61 695	63 134
	Foreign diploma	3 309	3 860	4 440	4 895	5 422	5 983	6 474	6 904	7 312	7 793	8 219	8 756
	EU-27	3177	3690	4202	4617	5083	5564	5989	6352	6686	7074	7379	7733
	Non EU-27	132	170	238	278	339	419	485	552	626	719	840	1023
	Unknown	860	847	840	838	829	821	811	801	796	789	778	770
% Foreign-trained physicians (including unknown diploma)		**7.8%**	**8.6%**	**9.4%**	**10.0%**	**10.7%**	**11.3%**	**11.8%**	**12.1%**	**12.1%**	**12.5%**	**12.7%**	**13.1%**
% Foreign-trained physicians (excluding unknown diploma)		6.2%	7.1%	7.9%	8.5%	9.2%	9.9%	10.5%	10.9%	10.9%	11.3%	11.6%	12.1%

Source : FPS Public Health , Cadastre

Figure 171 – Foreign-trained physicians by country diploma; stock (2010-2021)





Source: FPS Public health, Cadastre

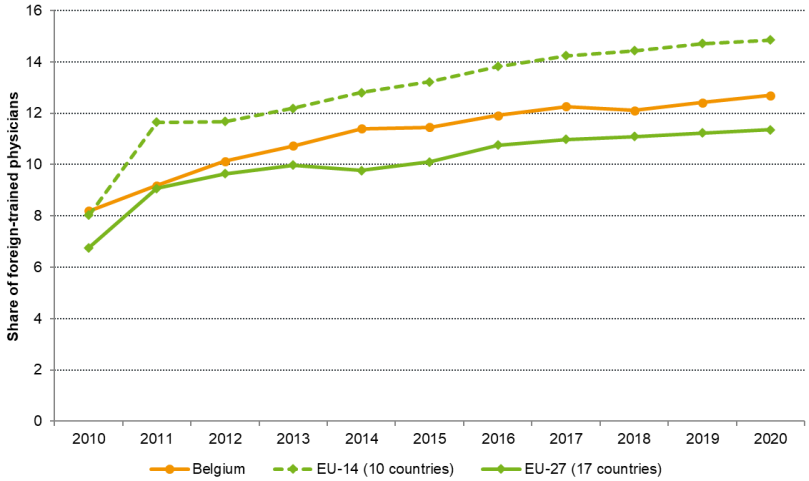
International comparison

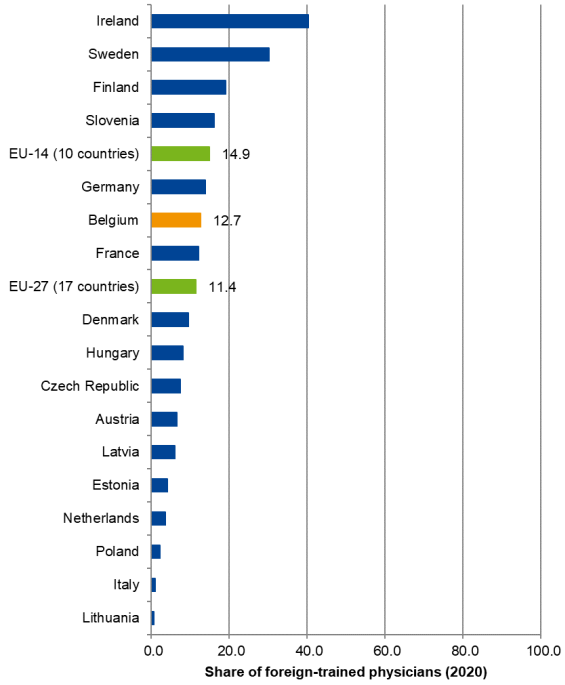
The share of foreign-trained physicians in Belgium is higher than the average observed across the EU-27 countries (based on 17 countries, excluding Luxembourg[jj]) and below the average observed across the EU-14 countries (based on 10 countries, excluding Luxembourg). The increase observed between 2010 and 2020 was slightly more important for the EU-14 countries on average than for the EU-27 countries or in Belgium (+6.8 percentage points vs 4.6 and 4.5 percentage points respectively).

Impact of COVID-19 pandemic

The share of foreign-trained physicians follows a similar trends before and after the COVID-19 pandemic, both for Belgium and EU-averages.

Figure 172 – Share of foreign-trained physicians: international comparison (2000-2015)[kk]





Source: OECD Health Statistics 2023

jj Luxembourg was excluded from the international (outliers: 100% of foreign-trained physicians).

kk Because of the lack of data from other European countries in 2021, 2020 is taken as the reference in the calculation.

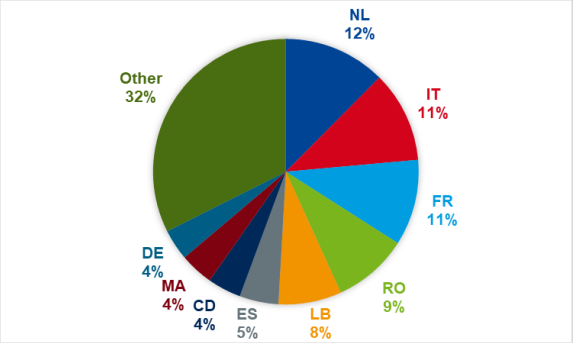
10.3.2.2 Foreign-trained physicians (% of practising physicians, Stock)

Based on data from the PlanCad[3], only 2239 physicians with a foreign diploma were nevertheless active in the healthcare sector in 2021 (2239 on 35 061, i.e. 6.4%).

10.3.2.3 Medical graduates with a foreign diploma[II] (% medical graduates receiving a visa/visum in Belgium, new inflow)

Regarding the new inflow, the share of new physicians with a foreign diploma receiving a visa/visum (new inflow) decreased between 2010 and 2020 (-14.0 percentage points) but increase in 2021 (+4.2 percentage points compared to 2020) to reach a percentage similar to 2017. In 2021, halve of them came from the Netherlands (12.4%), Italy (11.1%), France (10.5%), Romania (9.2%) or Lebanon (7.7%). A higher proportion of medical graduates with a foreign diploma registered in the French community.

Figure 173 – Medical graduates with a foreign diploma, per diploma origin, 2021



Source: FPS Public Health, Cadastre

Table 123 – Medical graduates receiving a visa in Belgium, per origin of diploma (Belgian vs foreign diploma) and community, new inflow 2010-2021

	2010	2011	2012	2013	2014	2015	2016	2017	*(2018)***	2019	2020	2021
Belgian diploma	985 (65.9%)	1135 (63.1%)	1181 (63.2%)	1180 (71%)	1292 (69.6%)	1358 (67.8%)	1621 (71.3%)	1684 (75.4%)	*3283** (87.6%)*	2014 (78.5%)	1920 (79.9%)	1904 (75.7%)
French Community	408 (27.3%)	473 (26.3%)	462 (24.7%)	430 (25.9%)	573 (30.9%)	605 (30.2%)	736 (32.4%)	840 (37.6%)	1781 (47.5%)	985 (38.4%)	926 (38.5%)	1003 (39.9%)
Flemish Community	577 (38.6%)	662 (36.8%)	719 (38.4%)	750 (45.1%)	719 (38.8%)	753 (37.6%)	885 (38.9%)	844 (37.8%)	1502 (40.1%)	1029 (40.1%)	994 (41.4%)	901 (35.8%)
Foreign diploma	504* (34.1%)	664 (36.9%)	689 (36.8%)	482 (29%)	563 (30.4%)	646 (32.2%)	654 (28.7%)	550 (24.6%)	464 (12.4%)	552 (21.5%)	483 (20.1%)	611 (24.3%)
French Community	422 (28.2%)	564 (31.4%)	573 (30.6%)	363 (21.8%)	420 (22.6%)	466 (23.3%)	483 (21.2%)	369 (16.5%)	265 (7.1%)	359 (14%)	298 (12.4%)	375 (14.9%)
Flemish Community	82 (5.5%)	100 (5.6%)	116 (6.2%)	118 (7.1%)	143 (7.7%)	180 (9%)	164 (7.2%)	167 (7.5%)	184 (4.9%)	183 (7.1%)	172 (7.2%)	214 (8.5%)
German community	(0%)	(0%)	(0%)	1 (0.1%)	(0%)	(0%)	7 (0.3%)	14 (0.6%)	15 (0.4%)	10 (0.4%)	13 (0.5%)	22 (0.9%)

*Source: FPS Public Health, Cadastre; *including unknown diploma (n=5); **Double cohort due to the shortening of the training; KCE calculation*

[II] Including unknown diploma in 2010 (n=5).

Key points

- **In 2021, about 13% of all licensed to practice physicians in Belgium held a foreign diploma (9 526 foreign-trained physicians[mm] among 72 660 physicians); half of them came from France, The Netherlands and Romania. This proportion relates to physicians who are entitled to practice and not to practising physicians.**
- **Results are nevertheless better if we only look at practising physicians. Indeed, based on data from the PlanCad, only 6.4% of practising physicians had a foreign diploma in 2021.**
- **An increasing proportion of foreign-trained physicians licensed to practise can be observed in Belgium (+5.3 percentage points between 2010 and 2021, no data available for practising physicians).**
- **During 2011 and 2020[nn], the proportion of foreign-trained physicians licensed to practice in Belgium remained slightly below the EU-14 average (12.7 vs 14.9 in 2020) but was above the EU-27 average (12.7 vs 11.4 in 2020).**

References

1. OECD. Health at a Glance 2017: OECD Indicators. Paris: 2017. Available from: http://dx.doi.org/10.1787/health_glance-2017-en
2. WHO. Global Code of Practice on the International Recruitment of Health Personnel Copenhagen: World Health Organization; 2010. Available from: http://www.who.int/hrh/resources/code_implementation/en/
3. Vivet V, Durand C, Jouck P, Berwouts J, Nkenné D, Steinberg P, et al. PlanCad Médecins 2017-2021. Rapport final sur le couplage des données PlanCAD pour la profession des médecins. Bruxelles: Cellule Planification des professions de soins de santé, Service Professions des soins de santé et pratique professionnelle, DG Soins de santé, SPF Santé publique, Sécurité de la chaîne alimentaire et Environnement; 2023. Available from: https://organesdeconcertation.sante.belgique.be/sites/default/files/documents/plancad_medecins_2017-2021_fr.pdf

[mm] Including unknown diploma

[nn] 2021 was not presented because of the lack of data from other European countries

10.4 FTE practising physicians aged 55 years and over (% of FTE practising physicians, S-7)

10.4.1 Documentation sheet

Description	Practising physicians aged 55 years and over, in Full-Time-Equivalent (FTE) (% of FTE practising physicians)
Calculation	Numerator: number of FTE practising physicians aged 55 years and over Denominator: total number of FTE practising physicians
Rationale	Aside the overall number of doctors, the distribution of medical workforce by age category and specialisation have also important implications on the current and future supply of medical services. Since many years, physicians ageing in OECD countries has raised concerns about the insufficient recruitment to replace the actual workforce who will retire within 10 years. Although there is evidence that retirement of doctors often only occurs gradually and that their retirement age is increasing. Moreover, there are also concerns the growing imbalance number of doctors preferring greater specialisation instead of general medicine and access to primary care for all the population.{OECD, 2017 #2} The proportion of practising physicians (and GPs) aged 55 years and over gives a rough estimation of the share of physicians that will retire within 10 years (although a significant number of doctors continues to practise after 65 years old).{OECD, 2017 #2} This indicator should be analysed together with the current number of practising physicians, and the number of medical graduates (input). At the European level, there is a "Joint action on health workforce planning and forecasting".[oo] The objective of this platform is to facilitate collaboration and exchange between Member states in order to better prepare the future of the health care workforce. This will support Member states in their capacity to take effective and sustainable measures. Also, various tools will be developed to enable Member states to implement health care workforce planning and/or to enhance the current planning processes.
Data source	RIZIV – INAMI (annual statistics) OECD Health statistics{OECD, 2023 #651}
Technical definitions and limitations	All practising physicians are included, even those with very low volume of activity. A care provider is considered to be practising (RIZIV – INAMI: "profiles") if he/she provided more than **1** clinical service (i.e. consultations, visits, technical acts, but not prescriptions) during a given year. FTE is calculated by dividing individual NIHDI reimbursed expenditure by the median of reimbursed expenditure from their speciality for age 45-54. If the result of this division is above "1", the result will be indicated as "1". If it is below one, the percentage indicates the % of one FTE. Because this is not based on the actual time of work, this should be interpreted with caution (e.g. the median reimbursed expenditure in 2020 was impacted by the COVID-19 pandemic). The language was based on the language of contact with RIZIV-INAMI (FR or NL).
International comparability	OECD indicator.

[oo] http://healthworkforce.eu/

	The OECD differentiates between practising physicians (doctors providing direct care to patients), professionally active physicians (including also doctors working in the health sectors as managers, educators, researches, etc) and physicians licensed to practise (i.e. having the required diploma). FTE are not available. International data therefore refer to head counts. Limitation: OECD countries use different methodologies to calculate the same indicator (such as different levels of activity).
Dimension	Sustainability – Workforce capacity
Related indicators	Number of practising physicians Number of medical graduates
Reviewers	Antoine Khalil and Pascal Meeus

10.4.2 Results

Belgium

Table 124 shows the number of practising physicians in full-time-equivalent by age category. In 2021, 9 833 FTE physicians were aged 55 years and over (38.6%, see Table 124). This proportion is decreasing since 2016 and was slightly above 40% between 2013 and 2019 and slightly below 40% in 2020 and 2021.

Analyses per medical specialty

In 2021, the proportion of FTE physicians aged 55 years and over was higher than 40% for medical specialists in rheumatology (46.1%), GPs (44.6%), and medical specialists in Ear-Nose-Throat (ENT) (41.2%), radiology (41%) and nuclear medicine (40.2%). Among these medical specialities, the proportion of FTE GP aged 55 years and over was decreasing since 2015 while for other medical specialties, it was rather increasing (see Figure 175).

It should also be noted that a high proportion of GPs and rheumatologists are aged 65 years old and over. This situation can be linked to the fact that they are working longer and to the lack of new graduates to replace the retired workforce.

Regional comparison

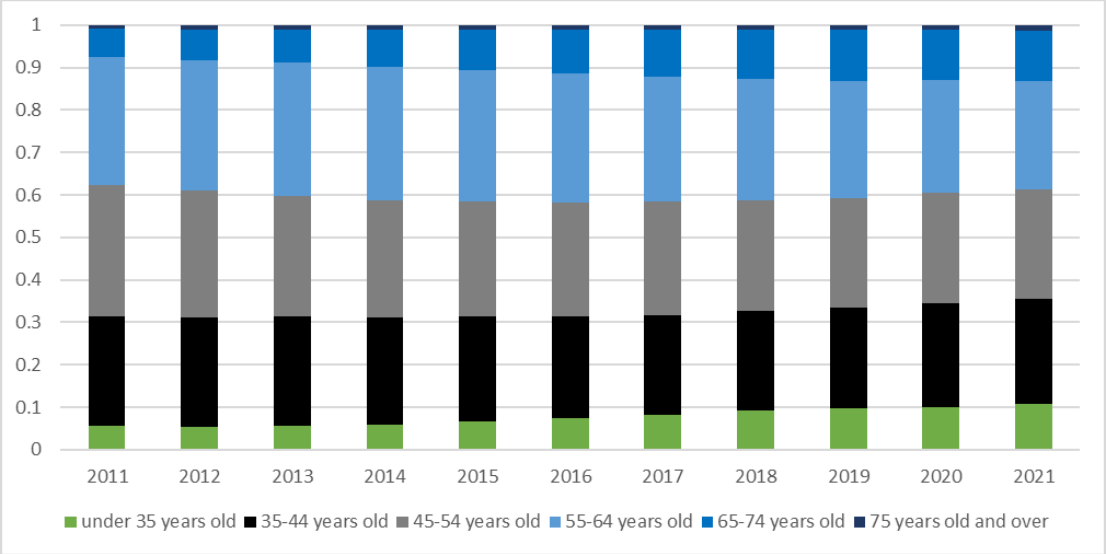
The proportion of FTE practising physicians aged 55 years old and over was higher for French-speaking physicians than for Dutch-speaking physicians during the whole study period (41.7% and 36.3% respectively in 2021, based on the linguistic role of the physician, see Table 124).

Table 124 – Number of practising physicians in full-time-equivalent (FTE), by age category, 2011-2021

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
under 35 years old	1250.5 (5.6%)	1221.3 (5.4%)	1287.2 (5.7%)	1373.9 (6%)	1558.7 (6.7%)	1733 (7.3%)	1985.3 (8.2%)	2281.8 (9.3%)	2418.7 (9.8%)	2521.2 (10.1%)	2720.6 (10.7%)
35-44 years old	5722.5 (25.8%)	5794.5 (25.8%)	5822.2 (25.6%)	5813.4 (25.3%)	5793.6 (24.7%)	5687.7 (24%)	5687.1 (23.5%)	5735.9 (23.3%)	5880.6 (23.7%)	6047.9 (24.3%)	6350.4 (24.9%)
45-54 years old	6857.2 (30.9%)	6702.3 (29.8%)	6471.2 (28.5%)	6347 (27.6%)	6356.8 (27.1%)	6394.5 (26.9%)	6463.9 (26.7%)	6421.4 (26.1%)	6386.7 (25.8%)	6496.7 (26.1%)	6557.4 (25.8%)
55-64 years old	6685 (30.1%)	6932.2 (30.8%)	7125 (31.3%)	7199.8 (31.3%)	7239.1 (30.9%)	7197.3 (30.3%)	7093.5 (29.3%)	7007.1 (28.5%)	6853.5 (27.6%)	6625.7 (26.6%)	6481.6 (25.5%)
65-74 years old	1485.7 (6.7%)	1619.8 (7.2%)	1791.6 (7.9%)	2032.8 (8.8%)	2253.4 (9.6%)	2452.7 (10.3%)	2667.9 (11%)	2843.1 (11.6%)	2972.2 (12%)	2951.6 (11.8%)	3042.3 (11.9%)
75 years old and over	201.9 (0.9%)	224.8 (1%)	237 (1%)	244 (1.1%)	237.2 (1%)	263.1 (1.1%)	278.2 (1.2%)	283.3 (1.2%)	279.7 (1.1%)	276.4 (1.1%)	309.4 (1.2%)
Total practising physicians	22 202.9	22 494.8	22 734.1	23 011.0	23 438.8	23 728.3	24 175.9	24 572.6	24 791.5	24 919.5	25 461.8
% 55 years old and over	8372.7 (37.7%)	8776.8 (39%)	9153.6 (40.3%)	9476.7 (41.2%)	9729.7 (41.5%)	9913 (41.8%)	10 039.7 (41.5%)	10 133.5 (41.2%)	10 105.5 (40.8%)	9853.7 (39.5%)	9833.4 (38.6%)
French-speaking	4023.2 (40.7%)	4205.5 (42.2%)	4371.9 (43.4%)	4546.7 (44.7%)	4661.2 (45%)	4731.5 (45.3%)	4760 (44.9%)	4758 (44.4%)	4734.8 (44.1%)	4592.7 (42.8%)	4594.8 (41.7%)
Flemish-speaking	4349.5 (35.3%)	4571.3 (36.5%)	4781.7 (37.7%)	4930 (38.4%)	5068.5 (38.8%)	5181.5 (39%)	5279.6 (38.9%)	5375.4 (38.8%)	5370.7 (38.2%)	5261 (37.1%)	5238.6 (36.3%)

Source: RIZIV-INAMI

Figure 174 – Distribution of FTE practising physicians by age category, 2011-2021



Source: RIZIV-INAMI

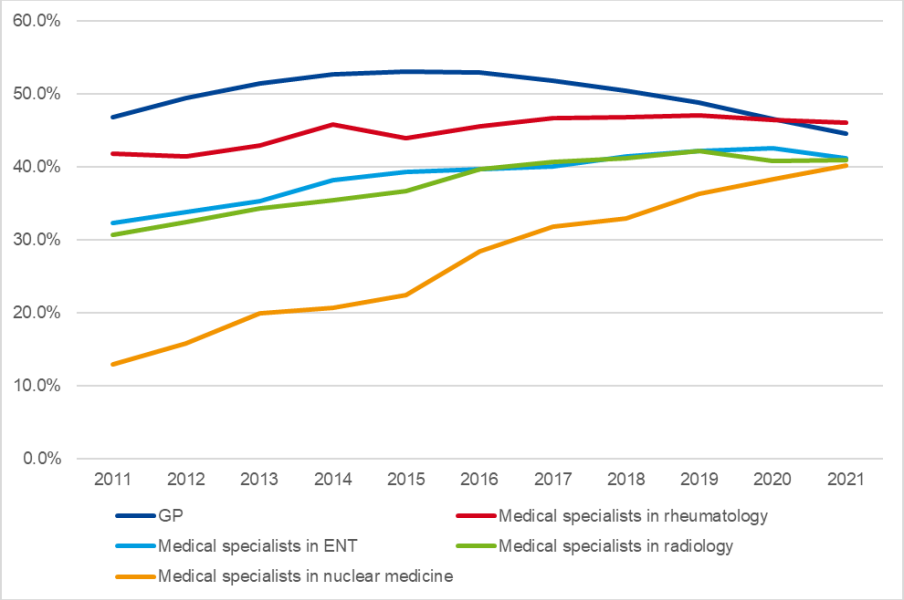
Table 125 – Number of practising physicians in full-time-equivalent (FTE), by age category and medical specialty, 2021

	FTE	FTE>55	FTE>65	mean age	%55 years old and over	%65 years old and over
General practitioner	9361.8	4174.7	1899.2	50.9	44.6%	20.3%
Medical specialist in paediatrics	975.0	297.2	69.7	48.9	30.5%	7.1%
Medical specialist in gynaecology	1046.2	348.3	93.6	49.2	33.3%	8.9%
Medical specialist in psychiatry	1292.7	494.8	190.1	51.6	38.3%	14.7%
Medical specialist in general internal medicine	546.1	206.0	41.5	50.7	37.7%	7.6%
Medical specialist in geriatric	275.9	70.6	16.3	47.6	25.6%	5.9%

Medical specialist in endocrinology	271.8	83.4	23.8	49.6	30.7%	8.8%
Medical specialist in oncology	205.6	64.2	11.5	48.9	31.2%	5.6%
Medical specialist in haematology	125.9	39.7	6.4	48.8	31.6%	5.1%
Medical specialist in rheumatology	169.4	78.1	28.8	53.2	46.1%	17.0%
Medical specialist in pneumology	437.8	152.7	44.3	50.3	34.9%	10.1%
Medical specialist in gastroenterology	549.4	207.3	54.8	50.5	37.7%	10.0%
Medical specialist in cardiology	813.4	315.3	86.7	51.1	38.8%	10.7%
Medical specialist in neurology	469.5	164.0	45.8	49.6	34.9%	9.8%
Medical specialist in physical medicine	327.2	125.3	31.8	50.2	38.3%	9.7%
Medical specialist in dermatology	590.2	221.6	61.4	50.1	37.5%	10.4%
Medical specialist in ENT	499.0	205.4	58.0	51.0	41.2%	11.6%
Medical specialist in radiotherapy	142.5	37.7	7.7	48.5	26.5%	5.4%
Medical specialist in nuclear medicine	170.0	68.3	7.1	50.1	40.2%	4.2%
Medical specialist in biology	165.5	53.4	11.9	49.4	32.3%	7.2%
Medical specialist in anatomic pathology	248.0	84.3	16.3	50.1	34.0%	6.6%
Medical specialist in radiology	1151.3	471.5	98.4	50.3	41.0%	8.5%
Medical specialist in anaesthesiology	1707.5	511.7	94.2	48.6	30.0%	5.5%
Medical specialist in acute and emergency medicine	461.9	77.2	13.8	45.2	16.7%	3.0%
Medical specialist in general surgery	888.2	338.0	78.5	51.0	38.1%	8.8%
Medical specialist in orthopaedics	717.5	260.4	45.5	50.1	36.3%	6.3%
Medical specialist in urology	298.1	91.4	22.5	48.9	30.7%	7.5%
Medical specialist in neurosurgery	145.7	41.6	9.1	48.9	28.5%	6.2%
Medical specialist in plastic surgery	170.8	50.8	7.8	48.2	29.7%	4.6%
Medical specialist in ophthalmic surgery	717.2	244.9	63.7	49.2	34.1%	8.9%

Source: RIZIV-INAMI. It should be noted that some medical specialties with a very low number of FTE are not included in this table (e.g. Medical specialists in neuropsychiatry, without new profile since 1990).

Figure 175 – Proportion of practising physicians aged 55 years and over, in full-time-equivalent (FTE), for a selection of medical specialty, 2011-2021



Source: RIZIV-INAMI

International comparison

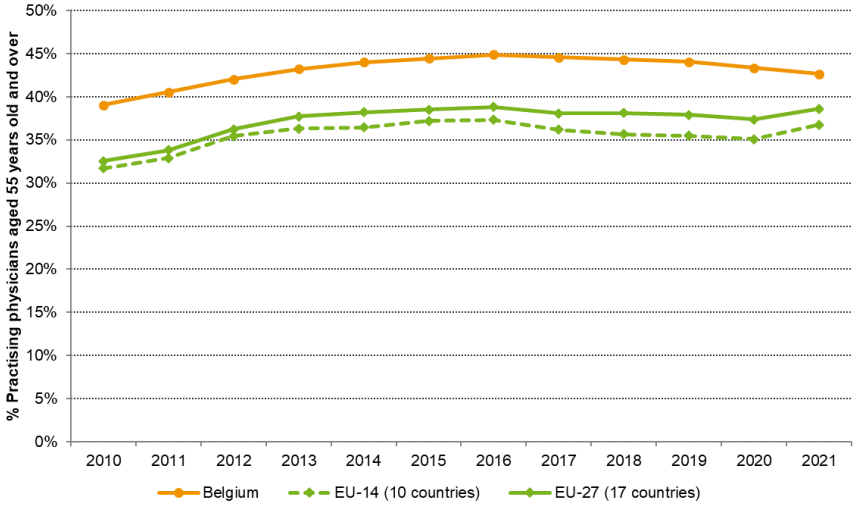
Based on head counts (FTE not available internationally), the proportion of Belgian physicians aged 55 years old and over is decreasing since 2016 but remain higher than the EU-14 and EU-27 averages (with 43.3% compared to 35.1% and 37.4% respectively in 2020, see Table 126 and Figure 176).

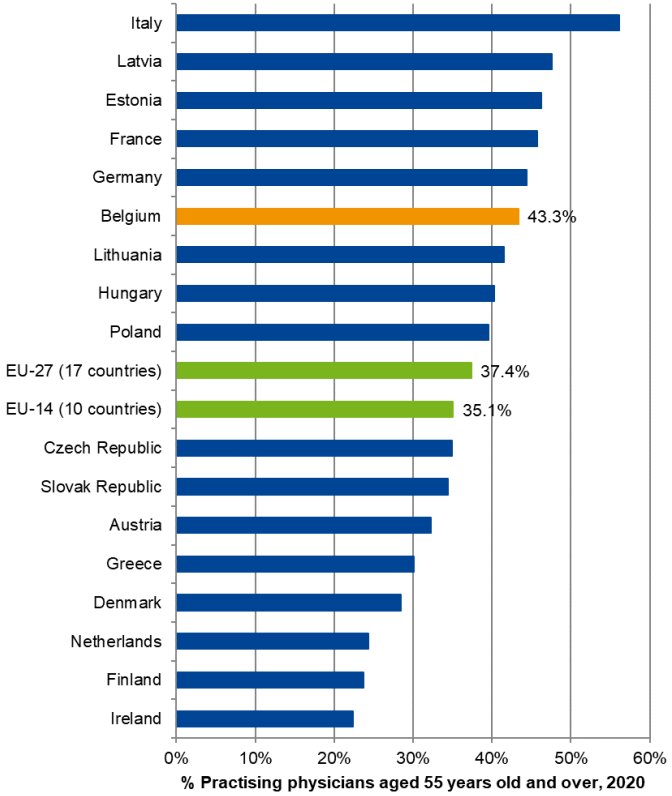
Table 126 – Share of practising physicians aged 55 years and over in Belgium (2010-2020)

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Belgium	39.05%	40.52%	42.01%	43.21%	44.01%	44.45%	44.89%	44.55%	44.29%	44.03%	43.34%
EU-14	31.71%	32.89%	35.45%	36.30%	36.45%	37.19%	37.30%	36.19%	35.65%	35.48%	35.08%
EU-27	32.53%	33.81%	36.21%	37.72%	38.19%	38.51%	38.81%	38.07%	38.12%	37.88%	37.38%

Source: OECD Health Statistics 2018

Figure 176 – Proportion of practising physicians aged 55 years and older: international comparison (2010-2021) [pp]





Source: OECD Health Statistics 2023

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pp Because of the lack of data from other European countries, 2020 is taken as the reference in the calculation.

Key points

- **In 2021, 38.6% of FTE practising physicians were aged from 55 years old and over in Belgium. This proportion is decreasing since 2016 but remain higher than 40% for medical specialists in rheumatology (46.1%, increasing trends), GPs (44.6%, decreasing trends), and medical specialists in Ear-Nose-Throat (ENT) (41.2%), radiology (41%) and nuclear medicine (40.2%) (increasing trends).**
- **The proportion of FTE practising physicians aged 55 years old and over was higher for French-speaking physicians (41.7% in 2021) than for Dutch-speaking physicians (36.3% in 2021) during the whole study period (2011-2021).**
- **Even if a decrease is observed since 2016, the proportion of physicians aged 55 years old and over remain higher than on average among EU-14 and EU-27 countries (Based on head counts, FTE not available internationnally).**

References

1. OECD. Health at a Glance 2017: OECD Indicators. Paris: 2017. Available from: http://dx.doi.org/10.1787/health_glance-2017-en

10.5 Projection of the number of contacts with GPs (Demand), evolution in % (S-18)

10.5.1 Documentation sheet

Description	**Primary indicator** Projected number of contacts with general practitioners up to 2033. **Secondary indicator** Projected number of contacts with physicians up to 2033.
Calculation	PROMES (PROjecting Medical Spending) is a microsimulation model developed by the Federal Planning Bureau in collaboration with RIZIV – INAMI. The model provides a detailed analytical insight in the determinants of the evolution of healthcare expenditure covered by compulsory health insurance and makes it possible to project these in the short and medium term. In what follows, we use the projections of care consumption (number of contacts (consultations and visits) with physicians) to quantify the evolution of the demand for healthcare professionals. Care consumption is modelled on the basis of micro data from the Permanent Sample (EPS) of IMA – AIM. The model consists of about 25 modules corresponding to different expenditure groups. In what follows, the module "physicians' fees" is used. Care consumption is modelled using a two-step model in which the probability of use (step 1) and the volume (step 2) are explained in function of individual demographic and socio-economic characteristics, indicators of morbidity, previous consumption and environmental factors. Projections for exogenous variables are made on the basis of a dynamic projection model and aligned with available external data (such as demographic projections, etc.). The model is illustrated in Figure 177. The different components of the model are described in Table 127. More details can be found in Geerts et al. (2018).[1] Projections are made separately for four sub-modules: GP consultations, GP visits, medical specialist contacts and emergency specialist contacts. Results from the first two categories are aggregated to measure the projected number of contacts with GPs (main indicator) and results from all four categories are aggregated to measure the projected number of contacts with physicians (secondary indicator). The following services are not included in the calculation of the number of contacts: advices, technical medical services, medical assistance during urgent transfer by ambulance to the hospital, psychotherapies, management and renewal of the global medical file with/without MyCareNet, management and renewal of the global medical file for patients with a chronic condition, expansion of the global medical file for patients with a chronic condition, follow-up of patients with type 2 diabetes, care path contract for renal insufficiency, care path contract for diabetes, permanence and availability, management of COVID-19 patients, multidisciplinary spine consultations and teleconsultations.
Rationale	Projected numbers of contacts with physicians are used as proxies for the demand for physicians. Future trends in consumption must be analysed in regard with future trends in supply of these health professionals in order to anticipate a potential future imbalance. The projected numbers of contacts with physicians from the PROMES model are used as an indicator of future workforce demand (indicator S-18) and the projected numbers of FTEs from the workforce model used by the Planning Commission of medical supply (S-19) are used as in indicator of future workforce supply.
Data source	Federal Planning Bureau, RIZIV – INAMI, IMA – AIM
Technical definitions	The PROMES 2.17 estimates of September 2023 are based on the EPS release 17, which includes data up to 2021. Given the large impact of COVID-19 on healthcare use, the data for 2020 -2021 were not included in the care consumption regression analyses.

	The insured population projections were aligned with the population and households projection data from the Federal Planning Bureau and Statbel of January 2023 and with the unemployment projections from the Federal Planning Bureau of July 2023, which do take into account the impact of the pandemic. Only individuals residing in Belgium were included in the regression analyses. To obtain projection results for the entire insured population, including the insured persons residing abroad, a specific scaling factor is applied to the projection results for each expenditure group. Results for the projection period (2022-2033) are scaled-up results but for the observation period (2008-2021), insured persons not residing in Belgium are not included. Results are presented for Belgium and by region (based on the insured person's place of residence).
Limitations	Missing determinants of care consumption: the model uses data from the Permanent Sample, which does not contain information on some individual characteristics that may influence demand for care: (household) income, level of education, lifestyle (diet, alcohol and tobacco consumption, physical activity, etc.), medical background, professional situation, etc. Quality of the projection of the exogenous variables: even if the PROMES model explains the consumption of care, it was primarily designed to carry out projections and simulations of policies. Consequently, the quality of the results of the model depends not only on the "completeness" of the estimated model, but also on the quality of the projection of the exogenous variables (those which are not explained by the model). Although this aspect does not play an important role for policy simulation (where the emphasis is placed on the deviation from the base simulation), this is particularly important for the base projections that are used here. One must keep in mind that the model is used here for a different purpose (i.e. projection of physician workforce demand) than that for which it was designed. Medical density: in the behavioural model (see Figure 177 and Table 127), medical density is used as an explanatory variable. In addition, when results from the behavioural model are reweighted so that they can be applied to future populations, medical density is projected using projections of supply of healthcare professionals as described in indicator S-19. As one purpose of this indicator of future demand is to compare it to projections of future supply of healthcare professionals (indicator S-19) one may see this as an endogeneity issue. However, medical density only plays a minor role in the behavioural model. Nevertheless, to assess the importance of this effect, we also present results from an alternative scenario where medical density projections are maintained artificially constant from 2022 onwards. Consumption of care is used as a proxy for the demand of care and does not correspond to needs nor to health objectives (see for instance Cookson et al. 2013 and Benahmed et al., 2018).[2, 3]
Dimension	Sustainability
Related indicators	S-19 – Projection of the number of practising GPs (Supply), evolution in % A-10 – Practising physicians (/1000 population)
Reviewers	Joanna Geerts (Federal Planning Bureau); Karen Geurts (Federal Planning Bureau)

Figure 177 – Structure of the projection model

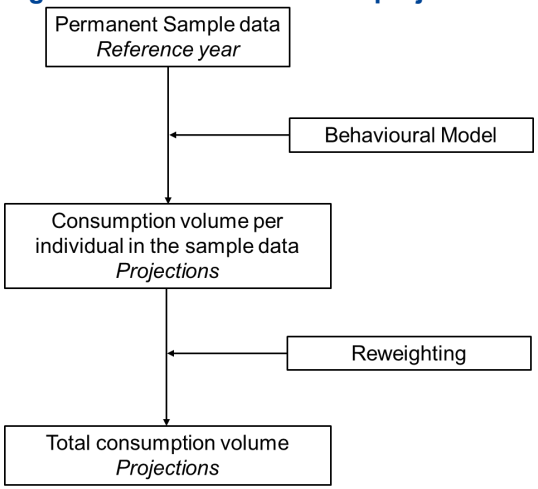


Table 127 – Components of the projection model

Element	Explanation
Permanent Sample	The Permanent Sample is a longitudinal administrative database containing data on healthcare services covered by the compulsory health insurance for a sample of the population made up of around 1/40 of the insured persons under 65 and 1/20 of the insured persons aged 65 and over.
Behavioural Model	The estimation of the behavioural model is carried out on the Permanent Sample (n> 300 000) for the period 2010-2019. The behavioural model, at the individual level, links consumption of care to relevant individual characteristics such as age, gender, health status, employment status and insured status. It allows to estimate, from specific characteristics of an individual, the probability of using care and the volume of care. For consultations and visits of physicians, the probability of using care is modelled using logistic regressions including the following exogenous characteristics: - Demographics: age group, gender, interaction age-gender - Individual health status: general health status indicator, chronic illness/invalidity indicator, indicators on specific chronic conditions - Flu epidemic variable at the national level

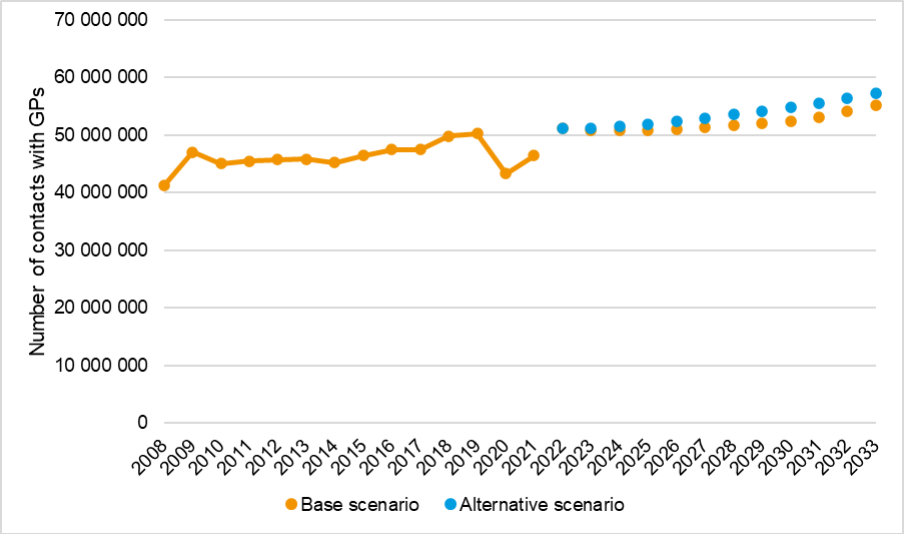
	- Socio-economic status: unemployment status, long-term unemployment status, isolated/cohabiting status, right to guaranteed income (income guarantee for the elderly, subsistence income and/or right to help from OCMW – CPAS), primary work incapacity (at least one day) - Insurance status: entitlement to increased reimbursement status, global medical file, maximum billing reimbursement - Living environment: district, population density - Medical density: number of GPs, of medical specialists and of emergency specialists per 1 000 inhabitants (at the level of the district) and the following endogenous characteristics representing previous care: - Hospitalisation (t-1, t-2, t-3) - Contacts with physicians (t-1) The volume of care is then modelled using a truncated-Poisson model.
Reweighting	Results from the behavioural models are reweighted so that they can be applied to future populations. Adjustments are made, either using external data when available, or using a separate dynamic microsimulation model for the projection of exogenous variables (on a yearly basis, based on the Permanent Sample 2008-2019). This dynamic projection model simulates the aging, year after year, of the individuals in the Permanent Sample, and projects the prevalences of the categories of the various exogenous variables. Births, deaths, immigrations and emigrations are also simulated: - Demographic characteristics using demographic projections made by the Federal Planning Bureau and Statbel - Individual health status characteristics using the dynamic microsimulation model - Flu epidemic variable using historical data from Sciensano - Social status characteristics using the dynamic microsimulation model aligned with households and unemployment projections made by the Federal Planning Bureau - Insurance status characteristics using the dynamic microsimulation model - Medical densities using projections of supply of healthcare professionals made by the Planning Commission of medical supply supported by the Planning Unit for the Supply of the Health Care Professions, FPS Public Health, Food Chain Safety and Environment

10.5.2 Results

General practitioners

In 2021, there were around 46.5 million contacts (consultations and visits) with GPs in Belgium (50.3 million in 2019). This number is expected to increase to 55.3 million in 2033 which represents an average annual increase of 0.7% between 2022 and 2033 (base scenario, Figure 178). When maintaining medical density artificially constant, the expected increase in the number of contacts with GP is slightly larger, up to 57.3 million in 2033, that is an average annual increase of 1.0% between 2022 and 2033 (alternative scenario, Figure 178).

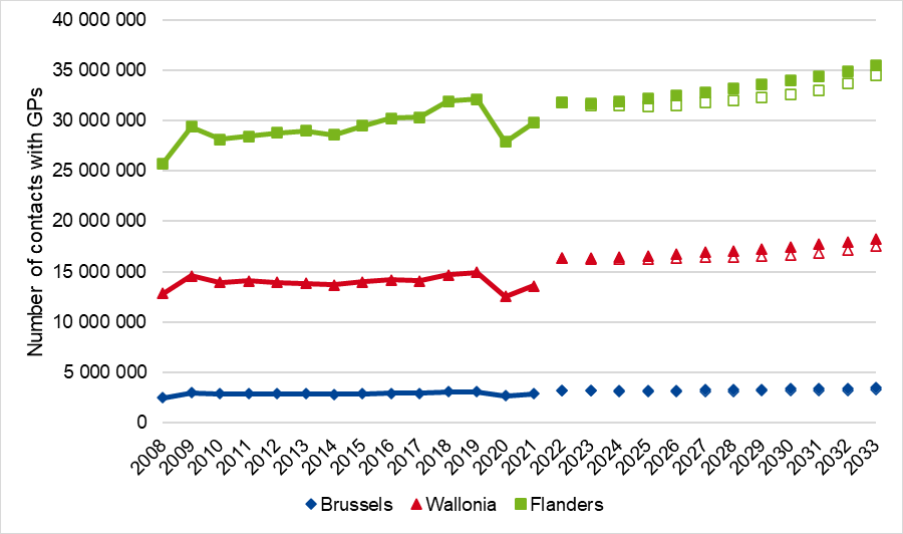
Figure 178 – Projected number of contacts (consultations and visits) with GPs in Belgium (2022-2033)



Source: Federal Planning Bureau, PROMES model estimates September 2023 based on EPS 17. In the alternative scenario, medical density projections are maintained artificially constant.

At a five-year horizon, between 2022 and 2027, the number of contacts with GPs in Belgium is expected to increase by 3.4% (alternative scenario, Table 128). This corresponds to an increase of 3.2% in Brussels, 3.4% in Flanders and 3.6% in Wallonia (alternative scenario, Figure 179 and Table 129).

Figure 179 – Projected number of contacts (consultations and visits) with GPs in the three Belgian regions (2022-2033)



Source: Federal Planning Bureau, PROMES model estimates September 2023 based on EPS 17. In the alternative scenario (represented by plain markers), medical density projections are maintained artificially constant. Empty markers depict the base scenario.

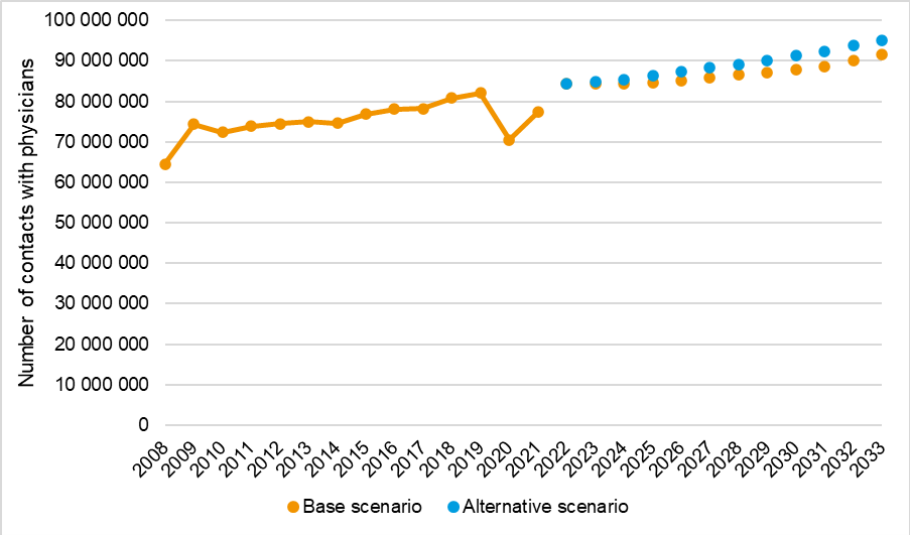
All physicians

For all physicians, in Belgium in 2021, there were around 77.4 million contacts (consultations and visits), compared to around 82.0 million in 2019. The number of contacts with physicians is expected to increase to 91.5 million in 2033 which represents an average annual increase of 0.8%

between 2022 and 2033 (base scenario, Figure 180). When maintaining medical density artificially constant, the expected number of contacts in 2033 is 95.1 million, corresponding to an average annual increase of 1.1% between 2022 and 2033 (alternative scenario, Figure 180).

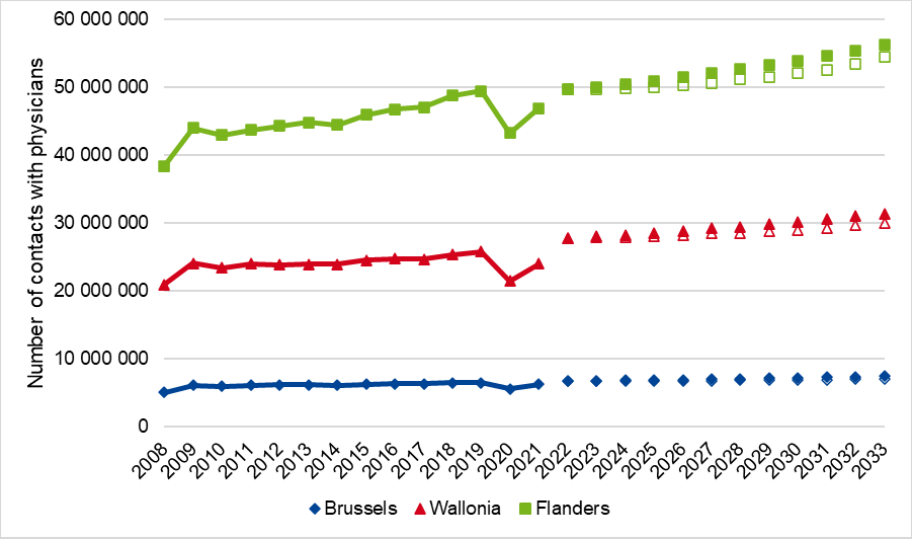
At a five-year horizon, between 2022 and 2027, the number of contacts with physicians in Belgium is expected to increase by 4.7% (alternative scenario, Table 128). The increase is lower in Brussels (4.0%) than in Flanders (4.7%) and in Wallonia (5.0%) (alternative scenario, Figure 181 and Table 130).

Figure 180 – Projected number of contacts (consultations and visits) with physicians in Belgium (2022-2033)



Source: Federal Planning Bureau, PROMES model estimates September 2023 based on EPS 17. In the alternative scenario, medical density projections are maintained artificially constant.

Figure 181 – Projected number of contacts (consultations and visits) with physicians in the three Belgian regions (2022-2033)



Source: Federal Planning Bureau, PROMES model estimates September 2023 based on EPS 17. In the alternative scenario (represented by plain markers), medical density projections are maintained artificially constant. Empty markers depict the base scenario.

Table 128 – Projected increase in the number of contacts with GPs and all physicians in Belgium (2022-2033)

	GPs		Physicians	
	Projected annual increase			
	base scenario	alternative scenario	base scenario	alternative scenario
2022	10.33%	10.33%	8.88%	8.88%
2023	-0.66%	0.03%	0.01%	0.60%
2024	-0.10%	0.61%	0.20%	0.80%
2025	0.03%	0.76%	0.33%	0.94%
2026	0.29%	1.01%	0.60%	1.21%
2027	0.62%	0.97%	0.73%	1.08%
2028	0.65%	1.01%	0.75%	1.10%
2029	0.74%	1.08%	0.77%	1.11%
2030	0.83%	1.17%	0.81%	1.16%
2031	1.03%	1.39%	0.94%	1.30%
2032	2.01%	1.50%	1.57%	1.41%
2033	2.16%	1.64%	1.62%	1.44%
	Projected five year increase			
2022-2027	0.18%	3.42%	1.89%	4.72%
2027-2032	5.36%	6.32%	4.93%	6.23%

Source: Federal Planning Bureau, PROMES model estimates September 2023 based on EPS 17. In the alternative scenario, medical density projections are maintained artificially constant.

Table 129 – Projected increase in the number of contacts with GPs in the three Belgian regions (2022-2033)

GPs	Brussels	Flanders	Wallonia
	Projected annual increase (alternative scenario)		
2022	9.94%	6.53%	19.99%
2023	0.67%	-0.02%	0.01%
2024	0.24%	0.63%	0.65%
2025	1.11%	0.70%	0.80%
2026	0.63%	1.10%	0.90%
2027	0.52%	0.92%	1.16%
2028	0.69%	1.18%	0.74%
2029	1.45%	1.01%	1.15%
2030	1.05%	1.27%	1.01%
2031	0.64%	1.25%	1.81%
2032	1.18%	1.57%	1.44%
2033	1.40%	1.67%	1.64%
	Projected five year increase (alternative scenario)		
2022-2027	3.21%	3.37%	3.57%
2027-2032	5.10%	6.44%	6.31%

Source: Federal Planning Bureau, PROMES model estimates September 2023 based on EPS 17. In the alternative scenario, medical density projections are maintained artificially constant.

Table 130 – Projected increase in the number of contacts with physicians in the three Belgian regions (2022-2033)

Physicians	Brussels	Flanders	Wallonia
	Projected annual increase (alternative scenario)		
2022	8.21%	6.00%	15.98%
2023	1.09%	0.51%	0.64%
2024	0.47%	0.78%	0.91%
2025	1.07%	0.92%	0.95%
2026	0.68%	1.30%	1.19%
2027	0.58%	1.06%	1.24%
2028	1.02%	1.28%	0.80%
2029	1.50%	1.02%	1.16%
2030	1.10%	1.22%	1.05%
2031	0.59%	1.24%	1.58%
2032	1.37%	1.48%	1.29%
2033	1.32%	1.51%	1.33%
	Projected five year increase (alternative scenario)		
2022-2027	3.96%	4.65%	5.02%
2027-2032	5.70%	6.42%	6.03%

Source: Federal Planning Bureau, PROMES model estimates September 2023 based on EPS 17. In the alternative scenario, medical density projections are maintained artificially constant.

Key points

- **Results from the microsimulation model PROMES with constant medical densities show an expected increase in the number of contacts with GPs in Belgium: from around 51.3 million contacts in 2022 up to 57.3 million in 2033, that is an average annual increase of 1%.**
- **Between 2022 and 2027, an increase of the number of contacts with GPs of 3.4% is projected for Belgium (3.2% in Brussels, 3.6% in Wallonia and 3.4% in Flanders).**
- **The number of contacts with all physicians in Belgium is expected to increase from around 84.2 million contacts in 2022 up to 95.1 million in 2033, that is an average annual increase of 1.1%.**
- **Between 2022 and 2027, an increase of the number of contacts with physicians of 4.7% is projected for Belgium (4.0% in Brussels, 5.0% in Wallonia and 4.7% in Flanders).**

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3. Cookson R, Sainsbury R, Glendinning C. Jonathan Bradshaw on Social Policy: Selected writings 1972-2011. York: University of York; 2013.

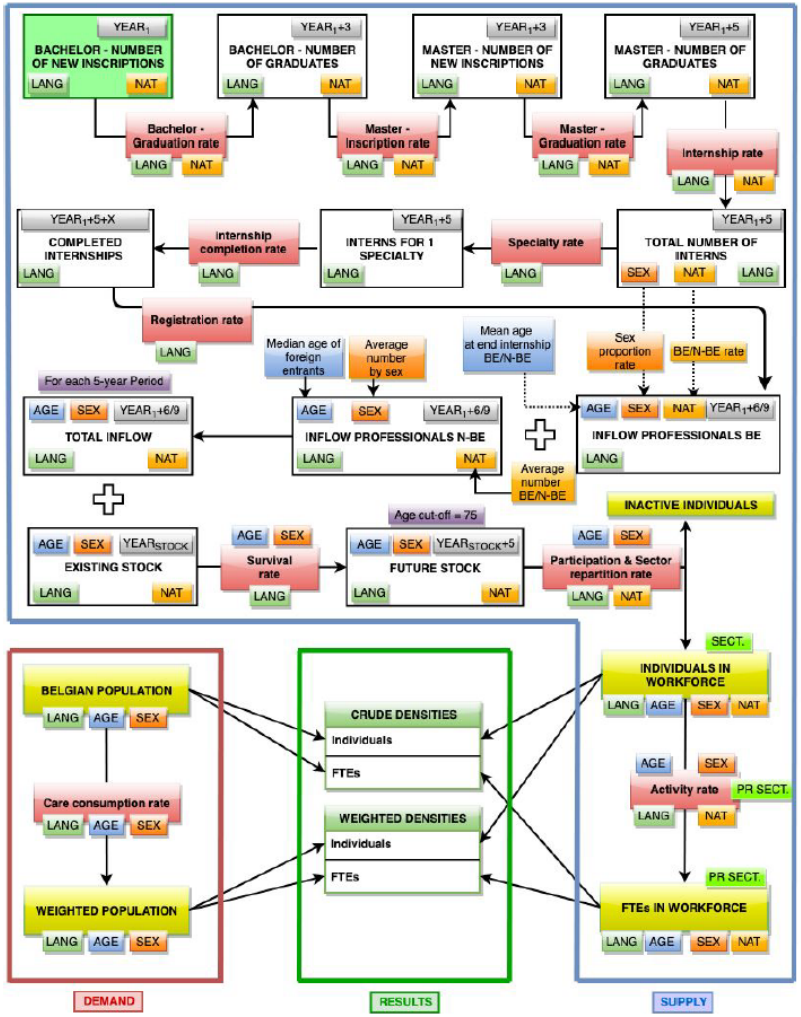
10.6 Projection of the number of practising GPs (Supply), evolution in % (S-19)

10.6.1 Documentation sheet

Description	**Primary indicator** Projections of supply of GPs in individuals and FTEs in 2026, 2031, 2036 and 2041. **Secondary indicator** Projections of supply of all physicians in individuals and FTEs in 2026, 2031, 2036 and 2041.
Calculation	Supply projections to quantify the evolution of the workforce of healthcare professionals are carried out by the Planning Commission of medical supply supported by the Planning Unit for the Supply of the Healthcare Professions, depending on the FPS Public Health, Food Chain Safety and Environment (hereinafter called the Planning Commission and the Planning Unit). The Planning Unit uses a stock-and-flow model to quantify the evolution of healthcare professionals' workforce. The model for physicians is illustrated by Figure 182 where parameters are defined in Table 131. More details can be found in the reports from the Planning Unit (2020, 2022, 2023).[1-3] The number of bachelor graduates is obtained by multiplying the number of bachelor new inscriptions (parameter #1) by the bachelor graduation rate (parameter #2). Applying the master inscription rate (parameter #3) gives the number of master new inscriptions. Then applying the master graduation rate (parameter #4) gives the number of master graduates. From that, the number of persons starting a training (number of interns) is obtained by applying the internship rate (parameter #5). These calculations are made separately by linguistic community and nationality (Belgian vs non-Belgian) and are common to all medical specialists including GPs. From there, specific calculations are made for each medical specialty. The number of persons starting each specialty training is obtained by applying the specialty rate (parameter #6) to the number of interns. The internship completion rate (parameter #7) allows to calculate the number of completed internships in each specialty. All these persons are supposed to be automatically registered (*cadastre – kadaster*) as the registration rate (parameter #8) is set equal to 1. This inflow of newly registered physicians is separated by sex and nationality (Belgian vs non-Belgian) using parameter #9. To this inflow of physicians trained in Belgium an additional inflow of physicians trained abroad is added (parameter #10). The sum of these inflows is the total inflow of physicians who are licensed to practice. It is calculated by age, sex, nationality and linguistic community. The total inflow is added to the existing stock of physicians. A survival rate (parameter #11) is applied to take into account losses due to mortality. At this step, all persons aged 75 or above are also removed in order to limit the supply forecast to those in age of working. From this future stock, only active physicians are kept, using the participation rate (parameter #12). These are divided into four sectors (three inside the healthcare sector, one outside) using the sector repartition rate (parameter #13). This provides us with the projected **number of practising physicians (the number of individual physicians active in the healthcare sector)** that are presented below. Applying the activity rate (parameter #14) allows to calculate the **number of FTEs active in the healthcare sector** that are also presented below. One must note that the model also allows to calculate crude and weighted densities according to the evolution of the population and the application of a care consumption rate (parameter #15). These results are not presented here but can be found in the report from the Planning Unit (2020).[1] The model allows to calculate the number of individuals and FTEs in the workforce for each medical specialty separately. However, in what follows, all physicians are aggregated together to ensure comparability with indicator S-18, for which no result per specialty was available. Projections for GPs are presented separately.

Rationale	Projections of the number of physicians, both in number of individuals as well as in FTEs, are used to quantify the future workforce supply. Although the Planning Unit model allows to take into account care consumption and to calculate crude and weighted workforce densities, these projections are not used here because they mix both supply and demand components. Demand for healthcare workforce is projected separately (see indicator S-18).
Data source	Planning Commission of medical supply supported by the Planning Unit for the Supply of the Healthcare Professions, depending on the FPS Public Health, Food Chain Safety and Environment
Technical definitions	The following physicians are excluded from the projection model: specialists in clinical genetics, occupational medicine, health data management, forensic medicine, insurance medicine and medical expertise, physicians without specialism or accreditation and physicians in training.
Limitations	In 2021, 80.9% of the physicians were exclusively self-employed and 6.8% combined salaried and self-employed status.[4] For physicians who are active as self-employed the calculation of FTEs is based on the amounts reimbursed by the sickness funds for provided care. The reference value is determined by specialty, using the observed median of the total amount paid for care provided by the reference group. For GPs for instance one FTE corresponds to a total reimbursement amount equal to € 160 237 in 2021. For surgeons, the amount is € 233 886.[4] This presents an important limitation, especially for medical specialists, as the amount associated with the acts is not necessarily proportional to the time taken to perform them.[5] In addition, it is assumed that future activity rates will be reduced (see #14 Activity rate in Table 131). This hypothesis is based on previous research from the Planning Commission of medical supply.[6] The projected number of FTEs therefore depends on the chosen reduced rate. Another important limitation comes from the aggregation of all physicians together. This aggregation may hide important differences between specialties. We refer the interested reader to the report of the Planning Unit (2023) for more details per specialty.[3]
Dimension	Sustainability
Related indicators	S-18 – Projection of the number of contacts with GPs (Demand), evolution in % A-10 – Practising physicians (/1000 population)
Reviewers	Christelle Durand (SPF Santé Publique – FOD Volksgezondheid)

Figure 182 – Stock-and-flow model for the projection of healthcare workforce



Source: Planning Unit (2020).[1]

Table 131 – Parameters used in the stock-and-flow projection model

Parameter	Definition	Projection
	All calculations are made separately for the French and the Flemish Community	
	General	
#1 Bachelor – number of new inscriptions	Number of students enrolled for the first time in a bachelor's programme in medicine (separated between Belgian and non-Belgian).	Number of candidates who can start medical training on the basis of the decree of each linguistic community: 1 391 in Flemish Community and 992 in French Community (separated between Belgian and non-Belgian).
#2 Bachelor – graduation rate	Number of bachelor diplomas obtained divided by the number of new enrolments 3 years earlier (separated between Belgian and non-Belgian).	Average graduation rate based on the 3 most recent academic years for which data are available (2020, 2021 and 2022) (separated between Belgian and non-Belgian). In the French Community, from 2023 onward, the rate is fixed at 80% for Belgian and 75% for non-Belgian students.
#3 Master – inscription rate	Number of students enrolled for the first time in a master programme in medicine divided by the number of bachelor diplomas of that year (separated between Belgian and non-Belgian).	Average inscription rate based on the 3 most recent academic years for which data are available (2020, 2021 and 2022) (separated between Belgian and non-Belgian).
#4 Master – graduation rate	Number of master diplomas obtained divided by the number of new enrolments 3 years earlier (separated between Belgian and non-Belgian).	A rate of 99% is used.
#5 Internship rate	Number of persons who started post-graduate training (internship) divided by the number of persons who graduate from the master programme the same year.	The following rates are used: - Flemish Community: 0.92 for Belgian graduates and 0.50 for non-Belgian graduates - French Community: 0.92 for Belgian graduates and 0.80 for non-Belgian graduates
	For each specialty	
#6 Inflow with basis diploma obtained abroad	Number of persons with a non-Belgian medical basis-diploma starting a specialty in Belgium.	Average number of persons based on the 5 most recent academic years for which data are available, all combined specialties.
#6 Specialty rate	The number of persons who started the practical training for this specialty divided by the number of persons who started a practical training.	Specialty rate for GPs is fixed at 0.43 in the French Community and 0.40 in the Flemish Community. For other specialists, the average specialty rate (based on the 3 most recent academic years for which data are available) is proportionally reduced or increased accordingly. In an alternative scenario simulating quotas from 2029, the number of persons starting the practical training for general medicine from 2029 onwards does not result from the projection. Instead the

		number set by the Planning Commission (quota + persons trained abroad) is injected i.e. 484 for the French Community and 515 for the Flemish Community (corresponding to quotas of 473 and 507 respectively).
#7 Internship completion rate	The number of persons who successfully completed their practical training in a given specialty (= internship) divided by the number of persons newly enrolled in this training x years before, where x is the average length of the training.	Stage completion rate is fixed at 0.95.
#8 Registration rate	The number of persons registered (*cadastre – kadaster*) and authorised to practice as specialists (licensed-to-practice) divided by the number of persons who have completed their post-graduate training (= internship).	Registration rate is fixed at 1 (automatic registration).
#9 BE/non-BE rate	Repartition by nationality (Belgian vs non-Belgian) of the number of persons registered (*cadastre – kadaster*) and authorised to practice.	Average distributions (based on the 5 most recent years for which data are available) in four groups (Belgian male, non-Belgian male, Belgian female, non-Belgian female) at the start of the training x year before, where x is the average length of training.
#9 Sex proportion rate	Percentage of females in the persons registered (*cadastre – kadaster*) and authorised to practice (calculated separately for Belgian and non-Belgian).	
#10 Inflow professionals N-BE	Inflow of professionals who have obtained their professional training abroad (separated by nationality and sex).	Average number of professionals who have obtained their diploma abroad in four groups (Belgian male, non-Belgian male, Belgian female, non-Belgian female) based on the 3 most recent years for which data are available.
#11 Survival rate	Survival rate based on mortality tables by age and sex. In addition, all persons aged 75 or above are removed.	Survival rates of 2015-2017.
#12 Participation rate	Repartition between professionals who are (1) active in Belgium, (2) not active in Belgium but living in Belgium, and (3) not active and living abroad (calculated by age, sex and nationality).	Mean participation rates of 2019-2020-2021.
#13 Sector repartition rate	Repartition of active professionals between (1) active in the healthcare sector as self-employed (minimum activity threshold of 5% of the median income of the group of physicians aged 45–54 years old, defined per specialty), (2) active in the healthcare sector with a mixed status (self-employed and salaried), (3) active in the healthcare sector as salaried worker (at least 0.1 FTE), and (4) active outside the healthcare sector (calculated by age, sex and nationality). The first three groups are called practising physicians.	Mean sector repartition rates of 2019-2020-2021.
#14 Activity rate	Activity rate calculated by age, gender, nationality and sector (only for the first three sectors, i.e. only for practising physicians). For salaried workers, the rate of activity takes into account activities for all employers of the healthcare sector. For self-employed physicians, the activity rate is calculated using the amounts paid by the sickness funds for performed acts. A reference full time equivalent is	For GPs, mean activity rates observed in 2019-2020-2021 are reduced so that the number of FTEs is reduced by 15% in 2026 and by 20% from 2031 (with the exception of the current GPs aged 60 and over, who will retain the average currently observed activity rates when they change age group).

	determined by specialty, using the observed median of the total amount reimbursed for care provided by the reference group.	For other physicians, mean activity rates observed in 2019-2020-2021 are reduced from 2026 onwards so that the number of FTEs is reduced by 13% if the current average FTE is between 0.7 and 1.5 and is reduced by 0.2 FTE if the current average FTE is above 1.5 (with the exception of the current physicians aged 50 and over, who will retain the average currently observed activity rates when they change age group).
#15 Care consumption rate	Consumption rate based on reimbursed fees for physician care observed over three years (2018, 2019 and 2020) in the context of the compulsory health insurance (calculated by age and sex of the patient).	Demographic forecasts from the Federal Planning Bureau multiplied by the observed consumption rate in 2018, 2019 and 2020 by age and sex of the patient. By default, the consumption rate is supposed constant in each segment of the population, only the composition of the population changes. For GPs, an linear increase is applied up to 2041 for each combination age and sex of the population : 0-14 years old : max +3%, 15-74 years old : max +9% and 75 years old and more : max +16%. For specialisms that are considered as sensitive because of existing imbalances, adaptations are made to the care consumption rate.

Source: Planning Unit (2020, 2022, 2023).[1-3]

10.6.2 Results

General practitioners

In 2021, there were 12 554 practising general practitioners (i.e. active in the healthcare sector) in Belgium (5 310 in the French Community and 7 244 in the Flemish Community). This number is expected to increase to 13 089 in 2026, 13 606 in 2031, 14 716 in 2036 and 16 268 in 2041, which corresponds to five-year increases of respectively 4.3%, 3.9%, 8.2% and 10.5%. On Figure 183, the (projected) number of practising GPs in Belgium is depicted by a line for Belgium (left panel) and both linguistic communities (right panel). On the same figure, the bars indicate the number of FTEs. In 2021, the equivalent of 11 781 FTEs were active as GPs in the healthcare sector in Belgium (4 327 in the French Community and 7 454 in the Flemish Community). These numbers are expected to decrease in 2026 before increasing in 2031, 2036 and 2041.

Overall, in the French Community, the model predicts that the GP workforce will increase by 987 individuals between 2021 and 2041 (from 5 310 to 6 297). This increase in the number of practising GPs (+18.6%) does not translate into a similar increase in the number of FTEs for which an increase of 3.2% is expected between 2021 and 2041.

In the Flemish Community, the expected increase of the number of practising GPs is higher: from 7 244 to 9 971 between 2021 and 2041, which is an increase of 2 727 individuals. This important increase (+37.6%) partially translates into an increase in the number of FTEs (+22.0%).

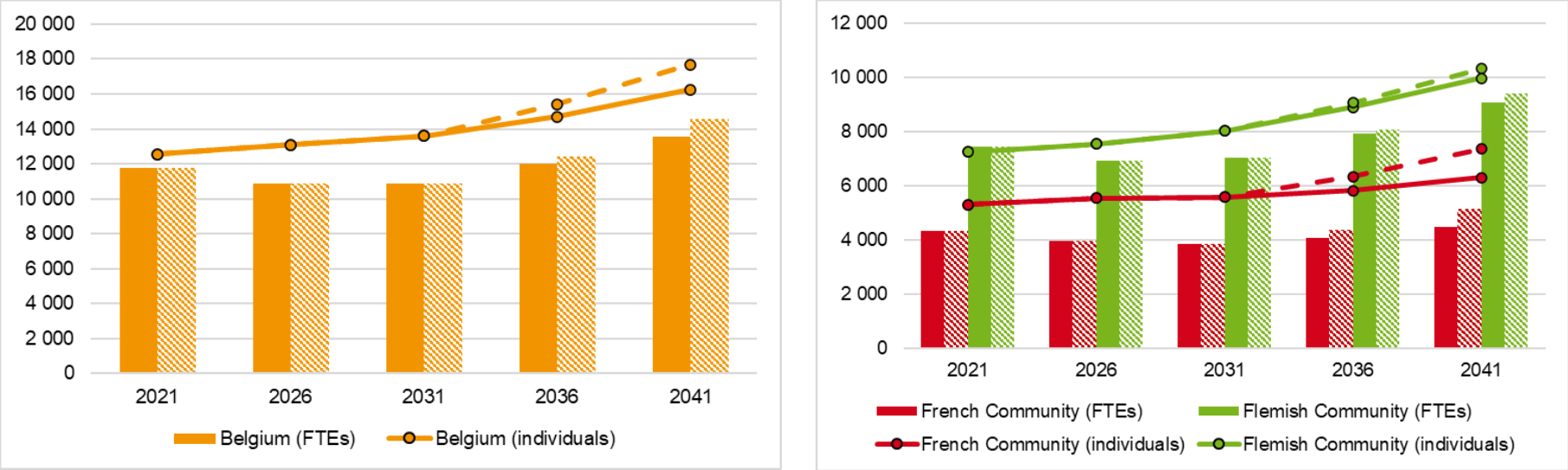
To take into account the recent decision to increase physicians quotas from 2029, a simulation based on the alternative projection scenario was built, where the number of persons starting the practical training for general medicine is set, from 2029 onwards, to the optimal level determined by the Planning Commission.[7, 8] Including physicians trained abroad, the number of persons starting the practical training for general medicine is therefore set

to 484 for the French Community and 515 for the Flemish Community, instead of the projected values.

On Figure 183, this simulation is showed by the dashed lines and bars. At the national level, the number of practising GPs is expected to increase to 17 690 in 2041, representing a 40.9% increase compared to 2021. The number of FTEs is expected to increase to 14 547 in 2041 (+23.5% with respect to 2021).

The impact of the increased quota is the strongest in the French Community, where the number of practising GPs is expected to increase in 2041 to 7 367 (+38.7% with respect to 2021, compared to 18.6% in the other scenario) and the number of FTEs to 5 147 (+19.0% compared to +3.2%). In the Flemish Community, the projected number of practising GPs in 2041 is 10 323 (+42.5%, compared to +37.6%) and the projected number of FTEs is 9 400 (+26.1% compared to +22.0%).

Figure 183 – Number of practising GPs, in individuals and FTEs, in Belgium and its linguistic communities, 2021-2041



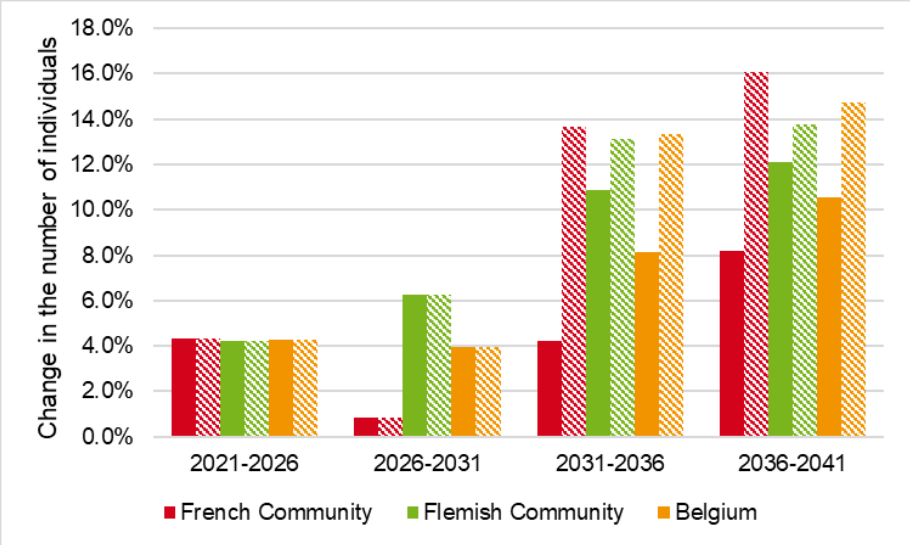
Note: dashed lines and bars show the simulation where the number of persons starting the practical training for general medicine is set, from 2029 onwards, to the optimal level determined by the Planning Commission. Source: Planning Unit.

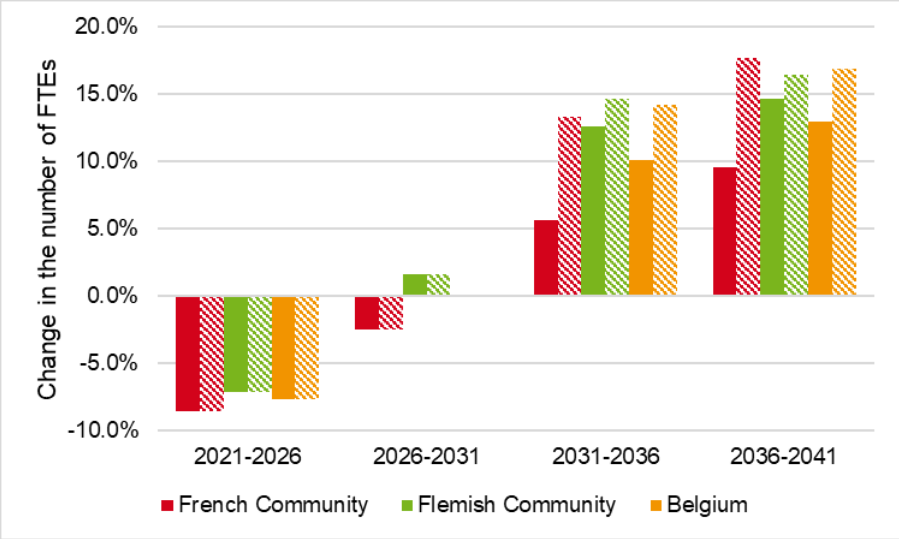
Figure 184 depicts five-year growth rates for the number of practising GPs and their full time equivalents (see also Table 132). The number of individuals in the GP workforce is expected to increase in Belgium during the entire period 2021-2041. Between 2021 and 2026, the number of practising GPs is expected to increase by 4.3% at the national level, with similar increases in both linguistic communities (+4.3% in the French Community and +4.2% in the Flemish Community). In the following periods however, the increase in the Flemish Community is expected to be larger

than the one in the French Community (+6.2%, +10.9% and +12.1% compared to +0.8%, +4.2% and +8.2%).

Regarding FTEs, a drop is expected in both linguistic communities between 2021 and 2026. Then, the number of FTEs is expected to increase by 1.7% in the Flemish Community and decrease by 2.5% in the French Community between 2026 and 2031. From 2031 onwards, increases are expected in both communities (because GPs will be, on average, younger), although larger in the Flemish Community. When taking into account the increased quotas from 2029 onwards, the projected increases, both in headcounts and FTEs, are larger, in particular in the French Community.

Figure 184 – Evolution in the workforce of GPs (in individuals and FTEs) between 2021 and 2041 in Belgium and its linguistic communities





Note: dashed bars show the simulation where the number of persons starting the practical training for general medicine is set, from 2029 onwards, to the optimal level determined by the Planning Commission. Source: Planning Unit.

All physicians

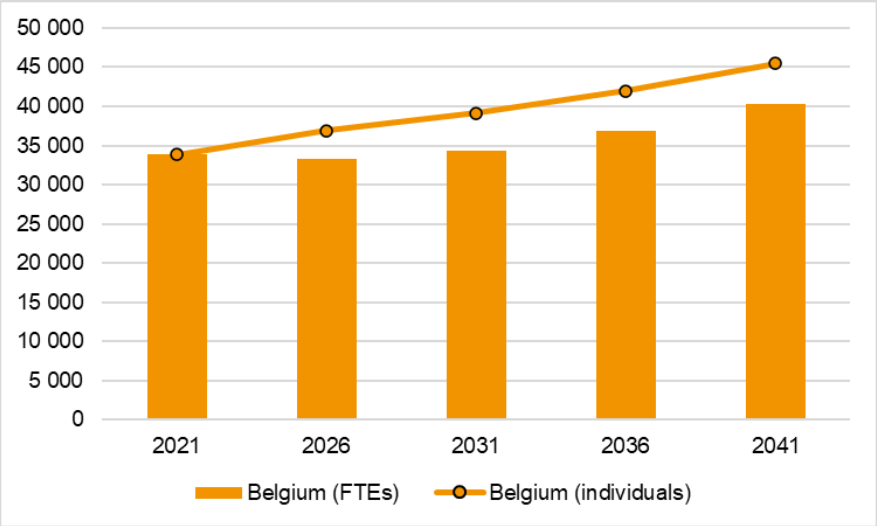
In 2021, there were 33 838 practising physicians in Belgium (15 427 in the French Community and 18 411 in the Flemish Community), corresponding to 33 906 FTEs in Belgium (13 615 in the French Community and 20 291 in the Flemish Community) (see Figure 185). The number of physicians is expected to increase to 36 946 in 2026, 39 119 in 2031, 41 969 in 2036 and 45 507 in 2041, which corresponds to five-year increases of respectively 9.2%, 5.9%, 7.3% and 8.4%.

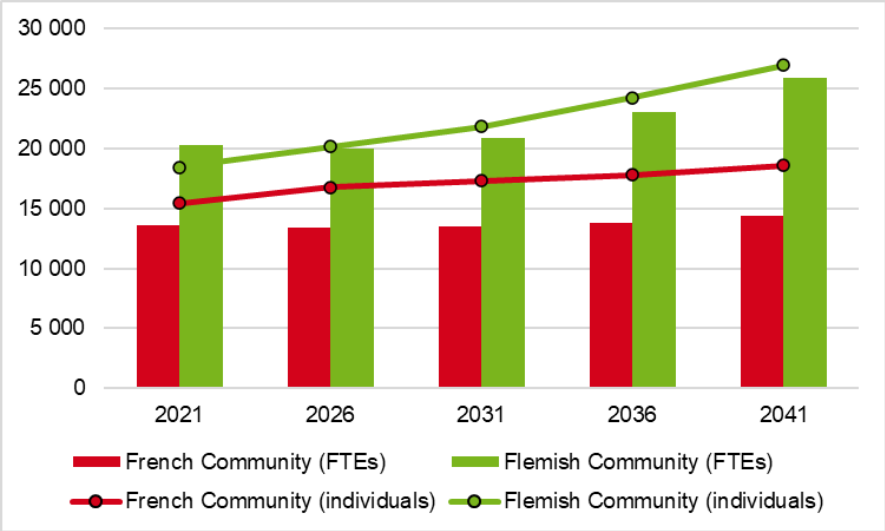
In the French Community the number of practising physicians is expected to increase by 20.4% between 2021 and 2041 (from 15 427 to 18 581) while

the number of FTEs will stay more stable (from 13 615 to 14 395 i.e. an increase of 5.7%). In the Flemish Community, the number of physicians is projected to strongly increase between 2021 and 2041 (from 18 411 to 26 926, i.e. an increase of 8 515 individuals or +46.2%). This increase in the number of active individuals (partially) translates into an increase in the number of FTEs (+27.5%).

One must keep in mind that these numbers hide an important variability between specialities. Detailed results by specialty can be found in the report from the Planning Unit (2023).[3]

Figure 185 – Number of practising physicians, in individuals and FTEs, in Belgium and its linguistic communities, 2021-2041

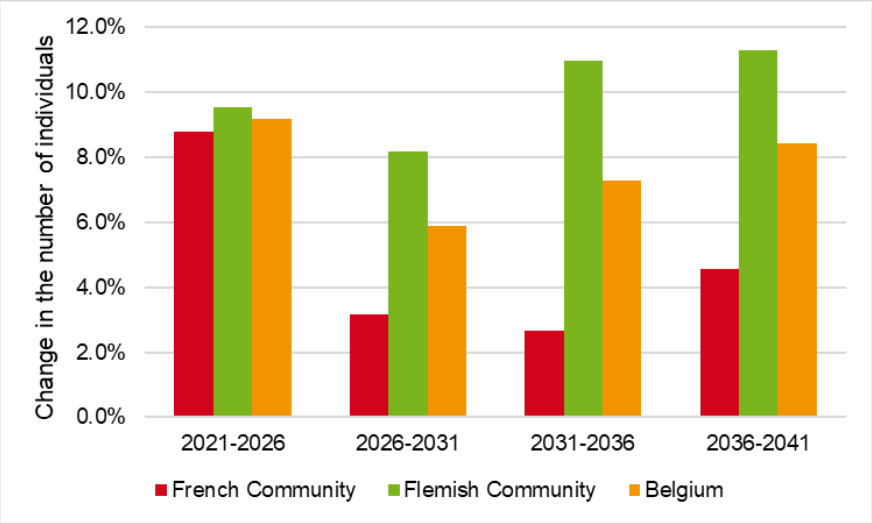


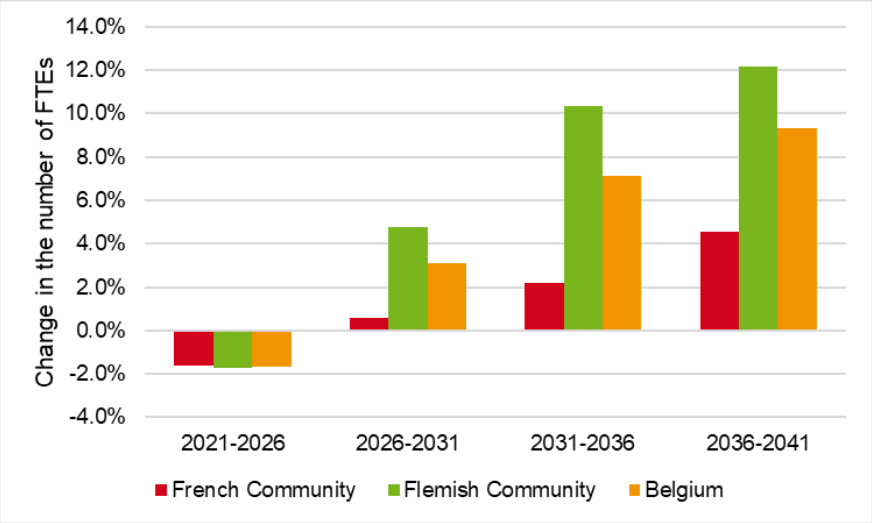


Source: Planning Unit.

Five-year growth rates for the number of individuals and FTEs in the physician workforce are shown on Figure 186 and Table 132. The number of practising physicians is expected to increase in Belgium during the entire period 2021-2041, mainly driven by a large increase in the Flemish Community. The increase in the French Community is expected to be smaller, especially from 2026 onwards. Regarding FTEs, a drop is expected in both linguistic communities during the period 2021-2026. From 2026 onwards, the number of FTEs is expected to increase in both communities but more importantly in Flanders.

Figure 186 – Evolution in the physician workforce (in individuals and FTEs) between 2021 and 2041 in Belgium and its linguistic communities





Source: Planning Unit.

Table 132 – Projected five year evolution of physician workforce

	GPs		GPs (increased quotas)*		Physicians	
	Individuals	FTEs	Individuals	FTEs	Individuals	FTEs
2021-2026	4.3%	-7.6%	4.3%	-7.6%	9.2%	-1.7%
2026-2031	3.9%	0.1%	3.9%	0.1%	5.9%	3.1%
2031-2036	8.2%	10.2%	13.3%	14.2%	7.3%	7.1%
2036-2041	10.5%	13.0%	14.7%	16.9%	8.4%	9.3%

** simulation where the number of persons starting the practical training for general medicine is set, from 2029 onwards, to the optimal level determined by the Planning Commission. Source: Planning Unit.*

Key points

- **The number of practising GPs (i.e. active in the healthcare sector) in Belgium is expected to increase from 12 554 in 2021 to 13 089 in 2026, that is an increase of 4.3%.**
- **This number is expected to further increase to 13 606 in 2031, 14 716 in 2036 and 16 268 in 2041, which corresponds to five-year increases of respectively 3.9%, 8.2% and 10.5%.**
- **In a simulation where the number of persons starting the practical training for general medicine is set, from 2029 onwards, to the optimal level determined by the Planning Commission, the increase in the number of practising GPs is expected to be larger (+13.3% between 2031 and 2036 and +14.7% between 2036 and 2041).**
- **In the French Community, the model predicts that the number of practising GPs will increase by 4.3% between 2021 and 2026. This increase in the number of practising GPs does not translate into an increase in the number of FTEs for which a drop of 8.6% is expected.**
- **In the French Community, between 2021 and 2041, the number of practising GPs is expected to increase by 18.6% (from 5 310 to 6 297 i.e. an increase of 987 individuals) while the number of FTEs is expected to increase by 3.2%. In the simulation with optimal number of persons starting the practical training, the number of GPs is expected to increase by 38.7% and the number of FTEs by 19.0%.**
- **In the Flemish Community, the model predicts that the number of practising GPs will increase by 4.2% between 2021 and 2026. This increase in the number of practising GPs does not translate into an increase in the number of FTEs for which a drop of 7.1% is expected.**
- **In the Flemish Community, between 2021 and 2041, the number of practising GPs is expected to increase by 37.6% (from 7 244 to 9 971 i.e. an increase of 2 727 individuals) while the number of FTEs is expected to increase by 22.0%. In the simulation with optimal number of persons starting the practical training, the number of GP is expected to increase by 42.5% and the number of FTEs by 26.1%.**

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10.7 Nursing graduates with a Belgian diploma per 100 000 population (new inflow) (S-8)

10.7.1 Documentation sheet

Description	Nursing graduates with a Belgian diploma per 100 000 population (new inflow)
Calculation	Numerator: Number of students graduating every year from nursing schools (both Bachelor and non-Bachelor: all nursing students who have obtained a recognised qualification required to become a licensed nurse are counted) in Belgium (End-of-year situation 31/12). Denominator: Total population (End-of-year situation, January T+1)
Rationale	Maintaining the number of nurses requires investments in training new nurses as well as investments in the attractiveness of the nursing profession. Many industrialized countries have taken measures to expand the number of students in nursing education programmes in response to concerns about current or anticipated shortages of nurses. Increasing investment in nursing education is particularly important as the nursing workforce is ageing in many countries and the baby-boom generation of nurses approaches retirement.[1] Also in Belgium several policy measures were taken to increase the number of nursing graduates such as Project 600 which offers employees of the healthcare sector the opportunity to study nursing with maintenance of their salary.[2] Measures were also taken to improve the attractiveness of the profession, such as the agreement decided on July 2020 to revalue salaries (the so-called Ific system, a new salary gird upgrading a.o. the salaries of new entrants)[3] and to improve working conditions. A working group has also been set up to reflect on task differentiation, task delegation and task transfer.[4]
Data source	Federal database of health care professionals ("Cadastre/Kadaster"), Federal Public Service Health, Food Chain Safety and Environment (FPS Public Health). OECD Health statistics for the international comparison.
Technical definitions	A nursing graduates is a person who has been trained to carry out nursing tasks. Nursing graduates have successfully completed a three-year (3.5 years since 2016 in the French community) advanced vocational training course (A2 or HBO-5 leading to obtain a diploma degree) or a three-year (before 2016) / four-year (since 2016) Bachelors' programme Nursing training course (A1 or bachelor leading to obtain a bachelor degree). The number of nursing graduates is based on the number of "visa/visum" delivered by the FPS Public Health, which are registered in the federal cadastre. Only the first "visa/visum" delivered is taking into account (which differs from OECD data, see below). Data were extracted on 16 December 2022. As the database is constantly being updated and corrected, there may be differences in data depending on the date of extraction.
International comparability	International comparability is limited, as educational pathways to become a nurse vary and registration practices for new graduates may differ between countries. Some countries cannot exclude midwife graduates from nurses graduates (e.g. Spain: include midwife graduates) It should also be noted that small differences appeared between Belgian data provided by the FPS Public Health and OECD data. This is due to a difference of definition, i.e. OECD data concern the number of students who have obtained a recognised qualification in nursing in a given year and is based on the number of diploma (basis diploma or specialisation) and not on the number of first "visa/visum" delivered.
Limitations	This indicator also counts nursing graduates with a foreign nationality or residing abroad and it is possible that some of them leave Belgium after having completed their nursing training in Belgium. It should be noted that for some nursing graduates, the country origin of the diploma is unknown. These nurses are not included here. They are considered in the nursing graduates with a foreign diploma.

Dimension	Sustainability – workforce capacity
Related indicators	Practising nurses (A-11); nursing graduates (S-8), nurses following the bachelor routes (S-9); nurses aged 50 years old and over (S-10), foreign-trained nurses (S-16), projection of the number of nurses active in the healthcare sector (S-22)
Reviewers	Van den Heede Koen, Mahieu Timothée

10.7.2 Results

Belgium

In 2021, a total of 5304 students graduated from nursing schools in Belgium (i.e. 45.8 per 100 000 population). While the number of nursing graduates with a Belgian diploma[qq] increased between 2010 and 2018 (from 4102 to 6446 respectively), a decline was observed in 2019 (3806) due to the extension of studies decided in 2016 (from 3 to 4 years to obtain the bachelor degree A1 and from 3 to 3.5 in the French community to obtain a diploma degree A2). The number then gradually increased again but remained below the 2018 level (see Table 133 and Figure 187).

Analysis by demographic characteristics

There is a higher proportion of female graduates with Belgian diploma than male graduates (respectively 85.6% and 14.4% in 2021, see Table 133) and these proportions remain stable over the time. While 89.6% of nursing graduates resided in Belgium in 2021, 18.7% of them did not have the Belgian nationality. The share of nursing graduates with a foreign nationality increased over time (see Table 133), with an increase of 10.4 percentage points between 2010 and 2021.

Regional comparison

More students graduate from nursing schools in the Flemish Community than in the French Community (59.3% vs 40.7%, see Table 133) but expressed per 100 000 population, results are similar between both communities (see Figure 187), except in 2019 where the drop was more important in the French Community. This can be due to the fact that the French Community extended both studies for a bachelor degree (A1) and a diploma degree (A2) while the Flemish Community only extended studies to obtain a bachelor degree (A1).

The pattern of nursing graduates combining a foreign nationality and a Belgian diploma highly differs by community: with a proportion around 1-4% up to 2019 and around 7% in 2020-2021 in the Flemish Community, and a proportion of 16.2% in 2010 rising to 35.4% in 2021 in the French Community (see Figure 188). In 2021, most of them had the French nationality in nursing schools of the French Community (82.7%) while in the Flemish community, 43.2% originated from India and 31.4% from the Netherlands. It should be noted that before 2019 (i.e. between 2010-2018), no nursing graduates originated from India.

When the place of residence is under scrutiny, one can observe that around only 1% of the nursing graduates in the Flemish Community reside in another country while in the French Community, this share increased from 1.1% in 2011 to 21.9% in 2021, with most of them residing in France (see Figure 189).

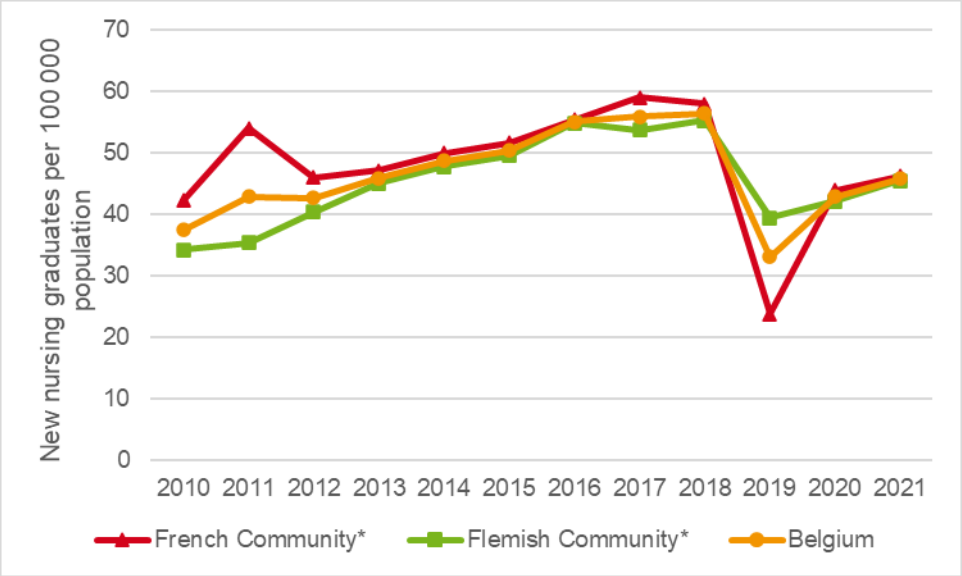
[qq] The term diploma is a generic term to refer to a certificate awarded by an educational establishment to show that someone has successfully completed a course of study. When related to a diploma level (in comparison with Bachelor degree), the symbol A2 will systematically be added.

Table 133 – Number of nursing graduates with a Belgian diploma, by Community and by characteristics (2013-2017)

Year		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019****	2020	2021
Belgium		4102	4735	4734	5121	5460	5682	6239	6358	6446	3806	4942	5304
Per 100 000 population		37.46	42.91	42.65	45.93	48.71	50.43	55.1	55.89	56.39	33.12	42.89	45.79
Community*	**French community**	1867 (45.5%)	2401 (50.7%)	2057 (43.5%)	2120 (41.4%)	2261 (41.4%)	2349 (41.3%)	2531 (40.6%)	2709 (42.6%)	2672 (41.5%)	1104 (29%)	2041 (41.3%)	2157 (40.7%)
	Flemish community	2235 (54.5%)	2334 (49.3%)	2677 (56.5%)	3001 (58.6%)	3199 (58.6%)	3333 (58.7%)	3708 (59.4%)	3649 (57.4%)	3774 (58.5%)	2702 (71%)	2901 (58.7%)	3147 (59.3%)
Gender	**Female**	3450 (84.1%)	4024 (85%)	4025 (85%)	4348 (84.9%)	4636 (84.9%)	4767 (83.9%)	5283 (84.7%)	5441 (85.6%)	5479 (85%)	3238 (85.1%)	4141 (83.8%)	4539 (85.6%)
	Male	652 (15.9%)	711 (15%)	709 (15%)	773 (15.1%)	824 (15.1%)	915 (16.1%)	956 (15.3%)	917 (14.4%)	967 (15%)	568 (14.9%)	801 (16.2%)	765 (14.4%)
Belgian Nationality**	**Yes**	3757 (91.6%)	4216 (89%)	4251 (89.8%)	4561 (89.1%)	4807 (88%)	4834 (85.1%)	5348 (85.7%)	5494 (86.4%)	5537 (85.9%)	3369 (88.5%)	4108 (83.1%)	4298 (81%)
	No	339 (8.3%)	509 (10.7%)	481 (10.2%)	552 (10.8%)	644 (11.8%)	828 (14.6%)	860 (13.8%)	852 (13.4%)	894 (13.9%)	429 (11.3%)	821 (16.6%)	992 (18.7%)
	Unknown	6 (0.1%)	10 (0.2%)	2 (0%)	8 (0.2%)	9 (0.2%)	20 (0.4%)	31 (0.5%)	12 (0.2%)	15 (0.2%)	8 (0.2%)	13 (0.3%)	14 (0.3%)
Place of residence***	**Residence in Belgium**	0 (0%)	1730 (36.5%)	4509 (95.2%)	4829 (94.3%)	5112 (93.6%)	5177 (91.1%)	5690 (91.2%)	5858 (92.1%)	5924 (91.9%)	3578 (94%)	4528 (91.6%)	4753 (89.6%)
	Residence abroad	0 (0%)	27 (0.6%)	189 (4%)	254 (5%)	301 (5.5%)	412 (7.3%)	490 (7.9%)	449 (7.1%)	460 (7.1%)	199 (5.2%)	374 (7.6%)	503 (9.5%)
	Unknown	4102 (100%)	2978 (62.9%)	36 (0.8%)	38 (0.7%)	47 (0.9%)	93 (1.6%)	59 (0.9%)	51 (0.8%)	62 (1%)	29 (0.8%)	40 (0.8%)	48 (0.9%)

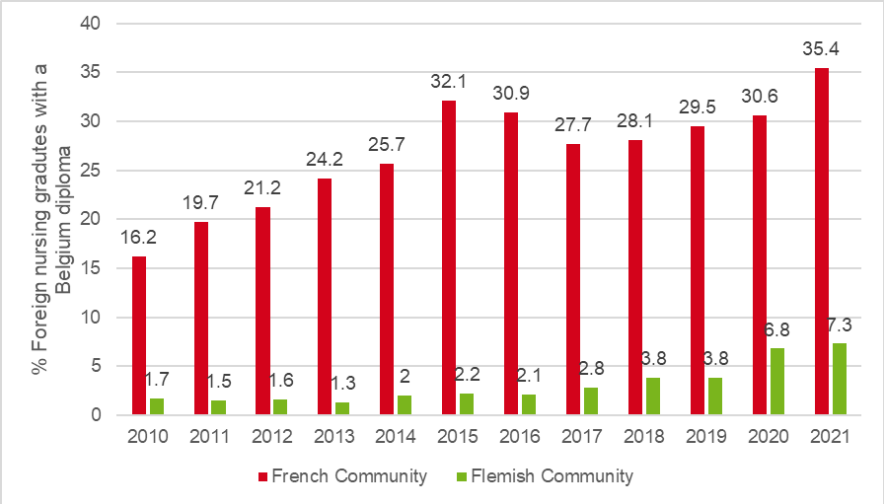
*Source: FPS Public health, Cadastre; *Based on (1) the community delivering the professional agreement. If not available, based on (2) diploma language. If not available based on (3) contact language **At the time of data extraction (16 December 2022); ***At the end of the visa year (31 December); ****The decrease in the number of nursing graduates in 2019 is due to the extension of the studies to obtain a bachelor degree (from three years to four years).*

Figure 187 – Nursing graduates with a Belgian diploma per 100 000 population, Belgium and per Community (2010-2021)



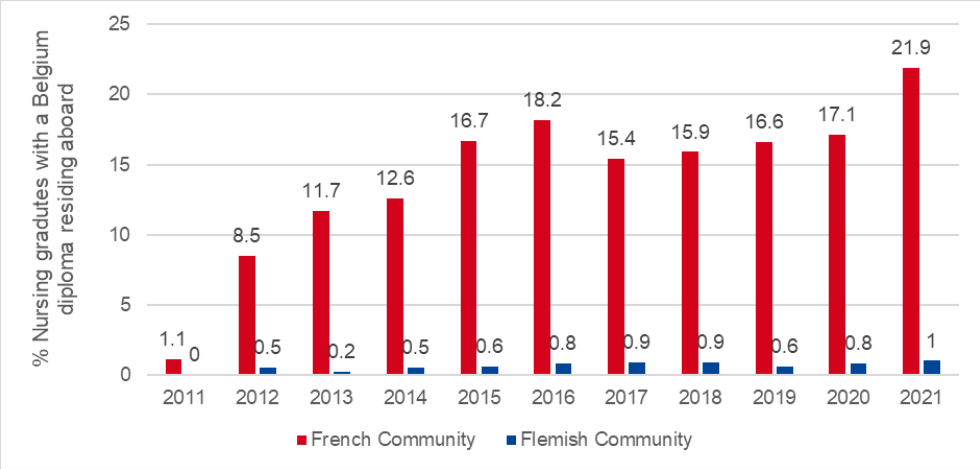
*Source: FPS Public health, Cadastre; KCE calculations *There is no longer a census of the population per community. These figures are therefore based on a proxy, using the distribution key between the Flemish Community and the French Community, set at 59.68% and 40.32% respectively in the Royal Decree of 14 August 2021 on physician quotas.*

Figure 188 – Nursing graduates with a foreign nationality and a Belgian diploma, by Community (2013-2017)



Source: FPS Public health, Cadastre; KCE calculations

Figure 189 – Nursing graduates with a Belgian diploma and residing aboard, by Community (2011-2021)



Source: FPS Public Health, Cadastre; KCE calculations

International comparison

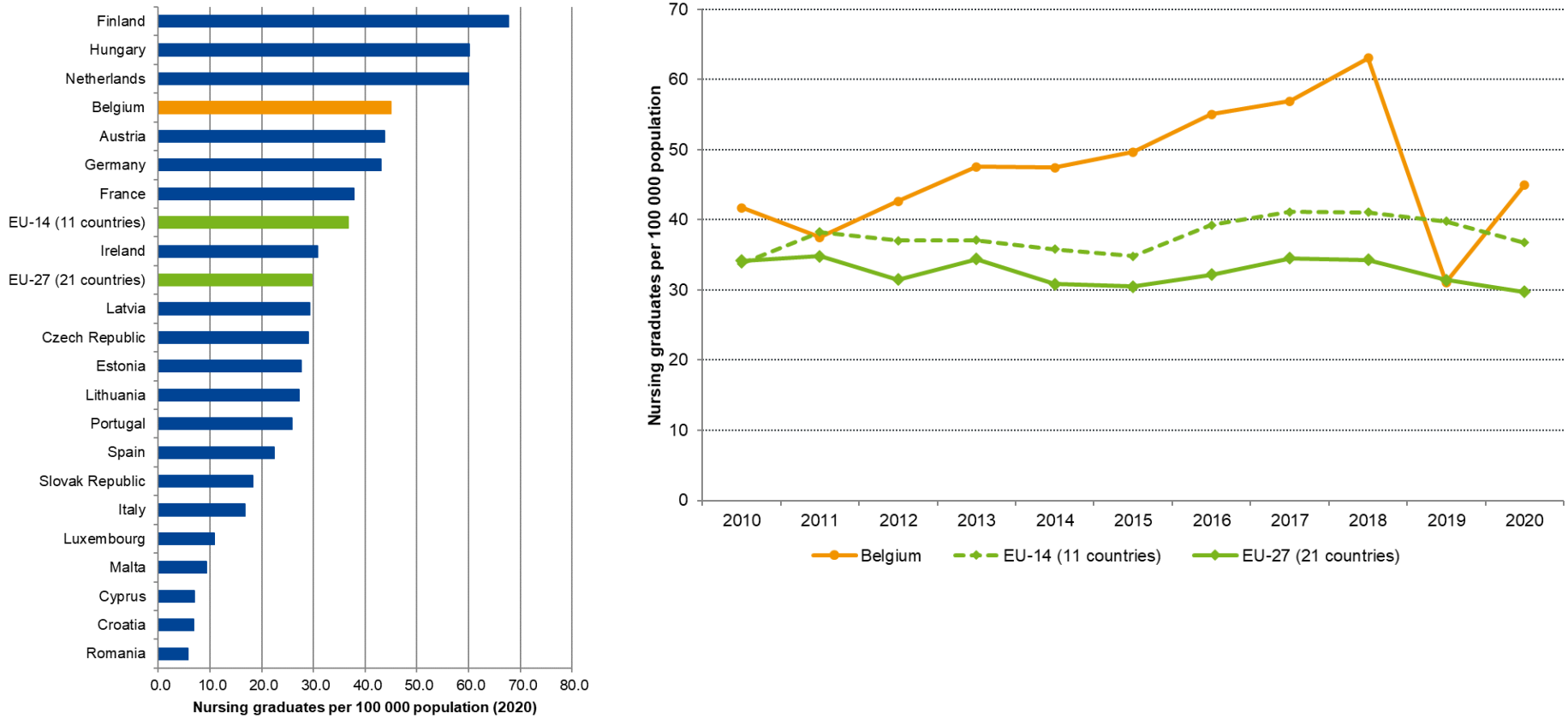
Belgium is clearly above the European averages of nursing graduates per 100 000 population, except during the drop of 2019 (see Figure 190).

Table 134 – Density of nursing graduates with Belgian diploma (2010-2021) in Belgium, OECD data

Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Belgium	41.69	37.51	42.63	47.54	47.42	49.68	55.03	56.90	63.03	31.06	45.01
EU-14 (11 countries in 2020)	33.76	38.26	37.03	37.08	35.79	34.81	39.27	41.11	41.06	39.79	36.73
EU-27 (21 countries in 2020)	34.19	34.80	31.48	34.39	30.86	30.49	32.20	34.53	34.27	31.44	29.73

Source: OECD Health Statistics 2023

Figure 190 – Nursing graduates per 100 000 population: international comparison (2010-2020)rr



Source: OECD Health statistics 2023

rr Because of the lack of data from other European countries in 2021, 2020 is taken as the reference.

Impact of COVID-19 pandemic

The number of nursing graduates is lower in 2020 and 2021 than in the 2014-2018 period. The analysis currently does not allow us to determine whether fewer people are entering nursing programmes due to the COVID-19 pandemic, given that those graduating in 2021 began their studies before the pandemic. However, the lower number of graduates could be due to a higher number of people having left the programme during the pandemic but more data are needed to confirm this. It is also possible that the prolongation of studies had a negative impact on the number of people beginning nursing programmes.

Key points

- In 2021, a total of 5304 students were graduated from nursing schools in Belgium. The decline observed in 2019 due to the extension of studies has not been caught up and levels remain below those of 2014-2018 (6446 nursing graduates in 2018).
- The density of 45.0 nursing graduates per 100 000 population is above the EU-14 average of 36.7 and the EU-27 average of 29.7 per 100 000 population (based on 2020 data).
- The proportion of foreign students in the French Community is substantial (35.4% based on nationality and 21.9% based on the place of residence, 2021 data) and is increasing (+19.2 and +20.8 percentage points respectively compared to 2010). A very small proportion of students have a foreign nationality in the Flemish Community but the trend is also increasing (7.3% in 2021, 3.8% in 2019 and 1.7% in 2010). Less than 1% of nursing graduates in the Flemish community reside in another country.
- The lower number of nursing graduates in 2020-2021 compared to the 2014-2018 period could be due to a higher number of people having left the programme during the COVID-19 pandemic but more data are needed to confirm this. It is also possible that the prolongation of studies had a negative impact on the number of people beginning nursing programmes.

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10.8 Nursing students following the bachelor route (% of nursing graduates, new inflow) (S-9)

10.8.1 Documentation sheet

Description	**Primary indicator:** Nursing students following the bachelor route (% of nursing graduates, new inflow) **Secondary indicators:** Professionally active nurses on the Belgian labour market with a bachelor's degree (% of professionally active nurses on the Belgian labour market, stock) Practising nurses with a bachelor's degree (% of practising nurses, stock)
Calculation	**Primary indicator:** Nursing students following the bachelor route (% of nursing graduates, new inflow) • Numerator : Number of nursing graduates with a Belgium diploma and a bachelor degree (new inflow) • Denominator: Total number of nursing graduates with a Belgium diploma (new inflow) **Secondary indicators:** Percentage of professionally active nurses on the Belgian labour market and of practising nurses with a bachelor's degree (stock) • Numerator: Number of professionally active nurses on the Belgian labour market and of pracising nurses in the health sector with a bachelor's degree (stock) • Denominator: Total number of professionally active nurses on the Belgian labour market and of pracising nurses in the health sector (stock)
Rationale	In many countries, including Canada, Australia, New Zealand, Norway, Spain, Philippines, and many countries in South America, the standardized entry into professional nursing is obtaining a diploma with a bachelor degree. In other countries such as the United States, Belgium,[1] The Netherlands, the United Kingdom, and Sweden, other (lower educational) entry levels exist besides the Bachelor degree entry-level. Nevertheless, a solid evidence base shows that better patient outcomes are associated with higher educated nurses. A landmark US-study showed that each 10% increase in the proportion of Bachelor-degree trained nursing staff was associated with 5% lower odds on patient mortality after taking into account how sick the patients were and other characteristics of hospitals that had been shown to be associated with mortality rates, including physician qualifications.[2] Replications in other countries with differently organized and financed health care (among which a multi-country European study) yielded remarkably similar findings.[3] These research findings plead for policy recommendations and adoption of measures aiming for a sufficiently educated nursing workforce. In the US, for instance, the Institute of Medicine (IOM) recommended in its report on 'The Future of Nursing'[4] to move to a nurse workforce comprising 80% of nurses with a Bachelor's degree by 2020 (compared to slightly more than 50% in 2010). In Belgium, policy makers did not (yet) formulated such targets but the above evidence suggests the importance of at least monitoring the educational level of nurses over time and encouraging the training and the employment of nurses with a bachelor degree.
Data source	**Primary indicator**: Federal database of health care professionals ("Cadastre/Kadaster"), Federal Public Service Health, Food Chain Safety and Environment (FPS Public Health) **Secondary indicators:** PlanCad for nurses 2004-2009, 2016, 2017 and 2004-2018[5-8] (see also A-11 data sources for the 2010-2015 estimates)
Technical definitions	A nursing graduate is a person who has been trained to carry out nursing tasks. Nursing graduates have successfully completed a three-year (3.5 years since 2016 in the French community) advanced vocational training course (A2 or HBO-5 leading to obtain a diploma degree) or a three-year (before 2016) / four-year (since 2016) Bachelors' programme Nursing training course (A1 or bachelor leading to obtain a bachelor degree). The number of nursing graduates is based on the number of "visa/visum" delivered by the FPS Public Health, which are registered in the federal cadastre. Only the first "visa/visum" delivered is taking into account. Data were extracted on 16 December 2022. As the database is constantly being updated and corrected, there may be differences in data depending on the date of extraction.

	A nurse is considered as professionally active when he/she is registered as self-employed person into National Institute for the Social Security of the Self-employed (NISSE) database or when he/she is registered as salaried worker into National Social Security Office (NSSO) database with at least 0.1 full time equivalent (FTE) per year. The threshold of 0.1 FTE per year has been established by the working group on nurses within the Planning Unit for the Supply of Healthcare Professions of the FPS Public Health.[8] Practising nurses are defined as nurses active in the health sector. A nurse is considered as active in the health sector when he/she is registered as self-employed into NISSE database and had provided a minimum level of services per year (at least 10% of the activity level of a full time self-employed, i.e. 817 services in 2018 based on RIZIV-INAMI nomenclature) or when she/he is registered as salaried worker into NSSO database with at least 0.1 full time equivalent (FTE) per year and is working for an active employer in the health sector.[8]
Limitations	The number of professionally active nurses and practising nurses in 2010-2015 and 2019-2022 are based on estimates (see data sources). Practising nurses does not necessarily work as nurses (e.g. nurses who have switched to an administrative job in a hospital or a management position are also counted)
International comparability	No recurrent systematic data collection exists internationally.
Dimension	Sustainability – workforce capacity
Related indicators	Practising nurses (A-11), nursing graduates (S-8), nurses aged 50 years old and over (S-10), foreign-trained nurses (S-16), projection of the number of nurses active in the healthcare sector (S-22)
Reviewers	Van den Heede Koen, Mahieu Timothée, Christelle Durand

10.8.2 Results

10.8.2.1 Nursing students following the bachelor route (% of nursing graduates, new inflow)[ss]

Belgium

Table 135 shows that the percentage of nursing students in Belgium following the bachelor route was quite stable between 2010 (55.5%) and 2018 (56.5%) and then decreased in 2019 (45.1%), which could be due to the prolongation of the bachelor programme from 3 to 4 years in 2016. In 2021, the percentage of nursing graduates holding a bachelor's degree was 48.8% in Belgium, which remain below 2018 level (see Table 135).

Analysis by demographic characteristics

There is a higher proportion of female graduates with Belgian diploma than male graduates for both diploma levels (A1: 85.1% and A2: 85.7%, see Table 136). The share of nursing graduates with a Belgian diploma and the Belgian nationality is higher for nursing graduates with a bachelor degree (A1: 88.9% than with a diploma degree (A2: 73.5%).

[ss] The term diploma is a generic term to refer to a certificate awarded by an educational establishment to show that someone has successfully completed a course of study. When related to a diploma level (in comparison with Bachelor degree), the symbol A2 will systematically be added.

Regional comparison

The share of nursing students following the bachelor route is higher in the French community than in the Flemish community during the 2010-2021 period (see Table 135 and Figure 191). In 2021, respectively 58.7% and 42% of the nursing graduates in the French community and in the Flemish community had a bachelor degree (see Table 135). The discrepancies observed in 2019 is due to the extension of studies (all diploma levels in the French community and only bachelor's studies in the Flemish community).

Impact of COVID-19 pandemic

It is difficult to determine if the drop in the share of nursing graduates following the bachelor route observed in 2020 and 2021 compared to 2018 is due to the extension of studies or to the COVID-19 pandemic.

Table 135 – Nursing graduates with Belgian diploma (2010-2021), per community and per diploma level (new inflow)

		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
French community	Bachelor (A1)	1069 (57.3%)	1559 (64.9%)	1308 (63.6%)	1296 (61.1%)	1436 (63.5%)	1475 (62.8%)	1633 (64.5%)	1752 (64.7%)	1679 (62.8%)	901 (81.6%)	1126 (55.2%)	1266 (58.7%)
	Diploma (A2)	798 (42.7%)	838 (34.9%)	749 (36.4%)	824 (38.9%)	825 (36.5%)	873 (37.2%)	898 (35.5%)	957 (35.3%)	992 (37.1%)	203 (18.4%)	915 (44.8%)	890 (41.3%)
	Unknown	0 (0%)	4 (0.2%)	0 (0%)	0 (0%)	0 (0%)	1 (0%)	0 (0%)	0 (0%)	1 (0%)	0 (0%)	0 (0%)	1 (0%)
	Total	1867	2401	2057	2120	2261	2349	2531	2709	2672	1104	2041	2157
Flemish Community	Bachelor (A1)	1209 (54.1%)	1265 (54.2%)	1447 (54.1%)	1595 (53.1%)	1633 (51%)	1769 (53.1%)	1941 (52.3%)	1781 (48.8%)	1966 (52.1%)	815 (30.2%)	1216 (41.9%)	1321 (42%)
	Diploma (A2)	1025 (45.9%)	1067 (45.7%)	1230 (45.9%)	1406 (46.9%)	1566 (49%)	1563 (46.9%)	1764 (47.6%)	1868 (51.2%)	1807 (47.9%)	1887 (69.8%)	1683 (58%)	1826 (58%)
	Unknown	1 (0%)	2 (0.1%)	0 (0%)	0 (0%)	0 (0%)	1 (0%)	3 (0.1%)	0 (0%)	1 (0%)	0 (0%)	2 (0.1%)	(0%)
	Total	2235	2334	2677	3001	3199	3333	3708	3649	3774	2702	2901	3147
Total Belgium	Bachelor (A1)	2278 (55.5%)	2824 (59.6%)	2755 (58.2%)	2891 (56.5%)	3069 (56.2%)	3244 (57.1%)	3574 (57.3%)	3533 (55.6%)	3645 (56.5%)	1716 (45.1%)	2342 (47.4%)	2587 (48.8%)
	Diploma (A2)	1823 (44.4%)	1905 (40.2%)	1979 (41.8%)	2230 (43.5%)	2391 (43.8%)	2436 (42.9%)	2662 (42.7%)	2825 (44.4%)	2799 (43.4%)	2090 (54.9%)	2598 (52.6%)	2716 (51.2%)
	Unknown	1 (0%)	6 (0.1%)	0 (0%)	0 (0%)	0 (0%)	2 (0%)	3 (0%)	0 (0%)	2 (0%)	0 (0%)	2 (0%)	1 (0%)
	Total	4102	4735	4734	5121	5460	5682	6239	6358	6446	3806	4942	5304

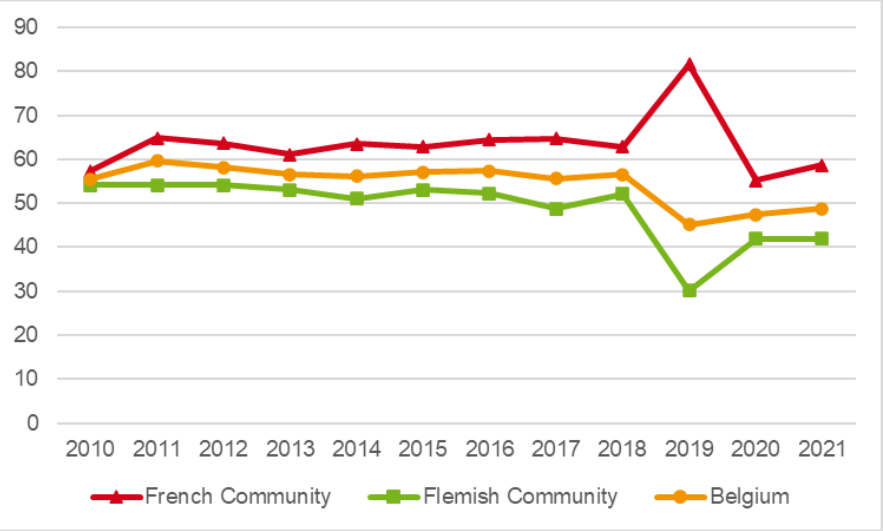
Source: FPS Public health, Cadastre

Table 136 – Nursing graduates with a Belgian diploma, per diploma level and per characteristics (new inflow)

		Bachelor degree (A1)	Diploma degree (A2)
Gender	Female	2211 (85.5%)	2327 (85.7)%
	Male	376 (14.5%)	389 (14.3%)
Belgian Nationality	Yes	2301 (88.9%)	1197 (73.5%)
	No	282 (10.9%)	709 (26.1%)
	Unknown	4 (0.15%)	10 (0.37%)

Source: FPS Public health, Cadastre, KCE calculations

Figure 191 – Nursing graduates with bachelor degree (A1, Belgian diploma), per community (2010-2021, new inflow)



Source: FPS Public health, Cadastre, KCE calculations

Percentage of professionally active nurses on the Belgian labour market and of practising nurses with a bachelor degree (stock)

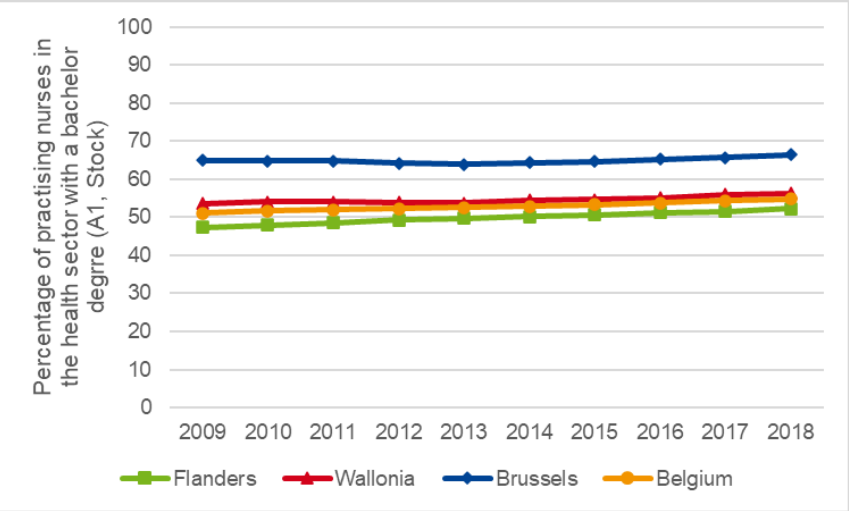
In 2018, there were 148 782 professionally active nurses on the Belgian labour market in Belgium (see Table 137) and 126 496 practising nurses working in the health sector (see Figure 192). Among those, 56.5% and 54.9% respectively had a bachelor degree A1. These proportions remain quite stable since 2009 (see Table 137 and Figure 192). The percentage of practising nurses with a bachelor degree is higher in Brussels (66.3% in 2018) than in other regions (52.2% in Flanders and 56.3% in Wallonia in 2018) (see Figure 192).

Table 137 – Professionally active nurses on the Belgian labour market, per type of diploma (2009, 2016, 2018)

		2009*		2016**		2018**	
		N	%	N	%	N	%
Total in Belgium		126 473	100%	143 470	100%	148 782	100%
Type of diploma	Bachelor (A1)	72 684	57.5%	79 357	55.3%	84 010	56.5%
	Diploma (A2)	47 620	37.6%	50 290	35.1%	52 929	35.6%
	Assistant in hospital care***	5 949	4.7%	3 624	2.5%	2828	1.9%
	Foreign diploma or unknown diploma	220	0.2%	10 199	7.1%	9015	6.1%

*Source: *PlanCad nurses 2014[5]; **PlanCad nurses 2016.[6]; PlanCad nurses 2004-2018[8] ***This diploma was interrupted in 1996.*

Figure 192 – Percentage of practising nurses with a bachelor degree (Stock), per region and Belgium (2010-2018)



Source: PlanCad nurses 2004-2018[8]

Key points

- **The percentage of nursing graduates with a bachelor's degree in Belgium was stable between 2010 and 2018 (around 56%) and decreased in 2019 (45.1%) due to the extension of studies. In 2021, the percentage observed before the extension of studies was not recovered and was 48.8%.**
- **The share of nursing graduates following a bachelor degree is higher in the French community (58.7% in 2021) than in the Flemish community (42.0% in 2021).**

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10.9 Foreign-trained nurses (% of nurses licensed to practice) (S-16)

10.9.1 Documentation sheet

Description	**Primary indicator:** Foreign-trained nurses as a proportion of nurses with a licence to practise ("*visa-visum*", stock) **Secondary indicators**: Foreign-trained nurses as a proportion of professionally active nurses on the Belgian labour market and as a proportion of practising nurses (stock) Nursing graduates with a foreign diploma (new inflow)
Calculation	**Primary indicator:** Foreign nurses as a proportion of nurses with a licence to practise • Numerator: Number of foreign-trained nurses (foreign diploma or diploma with an unknown country of origin) (Stock) • Denominator: Total number of nurses licensed to practice (Belgian-trained nurses and foreign-trained nurses, Stock) **Secondary indicators:** Foreign-trained nurses as a proportion of professionally active nurses on the Belgian labour market and as a proportion of practising nurses (stock) • Numerator: Number of nurses with a foreign diploma or a diploma with an unknown country of origin who are professionally active on the Belgian labour market / who are practising in the health sector • Denominator: Total number of professionally active nurses on the Belgian labour market / practising nurses Nursing graduates with a foreign diploma (new inflow) • Numerator: Number of nursing graduates with a foreign diploma or a diploma with an unknown country of origin (new inflow) • Denominator: Total number of nursing graduates (Belgium diploma and Foreign/unknown diploma, new inflow)
Rationale	Nurses play a critical role in providing health care in hospitals and long-term care institutions, but also in primary care and in the home care setting. In addition, they are in most countries the largest group of healthcare professionals. Monitoring the number of foreign-trained nurses is therefore important in light of the accessibility and sustainability of the healthcare system. These are essential figures for workforce planning.[1] Some European countries also opt for strong recruitment strategy to recruit foreign-educated nurses.[1] The World Health Assembly adopted in May 2010 "The Global Code of Practice on the International Recruitment of Health Personnel"[2] to promote a more ethical recruitment of health personnel and to encourage countries to achieve greater "self-sufficiency" in the training of health workers.
Data source	**Main indicator:** Federal database of health care professionals ("Cadastre/Kadaster"), Federal Public Service Health, Food Chain Safety and Environment (FPS Public health). Data were extracted on December 2022. As the database is constantly being updated and corrected, there may be differences in data depending on the date of extraction. OECD Health statistics for the international comparison. **Secondary indicator**: Foreign-trained nurses as a proportion of professionally active nurses on the Belgian labour market / as a proportion of nurses practising in the health sector (stock): Results from "PlanCad" 2004-2018, Federal database of health care professionals, FPS Public health[3] It should be noted that data from

	the PlanCad slightly differ from the workforce statistics (HWF STATAN), also published by the FPS Public health, because of another extraction period and a larger selection in the PlanCad (e.g. inclusion of people with a midwife diploma registered as nurse in the cadastre). Nursing graduates with a foreign diploma (new inflow): Federal database of health care professionals ("Cadastre/Kadaster"), FPS Public health. Data were extracted on December 2022. As the database is constantly being updated and corrected, there may be differences in data depending on the date of extraction.
Technical definitions	**Main indicator:** Foreign-trained nurses is defined as nurses who have obtained a recognised qualification in nursing in another country and have obtained a nursing "visa/visum" to practice in Belgium ("licence to practice" at the end of the year) The number of foreign-trained nurses is based on the number of "visa/visum" delivered by the FPS Public health, registered in the federal registry ("Cadastre/Kadaster"). Only the first "visa/visum" delivered is taking into account. People with an unknown diploma are included in foreign-trained nurses (for information, data are also presented without including them). **Secondary indicator:** Foreign-trained nurses professionally active on the Belgian labour market are defined as nurses who have obtained a recognised qualification in nursing in another country and are professionally active on the Belgian labour market. A nurse is considered as professionally active when he/she is registered as self-employed person into National Institute for the Social Security of the Self-employed (NISSE) database or when he/she is registered as salaried worker into National Social Security Office (NSSO) database with at least 0.1 full time equivalent (FTE) per year. The threshold of 0.1 FTE per year has been established by the working group on nurses within the Planning Unit for the Supply of Healthcare Professions of the FPS Public Health.[3] Foreign-trained nurses practising in the health sector are defined as nurses who have obtained a recognised qualification in nursing in another country and are active in the health sector. A nurse is considered as active in the health sector when he/she is registered as self-employed into NISSE database and had provided a minimum level of services per year (at least 10% of the activity level of a full time self-employed, i.e. 817 services in 2018 based on RIZIV-INAMI nomenclature) or when she/he is registered as salaried worker into NSSO database with at least 0.1 full time equivalent (FTE) per year and is working for an active employer in the health sector.[3] A nursing graduate is a person who has been trained to carry out nursing tasks. Nursing graduates have successfully completed a three-year (3.5 years since 2016 in the French community) advanced vocational training course (A2 or HBO-5 leading to obtain a diploma degree) or a three-year (before 2016) / four-year (since 2016) Bachelors' programme Nursing training course (A1 or bachelor leading to obtain a bachelor degree). The number of nursing graduates is based on the number of "visa/visum" delivered by the FPS Public Health, which are registered in the federal cadastre. Only the first "visa/visum" delivered is taking into account.
Limitations	The main indicator, which allows an international comparison, refers to foreign-trained nurses with license to practice and not practising nurses or professionally active nurses.
International comparability	International comparability is partially limited due to methodological differences (some countries refer to practising nurses and others to holders of a licence to practice).
Dimension	Sustainability – Workforce capacity
Related indicators	Practising nurses (A-11), nursing graduates (S-8), nurses following the bachelor routes (S-9); nurses aged 50 years old and over (S-10); foreign-trained nurses (S-16), projection of the number of nurses active in the healthcare sector (S-22)

Reviewers	Van den Heede Koen, Mahieu Timothée, Christelle Durand

10.9.2 Results

10.9.2.1 Foreign-trained nurses (% nurses licensed to practice, Stock)

Belgium

In 2021, 4.2% of all nurses licensed to practice in Belgium are foreign-trained nurses (n = 9488). This proportion increased from 1.5% in 2010 to 4.2% in 2021 (and from 1.2% to 3.9% by excluding unknown diploma, see Table 139).

Analysis by demographic characteristics

As for Belgian-trained nurses, there is a higher proportion of female foreign-trained nurses than male (respectively 80.2% and 19.8%, see Table 138). The share of foreign-trained nurses aged less than 55 years old is nevertheless higher (almost 90% of them compared to 60.5% for Belgian-trained nurses). Around 76% of foreign-trained nurses does not have the Belgian nationality and 58.5% of foreign-trained nurses have their place of residence in Belgium.

International comparison

The proportion of foreign-trained nurses is much lower than the proportion of foreign-trained physicians (4.2% in 2021 compared to 13.2% for foreign-trained physicians, see Table 140 and S-14). The proportion of foreign-trained nurses licensed to practice in Belgium is similar to the European averages in 2020 (see Table 140 and Figure 193). Since 2010, the trend of foreign-trained nurses licensed to practice has gradually increased in Belgium (from 1.5% in 2010 to 4.1% in 2020, +2.7 percentage points) and the increase was more important in Belgium than the EU averages (+2.1 percentage points for EU-14 and +0.6 percentage points for EU-27).

Impact of COVID-19 pandemic

In Belgium, the trend remained similar before and during the COVID-19 pandemic.

Table 138 – Foreign-trained nurses by personal characteristics (2021)

		2021
Foreign-trained nurses in Belgium (including unknown diploma)		9488
Foreign-trained nurses in Belgium (excluding unknown diploma)		
Gender	Female	7605 (80.2%)
	Male	1883 (19.8%)
Age group	<35	3198 (33.7%)
	35-44	3149 (33.2%)
	45-54	1913 (20.2%)
	55-64	852 (9%)
	65-74	304 (3.2%)
	>74	72 (0.8%)
Belgian nationality*	Yes	2046 (23.3%)
	No	6701 (76.2%)
	Unknown	51 (0.6%)
Place of residence**	Residence in Belgium	5554 (58.5%)
	Residence abroad	3332 (35.1%)
	Unknown	602 (6.3%)

*Source: FPS Public health, Cadastre; **Belgian nationality at the time of the data extraction (December 2022); ***Residence at the end of the visa/visum year (31/12)*

Table 139 – Foreign-trained nurses as a proportion of nurses licensed to practise in Belgium, evolution 2010-2021

		2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Total nurses licensed to practice		165 387	169 469	174 233	179 761	185 476	192 017	198 335	204 490	210 776	214 247	218 758	223 688
Country diploma	Belgian diploma	162 886	166 517	170 362	174 967	179 849	185 688	191 437	197 155	202 840	205 825	209 780	214 200
	Foreign diploma	1 930	2 281	3 160	4 085	4 919	5 623	6 194	6 632	7 236	7 727	8 284	8 798
	Unknown	571	671	711	709	708	706	704	703	700	695	694	690
% Foreign-trained nurses (including unknwon diploma)		**1.5%**	**1.7%**	**2.2%**	**2.7%**	**3.0%**	**3.3%**	**3.5%**	**3.6%**	**3.8%**	**3.9%**	**4.1%**	**4.2%**
% Foreign-trained nurses (excluding unknown diploma)		1.2%	1.3%	1.8%	2.3%	2.7%	2.9%	3.1%	3.2%	3.4%	3.6%	3.8%	3.9%

Source: FPS Public health, Cadastre

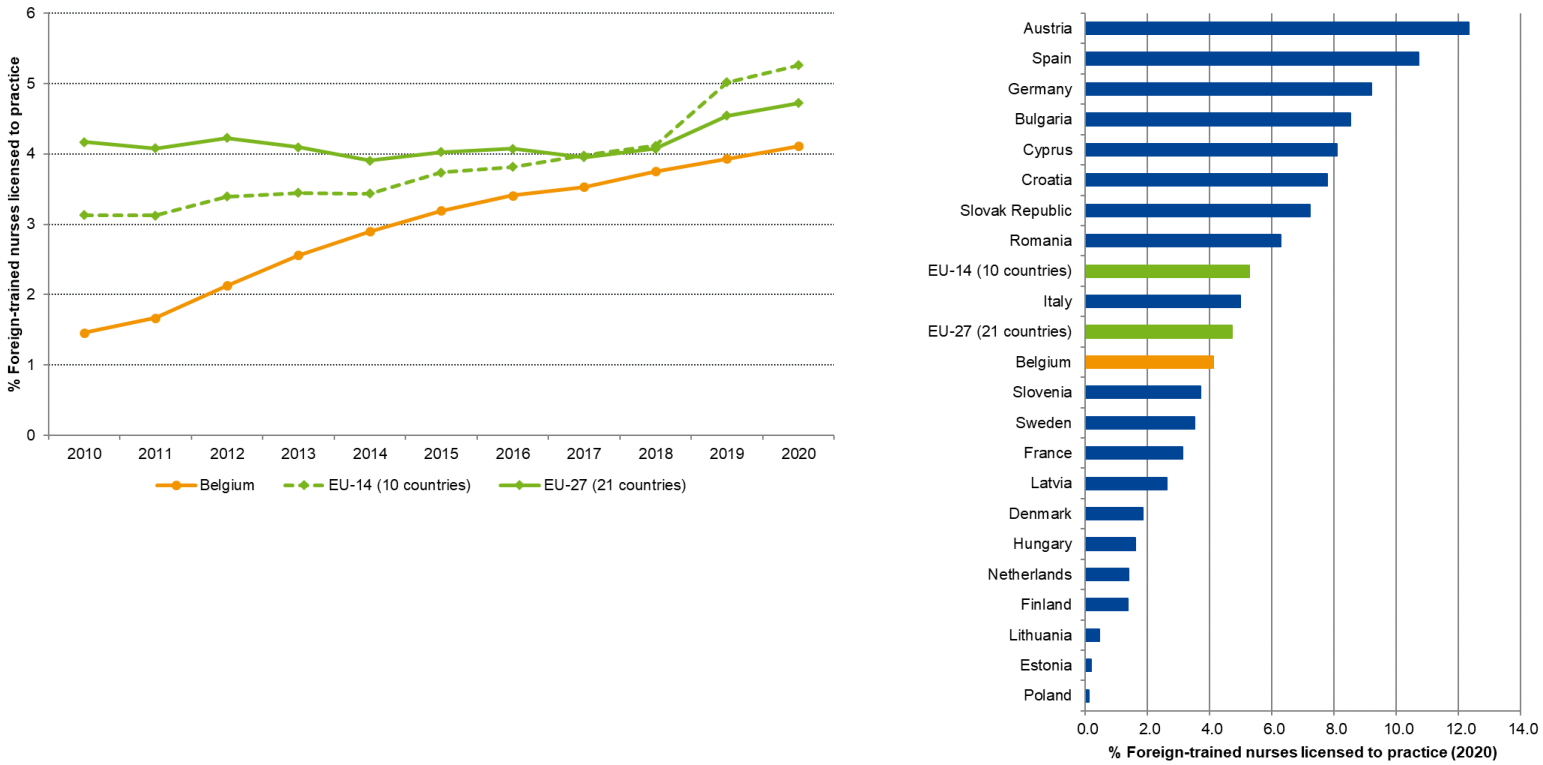
Table 140 – Foreign-trained nurses as a proportion of nurses licensed to practice, Belgium and EU averages, evolution 2010-2021

Year (OECD)	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021*
Belgium	1.46	1.67	2.13	2.56	2.90	3.19	3.41	3.53	3.75	3.93	4.11	4.26
EU-14 (10 countries)	3.13	3.13	3.39	3.45	3.43	3.73	3.82	3.98	4.12	5.02	5.26	
EU-27 (21 countries)	4.17	4.08	4.22	4.09	3.91	4.03	4.07	3.95	4.07	4.54	4.72	

*Source: OECD Health Statistics 2021[tt]; * Because of the lack of data from other European countries in 2021, EU averages for 2021 are not presented*

[tt] Data extracted from OECD Health Statistics 2021 are slightly different from original data source from FPS Public health, Cadastre.

Figure 193 – Foreign-trained nurses as a proportion of nurses licensed to practice: international comparison (2010-2020)[uu]



Source: OECD Health data 2023;

uu Because of the lack of data from other European countries, 2020 is taken as the reference in the calculation (instead of 2021).

10.9.2.2 Foreign-trained nurses as a proportion of professionally active on the Belgian labour market / of practising nurses (Stock)

In 2018, there were 148 782 (117 382 FTE) professionally active nurses on the Belgian labour market in Belgium (see Table 141) and 126 496 (107 514 FTE) practising nurses. Among those, around 3.1% and 3.3% were foreign-trained[vv] nurses respectively (3.3% and 3.5% in FTE).

10.9.2.3 Nursing graduates with a foreign diploma or a diploma from an unknown country (% nursing graduates, new inflow)

Regarding the new inflow, the proportion of nursing graduates with a foreign diploma or a diploma from an unknown country varied between 6.7 and 16.4% over the years (2010-2021 period, see Table 142). In 2021, a total of 531 nurses with a foreign diploma received a visa/visum to practise in Belgium (see Table 142). Between 2013 and 2017, the number of visa/visum delivered to nurses with a foreign diploma was decreasing, it increased in 2018 and remained above 2017 levels between 2019 and 2021.

Table 141 – Professionally active nurses on the Belgian labour market and practising nurses, per origin of diploma (2018)

	Professionally active nurses		Practising nurses	
	N (%)	FTE (%)	N (%)	FTE (%)
Belgian diploma	144 165 (96.9%)	113 565 (96.7%)	122 342 (96.7%)	103 725 (96.5%)
Foreign diploma or diploma with unknown country of origin	4617 (3.1%)	3817 (3.3%)	4154 (3.3%)	3789 (3.5%)
Total	148 782 (100%)	117 382 (100%)	126 496 (100%)	107 514 (100%)

Source: PlanCad nurses 2004-2018.[3]

Table 142 – Nursing graduates, per origin of diploma, evolution 2010-2021

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Belgian diploma	4102 (91.5%)	4735 (91.2%)	4734 (83.6%)	5121 (84.7%)	5460 (86.7%)	5682 (88.9%)	6239 (91.5%)	6358 (93.3%)	6446 (91.2%)	3806 (88.2%)	4942 (89.7%)	5304 (90.9%)
Foreign diploma or diploma with unknown country of origin	380 (8.5%)	455 (8.8%)	931 (16.4%)	928 (15.3%)	841 (13.3%)	708 (11.1%)	580 (8.5%)	454 (6.7%)	620 (8.8%)	510 (11.8%)	566 (10.3%)	531 (9.1%)

Source: FPS Public health, Cadastre

[vv] Including unknown diploma

Key points

- **Among all nurses licensed to practise in Belgium, the share of foreign-trained nurses is increasing over time (from 1.5% in 2010 to 4.2% in 2021 by including unknown diploma and from 1.2% in 2010 to 3.9% in 2021 by excluding unknown diploma).**
- **The proportion of foreign-trained nurses is much lower than the proportion of foreign-trained physicians (13.2% in 2021).**
- **In 2020, the proportion of foreign-trained nurses licensed to practice in Belgium is similar to the European averages (EU-14 and EU-27) but the increase between 2010 and 2020 was more important in Belgium than EU averages (+2.7 percentage points in Belgium, +2.1 percentage points for EU-14 and +0.6 percentage points for EU-27).**

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10.10 Nurses aged 50 years and over (% of practising nurses) (S-10)

10.10.1 Documentation sheet

Description	**Primary indicator:** Nurses aged 50 years and over as a proportion of practising nurses. **Secondary indicator:** Nurses aged 50 years and over as a proportion of professionally active nurses in the labour market.
Calculation	**Primary indicator:** Numerator: Number of practising nurses aged 50 years and over Denominator: Total number of practising nurses **Secondary indicator:** Numerator: Number of professionally active nurses aged 50 years and over Denominator: Total number of professionally active nurses
Technical definition	A nurse is considered as professionally active when he/she is registered as self-employed person into National Institute for the Social Security of the Self-employed (NISSE) database or when he/she is registered as salaried worker into National Social Security Office (NSSO) database with at least 0.1 full time equivalent (FTE) per year. The threshold of 0.1 FTE per year has been established by the working group on nurses within the Planning Unit for the Supply of Healthcare Professions of the FPS Public Health.[1] Practising nurses are defined as those active in the health sector. A nurse is considered as active in the health sector when he/she is registered as self-employed into NISSE database and had provided a minimum level of services per year (at least 10% of the activity level of a full time self-employed, i.e. 817 services in 2018 based on RIZIV-INAMI nomenclature) or when she/he is registered as salaried worker into NSSO database with at least 0.1 full time equivalent (FTE) per year and is working for an active employer in the health sector.[1]
Rationale	Beyond the overall number of nurses, the age composition of the nursing workforce also has important implications on the current and future supply of healthcare services. The ageing of nurses in industrialized countries has, for many years, raised concerns that there may not be sufficient new recruits to replace them. An additional concern is that nurses quit their job before the retirement age (see limitations for this indicator). This indicator gives a rough estimation of the share of nurses that will retire within 10 years (although a significant number of nurses may have already quit their job before the official retirement age). It should be analysed together with the current number of practising nurses, and the number of nursing graduates (inflow).
Data source	PlanCad Nurses 2004-2018[1] Federal database of health care professionals, Federal Public Service Health, Food Chain Safety and Environment
Limitation	A high score for this indicator can be interpreted in two ways: first, a high need to invest in new recruits, but also a sign of longer availability on the labour market (retirement at later age) which is a good sign.
International comparability	No standardized data collection available.
Dimension	Sustainability – Workforce capacity

Related indicators	Practising nurses (A-11), nursing graduates (S-8), nurses following the bachelor routes (S-9); foreign-trained nurses (S-16), projection of the number of nurses active in the healthcare sector (S-22)
Reviewer	Van den Heede Koen, Mahieu Timothée, Christelle Durand

10.10.2 Results

Belgium

In 2018 (31/12/2018), 126 496 nurses were practising in the health sector (see Table 143). Practising nurses are well distributed between each age group between 25 and 59 years old: with a share varying between 12.0% and 13.4% depending on age category (see Table 143 and Figure 194). One third of practising nurses were aged above 50 years old in 2018, while 18.8% was aged 55 years or above (Table 143). The share of practising nurses aged 50 years and over is increasing between 2004 and 2018, from 14.0% to 32.1% (+18.1 percentage points, see Figure 195).

Regional comparison

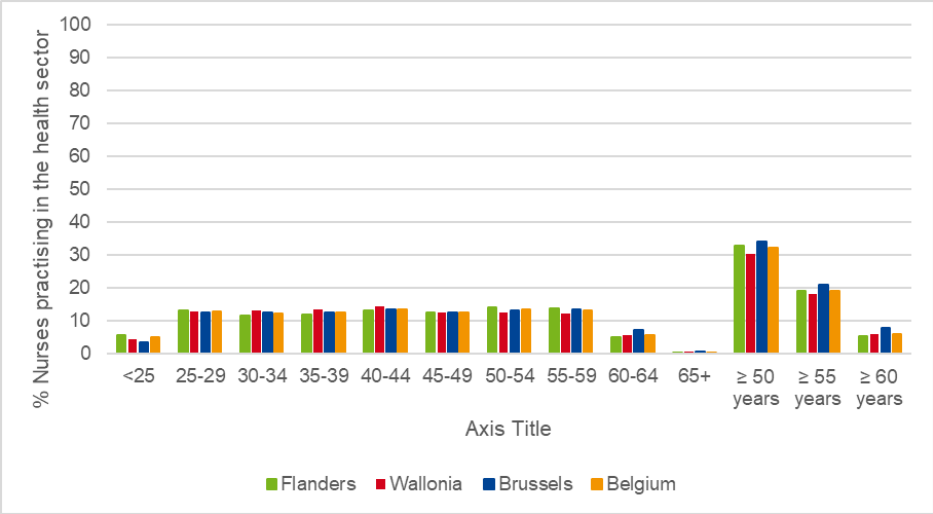
Table 143 and Figure 194 shows that age distribution of practising nurses is quite the same between regions. The largest share of practising nurses is aged between 40-44 years old in Wallonia, between 50 and 55 years old in Flanders, and between both 40-44 and 55-59 years (same proportions) in Brussels. In 2018, the share of practising nurses aged 50 years old and over was 32.8% in Flanders, 30.1% in Wallonia, 33.8% in Brussels (see Table 144).

Table 143 – Practising nurses per age group and region of activity (2018)

	Belgium	Flanders	Wallonia	Brussels
<25	6358 (5.0%)	4328 (5.6%)	1600 (4.3%)	425 (3.3%)
25-29	16 211 (12.8%)	9870 (12.9%)	4717 (12.8%)	1604 (12.4%)
30-34	15 143 (12.0%)	8754 (11.4%)	4746 (12.9%)	1623 (12.5%)
35-39	15 572 (12.3%)	9077 (11.8%)	4869 (13.2%)	1612 (12.4%)
40-44	16 896 (13.4%)	9917 (12.9%)	5245 (14.2%)	1723 (13.3%)
45-49	15 702 (12.4%)	9552 (12.5%)	4554 (12.4%)	1588 (12.3%)
50-54	16 815 (13.3%)	10 615 (13.9%)	4517 (12.3%)	1679 (13.0%)
55-59	16 611 (13.1%)	10 458 (13.7%)	4421 (12.0%)	1728 (13.3%)
60-64	6803 (5.4%)	3852 (5.0%)	2017 (5.5%)	931 (7.2%)
65+	385 (0.3%)	190 (0.2%)	146 (0.4%)	48 (0.4%)
Total	**126 496 (100%)**	**76 613 (100%)**	**36 832 (100%)**	**12 961 (100%)**
≥ 50 years	40 614 (32.1%)	25 115 (32.8%)	11 101 (30.1%)	4386 (33.8%)
≥ 55 years	23 799 (18.8%)	14 500 (18.9%)	6584 (17.9%)	2707 (20.9%)
≥ 60 years	7188 (5.7%)	4042 (5.3%)	2163 (5.9%)	979 (7.6%)

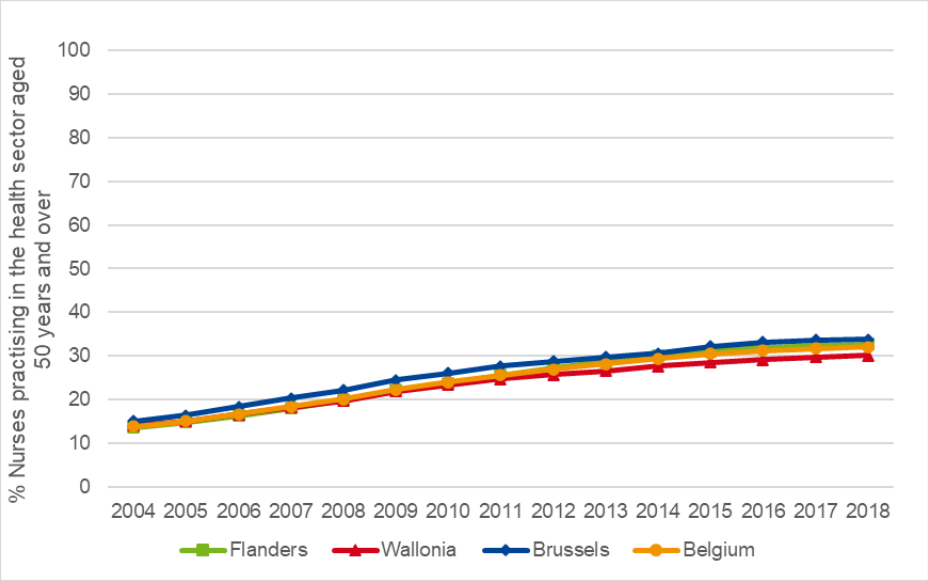
Source: PlanCad Nurses 2004-2018[1]; KCE calculation

Figure 194 – Percentage of practising nurses per age group and region of activity (2018)



Source: PlanCad Nurses 2004-2018[1]; KCE calculation

Figure 195 – Percentage of practising nurses aged 50 years old and over, Belgium and per region of activity, evolution 2004-2018



Source: PlanCad Nurses 2004-2018[1]; KCE calculation

In term of professionally active nurses on the Belgian labour market, results are similar (see Table 144).

Table 144 – Professionally active nurses per age group and region of activity (2018)

	Belgium	Flanders	Wallonia	Brussels
<25	6773 (4.6%)	4579 (5.1%)	1688 (4.0%)	500 (3.1%)
25-29	17 562 (11.8%)	10 666 (11.8%)	5018 (11.9%)	1849 (11.6%)
30-34	16 772 (11.3%)	9 733 (10.7%)	5133 (12.2%)	1878 (11.8%)
35-39	17 935 (12.1%)	10 532 (11.6%)	5421 (12.9%)	1957 (12.3%)
40-44	20 231 (13.6%)	12 010 (13.3%)	6049 (14.4%)	2157 (13.5%)
45-49	18 774 (12.6%)	11 497 (12.7%)	5295 (12.6%)	1970 (12.4%)
50-54	20 258 (13.6%)	12 837 (14.2%)	5308 (12.6%)	2102 (13.2%)
55-59	20 329 (13.7%)	12 879 (14.2%)	5239 (12.5%)	2199 (13.8%)
60-64	8 956 (6%)	5186 (5.7%)	2548 (6.1%)	1215 (7.6%)
65+	1192 (0.8%)	703 (0.8%)	380 (0.9%)	106 (0.7%)
Total	148 782 (100%)	90 622 (100%)	42 079 (100%)	15 933 (100%)
≥ 50 years	50 735 (34.1%)	31 605 (34.9%)	13 475 (32.0%)	5622 (35.3%)
≥ 55 years	30 477 (20.5%)	18 768 (20.7%)	8167 (19.4%)	3520 (22.1%)
≥ 60 years	10 148 (6.8%)	5889 (6.5%)	2928 (7.0%)	1321 (8.3%)

Source: PlanCad Nurses 2004-2018[1]; KCE calculation

Key points

- **In 2018, 32.1% of practising nurses in Belgium were aged 50 years and over, while 18.8% were aged 55 years old or above.**
- **The proportion of practising nurses aged 50 years and over in Belgium increased between 2004 and 2018, from 14.0% to 32.1% (+18.1 percentage points). This can either be seen as a need to invest in new recruits or to a sign of longer availability on the labour market (retirement at later age).**
- **Results were similar between regions.**

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10.11 Projection of the number of practising nurses (Supply), evolution in % (S-22)

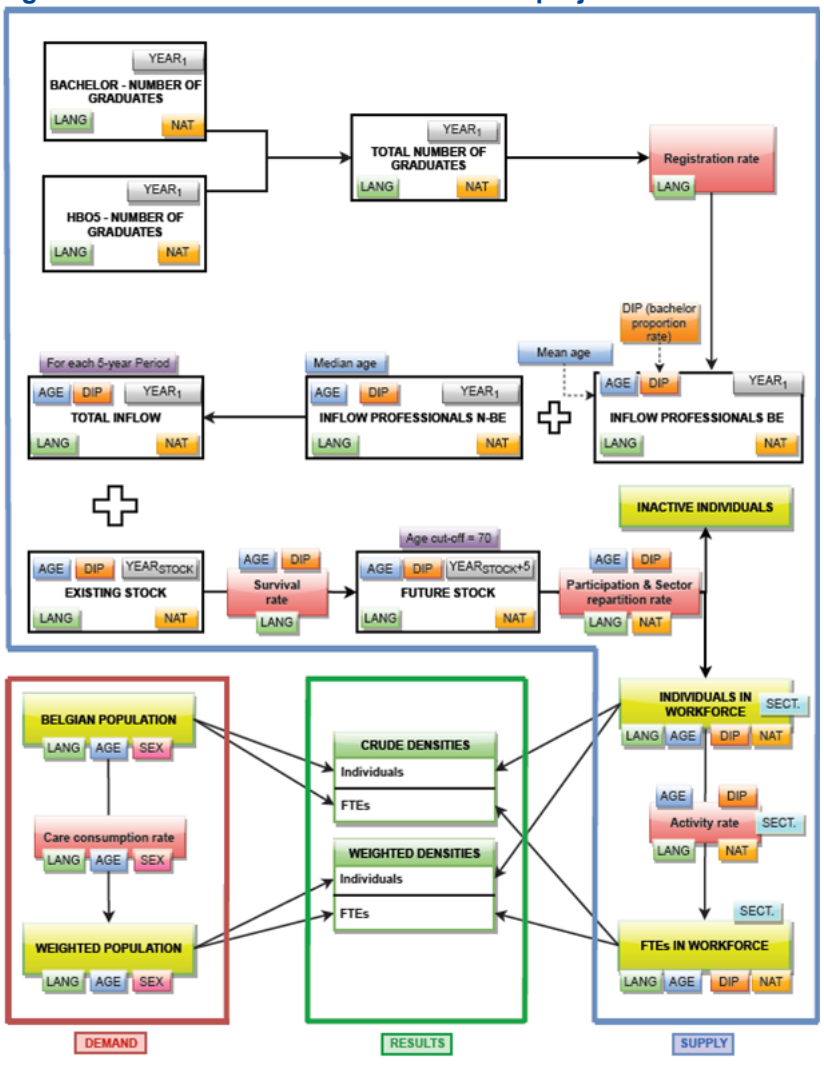
10.11.1 Documentation sheet

Description	**Primary indicator** Projected number of practising nurses in the healthcare sector in FTEs in 2023, 2028, 2033, 2038 and 2043. **Secondary indicators** Projected number of practising nurses in the healthcare sector in headcounts in 2023, 2028, 2033, 2038 and 2043. Projected number of practising nurses in the sector, by sector (hospital, nursing homes, home care, community health) in FTEs in 2023, 2028, 2033, 2038 and 2043. Projected number of practising nurses in the sector, by sector (hospital, nursing homes, home care, community health) in headcounts in 2023, 2028, 2033, 2038 and 2043.
Calculation	Supply projections to quantify the evolution of the workforce of healthcare professionals are carried out by the Planning Commission of medical supply supported by the Planning Unit for the Supply of the Healthcare Professions, depending on the FPS Public Health, Food Chain Safety and Environment (hereafter called the Planning Commission and the Planning Unit). The Planning Unit uses a stock-and-flow model to quantify the evolution of healthcare professionals' workforce. The model for nurses is illustrated by Figure 196 where parameters are defined in Table 145. More details can be found in the report from the Planning Unit (2022).[1] The number of nursing graduates is the number of person with bachelor's degree A1 (*bachelier – bachelor*) or diploma degree A2 (*brevet – HBO5*) obtained in Belgium. Almost all persons are supposed to be automatically registered (*cadastre – kadaster*) as the registration rate (parameter #2) is set equal to 0.99. This inflow of newly registered nurses is separated by type of degree (bachelor or diploma) and nationality (Belgian vs non-Belgian) using parameter #3. To this inflow of nurses trained in Belgium an additional inflow of newly registered nurses trained abroad is added (parameter #4). The sum of these inflows is the total inflow of nurses who are newly licensed to practice. It is calculated by age, type of degree, nationality and linguistic community. The total inflow is added to the existing stock of nurses. A survival rate (parameter #5) is applied to take into account losses due to mortality. At this step, all persons aged 70 or above are also removed in order to limit the supply forecast to those in age of working. From this future stock, only active nurses are kept, using the participation rate (parameter #6). In scenario 1, these are divided into four sectors (three inside the healthcare sector, one outside) using the sector repartition rate (parameter #7). This provides the projected **number of practising nurses (the number of individual nurses active in the healthcare sector)** that are presented below. Applying the activity rate (parameter #8) allows to calculate the **number of FTEs active in the healthcare sector** that are also presented below. One must note that the model also allows to calculate crude and weighted densities according to the evolution of the population and the application of a care consumption rate (parameter #9). These results are not presented here but can be found in the report from the Planning Unit (2022).[1]
Rationale	Projections of the number of nurses, both in number of headcounts as well as in FTEs, are used to quantify the future workforce supply. These projections should be compared to projections for the demand of nurses, that should be carried out separately.

	In 2019, KCE report 325 stated that, in order to ensure sustainable safe patient-to-nurse ratios in hospitals, an increase in staffing of 5 527 FTEs would be required within five years.[2] It also advocated for an immediate increase of 1 629 FTEs in order to "put an end to patient-to-nurse ratios that expose patients to a manifest unsafe care environment". Projections of the number of FTEs for practising nurses in the hospital sector can be used to assess if such an increase is expected. Although the Planning Unit model allows to take into account care consumption and to calculate crude and weighted workforce densities, these projections are not used. First, they mix both supply and demand components which render the interpretation complex. Second, they assume care consumption in constant within each segment of the population. If on the contrary the consumption increases within some segments of the population, the weighted density reported by the Planning Unit will be overestimated. The Planning Commission also develops alternative scenarios (not yet available) that take into account potential changes in supply and demand using conclusions of a project based on a horizon scanning method.[3] In these alternative scenarios, the following elements would be taken into account: increased complexity of care, increased demand for individualised care and home care, increased patient turnover in hospitals and increased patient mobility between different types of care.[4, 5]
Data source	Planning Commission of medical supply supported by the Planning Unit for the Supply of the Healthcare Professions, depending on the FPS Public Health, Food Chain Safety and Environment.
Technical definitions	Scenario 1 concerns the number of practising nurses in the healthcare sector, scenario 2 concerns the number of practising nurses in the hospital sector, scenario 3 concerns the number of practising nurses in the nursing homes sector, scenario 4 concerns the number of practising nurses in the home care sector, scenario 5 concerns the number of nurses active in the community health sector. In scenarios 2, 3, 4 and 5, practising nurses are further divided into respectively those active in the hospital sector and those active in other healthcare sectors; those active in nursing homes and those active in other healthcare sectors; those active in the home care sector and those active in other healthcare sectors; and those active in the community health sector and those active in other healthcare sectors. Some nurses may be active in several sub-sectors. When it is the case, they are included in each of the sub-sectors. Therefore, the sum of the individuals in all sub-sectors may be greater than the total number of nurses active in the healthcare sector. When calculating the number of FTEs, only practising nurses for at least 0.1 FTE are included. For nurses who are active (in the home care sector) as self-employed (in 2018, 10 728 nurses were fully self-employed and 5 985 combined self-employed and salaried status), the calculation of FTEs is based on the amounts reimbursed by the sickness funds for provided care. The reference value is determined using the observed median number of acts and total amount paid for care provided by the reference group (fully self-employed, aged 45-54). In 2018, one FTE corresponded to 8 170 acts and a total reimbursement amount equal to € 75 781.[6] The final number of FTEs is then fixed as the mean of both computations. For nurses who are practising as employees, FTEs estimates were provided by the Datawarehouse on Labour Markets and Social Protection using the activity rate provided in each healthcare sector delimited by NACE-code during the last quarter of the year.
International comparability	N.A.
Limitations	FTE estimates for self-employed nurses are based on the number of acts and the amount associated with the acts, which is not proportional to the time taken to perform them. However this allows to reflect potential differences according to the age, the nationality and the type of degree.

	This limitation only concerns a part of the total number of FTEs active in the healthcare sectors (scenario 1) and the number of FTEs active in the home care sector (scenario 4). Also, the results presented here are only based on the baseline scenarios of the Planning Commission. They aim to quantify the evolution of the nursing workforce in an unchanged policy situation. In the future, the Planning Commission will examine alternative scenarios to explore the effects of changes in policy or other external context.
Dimension	Sustainability
Related indicators	*(S-23 (Projection (horizon scanning) on the demand for nurses (Demand), evolution in %))* A-11 Practising nurses (/1000 population) QS-9 Health workers thinking that staffing levels are sufficient to handle the workload and work hours appropriate to provide the best care for patients (% of respondents, HSPSC) S-19 Projection of the number of GPs active in the healthcare sector (Supply), evolution in %
Reviewers	Christelle Durand (SPF Santé Publique – FOD Volksgezondheid)

Figure 196 – Stock-and-flow model for the projection of healthcare workforce



Source: Planning Unit (2022).[1]

Table 145 – Parameters used in the stock-and-flow projection model

Parameter	Definition	Projection
	All calculations are made separately for the French and the Flemish Community	
#1 Number of graduates	Number of persons with a Belgian nursing degree (bachelor's degree A1 or diploma degree A2) (separated between Belgian and non-Belgian).	Average number of graduates based on the 3 most recent academic years for which data are available (2017, 2018, 2020), without including the year 2019 (except for *HBO5* - A2 diploma in Flanders)* (separated between Belgian and non-Belgian). * 2019 was impacted by the extension of studies from 3 to 4 years to obtain the bachelor's degree A1 and from 3 to 3.5 in the French community to obtain a diploma degree A2 decided in 2016. Such extension was not performed in the Flemish community for diploma degree A2.
#2 Registration rate	The number of persons registered (*cadastre – kadaster*) divided by the number of persons with a Belgian nursing degree (= number of graduates).	Registration rate is fixed at 0.99.
#3a Nationality repartition rate	Repartition by nationality (Belgian vs non-Belgian) of the number of persons registered (*cadastre – kadaster*).	Average repartition (based on the 3 most recent years for which data are available – excluding 2019) in four groups (Belgian bachelor, non-Belgian bachelor, Belgian diploma, non-Belgian diploma).
#3b Diploma repartition rate	Percentage of bachelor's degrees in the persons registered (*cadastre – kadaster*) (calculated separately for Belgian and non-Belgian).	
#4 Inflow professionals N-BE Dip	Inflow of professionals who have obtained their degree abroad (separated by nationality and type of degree). Nursing degrees obtained in European countries are classified as a bachelor while degrees obtained outside Europe are classified as diploma.	Average number of professionals who have obtained their degree abroad in four groups (Belgian bachelor, non-Belgian bachelor, Belgian diploma, non-Belgian diploma) based on the 3 most recent years for which data are available.
#5 Survival rate	Survival rate based on mortality tables by age. In addition, all persons aged 70 or above are removed.	Survival rates of 2017, 2018 and 2019.
#6 Participation rate	Repartition between professionals who are (1) active in Belgium, (2) not active in Belgium but living in Belgium, and (3) not active and living abroad (calculated by age, type of degree and nationality).	Participation rates of 2018.
#7 Sector repartition rate	Repartition of active professionals between (1) active in the healthcare sector as salaried worker, (2) active in the healthcare sector as self-employed, (3) active in the healthcare sector with a mixed status (self-employed and salaried) and (4) active outside the healthcare sector (calculated by age, type of degree and nationality). The first three groups are called practising nurses. In further analyses the group of practising nurses is divided between: - Those active in the hospital sector* and those active in other healthcare sectors (basis scenario 2)	Sector repartition rates of 2018.

	- Those active in nursing homes* and those active in other healthcare sectors (basis scenario 3) - Those active in the home care sector* and those active in other healthcare sectors (basis scenario 4) - Those active in the community health** sector and those active in other healthcare sectors (basis scenario 5) * including nurses who work in that sector but are salaried of a *CPAS – OCMW.* ** refers to all other health care sectors within the "social care", "personal care" and "other healthcare" sectors: it includes nurses working in medical and dental practices, medical laboratories and general public services (police, fire departments, defence), nurses working in residential and non-residential social service institutions(e.g. for people with physical or mental disabilities).	
#8 Activity rate	Activity rate calculated by age, type of degree, nationality and sector (only for the first three sectors, i.e. only for practising nurses). For salaried workers, the rate of activity takes into account activities for all employers of the sector. For self-employed nurse (in the home care sector), the activity rate is calculated using the number of performed acts and the amounts paid by the sickness funds for performed acts. A reference full time equivalent is determined using the observed median number of performed acts and observed median total amount reimbursed for care provided by a reference group.	Mean activity rates of 2018.
#9 Care consumption rate	Consumption rate based on reimbursed fees for nursing care observed over three years (2017, 2018 and 2019) in the context of the compulsory health insurance (calculated by age and sex of the patient).	Demographic forecasts from the Federal Planning Bureau multiplied by the observed consumption rate in 2017, 2018 and 2019 by age and sex of the patient. The consumption rate is therefore supposed constant in each segment of the population, only the composition of the population changes.

Source: Planning Unit (2022).[1]

10.11.2 Results

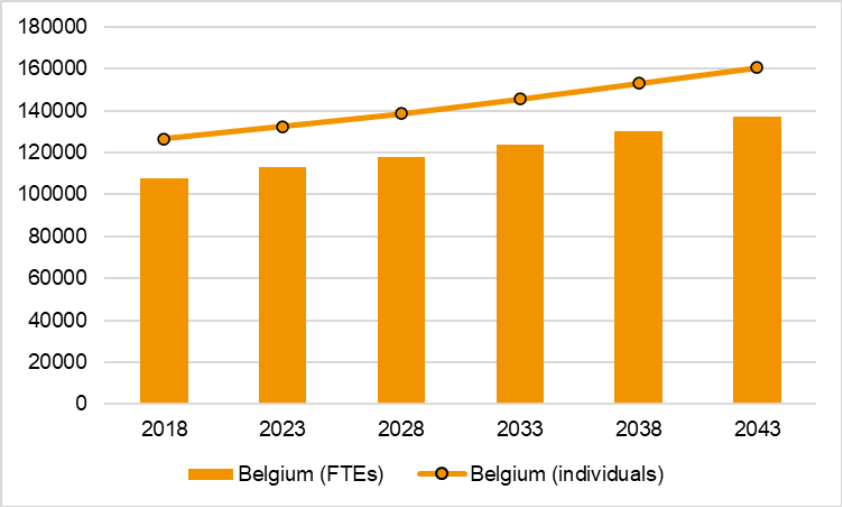
Practising nurses

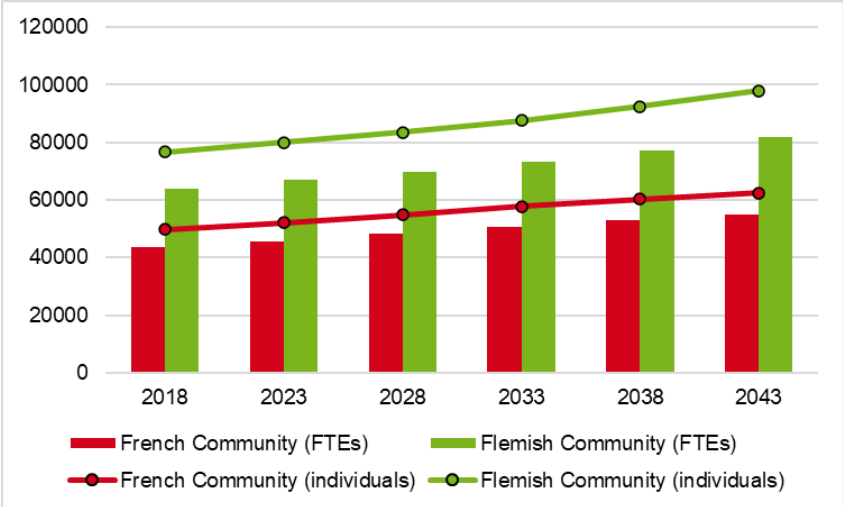
In 2018, there were 126 446 practising nurses (i.e. active in the healthcare sector) in Belgium (49 739 in the French Community and 76 707 in the Flemish Community). This number is expected to increase to 132 334 in 2023,138 534 in 2028, 145 487 in 2033, 152 855 in 2038 and 160 532 in 2043, which corresponds to five-year increases of respectively 4.7%, 4.7%, 5.0%, 5.1% and 5.0%. On Figure 197, the (projected) number of practising nurses in Belgium is depicted by a line for Belgium (left panel) and both linguistic communities (right panel). On the same figure, the bars indicate the number of FTEs. In 2018, the equivalent of 107 505 FTEs were active as nurses in the healthcare sector in Belgium (43 529 in the French Community and 63 976 in the Flemish Community). These numbers are expected to increase on average by 4.9% between 2018 and 2043.

Overall, in the French Community, the model predicts that the nurses workforce will increase on average by 4.7% over five years between 2018 and 2043, but this increase is expected to be stronger in the short term (+5.0% between 2018 and 2023) than in the long run (+3.6% between 2038 and 2043). This trend in the number of practising nurses translates to an almost identical evolution in the number of FTEs.

In the Flemish Community, the expected increase of the number of practising nurses is on average 5.0% over five years between 2018 and 2043. There, the expected increase is stronger in the long term (+6.0% between 2038 and 2043) than in the short term (+4.4% between 2018 and 2023). This also translate almost identically in the evolution of the number of FTEs.

Figure 197 – Number of practising nurses, in headcounts and FTEs, in Belgium and its linguistic communities, 2018-2043





Source: Planning Unit (2022).[1]

Table 146 – Projected five year evolution of workforce for practising nurses, in FTEs

	Belgium	French Community	Flemish Community
2018-2023	5.0%	5.3%	4.8%
2023-2028	4.6%	5.1%	4.2%
2028-2033	4.9%	5.0%	4.9%
2033-2038	5.2%	4.6%	5.5%
2038-2043	5.1%	3.7%	6.0%

Source: Planning Unit (2022).[1]

Evolution by sector

Hospitals represent the largest sector of employment for nurses. In 2018, there were 80 099 practising nurses in the **hospital sector** in Belgium (33 237 in the French Community and 46 862 in the Flemish Community), corresponding to 66 601 FTEs in Belgium (27 921 in the French Community and 38 680 in the Flemish Community) (see Figure 198 – panel a). The number of FTEs nurses active in the hospital sector is expected to increase to 69 802 in 2023, 72 356 in 2028, 74 923 in 2033, 77 882 in 2038 and 81 271 in 2043, which corresponds to five-year increases of respectively 4.8%, 3.7%, 3.5%, 3.9% and 4.4% (see Table 147). The increase is expected to be slightly more marked in the French Community (on average 4.3% over five years between 2018 and 2043) than in the Flemish Community (on average 3.9% over five years between 2018 and 2043).

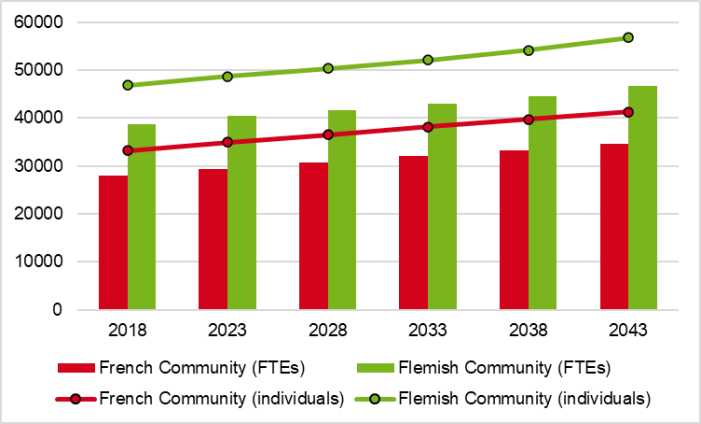
In 2018, there were 22 544 practising nurses in **nursing homes** (8 286 in the French Community and 14 258 in the Flemish Community), corresponding to 18 058 FTEs in Belgium (6 883 in the French Community and 11 175 in the Flemish Community) (see Figure 198 – panel b). The number of FTEs nurses active in the nursing home sector is expected to increase to 19 392 in 2023, 20 684 in 2028, 22 161 in 2033, 23 861 in 2038 and 25 408 in 2043, which corresponds to five-year increases of respectively 7.4%, 6.7%, 7.1%, 7.7% and 6.5% (see Table 147). In the French Community, the increase is expected to be higher in the short run (+8.5% during the period 2018-2023) than in the long run (+3.6% during the period 2038-2043). The opposite is true in the Flemish Community where the increase is expected to be +6.7% during the period 2018-2023 and +4.9% during the period 2023-2028, while is expected to be +8.4% during the period 2038-2043.

In the **home care sector**, there were 24 694 practising nurses in 2018 (9 845 in the French Community and 14 849 in the Flemish Community), corresponding to 19 263 FTEs in Belgium (7 465 in the French Community and 11 798 in the Flemish Community) (see Figure 198 – panel c). The number of FTEs nurses active in the home care sector is expected to increase to 19 850 in 2023, 21 092 in 2028, 22 672 in 2033, 24 192 in 2038 and 25 656 in 2043, which corresponds to five-year increases of respectively 3.0%, 6.3%, 7.5%, 6.7% and 6.1% (see Table 147). However, the evolution at the Belgian level hides strong regional disparities. Indeed, the number of FTEs nurses active in the home care sector is expected to increase by, on average, 3.5% over five years between 2018 and 2043 in the French Community, compared to 7.3% in the Flemish Community. Although the increase is expected to be smaller in the short run (an expected 3% increase between 2018 and 2023 at the Belgian level), this is stronger for the French Community (+1.0%), than for the Flemish Community (+4.3%).

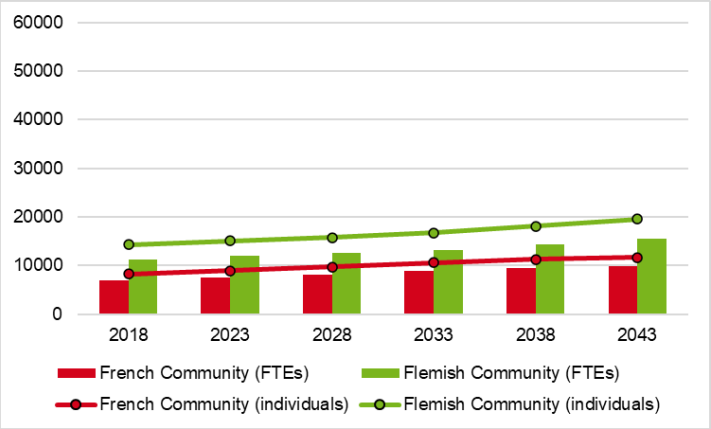
The **community health sector** only concern a small proportion of the practising nurses in Belgium (4 804 nurses in 2018 – 1 799 in the French Community, 3 005 in the Flemish Community) (see Figure 198 – panel d). The number of FTEs (3 638 in 2018) is expected to increase, up to 4 474 in 2043, at an average growth rate of 4.2% over five years (see Table 147). The average growth rate shows little regional differences (on average + 4.1% over five years in the French Community and + 4.3% in the Flemish Community between 2018 and 2043) but the increase is expected to be stronger in the short run in the French Community while stronger in the long run in the Flemish Community.

Figure 198 – Number of practising nurses, in individuals and FTEs, by sector, in Belgium and its linguistic communities, 2018-2043

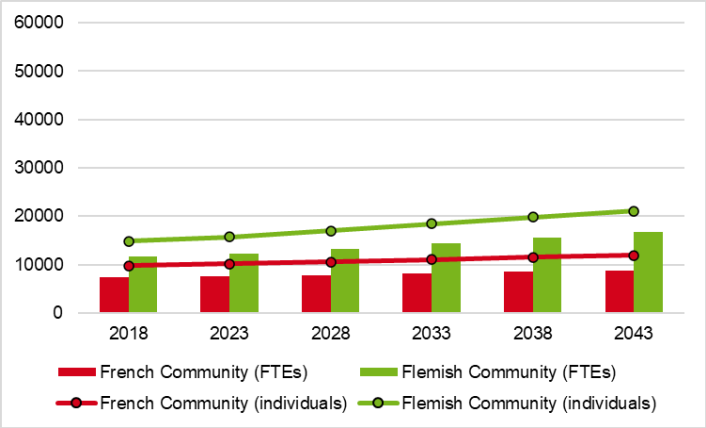
(a) hospital sector



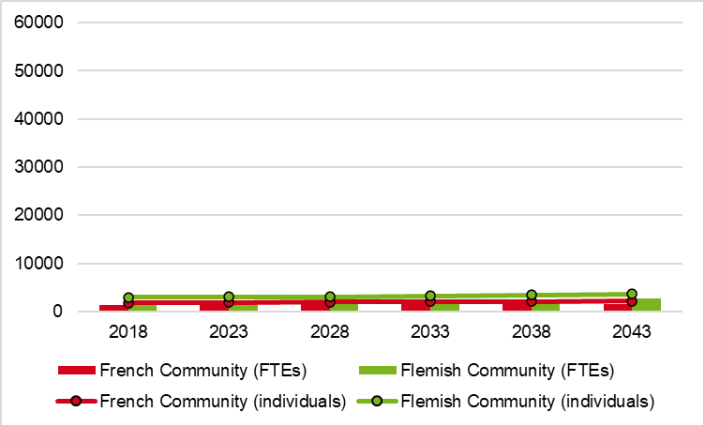
(b) nursing homes sector



(c) home care sector



(d) community health sector



Source: Planning Unit (2022, 2023).[7-10]

Table 147 – Projected five year evolution of nurses workforce, by sector, in FTE

	Hospital sector			Nursing home sector			Home care sector			Community health sector		
	Belgium	French Community	Flemish Community	Belgium	French Community	Flemish Community	Belgium	French Community	Flemish Community	Belgium	French Community	Flemish Community
2018-2023	4.8%	5.4%	4.4%	7.4%	8.5%	6.7%	3.0%	1.0%	4.3%	2.8%	4.8%	1.5%
2023-2028	3.7%	4.3%	3.2%	6.7%	9.4%	4.9%	6.3%	4.5%	7.4%	3.0%	4.9%	1.8%
2028-2033	3.5%	4.2%	3.0%	7.1%	9.0%	6.0%	7.5%	4.1%	9.5%	5.6%	4.2%	6.5%
2033-2038	3.9%	4.0%	3.9%	7.7%	6.9%	8.2%	6.7%	4.3%	8.1%	4.9%	4.6%	5.1%
2038-2043	4.4%	3.8%	4.8%	6.5%	3.6%	8.4%	6.1%	3.7%	7.3%	4.9%	1.9%	6.8%

Source: Planning Unit (2022, 2023).[7-10]

Comparing supply and demand evolutions

Although alternative scenarios on the evolution of future demand are not available yet, the analysis of weighted densities (not shown here) already provides some insights for potential future imbalance.

Regarding hospital care, the future densities of practising nurses and FTEs are higher in the French Community than in the Flemish Community.[7] In the Flemish Community, the decrease in weighted densities over the coming years indicates that the increase in the number of nurses working in the hospital sector will not be sufficient to meet the increase in future needs for hospital nursing care. In the French Community, on the other hand, the increase in the number of nurses working in the hospital sector seems sufficient to meet the increase in future needs for hospital nursing care.

In 2019, KCE report 325 stated that, in order to ensure sustainable safe patient-to-nurse ratios in hospitals, an increase in staffing of 5 527 FTEs would be required within five years. Projections of the number of FTEs for nurses active in the hospital sector presented above show that this increase will not be achieved (expected increase of 3 201 FTEs between 2018 and 2023).

For care in nursing homes, the analysis of weighted densities indicates that, for both linguistic communities, the increase in the number of nurses working in the nursing home sector will not be sufficient to meet the increase in future care needs.[8]

For home care, the analysis of weighted densities indicates that, in both linguistic communities, the increase in the number of nurses working in the home care sector will not be sufficient to meet the increase in future care needs.[9] The decrease in the French Community will be higher than in the Flemish Community.

Key points

- **The number of FTEs nurses active in the healthcare sector (practising nurses) is expected to increase by 5 345 FTEs (5.0%) between 2018 and 2023 and by 5 198 FTEs (4.6%) between 2023 and 2028.**
- **Although the average expected increase between 2018 and 2043 is similar in both linguistic communities, a higher increase is expected in the short run for the French Community and in the long run for the Flemish Community.**
- **The number of FTEs nurses active in the hospital sector is expected to increase by 3 201 FTEs (4.8%) between 2018 and 2023 and by 2 554 FTEs (3.7%) between 2023 and 2028.**
- **The average increase of FTEs nurses active in the hospital sector between 2018 and 2043 is expected to be slightly more marked in the French Community (on average 4.3% over five years) than in the Flemish Community (on average 3.9% over five years).**
- **The expected increase of 3 201 FTEs nurses in the hospital sector between 2018 and 2023 is insufficient to ensure sustainable safe patient-to-nurse ratios in hospitals as defined by KCE report 325 (required increase in staffing of 5 527 FTEs within five years).**
- **The number of FTEs nurses active in nursing homes is expected to increase by 1 334 FTEs (7.4%) between 2018 and 2023 and by 1 292 FTEs (6.7%) between 2023 and 2028.**
- **The number of FTEs nurses active in the home care sector is expected to increase by 587 FTEs (3.0%) between 2018 and 2023 and by 1 242 FTEs (6.3%) between 2023 and 2028.**

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11 SUSTAINABILITY – HEALTH TECHNOLOGIES AND INFRASTRUCTURE

11.1 GPs meeting the activity thresholds for a selection of 6 eHealth services (% of active GPs) (S-27)

11.1.1 Documentation sheet

Description	**Primary indicator** GPs meeting the activity thresholds for a selection of six eHealth services eligible for the integrated practice bonus (% of active GP) **Secondary indicators** GPs meeting the activity thresholds for a selection of seven eHealth services eligible for the integrated practice bonus (% of active GP) GPs meeting the activity thresholds for a selection of eight eHealth services eligible for the integrated practice bonus (% of active GP) GPs meeting the activity thresholds for at least six out of eight eHealth services eligible for the integrated practice bonus (% of active GP)
Calculation	**Primary indicator:** Numerator: GPs meeting the activity thresholds for six eHealth services qualifying for the integrated practice bonus Denominator: Total number of active GPs (head counts, excluding GPs in training or GPs working in a medical house with a capitation payment system) **Secondary indicators:** Numerator: GPs meeting the activity thresholds for seven and for eight eHealth services qualifying for the integrated practice bonus Denominator: Total number of active GPs (head counts, excluding GPs in training or GPs working in a medical house with a capitation payment system) Numerator: GPs meeting the activity thresholds for at least six out of eight eHealth services qualifying for the integrated practice bonus Denominator: Total number of active GPs (head counts, excluding GPs in training or GPs working in a medical house with a capitation payment system)
Rationale	One component of the health system sustainability is the system's capacity to provide and promote (innovative) eHealth services. Indeed, digital technologies provide opportunities to strengthen health systems. Several benefits have been highlighted in the literature, such as ensuring access to the right information by the right people at the right time, which can improve both the quality and efficiency of care. Benefits were also highlighted for health workers, whose could be relieved from time-consuming tasks and have better interaction with patients.[1]

Data source	RIZIV-INAMI data, based on multiple sources: Recip-e, eFact, eAttest, eDMG, MyCarenet, eHealth, CEBAM, FPS Social Security (data on people with a handicap), Abrumet, Réseau Santé Wallon (RSW), Vitalink.
Technical definitions	An integrated practice premium has been created for active GP to support them in their practice and promote their use of eHealth services. Only active GPs have access to this premium. GP are considered as active in the following conditions: [2] • (For GPs in training no proof of activity is required but they have to use an approved computer software)*; • For GPs who have a RIZIV-INAMI number for less than 5 years as of 1 January, no proof of activity is required but they must be registered in an organised on-call service; • For GPs who have a RIZIV-INAMI number for 5 years or more as of 1 January, they must be registered in an organised on-call service and have provided services from the RIZIV-INAMI nomenclature for a minimum of €25 000 for the year for which the premium is requested. *In the calculations below, GPs in training are not included. The amount of the premium then depends on the reaching of the threshold for the following eHealth services:[2] • **ePrescription** for pharmaceuticals: during the 2nd half of the premium year, the GP has sent at least 25% of his/her pharmaceutical prescriptions via Recip-e. • **eChapter IV**: During the 2nd half of the premium year, the GP has submitted at least 50% of his/her claims for reimbursement of Chapter IV drugs via the "Chapter IV" service on MyCarenet. • **eInvoice** for vulnerable population: During the 2nd semester of the premium year, the GP or his/her authorised representative has invoiced at least 20% of his/her consultations for patients entitled to increased reimbursement via the "eFact" service of MyCareNet (not taken into account for GPs working in medical practices with lump sum payments) • **eConsent:** for at least 25% of the patients for whom GPs have received DMG fees for the premium year, informed consent is registered via the eHealth platform (by the GP, the patient or another care provider) by 31 December of the premium year at the latest. • **SUMEHR:** a ratio is at least 25% is reached between the total number of patients for whom the GP downloaded a Summarized Electronic Health Record (SUMEHR) by 31 December of the premium year via the Vitalink, RSW or Abrumet digital platforms, and the number of patients for whom the GP received DMG fees for the premium year. • **eGMR:** During the premium year, the GP used MyCareNet to manage his/her Global Medica Record fees electronically (not taken into account for GPs working in medical practices with lump sum payments) • **eMedication Plan:** During the 2nd half of the premium year, the GP has created or adapted at least 5 online medication plans. • **CEBAM:** During the 2nd half of the premium year, the GP has used the CEBAM evidence linker at least 5 times. • **eAttestation**: During the 2nd half of the premium year, the GP has entered at least 5% of his/her consultation certificates via the MyCarenet "e-Attest" service (not taken into account for GPs working in medical practices with lump sum payments) • **eDisability** assessessment: During the premium year, the GP has used the electronic form "Evaluation of disability" of the FPS Social Security" at least 3 times to send medical information to the FPS Social Security (DG Disabled People)

	More details on these eHealth services can be found on the RIZIV-INAMI website.[2] Among these eHealth services, the following were selected (selction decided by RIZIV-INAMI): ● Primary indicators (6 services): ePrescription, eInvoice, eConsent, eGMR, eAttestation, and eChapter IV ● Secondary indicators (7 services): ePrescription, eInvoice, eConsent, eGMR, eAttestation, eChapter IV, and SUMEHR ● Secondary indicators (8 services): ePrescription, eInvoice, eConsent, eGMR, eAttestation, eChapter IV, SUMEHR, and CEBAM, ● Secondary indicators (6/8 services): at least sixth out of these eight services: ePrescription, eInvoice, eConsent, SUMEHR, eGMR, eMedication Plan, CEBAM, and eAttestation. eDisability and eChapter IV were not included because the opportunity to use these services depend of the patients' profiles. Accredited physicians are physicians satisfying a number of criteria related to the participation in continuing training and peer-review sessions. Regional analysis is based on the personal address of the practitioner on 1st January.
International comparability	Data not collected internationally. No comparison possible.
Performance dimension	Sustainability – Health technologies
Related indicators	-
Reviewer	Sarah François and Kasso Daïnou

11.1.2 Results

Belgium

In Belgium, the percentage of GPs meeting the thresholds for 6 selected eHealth services eligible for the premium increased from 51.2% in 2019 to 71.4% in 2021 (+20.2 percentage points). An increase in the percentages was observed for all eHealth services except for the use of the CEBAM evidence linker (providing online relevant clinical guidelines during the consultation; -2.2 percentage points). The eHealth services for which thresholds were most reached are online registration of informed consent for patients who have opened a Global Medical Record (GMR) with the GP (95.1% in 2021), use of MyCareNet to manage the electronic GMR (93.4% in 2021) and online prescription of medicines (91.8% in 2021).The eHealth service with the higher increase in sufficient use (based on the threshold) was eAttest (+25.4 percentage points between 2019 and 2021) (see Table 148).

Analyses by physician's characteristics (demographic and others)

The percentage of GPs meeting the thresholds for 6 selected eHealth services eligible for the premium in 2021 is increasing up to the age category of 36-45 years and then is decreasing. This share is higher for women (77.9% vs 65.7 for men), Dutch-speaking physicians (78.4% vs 61.7% for French-speaking physicians), and accredited physicians (74.7% vs 24.1% for non-accredited physicians).

Regional comparison

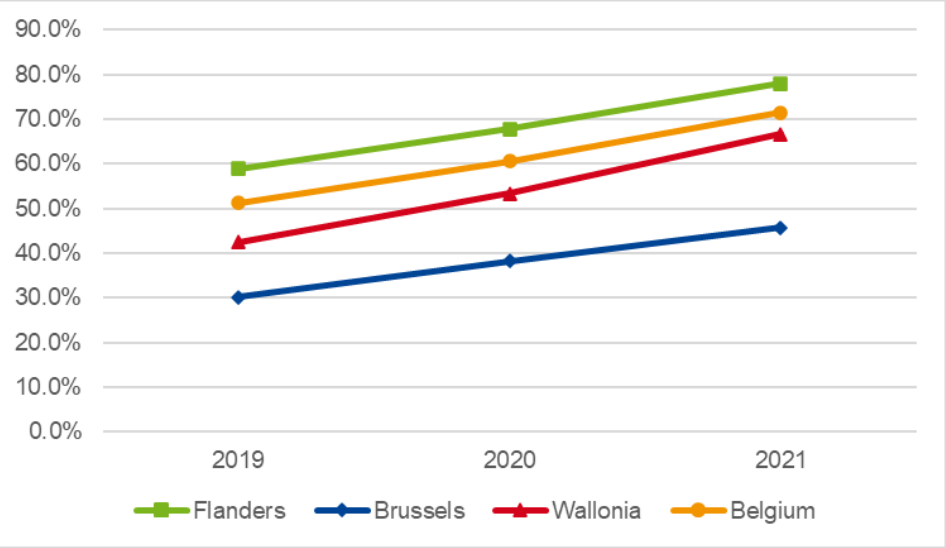
The percentage of GPs meeting the thresholds for 6 selected eHealth services eligible for the premium in 2021 is lower in Brussels (45.8%) than in other regions (78.0% in Flanders and 66.6% in Wallonia). The increase between 2019 and 2021 was slightly higher in Wallonia (+ 24.2 percentage points) than in Brussels (+15.6 percentage points) and Flanders (+19.1 percentage points).

Table 148 – Percentage of GPs meeting the thresholds, by eHealth services, 2019-2021

	2019	2020	2021
ePrescription	82.5%	89.7%	91.8%
eChapter IV	75.0%	79.5%	83.8%
eInvoice	77.4%	84.3%	87.4%
eConsent	94.2%	94.8%	95.1%
SUMEHR	55.3%	60.1%	63.7%
eGMR	76.5%	86.1%	93.4%
eMedication Plan	41.7%	48.7%	52.2%
CEBAM	32.6%	40.4%	30.4%
eAttestation	59.1%	67.6%	84.5%
eDisability	49.1%	54.2%	59.8%
6 selected eHealth services*	**51.2%**	**60.6%**	**71.4%**
7 selected eHealth services**	38.8%	46.1%	53.7%
8 selected eHealth services***	20.9%	26.6%	22.7%
At least 6/8 eHealth services****	54.2%	63.9%	68.9%

*Source: RIZIV-INAMI, KCE calculation. . *recipe_e, eChapter IV, eInvoice, eConsent, eGMR, eAttestation; **recipe_e, eChapter IV, eInvoice, eConsent, eGMR, eAttestation, SUMEHR;*** recipe_e, eChapter IV, eInvoice, eConsent, eGMR, eAttestation, SUMEHR, CEBAM, ****eDisability and eChapter IV were not included in the calculation*

Figure 199 – Percentage of GPs meeting the thresholds for 6 selected eHealth services, by region, 2019-2021



Source: RIZIV-INAMI, KCE calculation

Table 149 – Percentage of GPs meeting the thresholds, by eHealth services, demographic and other characteristics, 2021

		ePrescription	eChapter IV	eInvoice	eConsent	SUMEHR	eGMR	eMedication Plan	CEBAM	eAttestation	eDisability
Region	**Flanders**	94.0%	90.1%	91.0%	96.5%	74.2%	95.3%	64.9%	38.0%	88.5%	67.7%
	Brussels	87.1%	62.8%	75.4%	88.4%	45.4%	85.3%	28.7%	22.6%	63.8%	40.3%
	Wallonia	89.2%	78.2%	84.3%	94.3%	50.0%	92.3%	35.9%	19.1%	83.0%	50.9%
Age	**< 26**	100.0%	66.7%	100.0%	100.0%	66.7%	100.0%	66.7%	0.0%	33.3%	33.3%
	26-35	97.8%	90.1%	94.8%	88.3%	73.1%	89.9%	61.0%	38.6%	88.9%	60.3%
	36-45	98.1%	92.0%	96.7%	97.7%	71.5%	97.8%	57.3%	35.9%	91.5%	70.0%
	46-55	96.5%	88.2%	91.9%	96.6%	65.5%	96.0%	56.4%	31.9%	88.2%	64.7%
	56-65	93.1%	83.1%	86.3%	97.9%	59.3%	95.5%	48.5%	28.2%	83.0%	61.4%
	≥ 66	69.1%	62.2%	63.7%	98.0%	46.1%	89.4%	33.9%	13.8%	69.3%	42.1%
Gender	**Male**	88.1%	80.2%	82.8%	96.3%	60.4%	93.3%	49.1%	27.9%	80.5%	59.3%
	Female	96.0%	87.8%	92.6%	93.6%	67.5%	93.5%	55.7%	33.3%	89.0%	60.3%
Language	**French**	88.5%	74.6%	82.1%	92.9%	48.5%	90.7%	33.8%	19.5%	78.3%	48.2%
	Dutch	94.2%	90.4%	91.3%	96.6%	74.7%	95.4%	65.5%	38.3%	88.9%	68.1%
Accreditation	**Yes**	93.6%	86.8%	90.0%	96.0%	66.5%	95.2%	54.6%	32.3%	86.2%	62.8%
	No	65.3%	40.5%	50.3%	80.9%	23.9%	68.2%	17.2%	4.0%	59.3%	16.5%

Source: RIZIV-INAMI, KCE calculation.

Table 150 – Percentage of GPs meeting the thresholds, for various selections of eHealth services, demographic and other characteristics, 2021

		6 eHealth services	7 eHealth services	8 eHealth services	At least 6/8 eHealth services
Region	**Flanders**	**78.0%**	64.4%	29.7%	80.1%
	Brussels	**45.8%**	29.3%	13.0%	45.4%
	Wallonia	**66.6%**	41.3%	13.0%	55.6%
Age	**< 26**	**33.3%**	33.3%	0.0%	66.7%
	26-35	**77.3%**	64.5%	29.4%	76.9%
	36-45	**84.4%**	63.0%	27.7%	79.4%
	46-55	**79.6%**	57.5%	24.3%	75.1%
	56-65	**70.3%**	48.9%	20.3%	66.3%
	≥ 66	**43.5%**	30.8%	9.4%	44.1%
Gender	**Male**	**65.7%**	48.9%	20.6%	64.3%
	Female	**77.9%**	59.2%	25.2%	74.2%
Language	**French**	**61.7%**	38.2%	12.6%	52.9%
	Dutch	**78.4%**	64.9%	30.1%	80.6%
Accreditation	**Yes**	**74.7%**	56.6%	24.3%	72.3%
	No	**24.1%**	12.1%	1.1%	21.3%

*Source: RIZIV-INAMI, KCE calculation. . *recipe_e, eChapter IV, eInvoice, eConsent, eGMR, eAttestation; **recipe_e, eChapter IV, eInvoice, eConsent, eGMR, eAttestation, SUMEHR;*** recipe_e, eChapter IV, eInvoice, eConsent, eGMR, eAttestation, SUMEHR, CEBAM, ****eDisability and eChapter IV were not included in the calculation*

Key points

- **The share of GPs meeting the thresholds for 6 selected eHealth services eligible for the premium increases from 51.2% in 2019 to 71.4% in 2021 (+20.2 percentage points). This share is higher for accredited physicians (74.7% compared to 24.1% for non-accredited physicians).**
- **Lower results are observed in Brussels (45.8%) compared to Flanders (78.0% in 2021) and Wallonia (66.6%).**
- **The eHealth services for which the thresholds are most reached are online registration of informed consent for patients who have opened a Global Medical Record (GMR) with the GP (95.1% in 2021), use of MyCareNet to manage the electronic GMR (93.4% in 2021) and online prescription of medicines (91.8% in 2021).**

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11.2 Number of notifications of temporarily unavailable packs of medicines for human use with a critical impact (S-28)

11.2.1 Documentation sheet

Description	**Primary indicator** • Yearly number of notifications of temporarily unavailable packs of medicines for human use with a critical impact **Secondary indicators** 1. Yearly number of notifications of temporarily unavailable packs of medicines for human use (all types of impact) 2. Yearly average duration of unavailability of packs of medicines for human use 3. Monthly share of packs of medicines for human use with a notification of temporary unavailability
Calculation	**Primary indicator** • Number of notifications of temporarily unavailable packs of medicines for human use with critical impact. The year of the notification's start date was used when counting the annual number of notifications. **Secondary indicator:** 1. Yearly number of notifications of temporarily unavailable packs of medicines for human use (all types of impact) • Number of notifications of temporarily unavailable packs of medicines for human use (all types of impact). The year of the notification's start date was used when counting the annual number of notifications. 2. Yearly average duration of unavailability of packs of medicines for human use • Average duration of unavailability of packs of medicines for human use. The year of the notification's start date was used when calculting the annual average duration. 3. Share of packs of medicines for human use with a notification of temporary unavailability Numerator: Number of notifications of temporarily unavailable packs of medicines for human use (all types of impact). All the months covered by the notification were used when counting the monthly number of notifications. Denominator: Average number of commercialised packs of medicines for human use per month. As data on the number of commercialised packs of medicines for human use was provided (through personnel communication) for several dates per month between April 2019 and August 2023, the average number per month was used.
Rationale	Recently, medicine shortages have become increasingly common in a number of countries, including Belgium, and the COVID-19 pandemic has exacerbated this issue.[1] The increasing frequency of supply interruptions and medicine shortages may impact the capacity of the health system to provide sufficient medicines. The Pharmaceutical Strategy for Europe, adopted in November 2020, includes addressing medicine shortages under the pillar of crisis preparedness and response.[2] Belgium applies the EU-definition of medicine shortage, which is: a shortage of a medicinal product for human or veterinary use occurs when supply does not meet demand at a national level. A medicine shortage can be

	both temporary or permanent (i.e. withdrawal from the market). The indicator presented here focuses on temporary disruption. A medicine maybe temporarily unavailable for a variety of reasons, including: unavailability of the active ingredient, unavailability of an excipient, delay in production, delay in the release of the final product, logistical problems, increased demand, Falsified Medicines Directive[ww] – serialization, import and export authorisation in application, recall, force majeure, patent litigation, or distributional issues.[3] In Belgium, a medicine is considered to be unavailable when the marketing authorisation holder is not able to deliver the totality of an ordered quantity for public service obligations within three working days.[4] Medicine shortages can have a direct impact on health service delivery and thus on patients' health outcomes. Since December 2019, the Federal Agency for Medicines and Health Products (FAGG – AFMPS) publishes periods of unavailability, interruptions and discontinuations of commercialisation of medicines for human and veterinary use on PharmaStatus.[3] Marketing authorisation holders are obliged to notify the FAGG – AFMPS about temporary unavailability of medicine. Expected shortages need to be notified not less than two months prior and six months prior for reimbursed medicines in case of a definitive stop of the commercialisation. The minimum duration of shortage requiring notification is three working days. On the PharmaStatus notification website, shortage notifications are classified by their impact on patients. A given shortage notification for a given Anatomical Therapeutic Chemical (ATC) or active substance does not necessarily constitute a shortage that impacts patients, as this depends on the availability of appropriate alternatives in sufficient quantities, and the nature and seriousness of the condition being treated. The lists of medicines are updated daily based on reports from marketing authorisation holders or parallel distributors. The electronic alerts on medicine shortages are fed directly into the electronic prescribing system to alert prescribers at the time of prescribing.
Primary data source	FAGG – AFMPS
Technical definitions	Notifications of temporarily unavailable packs of medicines for human use are summarized as "shortage notifications" in the text. Temporarily unavailable packs of medicine concern packs that are notified as unavailable for no more than one year (otherwise it is considered as an interruption of commercialisation). One notification is defined by the combination of brand/strength/form/pack size. Thus, a temporary unavailability affecting different pack sizes for the same combination of brand/strength/form will lead to separate notifications. Temporarily unavailable packs of medicines with a critical impact concern packs of medicines for which no solution is available (no alternative, no import possible, etc.): • Critical unavailability or impact: concerns packs of medicines without solutions and for which the duration of unavailability is more than one month. Besides critical impact, the FAGG – AFMPS also identified the following impact: • Under evaluation: The evaluation of the impact of the supply problem is ongoing. • Short-term unavailability: concerns packs of medicines for which the duration of unavailability is less than one month. This should not be a problem as there is enough stock in circulation (i.e. at the wholesaler or pharmacy).

[ww] The Falsified Medicines Directive (Directive 2011/62/EU), in application since 02/01/2013, introduces harmonised European measures to fight medicine falsifications and ensure that medicines are safe and that the trade in medicines is rigorously controlled. Measures include: obligatory safety features – a unique identifier and an anti-tampering device - on the outer packaging of medicines, a common, EU-wide logo to identify legal online pharmacies, tougher rules on import of active pharmaceutical ingredients, and strengthened record-keeping requirements for wholesale distributors.

	• At least three alternatives available: availability of at least three alternatives that simultaneously meet the following criteria: the same active ingredient; the same desired dose; the same route of administration; the same pharmaceutical form for certain medicines (same pharmacological characteristics, e.g. extended or modified release). • Non-vital unavailable drug: medicine that is not essential for life. • One or two alternatives available: availability of one or two alternatives that simultaneously meet the following criteria: the same active ingredient; the same desired dose; the same route of administration; the same pharmaceutical form for certain medicines (same pharmacological characteristics, e.g. extended or modified release). • Adaptation of the treatment possible: alternative with a different active ingredient, magistral preparation or route of administration is possible. • Derogation approved, but batches not yet available (import possible by the company, medicinal product soon available): the company involved has received a derogation to import certain batches of the medicinal product. The imported medicinal product will soon be available. • Derogation improved and batches available (import possible by the company): the company involved has been granted a derogation to import certain batches of the medicinal product. The imported medicinal product is available from the pharmacist and under the same reimbursement conditions. • Import possible by the pharmacist: if there is no equivalent medicine or medicine to treat the same indication available (and marketed) in Belgium, the pharmacist may import a medicine on the basis of a medical prescription and a doctor's certificate. Data on therapeutic code were missing for 56 notifications between 2015 and 2022. Thus, these notifications were excluded from analyses by therapeutic area.
Limitations	An increase in the number of shortage notifications does not necessarily indicate an increase in the unavailability situations themselves, but an increase in the reports of unavailability.[3] Indeed, the FAGG – AFMPS is raising awareness among marketing authorisation holders and parallel distributors of the importance of reporting unavailability, and the Law of 20 December 2019 clarified and tightened the reporting requirement. Since April 2021, pharmacists and wholesaler-distributors can make a notification of a suspected shortage for a medicinal product that is notified as "available (again)" or if the end date of the unavailability is exceeded. This is also a possible reason for an increase in the reports of unavailability since April 2021. The correctness of the list of temporary unavailable medicines is dependent on the readiness of pharmaceutical companies to share the relevant information and to do this in due time. This indicator is based on the unavailable packs and not on the unavailable medicines. Moreover, the results are based on absolute data, and do not take into account the number of authorised medicines marketed overall and in each therapeutic class. Consequently, results may over- or underestimate the issue of medicine shortages in some therapeutic classes, because some therapeutic classes may have more or less marketed medicines in them than in other classes. Information on the impact of medicine shortage on patients was provided more systematically starting in November 2019, thus results by impact were only analysed for the years 2020 to 2022. As information in the PharmaStatus website was available until 31/06/2022, results for the year 2022 are not directly comparable to results for years 2020 and 2021. Data on the number of commercialised packs of medicines for human use did not include packs with an interruption of commercialisation, which should also be counted as commercialised packs.

International comparability	International data on the number of shortage notifications with a critical impact (principal indicator) were not available. The OECD compares data on shortage of medicines across 14 OECD countries, using all notifications of actual or expected shortages with an actual (or anticipated) start date between 1 January 2017 and 31 December 2019.[1] Comparability of data between countries is affected by the different classification of "units" of a shortage notification and timing of notification across countries. Some countries, such as Belgium, Iceland and Canada, report shortages at a very detailed level (pack-size) while others report shortages by brand/strength/form or brand/form. The different classifications used may artificially inflate differences across countries since the same shortage information could lead to one or several notifications. Furthermore, the number of shortage notification may reflect differences in reporting enforcement (e.g. application of sanctions, voluntary reporting) and type of medicines for which notifications are published (e.g. only important/essential medicines).
Performance dimensions	Sustainability, Accessibility
Related indicators	
Reviewer	Sophie Bruneel, Lara Wellens and Ann Van Den Broucke (FAGG – AFMPS)

11.2.2 Results

Belgium

Figure 200 illustrates that the number of notifications of temporarily unavailable packs of medicines for human use, hereafter referred to as 'shortage notifications' increased over time from 621 in 2015 to 3 044 in 2022, reflecting the strengthening and increased monitoring of medicine shortages over time. The average duration of a shortage notification decreased over time from 123 days in 2015 to 51 days in 2022. In the period 2015-2022, approximately 40% of all notifications were concentrated in two main therapeutic areas: the nervous system (ATC group N) and the cardiovascular system (ATC group C, see Table 151 and Figure 201). More precisely, 25% of notifications were related to medicines targeting the nervous system, 16% for the cardiovascular system and 10% for the alimentary tract and metabolism in 2022 (see Table 151). Between 2015 and 2019, the main reasons for the unavailability of packs of medicines were: delay in the release of the end product and production problems, accounting for 63% and 23% of notifications on average, respectively (see Table 152 and Figure 202). Since 2020, the main reasons are delay in production (47% in 2022), increased demand (19% in 2022) and other mixed reasons (19% in 2022).

Regarding the impact of shortages on patients, 37% of notifications in 2022 were for medicine pack sizes with at least three alternatives available, 30% of notifications were for pack sizes with short-term unavailability and 10% of notifications were for pack sizes for which it was possible to adapt the treatment (see Figure 203, Table 153). Only 1% of notifications in 2022 were for pack sizes with critical impact.

Figure 200 – Total number and average duration of shortage notifications in 2015-2022

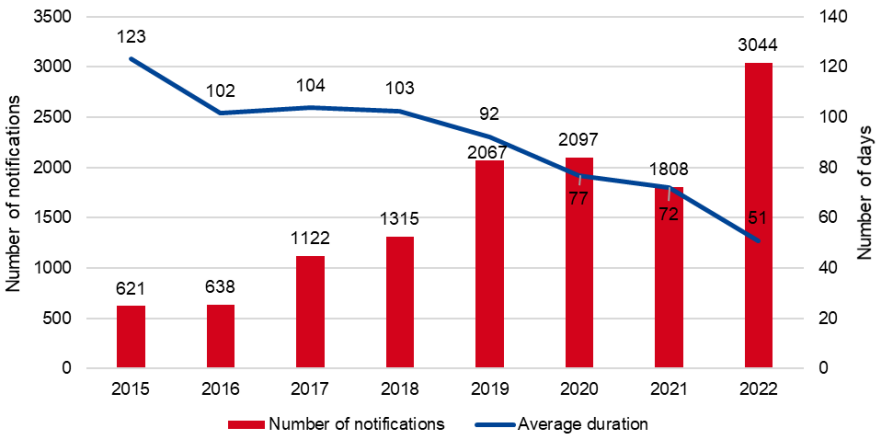
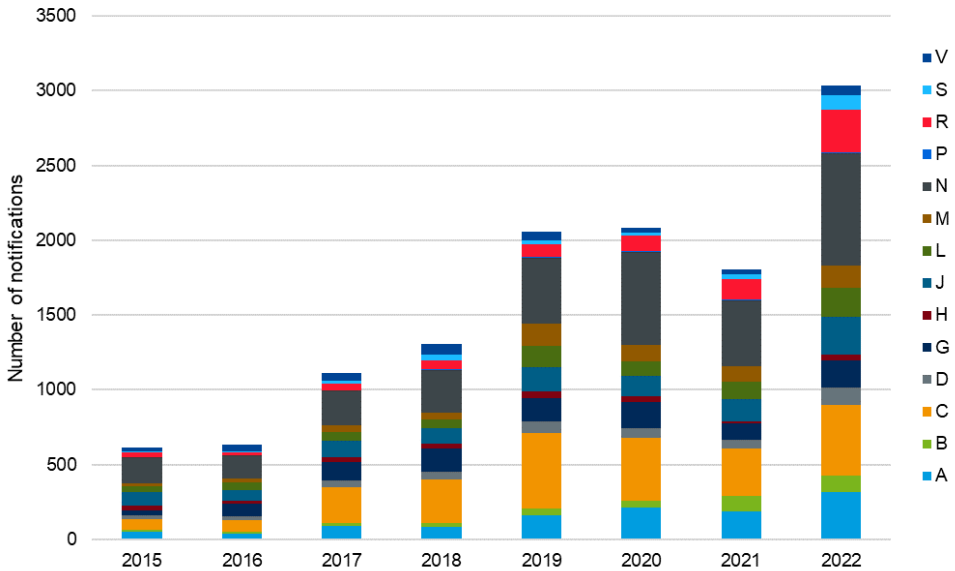


Figure 201 – Number of shortage notifications by therapeutic area (ATC level-1 code)



Note: A: Alimentary tract and metabolism; B: Blood and blood forming organs; C: Cardiovascular system; D: Dermatologicals; G: Genito urinary system and sex hormones; H: Systemic hormonal preparations, excl. sex hormones and insulins; J: Antiinfectives for systemic use; L: Antineoplastic and immunomodulating agents; M: Musculo-skeletal system; N: Nervous system; P: Antiparasitic products, insecticides and repellents; R: Respiratory system; S: Sensory organs; V: Various.

Table 151 – Number and share of shortage notifications by therapeutic area in 2015-2022

Year		A Alimentary tract and metabolism	B Blood and blood forming organs	C Cardiovascular system	D Dermatologicals	G Genito urinary system and sex hormones	H Systemic hormonal preparations, excl. sex hormones and	J Antiinfectives for systemic use	L Antineoplastic and immunomodulating agents	M Musculo-skeletal system	N Nervous system	P Antiparasitic products, insecticides and	R Respiratory system	S Sensory organs	V Various
2015 (n=617)	Number	49	19	66	31	29	35	87	40	22	171	1	32	7	28
	Share	8%	3%	11%	5%	5%	6%	14%	6%	4%	28%	0%	5%	1%	5%
2016 (n=634)	Number	36	16	80	22	84	23	70	52	25	153	4	16	8	45
	Share	6%	3%	13%	3%	13%	4%	11%	8%	4%	24%	1%	3%	1%	7%
2017 (n=1113)	Number	89	22	236	47	123	31	112	61	44	229	3	48	15	53
	Share	8%	2%	21%	4%	11%	3%	10%	5%	4%	21%	0%	4%	1%	5%
2018 (n=1307)	Number	86	22	293	51	157	31	102	61	48	284	3	61	34	74
	Share	7%	2%	22%	4%	12%	2%	8%	5%	4%	22%	0%	5%	3%	6%
2019 (n=2059)	Number	164	46	505	73	160	39	166	143	150	438	7	85	26	57
	Share	8%	2%	25%	4%	8%	2%	8%	7%	7%	21%	0%	4%	1%	3%
2020 (n=2086)	Number	211	49	419	63	178	35	140	99	107	621	4	104	20	36
	Share	10%	2%	20%	3%	9%	2%	7%	5%	5%	30%	0%	5%	1%	2%
2021 (n=1803)	Number	188	104	316	59	108	16	150	117	100	442	7	135	28	33
	Share	10%	6%	18%	3%	6%	1%	8%	6%	6%	25%	0%	7%	2%	2%
2022 (n=3037)	Number	318	108	471	121	181	38	251	196	148	747	9	284	96	69
	Share	10%	4%	16%	4%	6%	1%	8%	6%	5%	25%	0%	9%	3%	2%

Figure 202 – Number of shortage notifications by supply problem reason

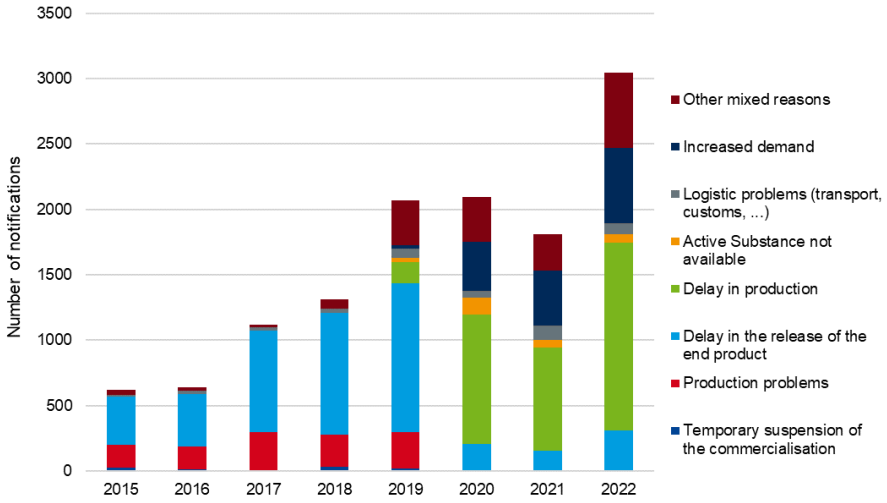


Figure 203 – Number of shortage notifications by supply problem impact (2020-2021)

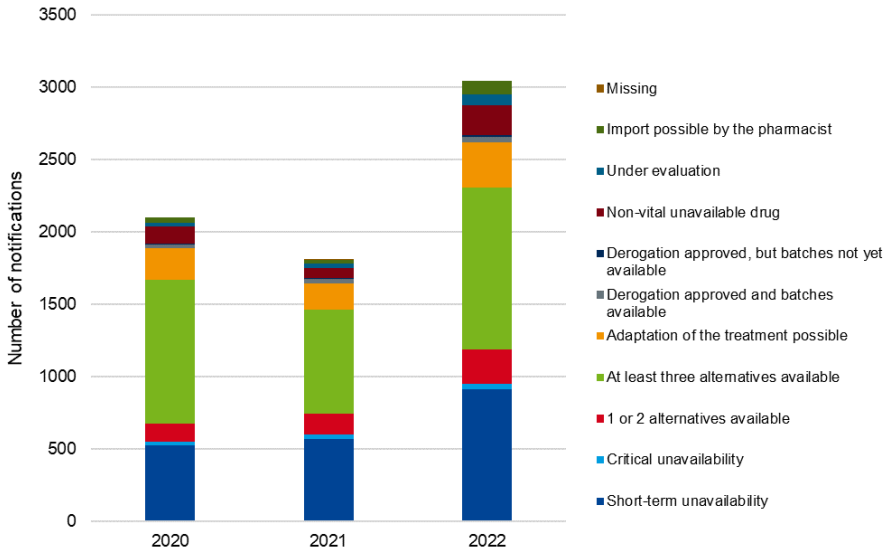


Table 152 – Number and share of shortage notifications by supply problem reason in 2015-2022

Year		Temporary suspension of the commercialisation	Production problems[1]	Delay in the release of the end product	Delay in production	Active substance not available	Logistic problems	Increased demand	Other mixed reasons[2]
2015	Number	28	176	364	0	0	17	0	36
(n=621)	Share (%)	5	28	59	0	0	3	0	6
2016	Number	11	180	398	0	0	25	0	24
(n=638)	Share (%)	2	28	62	0	0	4	0	4
2017	Number	10	291	774	0	0	23	0	24
(n=1 122)	Share (%)	1	26	69	0	0	2	0	2
2018	Number	30	247	931	0	0	31	0	76
(n=1 315)	Share (%)	2	19	71	0	0	2	0	6
2019	Number	19	281	1139	161	33	71	24	339
(n=1 315)	Share (%)	1	14	55	8	2	3	1	16
2020	Number	0	0	208	991	125	54	374	345
(n=2 067)	Share (%)	0	0	10	47	6	3	18	16
2021	Number	0	0	157	789	54	113	417	278
(n=2 097)	Share (%)	0	0	9	44	3	6	23	15
2022	Number	0	0	308	1439	66	81	578	572
(n=3 044)	Share (%)	0	0	10	47	2	3	19	19

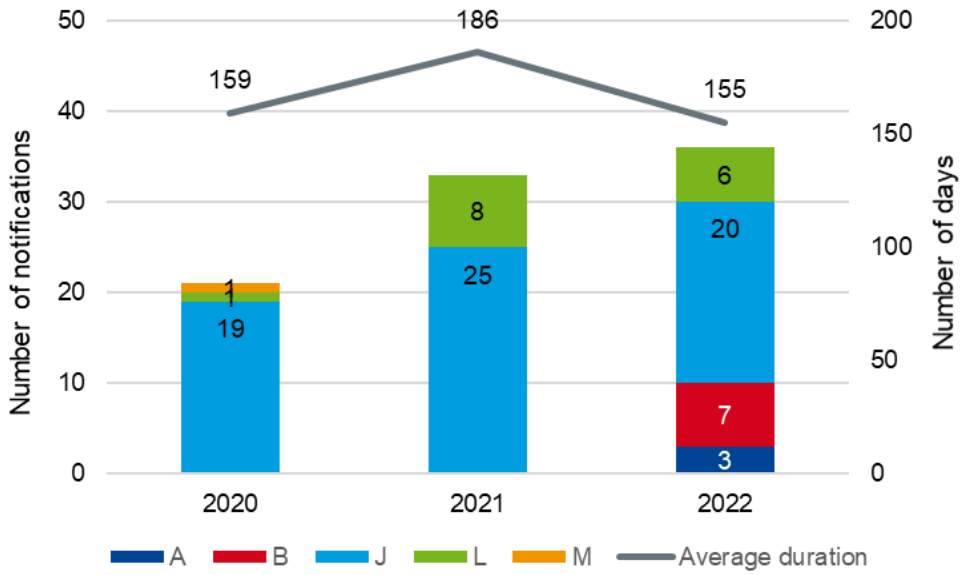
[1] This supply problem reason was removed after the launch of PharmaStatus at the end of 2019.
[2] Other mixed reasons include: excipient not available, recall, packaging problems, patent, Falsified Medicines Directive - Serialisation, patent protection, Brexit, application ongoing for import and export license, force majeure, other reason and reason unknown.

Table 153 – Number and share of shortage notifications by supply problem impact in 2020-2022

Year		Short-term unavailability	Critical unavailability	1 or 2 alternatives available	At least three alternatives available	Adaptation of the treatment possible	Derogation approved and batches available	Derogation approved, but batches not yet available	Non-vital unavailable drug	Under evaluation	Import possible by the pharmacist	Missing
2020 (n=2 097)	Number	526	21	123	999	216	27	5	122	25	33	0
	Share (%)	25	1	6	48	10	1	0	6	1	2	0
2021 (n=1 808)	Number	567	33	141	718	186	31	4	69	31	27	1
	Share (%)	31	2	8	40	10	2	0	4	2	1	0
2022 (n=3 044)	Number	911	36	240	1116	315	40	13	206	75	92	0
	Share (%)	30	1	8	37	10	1	0	7	2	3	0

When focusing on notifications with a critical impact on patients, i.e. critical unavailability, we observe that the number of notifications increased from 21 to 36 for those with critical impact (see Figure 204). The average duration for notifications with critical impact increased from 159 days in 2020 to 186 days in 2021, to return to 155 days in 2022. In 2022, 56% of notifications for pack sizes with critical impact were for immunoglobulins (ATC group J: antiinfectives for systemic use), 19% for enzymes (ATC group B: blood and blood forming organs), 17% for antineoplastic and immunomodulating agents (ATC group L) and 8% for glucagon-like peptide-1 (GLP-1) analogues (ATC group A; see Table 154).

Figure 204 – Total number and average duration of shortage notifications with critical impact and by therapeutic area (ATC level-1 code) in 2020-2022



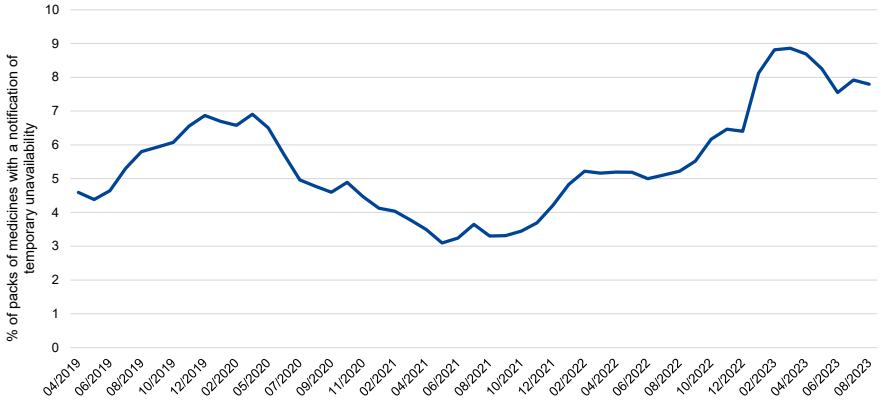
Note: only data for years 2020-2022 were presented as information on the supply problem impact was only systematically reported since November 2019.

Table 154 – Number and share of shortage notifications with critical impact by therapeutic area in 2020-2022

Year		Alimentary tract and metabolism	Blood and blood forming organs	Antiinfectives for systemic use					Antineoplastic and immunomodulating agents			Musculo-skeletal system
		A10BJ	B01AD	J01CA	J06BA	J07AL	J07BB	J07BM	L01DC	L03AX	L04AC	M03AC
		Glucagon-like peptide-1 (GLP-1) analogues	Enzymes	Penicillins with extended spectrum	Immunoglobulins	Pneumococcal vaccines	Influenza vaccines	Papillomavirus vaccines	Other cytotoxic antibiotics	Other immunostimulants	Interleukin inhibitors	Other quaternary ammonium compounds
2020 (n=21)	Number	0	0	0	15	0	2	0	0	1	0	1
	Share	0%	0%	0%	71%	0%	10%	0%	0%	5%	0%	5%
2021 (n=33)	Number	0	0	0	25	0	0	0	1	0	7	0
	Share	0%	0%	0%	76%	0%	0%	0%	3%	0%	21%	0%
2022 (n=36)	Number	3	7	0	20	0	0	0	2	1	3	0
	Share	8%	19%	0%	56%	0%	0%	0%	6%	3%	8%	0%

The monthly share of packs of medicines for human use with a notification of temporary unavailability increased between June 2019 (4.6%) and March 2020 (5.7%), and increased again starting in June 2021 (see Figure 205). In August 2023, reports of temporarily unavailable packs of medicines for human use represented, on average, 7.8% of the total number of packs for human use placed on the market in Belgium.

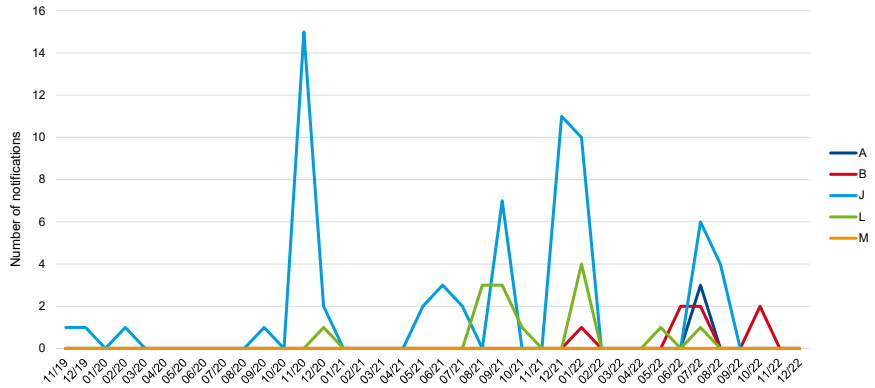
Figure 205 – Monthly share of packs of medicines for human use with a notification of temporary unavailability in 2019-2023



Impact of the COVID-19 pandemic

Since October 2020, shortages of immunoglobulins, more precisely subcutaneous immunoglobulins (SCIgs), have been reported in Belgium (see Figure 206). The shortages affected several products, including Gammanorm®, Gamunex®, Hizentra®, Iqymune® and Octagam®. The main reasons for this are the reduced collection of plasma around the world, the ever increasing need for immunoglobulins, and the dependence on plasma from other countries.[5] The COVID-19 crisis affected the plasma collection, especially in the USA which is the main exporting country. The additional need for plasma to treat COVID-19 patients (convalescent plasma, hyperimmune globulins derived from convalescent plasma and polyvalent intravenous immunoglobulins) put extra pressure on an already strained system.[6]

Figure 206 – Number of shortage notifications with critical impact by therapeutic area (ATC level-1 code) between November 2019 and December 2022



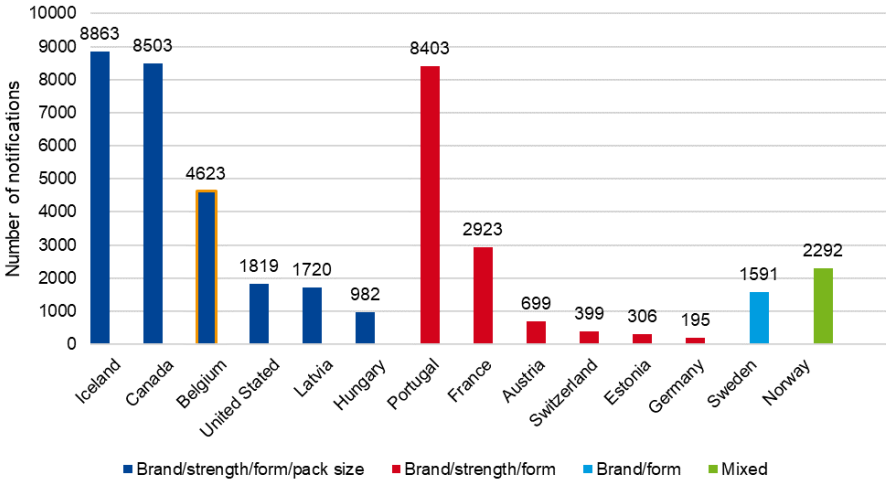
International

In 2017-2019, the number of notifications per country ranged from 195 in Germany to 8 863 in Iceland, with Belgium reporting the fourth highest number of notifications (n=4 623) among 14 OECD countries (see Figure 207). results should nevertheless be interpreted with caution and the large variations across countries reflect both differences in notification practices and in the occurrence of shortages at national level (see the documentation sheet).

Although the distribution of shortage notifications by therapeutic area was not uniform across countries, in the majority of countries, including Belgium, medicines targeting the nervous system and the cardiovascular system were the most frequently subject to shortage notifications (each accounting for approximately 20% on average, see Table 155).

Furthermore, internationally, no information was available on the impact of medicine shortages on patients. Consequently, it was not possible to identify shortages that substantially impacted patients, such as those with critical unavailability in Belgium.

Figure 207 – Total number of notifications in 14 OECD countries (2017-2019)



Note: the difference between the total number of notifications in Belgium reported in this report (n=4 590 in 2017-2019) and the one reported by the OECD (n=4 623) is likely to be due to an updated version of the data being used in this report.
Source: OECD Health Working Paper No. 137.[1]

Table 155 – Share (%) of shortage notifications by therapeutic area in 14 OECD countries (2017-2019)

Country	N Nervous system	C Cardiovascular system	J Antiinfectives for systemic use	A Alimentary tract and metabolism	L Antineoplastic and immunomodulating agents	G Genito urinary system and sex hormones	M Musculo-skeletal system	B Blood and blood forming organs	V Various drug classes	R Respiratory system	D Dermatologicals	H Systemic hormonal preparations, excl. sex hormones and insulins	S Sensory organs	X Missing/unknown ATC codes	P Antiparasitic products, insecticides and repellents
Austria	15	21	14	9	7	9	5	4	1	4	5	2	2	3	0
Belgium	21	23	8	8	6	10	5	2	4	4	4	2	2	0	0
Canada	28	25	8	9	5	6	4	3	2	2	4	2	2	1	0
Estonia	18	21	10	8	12	8	6	3	0	3	5	4	2	0	0
France	19	20	15	7	10	3	4	9	2	2	1	4	3	1	1
Germany	24	34	10	7	6	2	3	4	1	1	1	8	1	0	0
Hungary	13	12	7	7	7	4	4	10	27	3	2	2	1	1	0
Iceland	27	10	10	9	7	5	4	5	3	7	5	3	4	0	1
Latvia	20	19	10	10	8	6	6	4	2	6	4	2	4	0	0
Norway	20	14	11	12	6	7	6	4	2	6	5	3	2	1	0
Portugal	27	25	8	7	5	6	6	3	2	3	2	1	1	3	0
Sweden	24	9	9	9	7	10	5	6	2	5	5	3	5	0	1
Switzerland	11	7	50	2	20	0	1	4	4	0	0	1	1	0	0
United States	34	19	6	12	4	3	5	3	5	2	3	1	2	0	1

Note: Therapeutic areas are based on Anatomical Therapeutic Chemical (ATC) level-1 codes, ordered left to right according to the distribution across OECD countries.
Source: OECD Health Working Paper No. 137.

Key points

- **The number of notifications of temporarily unavailable packs of medicines for human use (i.e. shortage notifications) increased from 621 in 2015 to 3 044 in 2022, which likely reflects improved monitoring of medicine shortages over time. The average duration of a notification decreased from 123 days in 2015 to 51 days in 2022.**
- **In 2022, 37% of shortage notifications were for medicines with at least three alternatives available, 30% were for medicines with short-term unavailability and only 1% for medicines with critical impact.**
- **Between 2020 and 2022, there was an increase in the number of notifications with critical impact (from 21 to 36). The average duration of notifications with critical impact was 155 days in 2022.**
- **In 2022, immunoglobulins accounted for 56% of notifications for medicines with critical impact.**
- **Although the total number of shortage notifications varied greatly across OECD countries in 2015-2017, medicines targeting the nervous system and the cardiovascular system accounted for the largest share of notifications in most countries, including Belgium. However, the comparison of data across OECD countries should be done with caution due to differences in reporting practices.**

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5. FAMHP. Limited availability of subcutaneous immunoglobulins [Web page].Brussels;2021 [cited 20/06/2023]. Available from: https://www.famhp.be/en/news/limited_availability_of_subcutaneous_immunoglobulins

6. Hartmann J, Klein HG. Supply and demand for plasma-derived medicinal products - A critical reassessment amid the COVID-19 pandemic. Transfusion. 2020;60(11):2748-52.

11.3 Curative care bed-days (number per capita) (S-11)

11.3.1 Documentation sheet

Description	Number of days spent in curative (acute care) beds in acute care hospitals (number per capita)
Calculation	Numerator: total number of days of inpatient stays spent in curative care (acute care) beds Denominator: total Belgian population
Rationale	In Belgium, since 1982, the number of licensed beds for all general hospitals is freeze. The creation of a new bed should therefore necessarily be accompanied by the closure of another. A monitoring of the hospital activity is therefore needed because an increase in the activity would lead to pressure. To monitor the hospital activity, the number of acute care bed days per capita (S-11) was selected. The number of curative care bed-days per capita can also be seen as a proxy to give an idea about the population's need for acute care beds (whether this need is met = sustainability), and thus about the needed infrastructure (see nevertheless the limitations). This indicator combines results from two other indicators: number of hospital admission per capita, and average length of hospitalisation.
Data source	RHM-MZG (FPS Health, Food Chain Safety and Environment)
Technical definitions	Data cover bed-days in general hospitals (hereafter mentioned as acute care bed days because only stays shorter than 90 days are included in the calculations). Data from psychiatric or specialised hospitals are excluded. Day hospitalizations, stays of newborn or stays of 90 days and more are not counted. **OECD definition**: bed indices included in the data are: • (B) treatment department "TBC" (does not exist in Belgium anymore since 2018), (C) diagnosis and surgical treatment department, (D) diagnosis and medical treatment department, (E) paediatrics, (CD) mixed hospitalisation, (L) contagious diseases, (M) maternity, (NIC) intensive neonatal care, (G) geriatrics in acute hospitals; • Data also include psychiatric care beds in general hospital: (A) neuropsychiatry for observation and treatment, (A2) night care in neuropsychiatry, (K) infant neuropsychiatry, (K2) night care in infant neuropsychiatry, (TG) day and night care for geriatric patients needing neuropsychiatry treatment, (IB) intensive treatment of psychiatric patients, (T) neuropsychiatry for treatment, (T2) night care in neuropsychiatry for treatment **Data per region:** Concerning the data per region, the repartition is done according to region of the hospital for the numerator and the region of the population for the denominator. It should also be noted that for Belgian data per region, data presented here are based on the actual length of stays while in OECD data (for the international comparison), data are based on invoiced length of stay. To make the distinction between both sources they are hereafter mentioned as acute care bed-days (RHM-MZG) and curative care bed-days (OECD) respectively.
Limitations	The link between this indicator and the needed infrastructure to meet the population needs is not straightforward. Even if we need enough beds to meet population needs, there is a risk of supply driven demand if there are too many beds. Also medical practice, technology influence the number of bed days as they allow to decrease length of stay. Moreover, incentives are given in Belgium to reduce the length of stay.

	Nevertheless, this indicator is monitored as an increase in the number of curative care bed-days could threat the sustainability of the system. It should also be noted that a decline could be an indicator of better efficiency (e.g. if due to the reduction in the length of stays).
International comparability	The OECD definition is adopted (curative care bed-days). Several countries included in the OECD comparison use different methodologies to calculate the number of curative care bed-days (e.g. including or not geriatric beds, specialised hospitals…). Comparison is therefore potentially biased.[1]
Dimensions	Sustainability (also link with efficiency)
Related indicators	Average length-of-stay after normal delivery; Surgical Day Case Rates; Hospitals with occupancy rate for COVID 19 patients in ICU licensed beds above 60%)
Reviewers	Nathalie Terryn and Nicolas Bouckaert

11.3.2 Results

Belgium

In 2021, there were 10.6 million days spent in acute care hospitals (excluding day hospitalizations, see Table 156). Per capita, this represents 0.92 acute care bed-days (see Table 156). An average decrease of 9.3% per year is observed during the 2010-2019 period while an important decrease is observed between 2019 and 2020, i.e. -14.9%.

Regional comparison

Flanders and Wallonia have the lowest numbers of acute care bed-days per capita (0.87 and 0.88 acute care bed-days per capita, respectively), while Brussels counts 1.30 acute care bed-days per capita (see Table 156 and Figure 208). The higher number in Brussels remained during the entire studied period (2010-2021) and can be explained by the fact that a lot of people living in the provinces around Brussels are hospitalised in Brussels (also explaining the lower numbers in the Walloon Brabant and the Flemish Brabant). By grouping these two provinces with Brussels, the number of acute care bed-days per capita is similar to other provinces (0.85).

A lower number of bed-days per capita is also observed in the province of Luxembourg, which could also be explained by the fact that some people in this province are hospitalised in its border country (Luxembourg). Without cross-border cooperation, the infrastructure in this province could be insufficient (See Table 157 and Figure 209).

Table 156– Acute care bed-days per capita, Belgium and hospital region, evolution 2010-2021

Year	Belgium			Flanders			Wallonia			Brussels		
	Acute care bed-days	Population (mid-year)	Acute care bed-days per capita	Acute care bed-days	Population (mid-year)	Acute care bed-days per capita	Acute care bed-days	Population (mid-year)	Acute care bed-days per capita	Acute care bed-days	Population (mid-year)	Acute care bed-days per capita
2010	12 470 704	10 895 586	1.14	6 964 787	6 279 311	1.11	3 781 350	3 511 962	1.08	1 724 567	1 104 313	1.56
2011	12 440 453	10 993 607	1.13	6 912 294	6 328 702	1.09	3 793 733	3 535 935	1.07	1 734 426	1 128 971	1.54
2012	12 399 874	11 067 751	1.12	6 902 706	6 366 312	1.08	3 777 409	3 554 695	1.06	1 719 759	1 146 745	1.50
2013	12 269 875	11 125 035	1.10	6 837 721	6 396 282	1.07	3 760 686	3 569 693	1.05	1 671 468	1 159 061	1.44
2014	12 466 977	11 179 780	1.12	6 773 216	6 427 416	1.05	3 866 292	3 583 035	1.08	1 827 469	1 169 330	1.56
2015	12 366 383	11 238 477	1.10	6 736 360	6 460 966	1.04	3 746 348	3 595 980	1.04	1 861 290	1 181 532	1.58
2016	12 343 998	11 294 999	1.09	6 731 840	6 496 908	1.04	3 784 523	3 608 345	1.05	1 850 020	1 189 747	1.55
2017	12 190 485	11 349 079	1.07	6 610 874	6 534 489	1.01	3 742 774	3 619 425	1.03	1 836 837	1 195 165	1.54
2018	12 184 394	11 403 738	1.07	6 591 471	6 571 018	1.00	3 749 800	3 629 086	1.03	1 843 123	1 203 634	1.53
2019	12 054 530	11 462 024	1.05	6 524 935	6 609 106	0.99	3 696 793	3 639 519	1.02	1 832 802	1 213 399	1.51
2020	10 300 121	11 506 940	0.90	5 650 998	6 641 103	0.85	3 108 324	3 646 725	0.85	1 540 799	1 219 113	1.26
2021	10 595 565	11 552 623	0.92	5 787 830	6 675 969	0.87	3 223 024	3 655 351	0.88	1 584 711	1 221 304	1.30

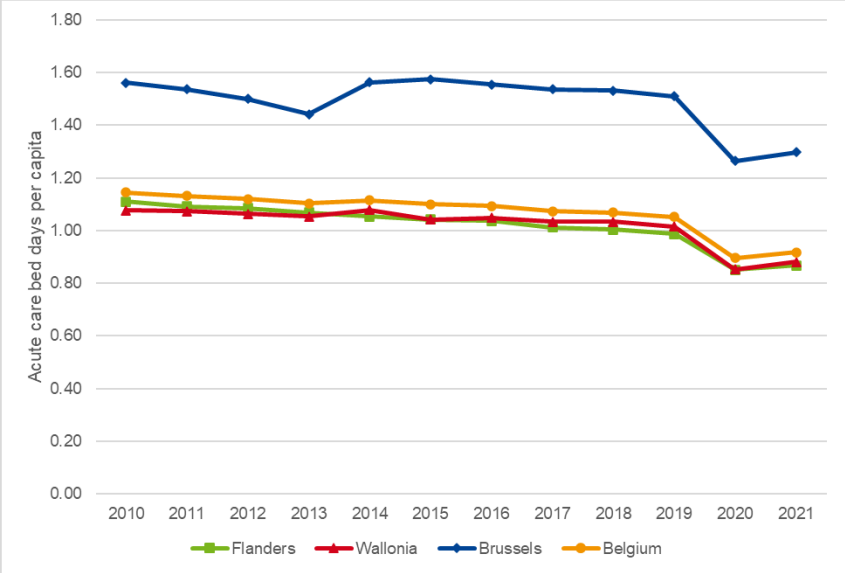
Source: RHM – MZG, based on the accurate length of stays

Table 157 – Acute care bed-days per capita, per hospital province, 2021

Region - Provinces	Acute care bed-days	Population (mid-year)	Acute care bed-days per capita
Antwerp	1 615 957	1 881 067	0.86
Flemish Brabant	660 088	1 167 762	0.57
West Flanders	1 368 948	1 206 162	1.13
East Flanders	1 486 750	1 537 805	0.97
Limburg	656 087	883 174	0.74
Walloon Brabant	139 661	408 590	0.34
Hainaut	1 338 953	1 348 537	0.99
Liège	1 113 581	1 110 028	1.00
Luxembourg	188 837	289 933	0.65
Namur	441 992	498 264	0.89
Brussels	1 584 711	1 221 304	1.30

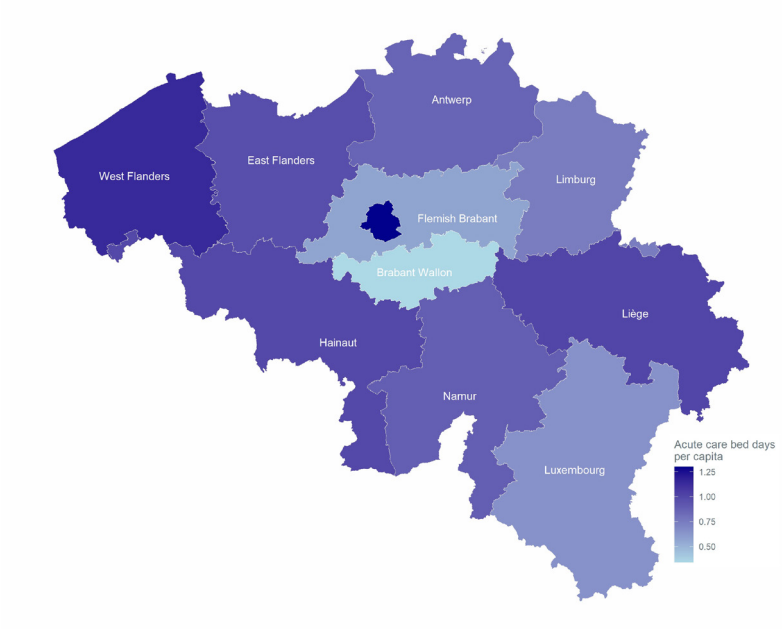
source RHM-MZG, based on the accurate length of stays

Figure 208 – Acute care bed-days per capita, Belgium and per hospital region (2010-2021)



Source: RHM – MZG, based on the accurate length of stays

Figure 209 – Acute care bed-days per capita, per hospital province (2021)



Source: RHM – MZG, based on the accurate length of stay

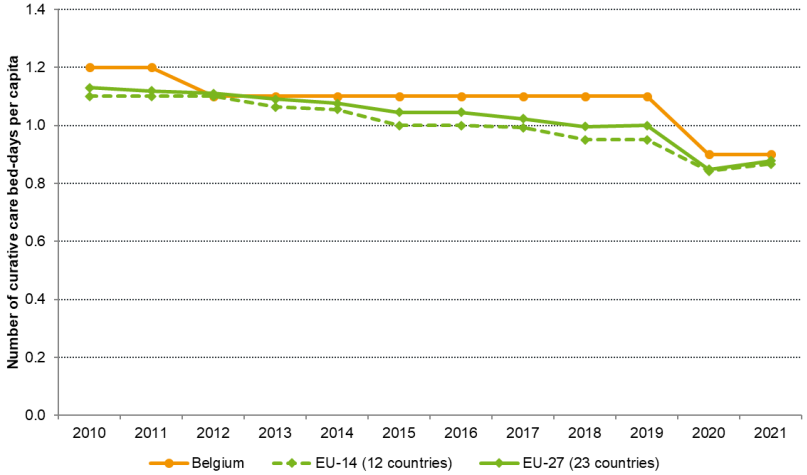
International comparison

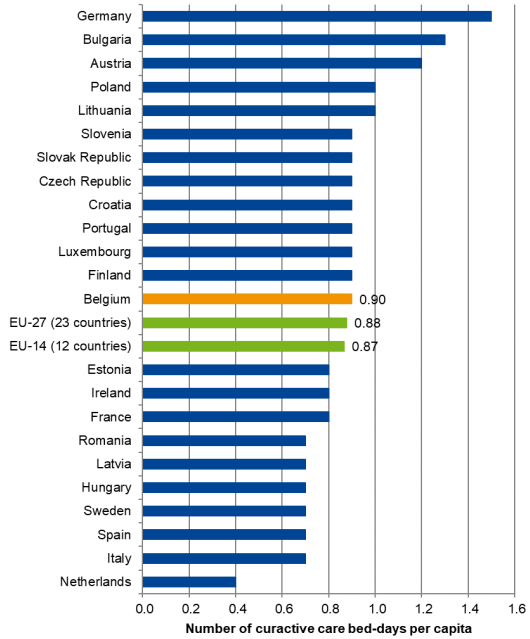
Based on the invoiced length of stays, the number of curative care bed-days in Belgium decreased by 8.3% between 2011 and 2012, was then stable up to 2019, then decreased again by 18.2% between 2019 and 2020. Compared to other European countries, Belgian was slightly above the EU-averages (both EU-14 and EU-27) between 2010 and 2019 but reached similar levels in 2021 (0.90 vs 0.88 and 0.87 respectively). The number per capita in Belgium is nevertheless twice as high as in the Netherlands. Curative care bed-days per capita in 2021 ranged from 0.8 in the Netherlands to 1.5 in Germany (see Figure 210).

Impact of COVID-19 pandemic

The decrease between 2019 and 2020 was higher in Belgium (-18.2%) than the EU-14 (-11.4%) and EU-27 (-15.2%) averages. Such a decrease is explained by the fact that during the COVID-19 pandemic, the postponement of care had a considerable impact on hospital activity in 2020 in Belgium (the number of stays decreased by 16% in general hospitals in 2020 compared to 2019.[2] The overall hospital bed infrastructure capacity was therefore not threatened during the COVID-19 pandemic (see nevertheless R-6 for beds in intensive care units).

Figure 210 – Curative care bed-days per capita: international comparison (2010-2021)





Source: OECD Health statistics 2021.

Key points

- **The number of curative care bed-days per capita is monitored as an increase could threaten the sustainability of the system.**
- **The number of days spent in acute care beds in Belgium decreased from 1.1 per capita in 2010 to 0.9 per capita in 2021.**
- **The number of bed-days per capita is lower in Flanders and Wallonia than in Brussels (with 0.87, 0.88, and 1.30 acute care bed days per capita, respectively in 2021), which is explained by the fact the people living in provinces around Brussels are hospitalised in Brussels. The same phenomena is observed in the province of Luxembourg and its neighbouring country. Without croos-border cooperation, the infrastructure in the province of Luxembourg could therefore become unsufficient.**
- **In 2021, Belgian has a similar number of curative care bed-days per capita than the EU-14 and EU-27 averages (around 0.9 per capita) but is more than twice as higher as in the Netherlands (0.4).**
- **A decrease was observed between 2019 and 2020 in Belgium (-18.2%) and this decrease was higher than the EU-14 (-11.4%) and EU-27 (-15.2%) averages. This was due to the diminution of the hospital activity during the COVID-19 pandemic (postponement of care). The overall hospital bed infrastructure capacity was therefore not threatened during the COVID-19 pandemic (see nevertheless R-6 for beds in intensive care units).**

Reference

1. OECD. Health at a Glance 2017: OECD Indicators. Paris: 2017. Available from: http://dx.doi.org/10.1787/health_glance-2017-en

2. FPS Public Health. For a healthy Belgium, Key data in healthcare, COVID 19, Care activity, Impact of the pandemic on hospital stays in general and psychiatric hospitals in 2020 [Web page].Brussels: FPS Health, Food chain safety and Environment;2023. Available from: https://www.healthybelgium.be/en/key-data-in-healthcare/covid-19/care-activity/impact-of-the-pandemic-on-hospital-stays-in-general-and-psychiatric-hospitals-in-2020#_ftn1

12 SUSTAINABILITY – GOVERNANCE

12.1 People satisfied with the healthcare system (% of respondents, Gallup World Poll) (S-29)

12.1.1 Documentation sheet

Description	Percentage of the population that is satisfied with the healthcare system
Calculation	Numerator: Number of individuals who are satisfied with the healthcare system Denominator: Number of individuals who responded to the survey
Rationale	Citizen satisfaction with the healthcare system can be used to measure the health system's responsiveness to population needs and accountability to the public who uses them. It also measures how well the healthcare system lives up to expectations and offers possibilities for the population, communities and civil society to influence health decision making processes. Indeed, social participation is a key function of health system governance. As citizens are stakeholders in healthcare systems, their opinions are important in shaping health policies and providing feedback for reforms or health programs. Citizen satisfaction has political and strategic value to health system decision makers, as it brings legitimacy to policies and the policy-making process. High citizen satisfaction with specific services such as health care is associated with higher trust in public institutions, which represents an important element for the effective functioning of democratic governments.[1] Citizen satisfaction with the healthcare system was also found to be positively associated with perceived fairness and equity.[1] It is important to note that citizen satisfaction is different from patient satisfaction, which is measured at the healthcare provider level.
Primary data source	Gallup World Poll via OECD Statistics
Technical definitions	The Gallup World Poll is based on a nationally representative sample of 1 000 citizens (aged 15 years and above) in Belgium. Data on the level of satisfaction with healthcare refer to the percentage of people who answered "satisfied" to the question: "In the city or area where you live, are you satisfied or dissatisfied with the availability of quality health care?". Citizen satisfaction includes users and non-users of the healthcare system, it incorporates not only experiences based on service provision but also wider factors, such as ideological beliefs, political views, cultures and media influences.
Limitations	Data on citizen satisfaction with the healthcare system are not available on an annual basis and disaggregated data by sex, age and region in Belgium were not available. Thus, citizen satisfaction with the healthcare system at the national level might not reflect satisfaction at the regional level. The answer options in the Gallup World Poll were limited to "satisfied" and "dissatisfied", preventing from measuring more granular levels of satisfaction.
International comparability	The Gallup World Poll measures citizen satisfaction with the healthcare system across the world. Although there are many contextual and cultural factors that can influence responses to opinion polls, the dataset allows citizens' perceptions to be compared over time and across multiple countries. Satisfaction can measure different things in each health system, as countries may have different expectations and perceptions may be influenced by factors such as national political debates, news media reporting and national cultures.[2] Data across countries are presented for three different years: 2007, 2010, 2014, 2017 and 2022. However, data were not all collected in the same year. In Austria, Finland, Ireland, Portugal, Slovak Republic and Slovenia, data are for the year 2006 rather than 2007. In Luxembourg, data are for 2008 rather than 2007. Data for Estonia are for 2011 instead of 2010. In Hungary, data are for 2013 rather than 2014. Data for Luxembourg are for 2019

	instead of 2021. Data for Austria, Denmark, France, Germany, Ireland, Italy, Latvia, Lithuania, Slovak Republic, and Spain are for 2021 instead of 2022.
Performance dimensions	Sustainability
Related indicators	
Reviewer	Kira Koch (WHO)

12.1.2 Results

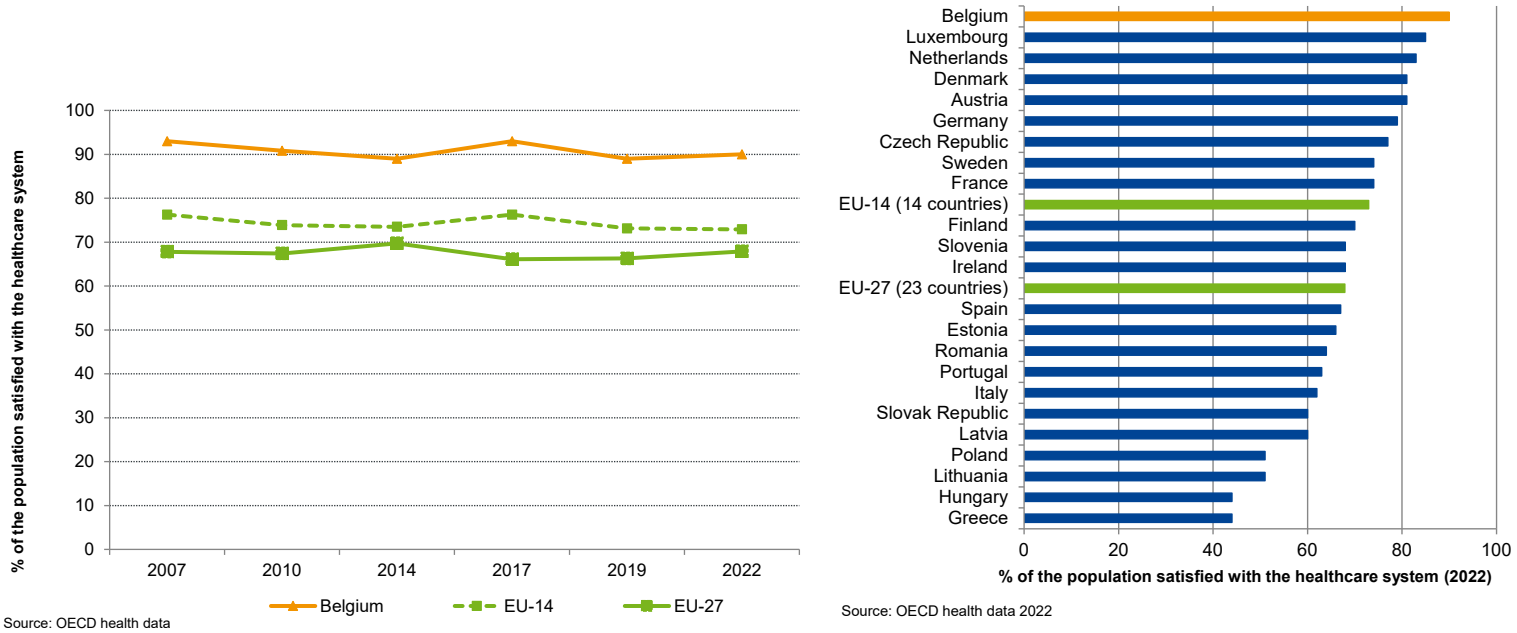
Between 2007 and 2022, approximately 90% of Belgian population reported being satisfied with the healthcare system and the percentage remained higher than the EU-14 and EU-27 averages over time (see Table 158 and Figure 211). In 2022, Belgium was the EU-27 country with the highest percentage (90%) of the population that is satisfied with the healthcare system, considerably higher than the EU-14 (73%) and EU-27 (68%) averages.

Table 158 – People satisfied with the healthcare system (% of respondents)

	2007	2010	2014	2017	2019	2022
Belgium	93	91	89	93	89	90
EU-14	76	74	74	76	73	73
EU-27	69	67	70	66	66	68

Note: The EU-27 average includes 21 countries in 2007, 22 countries in 2010, 21 countries in 2014, and 23 countries in 2017, 2019 and 2022.

Figure 211 – People satisfied with the healthcare system (% of respondents; 2007-2022): international comparison



Note: The EU-27 average includes 21 countries in 2007, 22 countries in 2010, 21 countries in 2014, and 23 countries in 2017, 2019 and 2022.

Key points

- **In 2022, 90% of the Belgian population was satisfied with the healthcare system, which was the highest level among EU-27 countries.**

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2. Papanicolas I, Cylus J, Smith PC. An Analysis Of Survey Data From Eleven Countries Finds That 'Satisfaction' With Health System Performance Means Many Things. Health Affairs. 2013;32(4):734-42.

12.2 Trust in the healthcare system, scored on a 1-10 scale (S-30)

12.2.1 Documentation sheet

Description	Mean level of trust in the healthcare system
Calculation	Mean level of trust in the healthcare system on a scale of 1-10, with 1 “Do not trust at all” and 10 “Trust completely”.
Rationale	Trust in the healthcare system is related to system responsiveness and accountability and agency, which are outcomes of good governance. Trust is important for a performant health system because it supports the cooperation of different actors in the system and across sectors that is required to improve health.[1] At an institutional level, the population’s trust in healthcare providers and decision makers may influence health-seeking behaviors, in turn affecting accessibility and utilisation of services.[2] Low levels of public trust are not only a risk for health system legitimacy, but can also harm population health. Evidence has shown that trust in the healthcare system is associated with better health-related outcomes, such as health-related quality of life, patient satisfaction, and therapy compliance.[3] The COVID-19 pandemic emphasized the importance of trust, as discordant and conflicting information made the public health response more difficult. Support and compliance with measures to control and prevent the spread of COVID-19 were highly dependent on trust in the healthcare system.[4] In addition, populations, communities, and civil society were largely left out during governments’ COVID-19 responses; yet, inclusive dialogue initiatives are crucial to building trust and policy adherence.[5]
Primary data source	Living, working and COVID-19 e-survey (Eurofound)
Technical definitions	Individuals aged 18 years and over participated in the online survey. Respondents had to answer on a scale of 1-10 to the question “how much you personally trust each of the following institutions: The healthcare system”, with 1 labelled as “Do not trust at all” and 10 as “Trust completely”.
Limitations	Data on trust in the healthcare system were only available at three points in time during the COVID-19 pandemic, namely in April/May 2020, June/July 2020 and February/March 2021. Trust levels in the healthcare system may not be representative of levels before the pandemic nor of current trust levels. The sample of participants who participated in the e-survey might not be nationally representative as snowballing and advertisements on social media were used to recruit respondents. Data were only available at the national level, which might not reflect variations in trust in the healthcare system at the regional level or across different population groups.
International comparability	The “Living, working and COVID-19” e-survey collected data in the 27 EU countries. While the EU-27 average level of trust in the healthcare system is weighted, the EU-14 average is unweighted. In Cyprus, Latvia, Luxembourg and Malta, data for the period June/July 2020 have low reliability. In Luxembourg, data for the period February/March 2021 have low reliability.
Performance dimensions	Sustainability
Related indicators	Perceived likelihood that government would be prepared for the next pandemic (R-13)
Reviewer	Kira Koch (WHO)

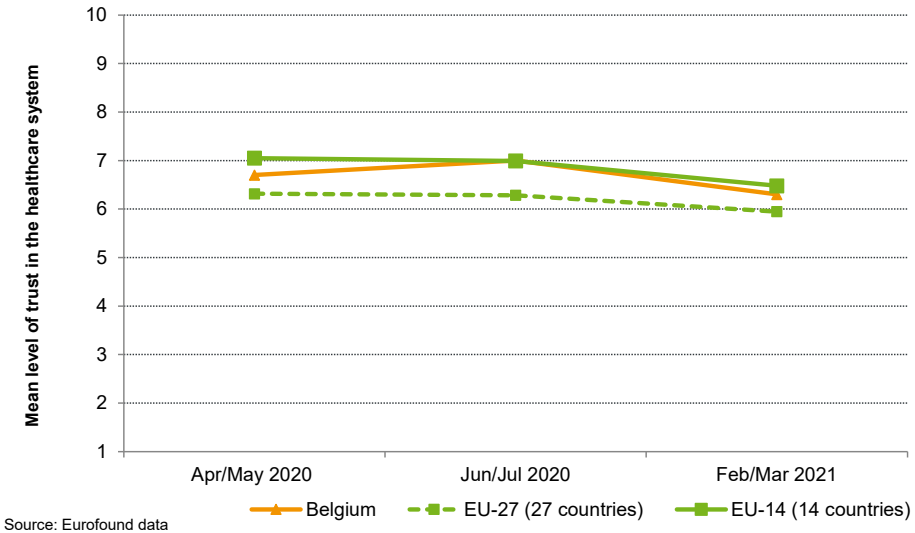
12.2.2 Results

In Belgium, the mean level of trust in the healthcare system was 6.7 in April/May 2020, 7.0 in June/July 2020 and decreased to 6.3 in February/March 2021 (see Table 159 and Figure 212). The mean level of trust in the healthcare system in Belgium was lower than the EU-14 average in April/May 2020 (7.1) and February/March 2021 (6.5) and equal to the EU-14 average in June/July 2020 (7.0). Nevertheless, the mean level of trust in the healthcare system in Belgium was higher than the EU-27 average during the three time points. The EU-27 and EU-14 average levels also decreased between April/May 2020 and February/March 2021.

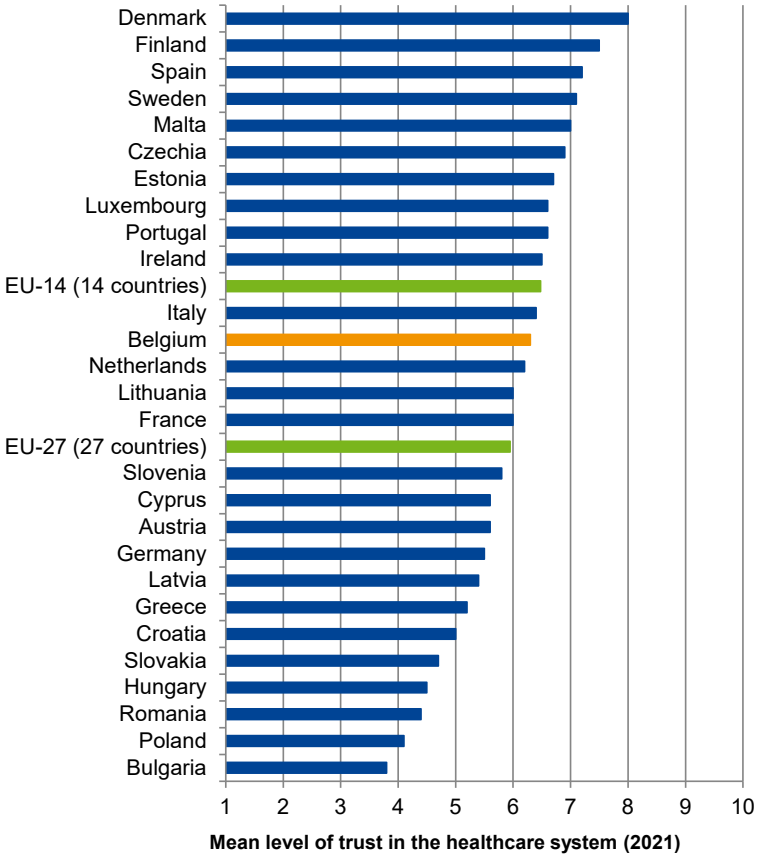
Table 159 - Mean level of trust in the healthcare system (2020-2021)

	April/May 2020	June/July 2020	February/March 2021
Belgium	6.7	7.0	6.3
EU-14 (14 countries)	7.1	7.0	6.5
EU-27 (27 countries)	6.3	6.3	5.9

Figure 212 – Mean level of trust in the healthcare system (2020-2021): international comparison



Source: Eurofound data



Source: Eurofound data 2021

Key points

- **The mean level of trust in the healthcare system in Belgium increased from 6.7 to 7.0 between April/May 2020 and June/July 2020 and then decreased to 6.3 in February/March 2021.**
- **The mean level of trust in Belgium was lower than or equal to the EU-14 average level between June/July 2020 and February/March 2021 but it remained higher than the EU-27 average levels.**

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12.3 Patient having a formal participation role in health policy (composite score on 1-3 scale) (S-31)

12.3.1 Documentation sheet

Description	Patients' formal participation role in health policy (e.g. decision-making bodies or processes)
Calculation	This indicator used a composite measure based on responses to five questions, assessing whether patients have a formal role in: (1) licensing of pharmaceuticals, (2) coverage or reimbursement, (3) health technology assessment, (4) decisions related to service planning, and (5) definition of public health objectives. Countries are scored on a 1-3 scale depending on the number of areas in which patients have a formal role: countries with a formal role in none or one area were assigned a score of one, countries with formal roles in two or three areas were assigned a score of two, and countries with four or five areas were assigned a score of three.
Rationale	The indicator on patients' formal participation role in health policy captures the institutionalisation of patient voices in decision-making processes across different areas of the health system.[1]. The ability of people using the health system to make decisions and influence the care they receive is essential to a people-centred health system and to hold the government accountable. Citizens' participation in health policy requires governments to pro-actively engage with a wide range of population groups and stakeholders through institutionalised mechanisms. The extent to which patient voices are institutionalised in macro decision-making processes across different health system areas reflects the importance given to users of the health system in designing the system.
Data source	OECD Health Systems Characteristics Survey 2012, 2016 and 2023.
Technical definitions	This indicator assesses whether patients have a formal role in: (1) licensing of pharmaceuticals, (2) coverage or reimbursement, (3) health technology assessment, (4) decisions related to service planning, and (5) definition of public health objectives.
International comparability	Several EU countries (but not all) have responded to the OECD Health Systems Characteristics Survey.
Limitations	This indicator is based on self-reported key informant data. The type and mix of key informants providing information varied over time.
Dimension	Sustainability
Related indicators	
Reviewers	Gaetan Lafortune (OECD)

12.3.2 Results

In 2023, Belgian citizens or patient organisations are involved in three areas of health policy making: coverage or reimbursement, health technology assessment and definitions of public health objectives (i.e. score of 2). The score remained stable across the different survey years (2012 and 2016; Table 160). However, in the previous surveys, citizens or patient organisations were only involved in two areas of health policy making: coverage or reimbursement and the definitions of public health objectives. Belgium's scores remained similar to the EU-14 and EU-27 average scores over time (2023: 1.8 and 1.7, respectively; Table 161).

Table 160 – Patients' formal participation role in health policy (composite score on 1-3 scale)

	2012	2016	2023
Belgium	2	2	2
EU-14	1.8	1.9	1.8
EU-27	1.7	1.8	1.7

Table 161 – Patients' formal participation role in health policy in 2023: international comparison

Austria	
Belgium	
Bulgaria	
Czech Republic	
Estonia	
Finland	
France	
Germany	
Hungary	
Ireland	
Latvia	
Lithuania	
Luxembourg	
Netherlands	
Poland	
Slovak Republik	
Slovenia	
Spain	
Sweden	
EU-14 (10 countries)	**1.8**
EU-27 (19 countries)	**1.7**

Score of 3
Score of 2
Score of 1

Key points

- **In 2023, Belgium scores two (scale 1-3) for patients' formal participation role in health policy. Citizens or patient organisations are involved in three areas of health policy making: coverage or reimbursement, health technology assessment and definitions of public health objectives.**
- **Belgium's scores remained similar to the EU-14 and EU-27 average scores over the past decade.**

References

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12.4 Availability of data to monitor health-related Sustainable Development Goals (SDGs) (%) (S-32)

12.4.1 Documentation sheet

Description	**Primary indicators** • Percentage of relevant health-related SDGs for which data are available between 2013 and 2017 **Secondary indicators** • Capacity to Survey population and health risks • Capacity to Count births, deaths and causes of death • Capacity to Optimise health service data • Capacity to Review progress and performance • Capacity to Enable data use for policy and action
Calculation	**Primary indicator** • Numerator: Number of health-related SDGs for which data are available (in any year) • Denominator: Total number of relevant health-related SDGs indicators (in any year) **Secondary indicators** • Weighted sum of the elements under each SCORE intervention
Rationale	**SDGs** The indicator on the availability of data to monitor health-related Sustainable Development Goals (SDGs) is related to transparency, an outcome of good governance. Transparency is essential to maintain public trust in healthcare decision makers and providers.[1] The availability of data ultimately "allows scrutiny of public actors and their decisions" and in this way can help to mitigate risks of corruption.[2] It is important for countries to have health data easily accessible to facilitate the assessment of health interventions, health research and evidence-based policy making. Ideally, health data should be collected over time on a regular basis and be disaggregated by inequality dimensions such as sex, age, economic status, education, place of residence and other context specific population subgroups. There exist 59 health and health-related SDG indicators, including 27 indicators under the overarching health goal (i.e. SDG3: Ensure healthy lives and promote well-being for all at all ages) that countries need to consider and monitor in national health strategies and policies, and 32 health-related indicators that fall within other SDGs (e.g. SDGs related to water and sanitation or nutrition).[3] Some of the indicators are based on data sources outside of the health sector, such as civil registration and vital statistics systems (CRVS), satellite data, air-quality monitors for air pollution, and police data for suicide, homicide and road traffic mortality. Each country has the responsibility to monitor the progress made in implementing the SDGs and this requires high-quality, accessible and timely data collection and analysis to ensure that no one is excluded.

	SCORE In 2021, the WHO published the SCORE for Health Data Technical Package, which includes an instrument to evaluate a country's health information system according to five interventions represented by the acronym SCORE: Survey populations and health risks; Count births, deaths and causes of death; Optimise health service data; Review progress and performance; Enable data use for policy and action. Each intervention has a set of key elements, which is accompanied by a set of indicators. In total, there are 24 quantitative and qualitative indicators for assessing SCORE interventions at various levels.[3]
Primary data source	SCORE for Health Data Technical Package: Assessment Summary for Belgium (WHO)
Technical definitions	**Primary indicator** To assess the performance of health information system in countries, the SCORE package used 53 indicators from health-related SDGs and one tracer variable for Universal Health Coverage index (UHC). The availability of data for these 54 indicators was evaluated and used to calculate an index.[4] An indicator gets a score of 1 if data are available for this indicator for at least one year since 2013 in the country and a score of 0 if data are unavailable for all years. The total number of indicators depends on the number of indicators that are relevant in the country's context. In Belgium, indicators measuring: i) the incidence of malaria, ii) the population at risk sleeping under insecticide-treated nets for malaria prevention and iii) the total net official development assistance to medical research and basic health sectors per capita were removed as these were not relevant to the Belgian context.[5] **Secondary indicators** Each of the five interventions assessed by the SCORE is allocated a score 1-5, with 1 reflecting nascent capacity of the health information system and 5 representing sustainable capacity. The intervention score is a weighted mean of the element scores within the intervention. The allocation of weights to the elements are based on review by a set of experts and reflect the elements' relative importance to a country's ability to achieve high capacity for that intervention. Thus, elements considered critical are given higher weights. The element score is itself an average of the indicator scores (if more than one) within the element and each indicator is defined by a set of attributes or items. For simplicity, the final intervention score is rounded up to make an integer.[4] More details on the indicators and attributes used for each element, their scoring methodology and their data sources can be found in the "SCORE for Health Data Technical Package: Assessment Methodology, 2020".[4]
Limitations	These indicators only cover the availability of data between 2013 and 2017 and more recent data are not available. The information on data availability for health-related SDGs was self-reported. Information for secondary indicators should be interpreted with caution as data sources are not provided.
International comparability	Data for this indicator were available in 23 other EU countries. Data for France, Ireland, Sweden and Lithuania were not available. Reporting practices might vary by country. The total number of health-related SDGs indicators varies by country, as not all indicators are relevant in a given country's context.
Performance dimensions	Sustainability
Related indicators	
Reviewer	Kira Koch (WHO)

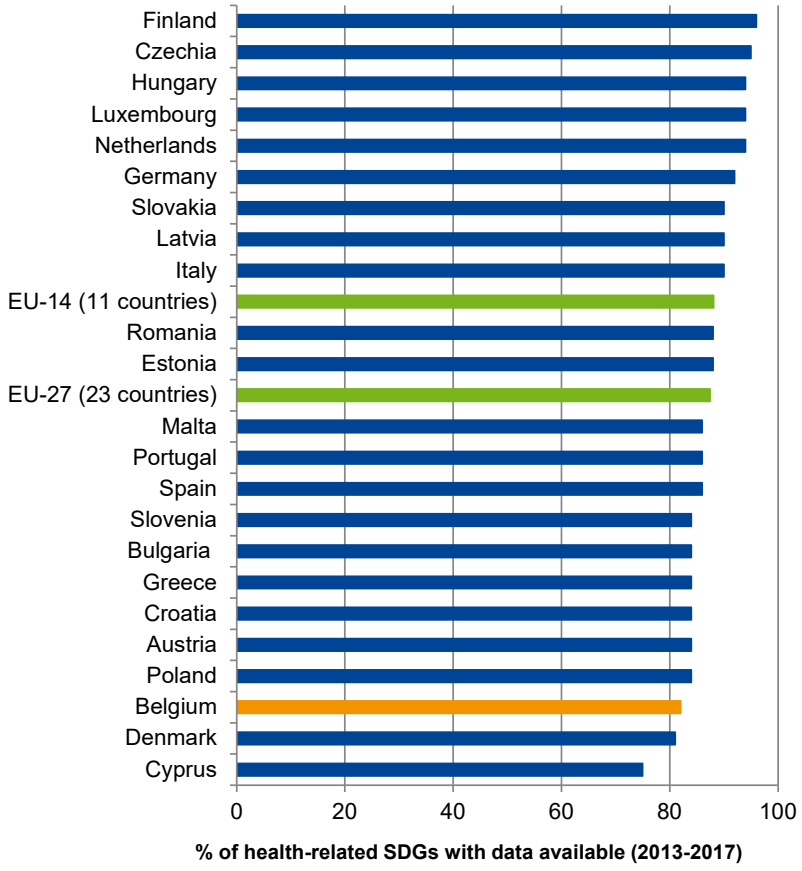
12.4.2 Results

Belgium had data available for 82% of health-related SDGs for at least one year between 2013 and 2017. This was lower than the EU-27 (87%) and EU-14 averages (88%; see Figure 213). Belgium did not have data available for the following indicators: the proportion of births attended by skilled health personnel, proportion of married or in-union women of reproductive age who have their need for family planning, proportion of the population with large household expenditure on health as a share of household total consumption or income (>10% or >25%), prevalence of stunting in children under five, prevalence of overweight children under five, prevalence of wasting in children under five and average death rate due to natural disasters (per 100 000 population).

Based on the WHO SCORE assessment, Belgium has limited capacity to survey population and health risks, which is mainly due to a nascent capacity for regularly surveying population health (see Table 162). More precisely, it was reported that Belgium conducted 0 surveys in the last 5 years. This is likely to be due to the time period when the SCORE assessment was conducted in Belgium, as the European Health Interview Survey, which includes Belgium, has a 5-year periodicity (6-year since 2019). Belgium's capacity to count births, deaths and causes of deaths was sustainable. The country achieved moderate capacity to optimise health service data, as the capacity for routine facility reporting system with patient monitoring was nascent. This was due to Belgium having annual statistics for selected indicators derived from facility data mostly available at the national level and rarely at subnational level or disaggregated by age and gender. The capacity to review progress and performance was well-developed. The intervention "enabling data use for policy and action" scored moderate capacity because of a nascent capacity for using data and evidence to drive policies and planning, which is driven by missing data for this element. Belgium performed worse than the European region on three of the five SCORE interventions (i.e. Survey, Review, Enable). Belgium only scored better than Europe on three elements: "Regular analytical reviews of progress and performance, with equity" (intervention: Review), "Data access and sharing" (intervention: Enable), and "Strong country-led governance of data" (intervention: Enable).

Furthermore, Belgium participated in the 2019-2020 OECD survey of health data development,[6] which included a health dataset availability score and a health dataset governance score. The health dataset availability score (scale 0 to 8) is a composite indicator that incorporates eight measures including: timely data access that covers the national population across care settings and clinical registries; use of interoperable clinical data standards and identifiers that enable linking across datasets; use of linked data for primary and secondary health purposes.[7] Belgium had a score of 4.42 (out of 8) for this indicator, which showed low agreement with the policies, regulations and practices that foster the development, use, accessibility and sharing of key national health datasets for research and statistical purposes. The health dataset governance score (scale 0 to 15) is a composite indicator that incorporates 15 measures including: training and operational controls for privacy and security, processes for data-sharing arrangements, and data catalogues and their contents.[7] Belgium had a score of 11.86 (out of 15) for this indicator, indicating high agreement with the health data governance policies and practices that were measured.

Figure 213 – Percentage of health-related SDGs with data available (2013-2017): international comparison



Source: WHO data 2013-2017

Table 162 – Performance scores for health information systems in Belgium and Europe (34 countries) in 2013-2017

	Belgium	European region
Survey population and health risks	Limited capacity	Well-developed capacity
System of regular population-based health surveys	Nascent capacity	Well-developed capacity
Surveillance of public health threats	Well-developed capacity	Sustainable capacity
Regular population census	Well-developed capacity	Sustainable capacity
Count births, deaths and causes of death	Sustainable capacity	Sustainable capacity
Full birth and death registration	Sustainable capacity	Sustainable capacity
Certification and reporting of causes of death	Sustainable capacity	Sustainable capacity
Optimize health service data	Moderate capacity	Well-developed capacity
Routine facility reporting system with patient monitoring	Nascent capacity	Well-developed capacity
Regular system to monitor service availability, quality and effectiveness	Well-developed capacity	Well-developed capacity
Health service resources: health finance data	Sustainable capacity	Sustainable capacity
Health service resources: health workforce data	Sustainable capacity	Sustainable capacity
Review progress and performance	Well-developed capacity	Sustainable capacity
Regular analytical reviews of progress and performance, with equity	Sustainable capacity	Well-developed capacity
Institutional capacity for analysis and learning	Moderate capacity	Well-developed capacity
Enable data use for policy and action	Moderate capacity	Well-developed capacity
Data and evidence drive policy and planning	Nascent capacity	Well-developed capacity
Data access and sharing	Sustainable capacity	Well-developed capacity
Strong country-led governance of data	Well-developed capacity	Moderate capacity

- Nascent capacity
- Limited capacity
- Moderate capacity
- Well-developed capacity
- Sustainable capacity

Key points

- **Belgium had data available for 82% of health-related SDGs for at least one year between 2013 and 2017, which was lower than the EU-27 and EU-14 averages.**
- **Based on the WHO SCORE assessment, Belgium has limited capacity to survey population and health risks, a sustainable capacity to count births, deaths and causes of deaths, a moderate capacity to optimise health service data, a well-developed capacity to review progress and performance and a moderate capacity to enable data use for policy and action.**

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