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Federaal Kenniscentrum voor de Gezondheidszorg
Centre Fédéral d'Expertise des Soins de Santé
Belgian Health Care Knowledge Centre

KCE REPORT 376C

PERFORMANCE OF THE BELGIAN HEALTH SYSTEM: REPORT 2024

KCE REPORT 376C
HEALTH SERVICES RESEARCH

Federaal Kenniscentrum voor de Gezondheidszorg
Centre Fédéral d'Expertise des Soins de Santé
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PERFORMANCE OF THE BELGIAN HEALTH SYSTEM: REPORT 2024

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2025 www.kce.fgov.be

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Acknowledgements: Koen Beullens (Audit Ziekenhuizen RIZIV – FOD Volksgezondheid – FAGG / Audit Hôpitaux INAMI – SPF Santé Publique – AFMPS), Robrecht De Schreye (Sciensano), Frederic Denauw (SPF Santé Publique – FOD Volksgezondheid), Tonio Di Zinno (AIM – Agence InterMutualiste), Dominique Dicker (SPF Santé Publique – FOD Volksgezondheid), Inge Franki (Sciensano), Régine Goemas (SPE – Studiecentrum voor Perinatale Epidemiologie), Iris Grant (IMA), Evelyne Moyse (SPF Santé Publique – FOD Volksgezondheid), Kristof Neven (SPF Santé Publique – FOD Volksgezondheid), Johan Peetermans (RIZIV – INAMI), Karen Raeymaekers (RIZIV – INAMI), Xavier Rygaert (IMA), Pascale Steinberg (SPF Santé Publique – FOD Volksgezondheid), Frédéric Swaelens (POD Maatschappelijke Integratie – SPP Intégration Sociale), Vicky Truwant (Statbel – Belgisch statistiekbureau), Montse Urbina (IMA), Xavier Van Aubel (RIZIV – INAMI), Marcel Van Der Auwera (SPF Santé Publique – FOD Volksgezondheid), Virginie Van Leeuw (CEpiP – Centre d'Epidemiologie Perinatale), Lien Van Opstal (RIZIV – INAMI), Tom Van Renterghem (SPF Santé Publique – FOD Volksgezondheid), Leen Verleye (KCE), Robin Willems (Statbel), Renate Zeevaert (KCE)

Reported interests KCE members: KCE is a federal institution funded by INAMI/RIZIV, by the Federal Public Service of Health, Food chain Safety and Environment, and by the Federal Public Service of Social Security. KCE's mission is to advise policymakers on decisions relating to health care and health insurance on the basis of scientific and objective research. It is expected to identify and shed light on the best possible solutions, in the context of an accessible, high-quality health care system with due regard for growing demand and budgetary constraints.

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Reported interests: All experts and stakeholders consulted within this report were selected because of their involvement in the topic of health system performance assessment. Therefore, by definition, each of them might have a certain degree of conflict of interest to the main topic of this report.

Layout: Joyce Grijseels, Ine Verhulst

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- **The external experts were consulted about a (preliminary) version of the scientific report. Their comments were discussed during meetings. They did not co-author the scientific report and did not necessarily agree with its content.**
- **Subsequently, a (final) version was submitted to the validators. The validation of the report results from a consensus or a voting process between the validators. The validators did not co-author the scientific report and did not necessarily all three agree with its content.**
- **Finally, this report has been approved by common assent by the Executive Board.**

- **Only the KCE is responsible for errors or omissions that could persist. The policy recommendations are also under the full responsibility of the KCE.**

Publication date:	21 October 2025 (3rd edition; 2nd print: 26 August 2024; 1 February 2024,)
Domain:	Health Services Research (HSR)
Project number:	2019-17-HSR
MeSH:	Delivery of Health Care, Health Services Accessibility, Quality of Health Care, Efficiency, Healthcare Disparities, Learning Health System, Benchmarking, Belgium
NLM Classification:	W84
Language:	English
Format:	Adobe® PDF™ (A4)
Legal depot:	D/2025/10.273/44
ISSN:	2466-6459

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https://doi.org/10.57598/R376C

How to refer to this document?

S Gerkens, M Lefèvre, N Bouckaert, M Levy, C Maertens de Noordhout, C Obyn, C Devos, A Scohy, A Vlayen, H Yaras, C Janssens, P Meeus. Performance of the Belgian health system: Report 2024. Health Services Research (HSR) Brussels: Belgian Health Care Knowledge Centre (KCE). 2025. KCE Reports 376C. D/2025/10.273/44.

This document is available on the website of the Belgian Health Care Knowledge Centre.

FOREWORD

When faced with a health problem, we all hope to benefit from high quality and affordable healthcare, provided by qualified staff who are available and have access to the appropriate infrastructure and state-of-the-art technology. We have a long list of expectations when it comes to these more difficult moments in our lives and obviously, we are very lucky, in Belgium, to be able to rely on a first-class healthcare system when we need it. A performant system. But is this performance uniform, avoiding shortcomings for certain groups of patients and pathologies? Is the system sufficiently responsive to disruptive events? How does it compare to other European countries? And how does it evolve over time? These are all questions that need to be asked. They provide the benchmarks we need for the actions to be taken and the dynamics to be generated. It's a process of introspection, analysis and monitoring of our healthcare system that we believe is fundamental to ensuring that the trajectory is controlled and that the expected quality standards are maintained at a high level.

Launched in 2007, the performance assessment of the Belgian healthcare system is no longer in its infancy. The proof is in the pudding: at the outset, around 50 indicators were defined to describe the state of the health system and provide a basis for monitoring it. Fifteen years later, more than 140 indicators are needed to give an accurate and relevant picture of the system. In our previous report devoted to the conceptual framework of the performance of the Belgian healthcare system, published last June, we explained how difficult it had been to limit ourselves to this seemingly large set of indicators, given the need to understand and monitor new concepts introduced into the system. Nonetheless, the desire to be exhaustive had to be tempered by the need to keep the analysis relevant, in order to provide the users of this series of reports with as correct a picture as possible. A picture that is increasingly refined, with richer and more varied perspectives and areas of interest.

As our health system continues to evolve to achieve its goals of multi-excellence, sometimes getting more complex in the process, the assessment of its performance must be rigorously comprehensive to make sure nothing escapes our vigilance. Only on this condition will the lessons to be learnt from the assessment of this report be worthy of our full confidence. Whether as a useful guide to the actions to be undertaken, a tool for monitoring current approaches or a source of inspiration for new dynamics, each of the selected indicators is intended to reflect one of the often multifactorial realities of our system. While the interpretation of these multiple signals will always require a very cautious and critical approach, some of the results nonetheless speak volumes and are highlighted in this report. Alongside the many green lights picked up by our analyses, you will find a number of warning signs in other colours, alerting us to some weakness in the system or to some aspect requiring closer monitoring. These include medical needs that remain unmet for financial reasons, lower levels of preventive care among vulnerable groups, and the ever-increasing use of antidepressants, to name but a few.

We know that these are valuable insights that will inform the strategies we need to set up in order to make our system even better. We invite you to explore this detailed picture in the pages of this report, which is structured along the dimensions it analyses.

Christophe JANSSENS
Deputy general director

Marijke EYSSEN
General director a.i.

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LIST OF ABBREVIATIONS

ABBREVIATION	DEFINITION
A	Accessibility
ACP	Advance care planning
AMI	Acute myocardial infarction
COPD	Chronic obstructive pulmonary disease
CT	Computed tomography
DDD	Defined daily dose
E	Efficiency
ECDC	European Centre for Disease Prevention and Control
eGMR	Electronic Global Medical Record
ENT	Ear-Nose-Throat
EOL	End-of-Life
EQ	Equity
ESMO	European Society for Medical Oncology
ER	Emergency Room
EU	European Union
EU-SILC	EU Statistics on Income and Living Conditions
FAGG – AFMPS	Federal Agency for Medicines and Health Products
FPS Public Health	Federal Public Service Public Health, Food Chain Safety and Environment
FTE	Full-Time Equivalent
GDP	Gross Domestic Product
GMR	Global Medical Record
GP	General Practitioner
HAH	Hospital at home

HbA1c	Glycated hemoglobin
HBS	Household Budget Survey
HIS	Health Interview Survey
HiT	Health Systems in Transition
HIV	Human Immunodeficiency Virus
HPV	Human Papillomavirus
HSPA	Health System Performance Assessment
HSPM	Health Systems and Policy Monitor Network
IMA – AIM	InterMutualistisch Agentschap – Agence InterMutualiste
IMC	Inter-ministerial conference
ICU	Intensive Care Unit
KCE	Belgian Health Care Knowledge Centre
MDT	Multidisciplinary team
MPG – RPM	Psychiatric hospital data
MRI	Magnetic Resonance Imaging
MRSA	Methicillin-Resistant Staphylococcus Aureus
MZG – RHM	Hospital discharge data
OECD	Organisation for Economic Co-operation and Development
OOP	Out-of-pocket payment
P4P	Pay-For-Performance
PAQS	Platform for Continuous Improvement in Quality of Care and Patient Safety
PaRIS	Patient-Reported Indicator Survey
PPP	Purchasing Power Parity
PREMs	Patient-Reported Experience Measures

PROMs	Patient-Reported Outcome Measures
QA	Quality – Appropriateness
QC	Quality – Continuity
QE	Quality – Effectiveness
QP	Quality – People-centredness
R	Resilience
RIZIV – INAMI	National Institute for Health and Disability Insurance
S	Sustainability
SDG	Sustainable Development Goal
SP	Specialist
TB	Tuberculosis
UHC	Universal Health Coverage
UPC	Usual provider continuity
VIKZ	Flemish Institute for quality of care (Vlaams Instituut voor Kwaliteit van Zorg)
WHO	World Health Organization

SCIENTIFIC REPORT

1 CONTEXT AND OBJECTIVES

1.1 Context

Health System Performance Assessment (HSPA) is a process aiming to assess the health system holistically, a 'health check' based on measurable indicators. HSPA is specifically mentioned in the Tallinn Charter[1] signed by all countries from the European region of the World Health Organization (WHO). This charter states that "health systems need to demonstrate good performance" and that member states must "promote transparency and be accountable for health system performance to achieve measurable results".[1] Each HSPA is developed along the lines of a conceptual framework that is country specific.

The strategic objectives of the Belgian HSPA are:

1. To inform the health authorities about the performance of the health system and to provide needed information for policy planning;
2. To provide a transparent and accountable view of the health system performance, in accordance with the commitment made in the Tallinn Charter;
3. To monitor the health system performance over time.

1.2 The Belgian HSPA in the policy process

Prerequisites to include HSPA into policymaking are listed in Box 1. The Belgian HSPA has a strong governance support and many connections with policy makers. While the assessment is carried out by an independent scientific group, an HSPA inter-administration working group has been created to monitor the project and to make the link between the independent scientific group and policy makers.

Box 1 – Prerequisites to include HSPA into policymaking

Existence of a strong commitment at high level
On 18 March 2008, following a recommendation from the Tallinn Charter, a commitment was formulated in the Belgian governmental agreement on public health: "The performance of our health system (including quality) is to be assessed on the basis of measurable objectives". This commitment – renewed by the following governments and supported by all heads of administrative bodies – was of great importance to put HSPA on the political agenda.

Involvement of all health administrations via an inter-administration working group
Belgian health authorities asked their health administrations to contribute to and give feedback on the HSPA report. An HSPA inter-administration working group was created to monitor the project. The ten administrations (federal and federated) related to health were involved in the process (see the colophon of this report).

Assessment by an independent scientific body
An independent scientific group, composed of researchers of the Belgian Health Care Knowledge Centre (KCE), Sciensano (at the time the Institute of Public Health), the National Institute for Health and Disability Insurance (RIZIV – INAMI), and, since the 2019 HSPA report, the Federal Public Service Public Health, Food Chain Safety and Environment (FPS Public Health), was put in charge of performing the assessment.

Importance to capture needs, possible barriers and resistance
At the time of the first evaluation study (2009),[2] a survey was conducted among stakeholders to gain insights about their expectations. They expressed the need for evaluation, accountability, and international comparison. Several barriers and risks were identified: lack of culture of evaluation, resistance, and complexity. Stakeholders especially feared that no follow-up HSPA report would be produced and that no health policy decision would be taken based on the results of the first report. Fourteen years later, five editions have been published and in each new report, the main policy makers' responses to the previous HSPA are highlighted.

Making the link between scientific bodies and policy makers
The inter-administration working group operates as a policy working group of the inter-ministerial conference (IMC) and reports to this conference. Its role is to fill the gap between scientific issues and policy issues to improve the health system, helping to translate evaluation into policy questions if needed. The role of the inter-administration working group has been crucial to ensure continuity and to encourage actions.

1.3 The Belgian HSPA framework

1.3.1 Historical background

The first Belgian HSPA conceptual framework, published in 2010,[2] was based on a combination of the Dutch and Canadian frameworks.[3, 4] These two frameworks were initially selected because they were complementary and when combined covered the range of *dimensions* deemed important by the consulted experts and stakeholders for assessing the performance of the Belgian health system. In addition, the combined framework was tailored to the Belgian health system context, by defining the scope of the framework as broad as possible (health system instead of healthcare system) and by adding a new dimension relevant to Belgian policy makers (the sustainability of the health system).

The resulting conceptual framework was subdivided in three interconnected tiers, i.e. (1) health status, (2) non-medical determinants of health and (3) health system performance, evaluated along dimensions and domains of care:

- **The dimensions** refer to the elements that are considered essential for a well-functioning and performant health system, i.e. accessibility, quality, etc.
- **The domains** refer to in-depth analyses of certain functions of the health system such as preventive care or of specific target populations such as older people.

To prevent information overload that may overshadow the main messages, it was also decided since the 2019 report:

- To split the information into several reports (i.e. a health status report including health determinants, a performance report, and a report on medical practice variations) rather than to publish only one single and voluminous report, allowing more in-depth information in each separate report; and
- To gather the key messages and results of each report in one single website (see Box 2), http://healthybelgium.be/, so that any citizen, being a policy maker, a public health researcher, a journalist, or anyone interested in the subject, can easily find key information and data to evaluate and better understand the Belgian health system. Information on the context and design of the Belgian health system were also added in the website (HiT profile[5] and Key Data in Healthcare).

It should also be noted that the different reports (see Box 2) are produced by different institutions, further justifying the publication of separate reports. Due to these subdivisions and to prevent confusion for the reader, a specific terminology is now used to either refer to the global population health framework or to the specific report on the performance of the health system (HSPA framework), which is a subpart thereof (see Box 3).

Box 2 – Interconnected reports available on the website healthybelgium.be

The following assessment reports are currently available on the website healthybelgium.be:

- **Health Status Report (HSR):** assessing the health status of the Belgian population. This report is produced by Sciensano.[6] This report also includes **non-medical determinants of health,** i.e. lifestyle indicators (tobacco use, alcohol use, weight status, physical activity, nutritional habits), health literacy, and environmental factors (air quality).
- **Performance report (HSPA):** assessing the performance of the Belgian health system and of health services delivery along several dimensions and care domains.[7] This report is produced by KCE, RIZIV – INAMI, FPS Public Health, and Sciensano;
- **Medical Practice Variations:** assessing 'unjustified' variations in healthcare. This report is linked to the sub-dimension 'appropriateness of care' of the performance report and is produced by RIZIV – INAMI.[8]

For a more comprehensive understanding of the context in which the Belgian health system operates, descriptive reports are also available:

- **Health Systems in Transition (HiT) profile:** describing the Belgian health system, its main drivers and its recent reforms. This report is produced by KCE and the European Observatory on Health Systems and Policies;[5]
- **Key Data in Healthcare:** presenting key data on some components of the health system (hospitals, mental healthcare, emergency care, etc.). These reports are produced by the FPS Public Health.[9]

In the future, the following project is also expected:

- **Health priorities and targets:** initiatives to define Belgian health and healthcare priorities and targets are currently in progress. Once they

will be determined and approved by the governments, indicators in the previously mentioned assessment reports (HSR, HSPA, medical practice variations) related to these priorities and targets will be flagged. This might also lead to new indicators being added to these assessment reports.

Box 3 – Terminology: Performance (HSPA) framework versus global population health framework

In several countries, HSPA reports contain not only information on the performance of health services delivery, but also information on the health status of the population and on non-medical determinants of health. In Belgium, assessments are subdivided over multiple reports. To prevent confusion for the reader, the following terminology is used:

- **The global population health framework:** refers to the three tiers of assessment: the health status of the population, the non-medical determinants of health, and the performance of the health system and of health services delivery.
- **The Performance (or HSPA) framework:** refers to the third tier of the global assessment, i.e. the performance of the health system and of health services delivery along several dimensions and domains of care.

1.3.2 The new Belgian HSPA framework

Because health systems have evolved since the first conceptual framework developed in 2010 and new concepts of performance measurements have emerged, a deep revision of the Belgian HSPA framework was done in 2023. For the interested readers, a description of the method used to develop this new framework can be found in the KCE report 370.[10]

The results of this revision are illustrated in Figure 1. The revision focused on the HSPA part while the three interconnected tiers of the global population health framework were maintained:

- The **health status** of the population (HSR report);
- **Non-medical determinants** of health (HSR report);
- **Health system performance** (HSPA report also called 'performance report').

The need to link these evaluation reports to **health and healthcare targets,** reflecting Belgian health priorities (under development, see Box 2) is also represented in the figure.

Health promotion goes beyond the health system (covering also interventions in the field of education, fiscal measures, road safety, etc.) and is therefore presented by a circle that overlaps the three tiers. In the performance report, health promotion and preventive care are covered very partially with a focus on preventive services delivered by the health system, such as vaccination (primary prevention) and screening (secondary prevention). To highlight the link between health promotion and preventive care, both are coloured in light blue in the figure.

Within the coloured part of the figure, which represents the performance of the health system and of health services delivery (third tier), the position of each element was determined according to the following reasoning:

- The performance of the health system is the core of the circle, in red, as the main focus; i.e. having a performant health system (intermediary objective) to improve the health status of the population (final objective);
- **Quality** is represented as the inner circle, as it mainly concerns process indicators related to health services delivery by health professionals or health institutions that are influenced by choices on structural elements (sustainability) and by resources distribution (accessibility). Quality is divided in five sub-dimensions: effectiveness of care, appropriateness of care, safety of care, continuity of care, and people-centred care;
- **Accessibility** is depicted in the middle circle, as it results from choices on resources distribution that are influenced by the structural elements of the health system. Accessibility is divided in three sub-dimensions: financial access, health workforce distribution, health services distribution;

- **Sustainability** is represented as the outside circle because it mainly concerns structural elements of the health system in support of other dimensions and covers five sub-dimensions: financial sustainability, health workforce capacity, health technologies and infrastructure, governance, and environmental sustainability. The later sub-dimension has not yet been developed (see the KCE report 370[10]).
- **Efficiency, equity, and resilience** are considered to be cross-cutting dimensions requiring transversal analyses.

A definition of all dimensions and sub-dimensions can be found at the beginning of their respective chapters (see Chapters 3 to 12).

As previously, some specific domains are also studied and are presented on the right-hand side of the circle (in the tag label). For the 2024 HSPA report, four domains were selected: **prevention, mental healthcare, care for older people, and end-of-life care**.

Design and contextual elements are also needed to better understand the Belgian health system and its performance. This descriptive information, which can be found in the HiT profile and in the section on key data in healthcare on the healthybelgium.be website, are represented by the grey background in the figure.

1.3.3 A framework in line with international HSPA initiatives

Having a common conceptual framework for all countries is not the ultimate goal to be achieved, as each health system operates in its own context. Each conceptual framework will depend among other things on the priorities of the country and the means available (e.g. the budget to produce the report) and must meet the specific needs of the targeted public (e.g. country's policymakers).

The Belgian HSPA framework therefore falls within national health(care) perspectives and priorities, but is also in line with international initiatives.

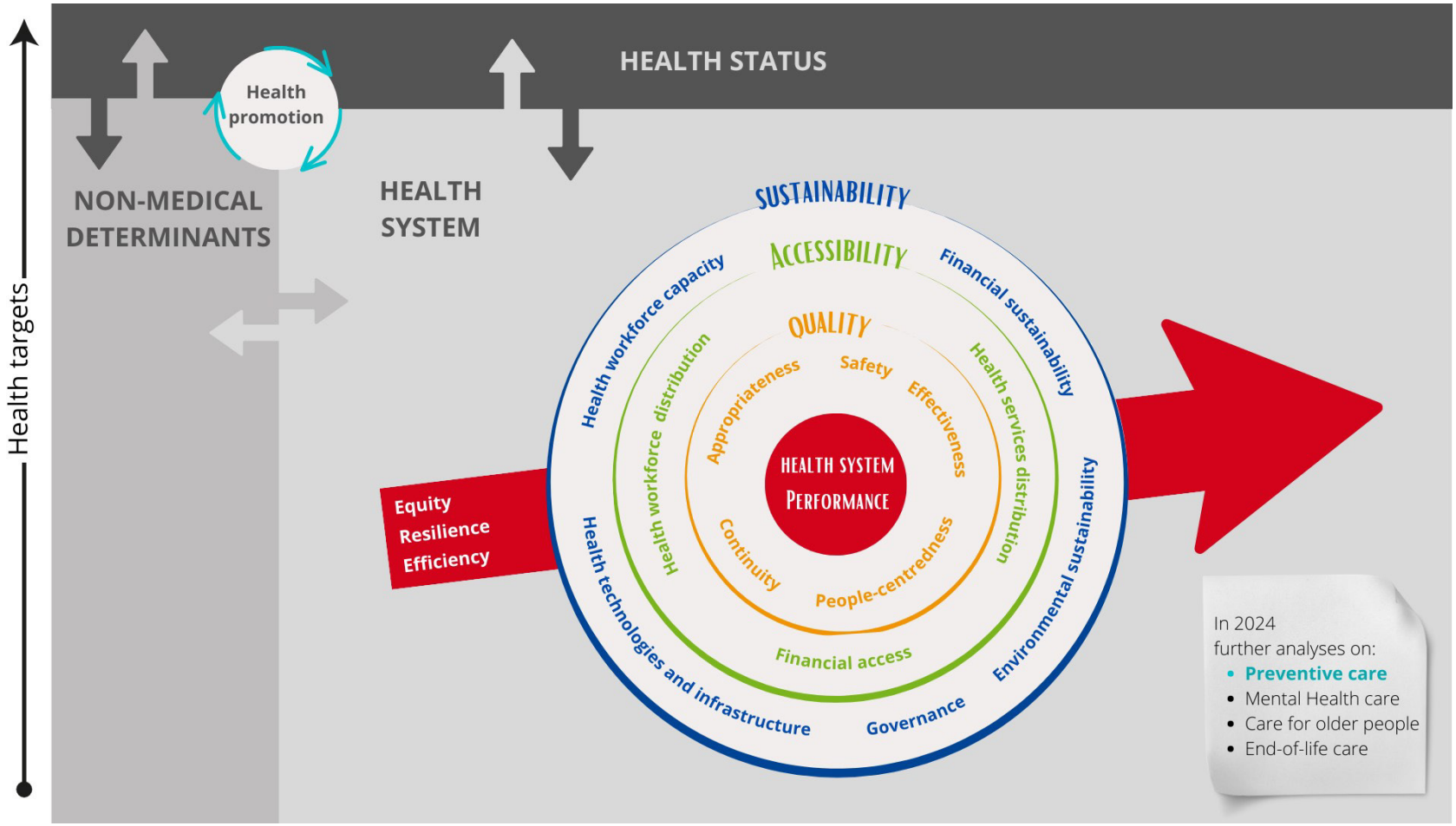
HSPA initiatives at the European level are mainly conducted by the World Health Organization (WHO), the European Observatory on Health Systems and Policies, the Organisation for Economic Co-operation and Development (OECD) and the European Commission (EC).

In 2022, the European Observatory on Health Systems and Policies and the WHO published a new HSPA framework.[11] A comparison of the two frameworks was therefore carried out in the KCE report 370. Even if there were some differences in terms of structure and concepts used between both frameworks, the rationale behind the concepts used was similar. The comparison helped to confirm the completeness and relevance of the Belgian HSPA framework. The appendix of the KCE report 370[10] provides interested readers (Belgian or international) with indications on where to find information on the different indicative measures of the new framework of the European Observatory on Health Systems and Policies and the WHO, including qualitative aspects, on the healthybelgium.be website.

The international HSPA initiatives were also used for the selection of indicators (see the KCE report 370[10] for more details on the selection of the indicators for the 2024 HSPA report), including among others:

- The EU project on the international inventory of HSPA indicators[12-15] and the publications of the EU Expert Group on HSPA (2020)[16]
- The OECD “Health at a Glance” publications[17] and the Belgium Country health profiles[18]
- The indicative measures proposed in the new HSPA framework of WHO and European Observatory on Health Systems and Policies.[11]

Figure 1 – The Belgian global population health framework, including the new HSPA framework (in colour)



Source: KCE report 370[10]

1.4 Scope and objectives

This report focuses on the third tier of the global assessment, i.e. the performance of the health system and of health services delivery (HSPA report).

Performance assessment is a recurrent process, with a first pilot report published in 2010 and the latest HSPA published in 2019 (see Box 4). To make the process more dynamic, it has also been decided to use the period prior to the publication of comprehensive HSPA reports to analyse new domains/dimensions, to revise existing ones, or to deepen some of them in thematic reports. Four intermediate themes have been published since the last HSPA report of 2019 (see Box 4)

This report is the fifth edition of the Belgian (comprehensive) HSPA report.

Box 4 – Overview of the performance reports

In Belgium, the following performance reports were published so far:

- **HSPA 2010**: conceptual framework and feasibility study for 54 indicators;[2]
- **HSPA 2012**: 74 indicators and first full evaluation;[19]
- **HSPA 2015:** 106 indicators;[20]
- **HSPA 2019:** 121 indicators (most of the health status indicators have been moved to a distinct publication by Sciensano: the **Health Status Report**);[21]

These reports were the result of a collaboration between the KCE, Sciensano, RIZIV – INAMI, and FPS Public Health. Since 2019, the following intermediate reports were also published:

- **Thematic report 2020:** on equity, with 27 indicators;[22]
- **Thematic report 2021:** on the use of projections to assess the sustainability of the health system, with three new projection-based indicators;[23]
- **Thematic report 2022:** on care for people living with a chronic condition, with 27 indicators.[24]
- **Thematic report 2023:** on the development of a new conceptual framework.[10]

The objectives of the 2024 HSPA report are:

- To measure a set of indicators covering domains and dimensions of the Belgian health system, while keeping the number of indicators manageable (in this report, 142 indicators[a], Chapters 3 to 12);
- To interpret the results in order to provide a global evaluation of the performance of the Belgian health system on the basis of several criteria, including comparison with targets and international benchmarking when appropriate (Chapters 3 to 12);
- To highlight the warning signals (Chapter 14).

The measures implemented by the federal and federated authorities since the latest HSPA report are also described (Chapter 13).

[a] Some of them are sub-divided in two and are counted as one, e.g. QE-8 on treatable mortality for men and treatable mortality for women

2 METHODS AND DATA

2.1 Selection of indicators and sources of data

This HSPA project aims to focus on the most relevant indicators in line with its conceptual framework. The initial step in selecting these indicators was to identify, after a research in the indexed and grey literature, the most relevant ones for each domain/dimension, in collaboration with external experts. In a second stage, the chosen indicators were confronted with data availability making maximal use of routine data. No new data collection was undertaken, meaning that all data exploited in this report were extracted from existing data sources. The final selection of indicators was a compromise between the conceptual relevance (what would be ideal to measure) and the feasibility (availability of data and manageable number of indicators). More details on the selection of indicators for this fifth HSPA report can be found in the KCE report 370.[10]

A total of 142 indicators[b] have thus been selected and measured in this report. The list of indicators is presented in the appendix. Some indicators could not be updated because of a lack of recent data (e.g. the latest Health Interview Survey (HIS) data have been collected in 2023 and results will only be available at the end of 2025). Rather than being withdrawn from the report, they are described with the latest available data; when recent data will become available for these indicators, the website (https://healthybelgium.be/) will be updated (see Box 6). These indicators are marked with an * in the synoptic tables.

2.2 What's new in this report compared to the previous one?

Major changes include:

- A new transversal dimension: the resilience of the health system;
- One new sub-dimension of sustainability: governance;
- A new way of presenting results according to the new HSPA framework developed in 2023 (e.g. the new sub-dimensions for accessibility and sustainability);
- A deeper presentation of reforms since the latest HSPA report.

New indicators are indicated with a ***NEW*** sign in the synoptic tables in the results section.

Some indicators have been removed or modified due to different reasons, including international organisations stopping to monitor the indicator, Belgian data no longer being transmitted, results being based on a single outdated study which could not be repeated, experts considering that the indicator was less relevant compared to other selected indicators of the dimension/domain[c] or because the indicator was considered redundant with other indicators.

[b] Some of them are sub-divided in two and are counted as one, e.g. QE-8 on treatable mortality for men and treatable mortality for women (explaining the difference with the KCE report 370)

[c] For accessibility, equity and people-centred-care, a revision was performed in 2023 to limit the selection to the most relevant indicators (in collaboration with experts), see KCE report 370.[10]

2.3 How did we perform the evaluation?

The results of the 142 indicators are summarised in synoptic tables presented in the results section (chapters 3 to 12). These tables present the most recent reliable results, at a national level and by region, as well as the data sources and the unweighted average for EU-14 and EU-27[d] countries.

Evaluation based on level and trend

A pictogram (see Table 1) depicts the evaluation of the indicator, considering both the latest national results available and its evolution over time (most indicators have at least a 5-year timespan). Contextual indicators, by definition, cannot be evaluated.

The national-level value is compared to **targets** (national if they exist, international otherwise), to results from EU-14 and EU-27 countries **(benchmarking**), and to **standards of care** (mainly for indicators derived from clinical guidelines), in that order. In the absence of targets, benchmarking or standards of care, the evaluation is based on a **consensus** among the authors of this report (expert opinion).

Regional differences (Flanders, Wallonia and Brussels)

Regions are always compared to the region with the best results, and regions having results that are at least 20% worse (in terms of relative difference) are highlighted in bold (not for contextual indicators or resilience indicators).

With respect to the regional comparisons, the specific context of Brussels has to be kept in mind: In particular, the Brussels region only consists of a single large urban area, while the other two regions consist of a mix of urban, suburban and rural areas.

Box 5 – How to interpret the results?

The reader has to keep the following in mind to avoid misinterpreting the results presented in this report:

- The aim of the HSPA report is to provide a comprehenive global assessment of the health system, rather than servering as a tool for monitoring the impact of specific programs. Indicators are chosen to illustrate a dimension or domain, not to analyse a topic in depth nor to assess a specific objective. Trends can be drawn from time series: a same indicator in several reports or monitored over a long time period.
- Comparison with other (European) countries have to be made with caution, as there might be differences in methodology, data collection (survey vs. administrative data, sampling scheme, etc.), coding of information, etc.
- Results are influenced by several factors: it is not the aim of this report to identify these factors; many indicators are affected by factors outside the health system, e.g. determinants of health (social and economic environment, physical environment, individual characteristics and behaviours). When an indicator trend changes, it could be due to a new policy, but it could also be due to any other factor. Even if a correlation could be established, it would not be a proof of causality.

[d] The term **EU-14** refers to the 14 Member States of the European Union as of 31 December 2003, before the new Member States joined the EU and excluding UK. These 14 Member States are Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, and Sweden. The term **EU-27** refers to Austria, Belgium, Bulgaria, Croatia, Republic of Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain and Sweden. Depending on the availability of data, the number of countries included in the benchmark can vary.

Box 6 – More data on our websites

For each indicator described below, a technical sheet is available on the KCE website and in the appendix of the report. The indicator ID (example: S-1) in the synoptic tables refers to the ID in the document. The technical sheet details the rationale for choosing the indicator, provides technical information on data sources and computation, gives all results (including subgroup analyses and benchmarking), limitations in interpretation, and bibliographical references. Some technical sheets also present secondary indicators related to the main indicator which help to understand the context.

The report is also published on the healthybelgium.be website to reach a wider audience. This website gathers indicators from several reports (HSPA, the Health Status Report and medical practice variations) and includes graphics with downloadable data sets.

Table 1 – Pictograms for the evaluation of indicators

⊕	Good results and improving
●	Good results and trend not evaluated (no/not enough data or evaluation too uncertain due to the disruptive effect of the COVID-19 pandemic).
ST	Good results and globally stable
⊖	Good results but deteriorating
⊕	Average results but improving
●	Average results and trend not evaluated (no/not enough data or evaluation too uncertain due to the disruptive effect of the COVID-19 pandemic).
ST	Average results and globally stable
⊖	Average results but deteriorating
⊕	Poor results but improving (warning signal)
●	Poor results and trend not evaluated (warning signals) (no/not enough data or evaluation too uncertain due to the disruptive effect of the COVID-19 pandemic).
ST	Poor results and globally stable (warning signal)
⊖	Poor results and deteriorating (warning signal)
C	Contextual indicator: trend not evaluated (no/not enough data or evaluation too uncertain due to the disruptive effect of the COVID-19 pandemic).
↗	Contextual indicator: upwards trend (no evaluation is given)
→	Contextual indicator: stable trend (no evaluation is given)
↘	Contextual indicator: downwards trend (no evaluation is given)

3 QUALITY OF CARE

Quality of care is defined as "the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge".[25] In this report, the concept has been further subdivided into five sub-dimensions:

- Effectiveness of care
- Safety of care
- Appropriateness of care
- Continuity of care; and
- People-centred care

3.1 Effectiveness of care

Effectiveness is defined as the "degree of achieving desirable outcomes, given the correct provision of evidence-based healthcare services to all who could benefit but not those who would not benefit".[26] Effectiveness indicators are typically outcome (results) indicators: patient-reported outcomes (PROMs), adverse events (such as mortality, avoidable admission, and incidence of bacterial resistance) and sentinel events (e.g. wrong-site surgery). Ten indicators were chosen among internationally published indicators to assess effectiveness (Table 2). Even though it is not a specific outcome, treatable mortality was also added as a "starting point" to assess the effectiveness of healthcare systems in reducing premature deaths from various diseases and injuries.[27]

The effectiveness of **primary care** is measured by avoidable hospital admissions for three chronic conditions, namely asthma, chronic obstructive pulmonary disease (COPD) and diabetes. Effectiveness indicators for **hospital acute care** are 5-year relative survival rate for cancer (breast and colorectal cancer), case fatality within 30 days after admission for acute myocardial infarction (AMI) and ischemic stroke, and case fatality within 30 days after admission for surgery for colorectal cancer.

Several indicators analysed in other sections of this report can also be interpreted in terms of effectiveness. Some examples are:

- Safety indicators: incidence of hospital-acquired Methicillin-Resistant Staphylococcus Aureus (MRSA) infections (QS-2);
- Mental health indicators: rate of involuntary committals in psychiatric hospital wards (MH-4);
- Preventive care indicators: incidence of measles (P-5) and preventable mortality (P-13);

Treatable mortality

A death is deemed to be treatable when, in light of the medical knowledge at the time of death, deaths from those causes can be mainly avoided through timely and effective healthcare interventions, including secondary prevention and treatment. Belgium ranked well among EU-14 countries for men and average for women. Treatable causes of mortality were decreasing over time and was higher in Brussels and Wallonia than in Flanders.

Avoidable hospital admissions

High hospital admission rates for asthma, COPD and diabetes can be interpreted as pointing to poor effectiveness of first-line care, as well as to poor coordination or continuity of care.[17]

Belgium was situated around the EU-14 average for asthma admission rates and fares below European average for diabetes as well as for COPD (for recent years), but this needs to be interpreted with caution, as differences between countries can be due to many other factors than to effectiveness of care, such as differences in prevalence of the disease, accessibility of care or methodology for measuring the indicator.

Asthma-related admissions showed a decreasing trend since 2010, which was also the case in other EU-14 countries, with a sharp drop in 2020 due to the COVID-19 pandemic, which reduced access to hospital services. Rates are similar in the three regions since 2018.

Admissions for diabetes were slowly decreasing from 2010 to 2020, followed by a rise in 2021 (see also section 8.4); the same trend was observed in other European countries. Flanders had a number of admissions slightly above Wallonia and Brussels.

Admissions for COPD were stable from 2010 to 2015, then rose from 2016 to 2019, then fell in 2020 and 2021 (see also section 8.4), in Belgium as well as in other European countries. When looking by region, Brussels had the lowest rate of admissions followed by Flanders, then Wallonia.

Cancer survival

Five-year survival rates after breast and colorectal cancer are outcome indicators measuring the effectiveness of the health system for specific diseases. Both cancers can be screened, and programmes are implemented at the regional level (see indicators P-6, P-7 and P-9). The relative survival rate can reflect both advances in public health interventions (greater awareness of the disease, improvement of screening programmes) as well as improved treatments.

In a study comparing European countries published in 2014,[28] Belgium had outstanding 5-year survival rates for colon and rectal cancer, but lower than average results for breast cancer. Still, comparison of survival results between European countries is complicated by methodological limitations, and should thus be interpreted with caution.

The 5-year relative survival rate after the diagnosis of breast cancer and colorectal cancer was 92.4% and 71.9% respectively, in a cohort of patients diagnosed in 2017. Compared to patients diagnosed in 2004, the survival rate was slightly increasing for breast cancer patients and a moderate increase was observed for colorectal cancer patients.

Mortality after acute myocardial infarction (AMI) or ischaemic stroke

The 30-day AMI case-fatality rate reflects the processes of care, such as timely transport of patients and effective medical interventions. Case-fatality after AMI decreased slowly in Belgium between 2010 and 2019, mirroring the trend observed in other European countries.[17] Part of this reduction can probably be attributed to better treatment, particularly in the acute phase of myocardial infarction. In 2021, the mortality results were lower in Flanders than in the two other regions, but the gap is closing.

The management of ischaemic stroke has evolved over the last decade, with clear advances in thrombolytic treatments and the emergence of stroke units.[29] As in other European countries, case-fatality after ischemic stroke decreased slightly in Belgium between 2010 and 2021, but stabilised in recent years. As far as regions are concerned, in 2021, Wallonia (9.3% of case-fatality rate within 30 days) and Brussels (9.4%) had a rate a bit higher than Flanders (8.1%).

Case-fatality rates for ischemic stroke in Belgium were slightly above the EU-14 average.

In-hospital mortality after colorectal surgery

Case fatality rates within 30 days and 90 days after a surgery to treat the colorectal cancer are indicators of the quality of acute care delivered to patients. Advances in diagnosis and treatment, including improved surgical techniques, have contributed to an increase in the survival over the last decade.[27] The evolution of the postoperative mortality rate over the period 2011-2015 was favourable (mortality decrease) for colon cancer and stable for rectum cancer. The rates were similar in Brussels and Wallonia, with Flanders managing lower rates. This requires further analysis (taking into account possible differences in patient populations and in coverage of the screening programme) before drawing conclusions on differences in quality of care.

Conclusion

The subset of indicators for the measurement of effectiveness of care was in many cases chosen among internationally published indicators. Belgium is situated around the EU-14 average for all measured effectiveness indicators, except for 5-year survival rate following a diagnostic for colon and rectal cancer, where results were better than in other countries (although the comparative data are outdated), and diabetes and COPD hospital admissions, where results are worse.

However, international comparisons should be interpreted with caution because of methodological issues. Trends over time are more reliable and are therefore equally informative for policymaking:

- Two indicators out of three on avoidable hospital admissions (asthma and diabetes) showed a decreasing trend which might be due to an improvement in the quality of primary care, but a conclusion is difficult to draw, as for 2020 and 2021, the COVID-19 disrupted the accessibility to hospital services.
- Five-year relative survival after colorectal cancer showed a notable increase for stage III patients.
- Case-fatality rates after AMI have decreased in recent years, as in other European countries.
- Postoperative mortality rate after surgery for colon cancer has been improving and was stable for rectal cancer.
- In comparison with the countries of the EU-14, Belgium compared well in treatable mortality for men and average for women.

Table 2 – Quality: Indicators on effectiveness of care

(ID)	Indicator		Belgiume	Year	Flanders	Wallonia	Brussels	Source	EU-14	EU-27
Effectiveness primary care – avoidable hospital admissions										
QE-1	Asthma hospital admissions in adults (/100 000 population)	+	13.7	2021	13.6	13.2	13.7	MZG – RHM		
			16.2	2021				OECD	16.4	18.8
QE-10	COPD hospital admissions in adults (/100 000 population)	●	169.8	2021	**160.0**	**204.9**	106.9	MZG – RHM		
			178.4	2021				OECD	122.6	102.8
QE-2	Diabetes hospital admissions in adults (/100 000 population)	●	124.6	2021	**130.1**	115.4	107.4	MZG – RHM		
			136.4					OECD	95.7	104.0
Effectiveness hospital and specialised care – health outcomes										
QE-3	Breast cancer 5-year relative survival rate (%)	+	92.4	2017-2022	92.5	92.5	91.4	Belgian Cancer Registry		
			86.4	2009-2014				OECD	86.2	83.2
QE-4	Colorectal cancer 5-year relative survival rate (%)	+	71.9	2017-2022	74.1	67.5	72.5	Belgian Cancer Registry		
			67.9/66.6	2009-2014				OECD*	63.6/62.9	60.5/59.0

[e] Differences between values calculated by the authors and OECD values are due to age-standardisation done by OECD.

(ID)	Indicator		Belgium	Year	Flanders	Wallonia	Brussels	Source	EU-14	EU-27
QE-5	Case fatality within 30 days after admission for AMI (% of the population aged 45+, admission-based)	+	5.8	2021	5.1	**6.7**	**6.6**	MZG – RHM		
			6.0	2021				OECD	6.0	7.2
QE-6	Case fatality within 30 days after admission for ischaemic stroke (% of the population aged 45+, admission-based)	+	8.6	2021	8.1	9.3	9.4	MZG – RHM		
			8.2	2021				OECD	7.4	9.6
QE-7a	Case fatality within 30 days and 90 days after surgery for colon (% of the population, surgery based)	+	3.6 (30d) 6.7 (90d)	2020	2.8 (30d) 5.8 (90d)	**4.9** (30d) **7.6** (90d)	**5.8** (30d) **10.4** (90d)	Belgian Cancer Registry	-	-
QE-7b	Case fatality within 30 and 90 days after surgery for rectal cancer (% of the population, surgery based)	ST	1.6 (30d) 4.2 (90d)	2020	2.3 (30d) 4.2 (90d)	1.0 (30d) 3.4 (90d)	0.0 (30d) **8.4** (90d)	Belgian Cancer Registry	-	-
QE-8a	Treatable mortality, men (per 100 000 population, age-adjusted)	+	65.8	2020	51.9	**89.1**	**88.3**	Statbel cause of deaths database		
			66.3	2020				Eurostat	77.3	109.0
QE-8b	Treatable mortality, women (per 100 000 population, age-adjusted)	+	59.4	2020	55.2	**78.1**	**71.8**	Stabel cause of deaths database		
			59.5	2020				Eurostat	60.5	76.3
QE-11	Successful treatment of pulmonary tuberculosis (% of people with laboratory confirmed pulmonary tuberculosis)	ST	82.4	2020	85.9	83.0	77.4	BE TB register		
			67.3	2020				ECDC	73.6	77.3

Good (●), average (●) or poor (●) results, globally stable (ST), improving (+), deteriorating (-) or trend not evaluated (empty). * *Results for colon/rectum cancer are presented separately in OECD Health Statistic*

3.2 Safety of care

Safety can be defined as "the degree to which the system does not harm the patient".[26] Two types of indicators evaluate safety of care in this report: healthcare-associated infections and hospital safety culture (Table 3).

Healthcare-associated infections

In the 2019 HSPA report, it was reported that the prevalence of healthcare-associated infections in hospitalised patients was 7.3% in 2017 (similar to the 2011 results, 7.1%). This was higher than what would be expected based on the case mix of Belgian patients (compared to the case mix and results of European patients included in the European Centre for Disease and Control survey) and it was also above the EU average (6.4%). Unfortunately, more recent data were not available at the time of writing this report. An update of this indicator will therefore be published on the healthybelgium.be website.

The second indicator considered is the incidence of healthcare-associated MRSA, a major healthcare-associated infection for which surveillance is mandatory in all Belgian hospitals since 2006. The follow-up of this indicator showed positive results, with a constant decrease in infections since 2005. The incidence of healthcare-associated MRSA remained higher in Wallonia compared to the other regions. The national recommendations to control MRSA, which were published in 2003, may be one of the factors contributing to this positive result.

The two last indicators considered are the proportion of MRSA and the proportion of *E. coli* resistant to 3rd generation cephalosporins (3GC-R *E. coli*) in acute-care hospitals. They inform the effectiveness of infection prevention and control measures (MRSA) and antibiotic consumption (*E. coli*). 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 (9.1%). Wallonia had a median proportion of resistant strains higher than the other regions. The proportion of healthcare-associated MRSA was 23%. The median proportion of resistant *E. coli* was 8.2% in 2021; Wallonia and Brussels had a median proportion of resistant *E. coli* higher than Flanders. When comparing with EU-14 and EU-27 countries, Belgium had a favourable position.[f]

Hospital safety culture

In 2010-2022, less than half of surveyed health workers in Belgium believed that the staffing levels at their workplace were appropriate for ensuring patient safety. 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.

Around half of surveyed health workers in Belgium in 2010-2022 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 were good at preventing errors and that there was 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.

Conclusion

The majority of the selected indicators of safety showed average results, except for the prevalence of healthcare-associated infections in hospitalised patients which did not improve (based on the 2019 HSPA report) and for the poor perception of hospital staffing levels by health workers. The other healthcare-associated infections safety indicators were improving over time.

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[f] Comparisons between countries should be interpreted with caution: participation on voluntary basis, only invasive isolates are included, different in frequency of sampling and quality of the laboratory results.

Table 3 – Quality: Indicators on safety of care

(ID)	Indicator	Score	Belgium	Year	Flanders	Wallonia	Brussels	Source	EU-14	EU-27
Healthcare-associated infections										
QS-1	Prevalence of healthcare-associated infections (% of patients hospitalised)	ST	7.3	2017				Sciensano (ECDC for EU averages)	6.4	5.8*
QS-2	Incidence of hospital-associated MRSA infections (per 1000 hospital admissions, median)	🟢	0.3	2021	0.1	**0.6**	**0.4**	Sciensano	-	-
QS-7	Proportion of methicillin-resistant *Staphylococcus aureus* (MRSA) in acute care hospitals (% of S. aureus isolates, median)	🟡	9.1	2021	7.0	**15.1**	8.4	Sciensano (ECDC for EU averages)	12.0	15.3
QS-8	Proportion of *Escherichia coli* resistant to 3rd generation cephalosporins (3GC-R *E. coli*) in acute care hospitals (% *E. coli* infections, median)	🟡	8.2	2021	6.7	**8.5**	**9.6**	Sciensano (ECDC for EU averages)	11.0	14.8
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)	🔴	53	2022	NR	NR	NR	Belgian Hospital Survey on Patient Safety Culture , Hasselt University	-	-
QS-10 ***New***	Health workers who have positive overall perceptions of patient safety in hospitals (% of respondents, HSPSC)	🟡	58	2022	NR	NR	NR	Belgian Hospital Survey on Patient Safety Culture , Hasselt University	-	-

Good (🟢), average (🟡) or poor (🔴) results, globally stable (ST), improving (+) or trend not evaluated (empty).
For contextual indicators (no evaluation): upwards trend (↗), stable trend (→), downwards trend (↘), no trend (C).

**Based on 25 countries. Bold results indicate regions with a relative risk higher than 1.2 (or lower than 0.83) when compared to the region with the best results. NR: not reported.*

3.3 Appropriateness of care

Appropriateness of care can be defined as "the degree to which provided healthcare is relevant to the clinical needs, given the current best evidence".[26] Appropriateness can be assessed through several methods. The best method is to measure to what extent medical practice follows **recommendations from clinical guidelines**. Another method often used is the analysis of **geographical variation.**

Eight indicators related to acute and chronic care have been selected (Table 4). They refer to the application of guidelines (in follow-up of diabetic patients, in prescribing patterns of antibiotics, in use of inappropriate medical imaging techniques, in use of adjuvant treatment after surgery for testicular cancer treatment) or to the variability of caesarean section rates.

Other additional indicators are presented in the tables on preventive care (Table 22) for vaccination and screening, mental health (Table 23) for drug prescription and consumption, and end of life care (Table 26) for aggressiveness of care at the end of life. Finally, variations in practice are presented in Box 7.

Appropriateness of care for patients with a chronic disease (diabetes)

The appropriateness of care for patients with a chronic disease is evaluated by measuring the follow-up of people living with diabetes.[g] A composite quality indicator based on the percentage of adults living with diabetes and having received a combination of five tests or examinations (2xHbA1c, 1x lipid profile, 1x microalbuminuria, 1x serum creatinine, and one ophthalmologist consultation) in the past 15 months was measured to estimate the appropriateness of their follow-up. The percentage of appropriate follow-up (i.e. people having received these 5 tests) was 42.7% for adults living with diabetes and under insulin and only 16.9% for adults living with diabetes and receiving glucose-lowering drugs other than insulin. There were regional differences for both subgroup populations: for people living with diabetes treated with insulin, Flanders reached 46.4% of patients having the five tests in 2021, Brussels 42.9% and Wallonia 36.8%. For those receiving glucose-lowering drugs other than insulin, Brussels showed the highest coverage rate with 23.3%, the two other regions being behind (Flanders 17.4% and Wallonia 14.7%). Differences by socioeconomic status are discussed in section 7.1.

For people treated by insulin, the bottleneck seemed to be the consultation with the ophthalmologist, while for those receiving glucose-lowering drugs other than insulin, it was the microalbuminuria testing. 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 (see the technical sheet for more details). Additional analyses would be needed to determine the reasons of these low rates. Especially concerning the consultations with an ophthalmologist, i.e. could these low results in part be explained by the new guidelines or do they reflect a potential problem of care coordination (between medical specialists) or of accessibility of care (such as long waiting time)?

Appropriateness of care in prescribing patterns

Since the early 2000s, the authorities have been raising awareness among the public and the physicians concerning the issue of antibiotic resistance. Antibiotics should only be prescribed when necessary and the choice should preferably be in favour of first-line antibiotics ("prudent use"). The **prescription of antibiotics** is used to evaluate guideline adherence.

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[g] For diabetic care, the guidelines recommend that glycated haemoglobin, microalbuminuria, creatinine, and lipids are monitored preferably once a year, and at least every 15 months and that glycaemia is monitored every 3 months. It is also recommended that an ophthalmologist performs a dilated fundus examination every year to detect early ocular complications.

Belgium ranked poorly internationally for antibiotics consumption (similar to Italy for instance, but about two times more than the Netherlands). In 2021, a high percentage (32.6% vs 41.6% in 2010) of total population received at least one antibiotic prescription, with higher figures in Wallonia (37.0%) than in Flanders (30.4%) and Brussels (29.6%). The use of antibiotics at least once in the year was high for individuals aged 0-4 years (43.8%) and 75 years and above (39.8%). Furthermore, 40.5% of the antibiotics prescribed were second-line antibiotics in 2021 (versus 16% in the Netherlands in 2016[30]). Poor scores on this indicator were also observed among children (36.6%). Differences by socioeconomic status are discussed in section 7.1. The Belgian Antibiotic Policy Coordination Committee (BAPCOC) has defined two indicators with targets for second-line antibiotics:

- The ratio amoxicillin/amoxicillin-clavulanate should reach 4 to 1 (or 80%), it was still just under 50/50 at 48.1% in 2021; for children (under 15), the target was reached at 79.9%; but for patients aged 65 years and over, it was only 33.6%.
- The total DDDs (Defined Daily Doses) of quinolones compared to the total antibiotics prescribed should reach 5% (national objective): in 2021, it is still at 7.1%, an improvement compared to the 11.5% in 2010.

The impact of the COVID-19 pandemic is analysed in section 8.4.

Use of inappropriate techniques in medical imaging

Inappropriate techniques were responsible for 50% of medical radiation in 2013, mainly due to lumbar spine CT scans. Medical imaging is not recommended in most cases of non-specific low back pain.[31, 32] Therefore, in this report, we focused on spine imaging: computed tomography (CT) scans and X-rays, two imaging techniques which emit ionising radiations that can cause cancer, as well as magnetic resonance imaging (MRI), which is a safe but more costly imaging technique. Global imaging of the spine decreased by 2% per year from 2016 to 2022, with X-rays declining much faster in recent years with a 4.9% annual decrease. CT scan consumption decreased by 1.5% per year over the 2016-2022 period; MRI consumption growth was still at 2.0% per year though. For the COVID-19 period, see also section 8.4.

Geographic variability in surgical procedures

Geographic variability for elective surgical procedures can be an indication of inappropriate care. Caesarean section was chosen in this report as an illustration, but there are many others (such as hip or knee replacement, two procedures for which Belgium has one of the highest intervention rates in the EU-14).[17]

While WHO stated from 1985 to 2015 that caesarean section rates should not exceed 10-15%[h,33] rates were still high and increasing in the EU-14 region (24.3% of live births for EU-14 [12 countries]). The rate in Belgium was lower (21.7%) but still much higher than in the Netherlands (15.2%) and has been growing slowly over the years in every region.

Appropriateness of care in adjuvant treatments after surgery

Patients with early testicular cancer (stage I) 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 the absence of risk factors. When comparing with the period before the publication of the guidelines (2004-2012), a clear decrease in the proportion of adjuvant treatment was observed for the 2013-2016 period (shortly after the guidelines' publication) and the 2017-2020 period (after the guidelines'

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h Latest WHO recommendations state that "*every effort should be made to provide caesarean sections to women in need, rather than striving to achieve a specific rate.*".33. WHO. WHO statement on caesarean section rates. Copenhagen: World Health Organization; 2015.

publication) in case of seminoma, and to a lesser extent in case of non-seminoma. These trends were observed in all regions.

Indicators of appropriateness in other sections of this report

Indicators described in other domains can also be linked to appropriateness. In the **preventive care domain** (Table 22), breast cancer screening does not seem to be appropriately performed: the participation rate in the organised screening programme was low (especially in Wallonia and Brussels). In the domains of **mental healthcare** and **care for older people**, there were indications of inappropriate prescription of medication (e.g. the recommended duration for major depression treatment (at least three months) was not met in a substantial proportion of patients using antidepressants).

Conclusion

Several indicators illustrated that appropriateness of care was not optimal in many domains (preventive, acute, and long-term people care). For many indicators, Belgium performed poorly compared to international benchmarks, and only a small improvement was observed in recent years for some indicators.

The results for antibiotics and antidepressants prescription indicators were poor in volume as well as in quality. Caesarean section rates were under the EU-14 average but have increased slowly and were higher than expected.

Inappropriate care (over-, under- and misuse of resources) has consequences in several dimensions (safety, continuity, effectiveness, efficiency). Tackling inappropriate care to improve the performance of the health system is a real challenge in Belgium.

Box 7 – Variations in practice

Variations in practice cover any unjustified variation in healthcare that is a non-random variation related to insufficient or excessive use of care. Using N documents[i] 2012-2022 data (with medical expenses of insured people), standardised per year based on age, gender and increased reimbursement status for districts, provinces and regions, RIZIV – INAMI analysed several kinds of variation of practice (variations by gender, variations by age, geographical variations, variations by social status, variations by type of care, variations in the evolution trends, variations in the techniques used). The detailed analysis can be found on https://www.healthybelgium.be/. Here are some examples:

Variation by gender

While some variations in practice by gender are intrinsically linked to the treatment itself (hysterectomy, ultrasound of the prostate, etc.) this is not necessarily the case for other types of interventions. In the case of proton pump inhibitors, for example, in 2022 the rate of use was significantly higher for women than for men, which raises the question of possible overuse in women.

Variation by age groups

As with gender-related variations, age-related variations can also be explained by the epidemiology or by policies such as screening. Analyses showed that in 2022, breast cancer screening in the age group 40-49 years had a volume of 1 258 per 100 000 insured population; whilst in the age group 50-74 years the volume was 15 819 per 100 000 insured population. Further analysis is required to evaluate whether these numbers are consistent with epidemiology of risk factors and screening policy.

[i] N documents are monthly data sent by health insurers to the RIZIV – INAMI within three months. These data include the number of services, dates and fees.

Variation by type of care

Variations can also be observed between day care and hospital inpatient stay. For instance, for abdominal hernia, there was little geographical variation in terms of rates of use but there were significant differences in terms of choice of type of care (day care vs inpatient). When comparing the proportion of day care for this intervention, the ratio between the province with the highest proportion of day care and the one with the lowest was approximately 2.5.

Variation by social status

Social status is approximated by the increased reimbursement status of the patient. For example, in the case of varicose surgery, it was fairly generalised for all the provinces that rates of use were significantly higher (+56%) for persons who do not benefit from a preferential reimbursement scheme. Analyses also showed that breast cancer screening rate was about 40% lower in women (between 50 and 74 years) entitled to increased reimbursement than in women not entitled to increased reimbursement (see also indicator P-6). Similarly, the screening rate for smear for cervical cancer (in women aged 25-64 years) was nearly 30% lower in women entitled to increased reimbursement. Socioeconomic inequalities by reimbursement status or education level in various indicators have also been studied in chapter 7 of this report.

Geographical variation

As the data are standardised by age, sex and social status (reimbursement scheme), geographical variations reflect different practice behaviours in different areas of the country and can therefore a priori be considered as unjustified. In the case, for example, of carotid ultrasound, the data showed a ratio between the extreme values of utilisation rate per district of approximately 7 (max/min ratio) and a ratio of 2 when analysed at the level of the regions. For caesarean section, the ratio between the extreme values of utilisation rate per district (max/min ratio) was 2.

In the same way, despite no standardisation in the data, geographic variability were observed for several indicators presented in this report. The use of biosimilars in ambulatory setting, for instance, varied from 7.8% of biologicals in Flanders to 4.2% in Wallonia and 5.3% in Brussels (indicator E-4). The use of antidepressants varied from 11.3% for the population of the region of Brussels Capital to 17.1% for the population of the province of Namur (indicator MH-7).)

Source: RIZIV – INAMI (www.healthybelgium.be/en/medical-practice-variations)

Table 4 – Quality: Indicators on appropriateness of care

(ID)	Indicator		Belgium	Year	Flanders	Wallonia	Brussels	Source	EU-14	EU-27
Primary care – people living with chronic disease (guidelines)										
QA-1	Appropriate follow-up of diabetes (% of people 18+ living with diabetes and under insulin)[a]	⊖	42.7	2021	46.4	**36.8**	42.9	IMA – AIM	-	
QA-2	Appropriate follow-up of diabetes (% of people 18+ living with diabetes and receiving glucose-lowering drugs other than insulin)[a]	⊖	16.9	2021	**17.4**	**14.7**	23.3	IMA – AIM	-	
Primary care – prescribing patterns (guidelines)										
QA-3	Use of antibiotics (total DDD/1000 pop/day)	●	16.0	2021	15.6	17.8	14.8	RIZIV – INAMI		
				2021				ESAC-net	13.6	13.0
QA-4	Use of antibiotics at least once in the year (% of population)	●	32.6	2021	30.4	**37.0**	29.6	IMA – AIM atlas	-	
QA-5	Use of antibiotics of second intention[b] (% total DDD antibiotics)	⊕	40.5	2021	39.9	41.3	35.9	RIZIV – INAMI	-	
Inappropriate medical imaging										
QA-6	Spine imaging (X-ray, CT scan, MRI per 100 000 population)	⊕	9320	2021	8378	**11 370**	8618	RIZIV – INAMI	-	
Hospital care (guidelines)										
QA-8	Caesarean section rate (per 1 000 live births)	⊕	217	2021	218	224	201	FPS Public Health		
				2020				OECD	243	252
QA-9	Patients with early testicular cancer (seminoma) receiving adjuvant treatment after surgery (% of patients with early testicular cancer stage I treated with orchiectomy)	↘	40.4	2017 - 2020	**45.5**	**35.9**	25.7	BCR	-	-

Good (●), average (●) or poor (●) results, globally stable (ST), improving (+) or trend not evaluated (empty).
For contextual indicators (no evaluation): upwards trend (↗), stable trend (→), downwards trend (↘), no trend (C). *a Appropriate follow-up is defined as patients receiving regular retinal exams and blood tests (glycohemoglobin, serum creatinin , lipid profile and microalbuminuria)b Antibiotics of second intention are: amoxicillin with clavulanic acid, macrolides, cephalosporins and quinolones*

3.4 Continuity of care

Continuity of care addresses "the extent to which healthcare for specified users, over time, is smoothly organised within and across providers, institutions and regions, and to which extent the entire disease trajectory is covered".[26]

Four aspects of continuity have been distinguished: **informational continuity** (the availability and use of data from prior events during current patient encounters), **relational continuity** (an ongoing relationship between patients and one or more providers), **management continuity** (the coherent delivery of care from different providers across different care settings) and **coordination of care** (the connection between different health providers over time to achieve a common objective).

Seven indicators have been selected that encompass these different aspects (see Table 5). Initiatives on integrated, people-centred care across various settings are also related to the continuity and coordination of care but are described in the section on patient centeredness care. Moreover, Initiatives on hospital at home are described in Box 8.

Box 8 – Hospital at home

Although there is no consensus on the definition of hospital at home (HAH), one may define it as "providing care in the patient's place of residence that would otherwise need to be delivered in an acute hospital".[34] An important element is the level of complexity of care, that is such that, without the possibility of HAH, the patient should necessarily be treated at the hospital.

This approach may fulfil a variety of needs and motives: address the lack of available hospital beds, an attempt to reduce healthcare costs, length of stay and/or the number of hospital admissions, or, from a demand perspective, a way to allow patients to remain within their own environment and respect their preferences - based on the assumption that patients generally prefer to stay at home.[34] Nevertheless, Belgium is in a situation of overall overcapacity of acute-care hospital beds, except for geriatric care beds.[35] Thus, the major challenges lie rather in ensuring continuity of care, bridging the current gap between primary and secondary care, and keeping people in the least complex environment that is clinically appropriate.[34]

In March 2017, the Minister of Social Affairs and Public Health launched twelve HAH pilot projects (five in Flanders, five in Wallonia and two in Brussels). They focus on home antibiotic therapy (eight projects) and other types of care, such as anti-tumour treatments (five projects, including two focussing on breast cancer) or haemato-oncological treatments (one project). The projects will involve 1300 patients and 35 hospitals, as well as home nursing services and GPs.[36]

Since July 2023, HAH is implemented on a more structural basis for patients who need antibiotic or oncological treatments.

Informational continuity in general practice

The global medical record (GMR) allows the general practitioner to gather information over time and centralise the medical data of his/her patients. This coverage has been growing over the years from 52.1% in 2010 to 83.3% in 2021. Differences can be observed by age group. Older insured people had a better coverage than young people, i.e. 93.2% for people aged 75 years and older versus less than 79.1% for people aged below 45 years in 2021. Differences can be observed between regions: in Flanders, 87.8% of the insured people had a GMR in 2021 while the coverage was 79.6 in Wallonia and 67.8% in Brussels. Differences along socioeconomic lines were small (see section 7.1).

Relational continuity with a general practitioner

The Usual Provider Continuity (UPC) index is the proportion of encounters with the "usual patient GP", i.e. the GP consulted most frequently by the patient over a two-year period.

Over the period 2020-2021, 60.3% of patients encountered their usual GP minimum three times out of four (UPC ≥ 0.75). This percentage was higher in Wallonia (68.0%) than Brussels (60.3%) and Flanders (56.4%) and was higher as well for the most vulnerable patients (patients 65 years old and over and lower socioeconomic groups, see section 7.1). A decreasing trend can be observed between 2011 and 2021, a bit more pronounced in Flanders than in other regions.

Management continuity between hospital and general practice

Despite the supposed advantage of having a contact with a GP within the week after hospital discharge, this was the case for only 43.5% of hospitalisations in patients aged 65 years and over in 2021. This proportion decreased regularly between 2010 (54.8%) and 2021 (43.5%). A lower proportion can be observed in Brussels (29.8%; compared to 45.2% in Flanders and 42.7% in Wallonia), in patients that do not receive long term care (i.e. 34.6% in patients that neither live in an institution nor receive nursing care at home), and in patients aged 65-74 years (33.7%). Differences by socioeconomic status are discussed in section 7.1.

A limitation of this indicator is that neither the reason for hospitalisation nor the length of the stay have been taken into account, although these factors influence the need of a GP contact after hospitalisation. It is also not possible to determine whether the contact with the GP results from a discharge plan proposed by the hospital or from an initiative of the patient himself. Moreover, the patient may have had a contact with another healthcare professional (e.g. specialist, home nurse, or nurse in nursing home).

Coordination in ambulatory care for people living with diabetes

To optimize care provided to people living with diabetes, several measures have been implemented by RIZIV – INAMI (diabetes passport, care trajectories for chronic diseases and convention for diabetes self-management).

After an increase from 2011 to 2019, the proportion of people under insulin registered in a diabetes care model slightly decreased in 2020 and 2021 (mainly via conventions). However. for patients using oral antidiabetics or non-insulin injectable solutions, the proportion of patients under a diabetes care model remained low (26.6% in 2021, half diabetes passport, half care trajectory) but increased between 2011 and 2019 and have remained stable since then. For both patient groups, the proportion was higher in Flanders and lower for patients in the residential sector. Differences along socioeconomic lines were small (see section 7.1).

Continuity of care is also a contributing factor to the effectiveness of the health system. Admissions for diabetes showed a decreasing trend over time (except in 2021, see QE-2), which is encouraging, even if the real impact of continuity of care on this outcome is difficult to estimate.

Patients with a reference pharmacist

Since 1 October 2017, a “reference pharmacist” service was introduced by RIZIV – INAMI for individuals going to a public pharmacy with a chronic disease (excluding persons in nursing homes or in homes for the elderly). This service consists of registering pharmaceutical delivered in the pharmaceutical (electronic) file; delivering a medication scheme for the patient and making sure other care practitioners have access to the patients’ medication scheme.

This indicator measures the uptake of the service among targeted individuals, i.e. patients who have been delivered 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.

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%.

The proportion of targeted patients that have a reference pharmacist has risen from 15.0% in 2017 to 38.7% in 2021. Flanders has a higher proportion (44.6% in 2021) than Brussels (31.6%) and Wallonia (29.9%). The trend is going up in all three regions.

Coordination in hospital care for cancer patients

Multidisciplinary team (MDT) meetings have been implemented in many countries as the predominant model of cancer management to ensure that all patients receive timely evidence-based diagnosis and treatment, and to ensure continuity between different care providers.

Since the introduction of specific nomenclature codes for the MDT in 2003, a rapid increase of its use has been noticed for all cancer types. Overall, 90.4% of cancer patients were discussed at the MDT in 2021 (compared to 52.5% in 2004 and 83.4% in 2012). Some variations in use of the MDT between types of cancer can be observed (highest in 2021 was breast cancer with 95.5%, lowest 75.6% for malignant melanoma of the skin and 67.5% for unknown primary sites and ill-defined cases), but differences were lower than in 2004.

An increasing use of the MDT was noticed for all three regions throughout the period 2004-2021. Moreover, initial (i.e. in 2004) marked regional variability in use of the MDT, with the highest results in Flanders, was clearly reduced in the more recent years. In 2021, cancer patients were only slightly more frequently discussed at the MDT in Flanders (91.6%), followed by Brussels (89.3%) and Wallonia (88.2%).

A limitation of this indicator is that, because it focuses on a specific category of diseases, it provides only a restricted picture of the intramural coordination of care.

Conclusion

Continuity of care indicators showed contrasting results. Coordination of care showed good results in primary care for people living with diabetes using insulin (measured as being registered in a diabetes care model) or within hospital setting for patients with cancer who need to be discussed in MDT meetings. Results were, however, disappointing for people living with diabetes who are not using insulin. It looks as if, for this patient population, the structure exists to promote coordination of care, but is hardly used. The other three indicators related to GPs and showed intermediate results: the use of a GMR was high among the population, relational continuity measured by the UPC index could be better even if this was relatively good among the most vulnerable patients (patients aged 65 and over and lower socioeconomic groups) and the occurrence of contacts after a hospitalisation of a patient aged 65 or more was still quite low.

This evaluation is hampered by two limitations: these few indicators only reflect a partial view of the multi-faceted concept of continuity of care, and a comparison with results from other countries is very difficult, due to the lack of international indicators, and hence data, in this dimension.

Table 5 – Quality: Indicators on continuity of care

(ID)	Indicator	Score	Belgium	Year	Flanders	Wallonia	Brussels	Source	EU-14 (mean)
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)	+	83.3	2021	87.8	79.6	**67.8**	IMA – AIM	-
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)	-	60.3	2021	56.4	68.0	60.3	IMA – AIM	-
Management continuity between hospital and GP									
QC-3	GP encounter within 7 days after hospital discharge (% patients 65+)	-	43.5	2021	45.2	42.7	**29.8**	IMA – AIM	-
Coordination in ambulatory care									
QC-4	Diabetes follow-up within a convention/passport/care trajectory (% of people 18+ living with diabetes and under insulin)	-	86.0	2021	88.2	84.2	81.1	IMA – AIM	-
QC-5	Diabetes follow-up within a convention/passport/care trajectory (% of people 18+ living with diabetes and receiving glucose-lowering drugs other than insulin)	ST	26.6	2021	32.8	**17.7**	**24.0**	IMA – AIM	-
QC-7	People with a reference pharmacist (% of people who should have a reference pharmacist)	+	38.7	2021	44.9	**29.9**	**31.6**	IMA – AIM	
Coordination in hospital care									
QC-6	Patients with cancer discussed at the multidisciplinary team meeting (% of patients with cancer)	↗	90.4	2021	91.6	88.2	89.3	BCR	-

Good (●), average (●) or poor (●) results, globally stable (ST), improving (+) or trend not evaluated (empty).
For contextual indicators (no evaluation): upwards trend (↗), stable trend (→), downwards trend (↘), no trend (C).

3.5 People-centred care

The term "people-centred" was initially introduced in the early 1960s by Carl Rogers, but at present, there is no universally agreed-upon definition for this concept.[37] The Health Foundation has defined a people-centred healthcare system as one that empowers individuals to make informed decisions regarding their health and care, enabling them to successfully manage their well-being. This approach allows individuals to make informed choices and decide when to seek assistance from others. Achieving this necessitates collaborative efforts within healthcare services to provide care tailored to individuals' unique abilities, preferences, lifestyles, and goals.[38] People-centred care is widely recognised as a critical component of healthcare quality and, consequently, a determinant of healthcare system performance. The assessment of people-centredness typically revolves around acknowledging patients' needs, desires, and preferences, evaluating the quality of provider-patient communication, and involving patients and caregivers in the decision-making process. A people-centred approach enhances the overall patient experience and addresses issues associated with fragmented care, including conflicting medical advice, excessive medication prescriptions, unnecessary hospitalisations, and unresponsiveness.[39]

The indicators relating to people-centred care were thoroughly revised when the new conceptual framework was drawn up.[10] We present here the results of the seven indicators that were retained following this process. This includes six indicators of people-centred care in ambulatory care and one indicator related to hospital care. This corresponds to the same number of people-centred care indicators as in the last Belgian HSPA report.[10] However, only one indicator was already included in the last HSPA report; all the others are new indicators.

For ambulatory care, one indicator from the HIS 2018 was included, i.e. physicians spending enough time with patients during the consultation and five indicators from the Belgian pilot study of the International Survey of People Living with Chronic Conditions (PaRIS) (see Box 9). Note that these six indicators will be updated on the website when new data from the comprehensive PaRIS study and from the next HIS survey become available.

A new indicator related to the patient experience in an inpatient setting was also added in this report, i.e. average percentage of positive patient-reported experience in maternity, C/D bed or day care. Indeed, patient satisfaction is 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 Box 10).

Box 9 – The Patient-Reported Indicator Survey (PaRIS)

PaRIS is an international project initiated by the OECD to develop, standardise and implement new indicators that measure the outcomes and experiences of healthcare. **The International Survey of People Living with Chronic Conditions** is the first to assess the outcomes and experiences of patients managed in primary care across countries. The PaRIS survey aims to fill a critical gap in primary healthcare, by asking about aspects like access to healthcare and waiting times, as well as quality of life, pain, physical functioning and psychological well-being.[40, 41] In Belgium, PaRIS is managed by Sciensano. The Belgian pilot Survey of People Living with Chronic Conditions has been implemented during the summer 2021 (patients) and autumn 2021 (general practitioners). In the pilot survey, the inclusion criteria were for patients to be older than 45 years and have consulted a GP in the last 6 months. It means that people without chronic diseases were still included in PaRIS. The survey was rolled out at the national level in early 2023. The inclusion criteria of the main survey were similar to those of the pilot survey.

Box 10 – The P4P programme

The P4P programme (since 2018): All general hospitals can participate voluntarily in a P4P programme granting them a specific budget based on the quality of their care.

Quality is assessed by the authorities based on indicators regarding their structure, process and results (accreditation process, incidents notification, patient experience measurement, clinical processes and outcomes). In 2017–2018, 94% of hospitals participating in the P4P programme (96 out of 102) collected PREMs.[21] Concerning patient-reported outcome measures (PROMs), this has not been systematically established.

The set of indicators should evolve in 2024. A P4P working group is currently running within the Federale raad voor ziekenhuisvoorzieningen / Conseil fédéral des Etablissements hospitaliers.

The P4P granting still represents a tiny share of the hospital's budget.

Patient experiences with ambulatory care

The overall patient experience with ambulatory care was quite positive, based on the indicators extracted from the HIS 2018 and PaRIS 2021 (Table 6).

Specifically, when considering factors such as the time spent during consultations with specialists or generalists, involvement in care decisions, discussions about key health management points with physicians, and satisfaction with the most recent consultation, Belgium stood out with exceptionally high ratings, ranging from 96.6% to 98.4% positive experiences. It is worth noting that Belgium's performance in these areas surpassed that of other European countries within the EU-14 or EU-27 (Table 6). Importantly, there were minimal variations in these indicators across different regions, age groups, income levels (see also section 7.1), or areas.

On the other hand, we observed less favourable outcomes in two specific areas: the presence of a care plan that takes patients' needs into account and the quality of the information received to help the patient at least take charge of his or her health and well-being. Flanders reported notably lower scores for the presence of a personalised care plan, while patients in lower income categories were more likely to report having a care plan (see section 7.1) Additionally, it is worth mentioning that men tended to report receiving consistently useful information more often than women. Furthermore, patients in higher income categories were also the most likely to report always having the information they need (see section 7.1).

However, it is essential to bear in mind that these findings are mainly based on the pilot PaRIS study. We should await the results of the comprehensive study to validate these observations thoroughly.

Patient experience in inpatient setting

In Belgian hospitals, the overall patient experience was predominantly positive, with 91.5% reporting a positive score in 2022 (Table 6). It is noteworthy that maternity wards consistently received the highest ratings, with a remarkable 97.7% positive feedback, while C/D beds followed closely at 96.2%. In contrast, the experience tended to be slightly lower in day care settings, where 80.6% of patients reported positive experiences. When examining the evolution of patient-reported experiences over time, as documented in P4P data, we observed a consistent, although modest, positive trend that endured across the years. However, it is important to acknowledge that there is some variability in the results when considering the various elements included in the assessment.

Conclusion

In 2018, Belgian physicians in ambulatory care appeared to align well with patient expectations regarding several aspects, including the amount of time dedicated to patient consultations, active involvement in care decisions, discussions about key health management points, and patient satisfaction with their most recent consultation. However, it is important to note that the reliability of the indicator measuring the experience with time spent by the doctor is compromised by the inherent limitations of the HIS 2018. These limitations encompass factors such as the reliance on self-reported information, potential influences of patients' educational and income levels, and their individual experiences with health conditions. The remaining indicators are primarily constrained by the source of data, which originates from the pilot PaRIS study and involves a relatively small sample size of only 511 patients. Therefore, it is essential to exercise caution when interpreting the results presented above, as they may not be readily extrapolated to the entire Belgian population.

Regarding the indicator related to the patient experience in hospitals, there appeared to be a generally positive experience, particularly within maternity wards. However, assessing trends over time presents challenges due to variations in the indicators and their measurement methods from year to year. Additionally, every hospital is mandated to gather a minimum number of questionnaires to qualify for participation in the P4P program. It is worth noting that certain hospitals, unable to meet the minimum questionnaire requirement, chose not to submit any information at all.

Table 6 – Quality: Indicators of people-centred care

(ID)	Indicator	Score	Belgium	Year	Flanders	Wallonia	Brussels	Source	EU-14	EU-27
QP-1	Patients reporting that physicians (GP/SP) spend enough time with them during the consultation (% of respondents)*	🟢	97.5	2018	97.8	97.2	95.9	HIS; OECD	87.3	85.6
QP-8 ***NEW***	Patients involved as much as they want to be in decisions about their care (% of respondents)**	🟢	98.4	2021	98.2	99.0	97.1	PaRIS		
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)**	🟢	97.9	2021	97.8	98.0	97.1	PaRIS		
QP-10 ***NEW***	Patients rating last consultation with healthcare professional (physician, nurse…) as good to excellent (% of respondents)**	🟢	96.6	2021	97.0	95.9	97.8	PaRIS		
QP-11 ***NEW***	Patients reporting they have a care plan that takes into account all their health and wellbeing needs (% of respondents)**	🔴	33.9	2021	**18.3**	54.0	40.0	PaRIS		
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)**	🔴	46.0	2021	47.2	42.2	58.8	PaRIS		
QP-13 ***NEW***	Average percentage of positive patient-reported experience in maternity, C/D bed or daycare (PREMs)	🟢	91.5	2022	92.0	92.1	86.7	SPF-FOD (P4P)		

**This indicator will be updated on the website (https://www.healthybelgium.be/) when the next HIS study become available **this indicator will be updated on the website (https://www.healthybelgium.be/) when the comprehensive PaRIS study becomes available.*

Good (🟢), average (🟡) or poor (🔴) results, globally stable (ST), improving (+) or trend not evaluated (empty).

For contextual indicators (no evaluation): upwards trend (↗), stable trend (→), downwards trend (↘), no trend (C).

4 ACCESSIBILITY OF CARE

Accessibility can be defined as the ease with which health services are reached by the population in terms of physical access, costs, time, and availability of qualified personnel.[26] Accessibility is influenced by decisions on resource generation and is analysed through three sub-dimensions: financial access, health workforce distribution, health services distribution.

In preparation of the current report, the Belgian HSPA framework has been revised (see KCE report 370).[10] An in-depth review of the dimension accessibility was carried out with the double aim to reduce the number of indicators to the most relevant ones in the Belgian context and to identify potentially missing indicators. As a result, 18 indicators were selected to evaluate the accessibility of the health system with 9 indicators related to financial accessibility (Table 7), 3 indicators on health workforce distribution (Table 8) and 6 indicators on health services distribution (Table 9). Compared to the previous report, there are 9 new indicators while a number of previously included indicators have been renumbered.[21]

4.1 Financial access to healthcare

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.[22, 42]

The ability of a health system to provide its population with affordable healthcare based on needs, depends on the extent to which it can pool risks and resources and produce solidarity between high and low risks and high and low incomes.[22] Financial (or affordable) access to healthcare is thus driven by decisions on 'financial resource generation', and can be described along three dimensions: the breadth of the coverage by the compulsory health insurance (who is covered?), the scope of the coverage (what is covered?), and the depth of the coverage (how much of the healthcare costs is covered?).

Who is covered?

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, including Belgium) and/or payment of contributions (most EU countries with social health insurance schemes, including Belgium).[42-45] Comparative 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.[43]

Coverage of the compulsory public health insurance system (***indicator A-1***, see Table 7) has been near universal in the past decade (98.9% in 2012 to 99.1% in 2022). However, financial and/or administrative barriers persist that impede full population coverage.[42, 45] The uncovered fraction was slightly higher among males, younger adults (age group 20-39 years), and in Brussels. Lower coverage rates were also found among Belgians living abroad but still affiliated with a Belgian sickness fund. When excluding the group of Belgians living abroad, the compulsory health insurance coverage would have equalled 99.4% in 2022.

Note that persons not affiliated with a sickness fund (e.g. undocumented migrants, asylum seekers (depending on the status of their application)) are not covered by the compulsory public health insurance and not included in the definition of 'population' in this indicator. These groups generally can rely on separate systems of health coverage for a more restricted set of services (for more details on healthcare for vulnerable groups see also Box 9 in the HSPA report of 2019).[21] No good data exist to capture the size of these population groups not covered by the compulsory public health insurance. There is, however, an intention to further broaden the population covered by the compulsory public health insurance. For example, health coverage for prisoners and detainees has been integrated in the general system since January 2023 for care outside the prison.[46]

Recent, reliable and exhaustive data on the number of persons with private health insurance are currently not available.

What is covered?

The Belgian compulsory public health insurance system covers a wide range of services. No indicators have been defined to measure the scope of the coverage (the range of covered services). The services that are covered by compulsory health insurance are described in the nationally established fee schedule (called the nomenclature).[47] Services not included in the fee schedule are not reimbursable.

The extent to which different health services are financed through out-of-pocket (OOP) payments gives a partial indication of the main gaps in health coverage. In Belgium, out-of-pocket payments as share of current spending on health amounted to 65% of spending on dental care, 56% on medical products and 34% on outpatient medicines in 2021. Next to cost sharing arrangements, these high shares are the results of non-covered goods and services.

How much of the healthcare costs is covered?

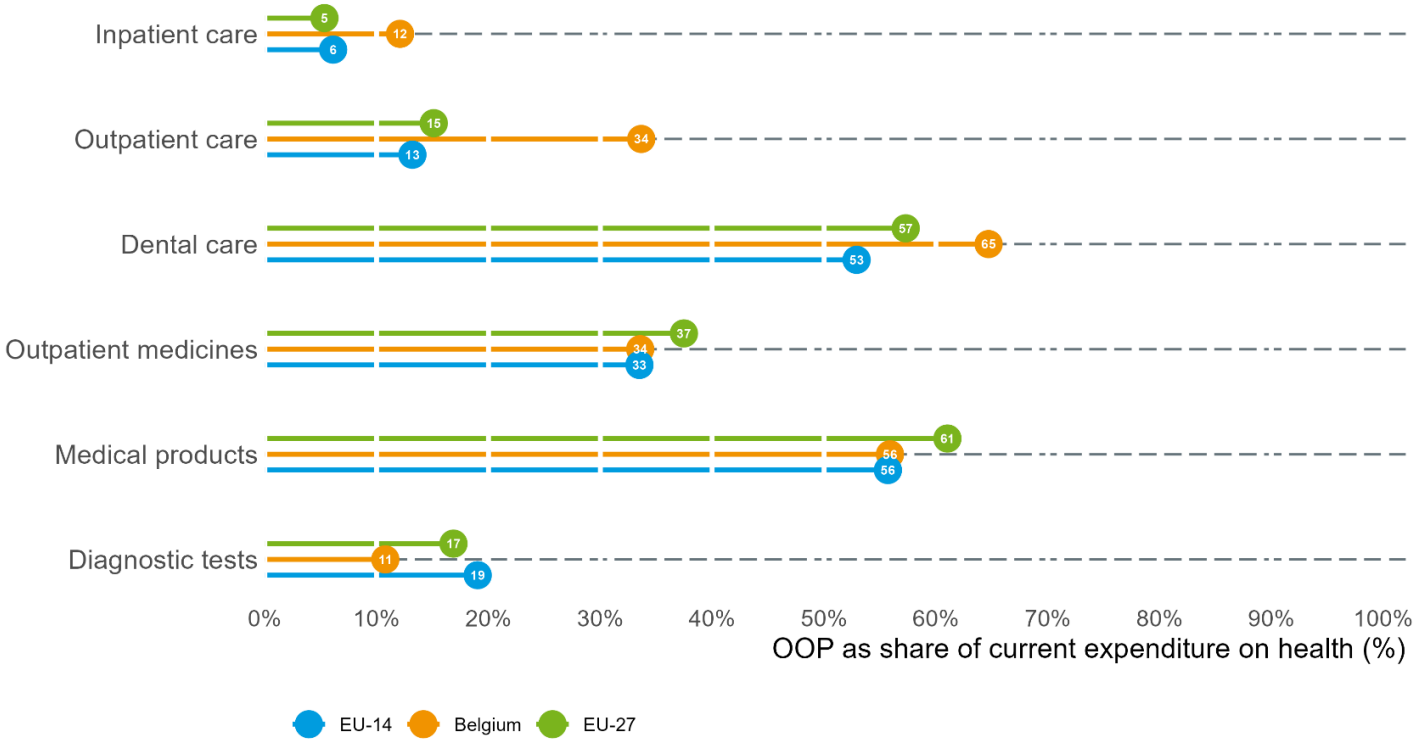
Out-of-pocket payments in Belgium are high

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 OOP payments for healthcare. **OOP payments** are expenditures borne directly by a patient when using healthcare because public or voluntary health insurance does not cover the (full) cost of the healthcare good or service.[17] They consist of co-payments, supplements (balance/extra billing) and direct payments for non-covered goods and services. All countries use OOP payments to pay for some healthcare, though to varying degrees and with different cost sharing designs. 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.[44, 48-51] 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.

OOP payments have increased by 30% over the past decade (2011 to 2021). Co-payments represented only one fifth of total estimated OOP payments in 2021. **As a share of current expenditure on health**, OOP payments have decreased from 19.6% in 2011 to 17.9% in 2021 (***indicator A-2***, see Table 7). The general declining trend was interrupted by a strong surge in 2019 (19.8%) followed by a drop in 2020 (17.4%) and a rebound in 2021 (17.9%) (see also section 8.4). The Belgian health system relied in 2021 more heavily on OOP payments than neighbouring countries such as Luxembourg (8.9%), France (8.9%), the Netherlands (9.3%) and Germany (12.0%).

Figure 2 shows that OOP payments as a share of current expenditure on health in 2021 were highest for dental care (65% up from 55% in 2011), medical products (56%), outpatient care and outpatient medicines (both nearly 34%). Moreover, OOP payments for dental care, outpatient care and inpatient care were above the EU-14 and EU-27 averages in 2021.

Figure 2 – Out-of-pocket (OOP) payments as a share of current spending on health by type of care (2021)



Notes: OOP = out-of-pocket; The category outpatient care excludes dental care
Source: System of health accounts (SHA)

Measured **as a share of final household consumption**, OOP medical spending slightly decreased from 4.0% in 2011 to 3.7% in 2021 (***indicator A-3***, see Table 7), but was consistently above the EU average over the whole period (2.9% in 2021 in EU-14 and EU-27). More details on the impact of the COVID-19 crisis are given in section 8.4. According to the household budget survey (HBS) from Statistics Belgium, households spent €1 805 on healthcare in 2020. This was higher than healthcare spending before the COVID-19 crisis pandemic which amounted to €1 639, due to increased spending on amongst others medical products (including facemasks and disinfectants) and physiotherapy/rehabilitation. OOP payments both in absolute value and as share of household consumption were higher for households with more financial means, with the gap between high and low incomes further increasing between 2018 and 2020 (see also section 7.1).

Fee supplements as driver of OOP payments in hospital care

High out-of-pocket payments in inpatient care are (at least partly) the results of supplements charged to the patient, notwithstanding important restrictions on the use of supplements, such as the prohibition to charge fee and room supplements in double-occupancy and shared rooms.

Out-of-pocket payments for hospital care (**indicator A-5**, see Table 7) amounted to 17.6% of total hospital care expenditures in 2021 (excluding budgetary twelfths)[j] and consisted in 2021 for 69% of supplements (and direct payments). Fee supplements represented 70% of all supplements or nearly 50% of all OOP payments. The share of OOP payments for hospital care was markedly higher in Brussels (23.2% in 2021).

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) 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.

Supplements reduce price transparency and price security for the patient. They may reduce accessibility of healthcare as existing protection mechanisms, such as the maximum billing (MAF) and increased reimbursement, do not apply to supplements. In 2022, as a first step to reducing fee supplements, the maximum fee supplement was frozen at the hospital level.[52, 53] Although this measure prevents further increases, it does not address existing differences between hospitals.[42]

Access to agreed tariffs in outpatient care

Fee supplements are also widespread in outpatient care. Contrary to supplements charged for a hospital stay, there is little regulation for supplements charged in outpatient care.[54] Limited information is currently available on supplements and non-covered services in outpatient care. Recently, however, registration of supplements in outpatient care is made mandatory in case of electronic invoicing, with the intention to, at a later stage, also collect information on OOP payments for non-covered services. Physicians and dentists are required to implement electronic invoicing by September 2025.[55]

In absence of direct information on supplements in outpatient care, two proxy indicators of affordable access were used on the activity share in outpatient care of, respectively, physicians and dentists who do not charge supplements and thus offer their patients price certainty and transparency.

In Belgium, practitioners are free to subscribe to the tariff agreements negotiated between representatives of the practitioners and sickness funds. Practitioners who accept the agreement, so called “conventioned”

[j] The out-of-pocket payments for hospital care as presented in indicator A-5 and Figure 2 differ in value. They were obtained from different sources and serve different purposes. For indicator A-5, patient level data of IMA – AIM were analysed and budgetary twelfths of the hospital budget (that could not easily be attributed to individual patients) were not accounted for, leading to an overestimation of the OOP payment share. For Figure 2, aggregated and internationally comparable data of the SHA were used that do account for the budgetary twelfths.

practitioners, commit to not charging supplements to patients in outpatient care. The others, “partially conventioned” or “non-conventioned”, are allowed to charge fee supplements on top of the official tariff at their discretion, also to low income households (see section 7.1).

The **share of activity by conventioned GPs** (***indicator A-8***, see Table 7) was high and further increased from 83.1% in 2012 to 87.3% in 2021 (90.1% in Flanders, 84.4% in Wallonia and 71.2% in Brussels). On the other hand, less than half of the outpatient consultations of **medical specialists** were performed by conventioned medical specialists (***indicator A-8***, see Table 7), with a small declining trend over time (44.0% in Belgium, 37.1% in Flanders, 55.8% in Wallonia and 43.6% in Brussels) Large variation in outpatient activity shares by conventioned physicians was found between medical specialities 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%).

The **share of outpatient activity by conventioned dentists** (***indicator A-9***, see Table 7) declined from 34.3% in 2012 to 26.3% in 2021 (16.6% in Flanders, 40.4% in Wallonia and 45.4% in Brussels). Hence, only 1 in 4 patient contacts was performed by a conventioned dentist. With activity shares below 2% in 2021, it becomes difficult if not impossible to find a conventioned orthodontist or periodontist. The activity share of conventioned general dentists was 29.1% in 2021.

Out-of-pocket payments may lead to financial hardship

By shifting costs on to households, OOP payments can represent a financial burden and lead to financial hardship for people using healthcare, in particular for individuals with high care needs or in households with limited resources. **Catastrophic health spending** (***indicator A-4***, see Table 7) is a widely used indicator to assess financial hardship based on the HBS data from Statistics Belgium. It refers to OOP payments that are greater than 40% of a household’s capacity to pay for healthcare, with capacity to pay defined as total household consumption minus a standard amount to cover basic needs (food, housing, and utilities).[48, 56, 57] A correction for basic needs is necessary because poor households devote relatively more of their resources to meeting basic needs and may face a trade-off between consuming basic needs and healthcare.

The incidence of catastrophic health spending in Belgium amounted to 3.8% of the households in 2018 and 5.2% in 2020, during the COVID-19 pandemic. Note that caution is required when comparing the incidence in 2020 with previous years as COVID-19 had a profound impact on household consumption patterns as well as on health spending (see also section 8.4). Catastrophic spending was mainly driven by OOP payments for medical products, physiotherapy/rehabilitation, dental care and inpatient care (although less so for inpatient care in 2020 due to the postponement of non-urgent care in response to COVID-19), while outpatient medicines were the most important driver among households in the poorest quintile.

The incidence of catastrophic health spending was substantially higher among households in the poorest quintile (12.2% in 2020), with a low-educated, inactive or unemployed head (8.2%, 10.5% and 8.5% in 2020, respectively) (see also section 7.1).

In comparison to other EU countries, the pre-pandemic rate of catastrophic health spending in Belgium (3.8% in 2018) was situated below the EU-14 average (4.3%) and the EU-27 average (6.5%), but above rates in neighbouring countries.

Out-of-pocket payments can create financial barriers to access healthcare

OOP payments can create a financial barrier to access healthcare services and treatments, resulting in people foregoing or delaying the use of healthcare (also known as unmet need for healthcare) with potential adverse consequences to their health.[22, 58]

Based on the EU-SILC data, the incidence of **self-reported unmet need with costs as main reason** to forego or postpone care in 2022 amounted to 0.9% for **medical examination and treatment** (***indicator A-6***) and 2.5% for **dental examination and treatment** (***indicator A-7***). The share of the population that experienced unmet needs has declined substantially over the past six years (2.2% for medical care and 3.7% for dental care in 2016). The COVID-19 pandemic had no substantial impact on the downward trend in self-reported unmet needs due to financial reasons.

There is important variation around the average. Higher rates and volatility were reported in the poorest income quintile (medical care: 7.7% in 2016 and 2.6% in 2022; dental care: 11.5% in 2016 and 6.6% in 2022, see also section 7.1), while nearly no unmet needs due to financial reasons were reported in the richest income quintile. Rates of unmet needs were also higher in subgroups with lower educational attainment and among working-age individuals in unemployment or in inactivity. Moreover regional differences were substantial with higher rates in Wallonia and Brussels, although this might be related to underlying differences in socioeconomic and sociodemographic characteristics of the regions.

In an international perspective, Belgium has performed worse than the European average over a sustained period of time (2015-2021) with respect to unmet needs for medical care due to financial reasons. However, thanks to a persistent declining trend in the past years, the Belgian rate of unmet needs for medical care was below the EU-14 and EU-27 average in 2022. The Belgian incidence of unmet needs for dental care due to financial reasons has been in line with the European average since 2016. In neither of the two indicators, Belgium was among the better performing countries, with only seven EU countries having a higher average rate of unmet needs for medical as well as dental care in 2022. Moreover, the gap in incidence of unmet needs between the richest and poorest income quintiles is particularly large in Belgium.

Conclusion

The Belgian compulsory public health insurance system covers a wide range of services for nearly the entire population. However, out-of-pocket payments in Belgium are high in comparison with neighbouring countries, although the situation is improving over time. In addition to co-payments and non-covered services, high OOP payments are the result of the widespread use of supplements as demonstrated for hospital care, and suggested by the low outpatient activity shares of conventioned medical specialists and dentists. This is problematic as supplements are not covered by protection mechanisms in the public health insurance. OOP payments can be a financial barrier to access health services resulting in unmet needs due to financial reasons, or lead to financial hardship for people using care (catastrophic health spending). In both instances Belgium has an average performance. In particular OOP payments for dental care, medical products and outpatient medicines are high, types of healthcare that were also identified as main drivers for catastrophic health spending. Moreover, for inpatient care and outpatient care, the share of OOP payments is well above the EU average.

Table 7 – Accessibility: Indicators on financial access

(ID)	Indicator	Score	Belgium	Year	Flanders	Wallonia	Brussels	Source	EU-14	EU-27
A-1	Compulsory health insurance coverage (% of the population entitled to compulsory insurance)	ST	99.1%	2022	99.5%	99.5%	98.7%	RIZIV – INAMI	99.9%	98.4%
A-2	Out-of-pocket (OOP) payments (% of current expenditure on health)	+	17.9%	2021	—	—	—	SHA	16.5%	18.2%
A-3 (ex A-10)	Out-of-pocket (OOP) medical spending (% of final household consumption)	ST	3.7%	2021	—	—	—	SHA, National Accounts	2.9%	2.9%
A-4 (ex EQ-5)	Households facing catastrophic out-of-pocket payments (% of respondents, HBS)	●	5.2%	2020	4.8%	5.3%	**6.7%**	HBS	4.3% (2018) [BE: 3.8%]	6.5% (2018) [BE: 3.8%]
A-5 ***NEW***	Out-of-pocket (OOP) payments for hospital care (% of total hospital care expenditures (excluding budgetary twelfths))	●	17.6%	2021	16.2%	17.4%	**23.2%**	IMA – AIM		
A-6 *(ex-A-4)*	People with self-reported unmet needs for medical examination due to financial reasons (% of respondents, EU-SILC)	+	0.9%	2022	0.2%	**2.0%**	**1.9%**	EU-SILC	1.2%	0.9%
A-7 *(ex-A-4)*	People with self-reported unmet needs for dental examination due to financial reasons (% of respondents, EU-SILC)	+	2.5%	2022	1.1%	**4.7%**	**3.6%**	EU-SILC	3.3%	2.6%
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 practising physicians)	GP +	87.3%	2021	90.1%	84.4%	**71.2%**	IMA – AIM		
		Specialist ST	44.0%	2021	**37.1%**	55.8%	**43.6%**	IMA – AIM		
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 practising dentists)	−	26.3%	2021	**16.6%**	40.4%	45.5%	IMA – AIM		

Good (●), average (●) or poor (●) results, globally stable (ST), improving (+) or trend not evaluated (empty).
For contextual indicators (no evaluation): upwards trend (↗), stable trend (→), downwards trend (↘), no trend (C).

*Notes: *Conventioned practitioners in Belgium are practitioners who subscribe to tariff agreements negotiated by representatives of the practitioners and sickness funds negotiate under the auspices of RIZIV – INAMI. They commit to not charging supplements to the patients in outpatient care*

4.2 Health workforce distribution

Access to healthcare also depends on the availability and distribution of the health workforce and is assessed here by three indicators:

- Density and distribution of practising physicians (excluding stomatologists) (A-10)
- Density and distribution of practising nurses (A-11)
- Density and distribution of practising dentists (including stomatologists) (A-12)

The density alone nevertheless poorly reflects the real workforce (e.g. for physicians, all of them performing more than one clinical act are included in the headcounts). To overcome this problem, results are also expressed in full time equivalent (FTE). Because information on their time of work is unavailable, FTE for physicians in Belgium is calculated as the ratio between individual revenue (determined based on reimbursed RIZIV – INAMI expenditure) of the medical specialist compared to the P50 (median) revenue/RIZIV – INAMI expenditure of the same specialists between 45-55 years old (N.B. all results above 1 are limited to 1). These FTE 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. For nurses, FTE are slightly more precise as for a part of them (employed nurses), FTE are based on activity rate.[k] The number of FTE physicians and dentists acceding to the agreement on national tariffs (conventioned physicians and dentists) is also presented.

It should also be noted that potential (future) shortage identified in the sustainability section on health workforce capacity will negatively influence accessibility to a qualified health workforce.

Practising physicians[l]

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 25 462 FTE practising physicians (2.2 per 1000 population, +9.3% since 2011).

Belgium had 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 2020 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 varies between countries and that in a few countries, it corresponds to the number of physicians licensed to practice. It should also be noted that Belgium does not include pysicians in training while most other countries do.

Moreover, the distribution of physicians across the country was not uniform. In headcounts, the number of practising physicians per 1000 population was lower in Flanders than in Brussels and Wallonia (but expressed in FTE, the densities were more similars). Disparities between provinces can also be highlighted. For a number of medical specialties, lower densities (in FTE) 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 (which can be explained by the fact that the analysis was mainly based on the physicians' home address rather than on the place of practice, also explaining the lowest density in Brussels in FTE).

Finally, it should be noted that the proportion of physicians who fully or partially acceded to the agreement (conventioned physicians, in FTE) was quite stable (78.9% in 2021) but that important disparities can be highlighted between medical specialties. In 2021, this proportion was especially low for

[k] But for self-employed nurses, FTE are also based on expenditure (see the technical sheet)

[l] Excluding stomatologists, see also the section on practising dentists.

dermatologists (21.1%), ophthalmologic surgeons (28.4%), plastic surgeons (30.6%), gynaecologists (41.9%), and orthopaedists (42.6%).

Practising nurses

The PlanCad project,[59] 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 nurses active in the health sector (practising nurses). However, the latest available PlanCad project for nurses is for the year 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 the assumption that the share of practising nurses among all nurses licensed to practice remained the same between 2018 and 2022, there would be about 137 193 practising nurses (116 607 in FTE) in 2022.

Practising nurses were 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 border (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) practising nurses per 1000 population but this is an estimate based on the place of residence.

The number of practising nurses per 1 000 population in Belgium increased from 9.6 in 2010 to 11.1 (9.8 in FTE) in 2018 and was above the EU-27 and EU-14 averages (8.1 and 9.5 per 1000 population, respectively in 2018, in headcount). The increasing trend was also observed in other European countries but was higher in Belgium (+15.4% between 2010 and 2018 in Belgium vs +4.5% for EU-27 and +6.2% for EU-14). 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, assuming that this would be based on the same methodology.

The higher number of nurses in Belgium should also be balanced by the fact that Belgium has a lower density of physicians and a higher density of hospitals (requiring more nurses). So, even with this comparatively high number, recent KCE surveys have showed that the number of patients / residents per nurse in hospitals and nursing homes remain too high compared to quality standards.[60, 61].

Practising dentists

To allow for international comparison, the ISCO-08 definition of dentists is used. The number of practising dentists therefore also include stomatologists. In 2021, there were 8 926 practising dentists (6 478.8 in FTE) and only half of them acceded to the agreement on national tariffs (decreasing trends). The situation was slightly better in Brussels than in Wallonia and Flanders. 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 of 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 density of 0.8 practising dentists per 1000 population in Belgium was close to the EU-27 average and follows a similar increasing pattern. The average density based on EU-14 countries is more stable (and slightly below Belgium since 2015).

Conclusion

The availability and the distribution of practising physicians and dentists, and more especially, the share of them acceding to the agreement must be an attention point. In addition, even if the density of nurses is high and well distributed, some sectors (hospitals and nursing homes) seem below quality standard. The interested reader can now find more up to date data on physicians and dentists on the healthybelgium.be website.

Table 8 – Accessibility: Indicators on health workforce distribution

(ID)	Indicator	Score	Belgium	Year	Flanders	Wallonia	Brussels	Source	EU-14	EU-27
A-10	Practising physicians									
	Number per 1000 population	🟡 *	3.2	2021	**3.0**	3.4	4.0	RIZIV – INAMI		
			3.2	2020				OECD	4.0	3.8
	Number per 1000 population, in FTE	🟡 *	2.2	2021	2.2	2.2	2.1	RIZIV – INAMI	-	-
	Number per 1000 population acceding to the agreement on national tariffs, in FTE	🟡 *	1.7	2021	1.7	1.8	1.7	RIZIV – INAMI	-	-
A-11	Practising nurses									
	Number per 1000 population	🟢 *	11.1	2018	11.6	10.1	10.7	FPS Public Health, OECD	9.5	8.1
	Number per 1000 population, in FTE	🟢 *	9.4	2018	9.7	8.9	9.4	FPS Public Health		
A-12 ***NEW***	Practising dentists	🟡 *								
	Number per 1000 population	🟢 *	0.8	2021	**0.7**	**0.7**	1.2	RIZIV – INAMI		
			0.8	2020				OECD	0.7	0.8
	Number per 1000 population, in FTE	🟢 *	0.6	2021	**0.6**	**0.5**	0.7	RIZIV – INAMI		
	Number per 1000 population acceding to the agreement on national tariffs, in FTE	🔴 *	0.3	2021	**0.2**	**0.3**	0.4	RIZIV – INAMI		

Good (🟢), average (🟡) or poor (🔴) results, globally stable (ST), improving (+) or trend not evaluated (empty).
*For contextual indicators (no evaluation): upwards trend (↗), stable trend (→), downwards trend (↘), no trend (C). *While the number of healthcare professionals is considered as contextual, the evaluation here exceptionally is based on the distribution. It should also be noted that more up to date data are available here: https://www.healthybelgium.be/en/medical-practice-variations/overall-context-of-practice-variations/healthcare-providers*

4.3 Health services distribution

Accessible healthcare not only requires financially affordable services and an adequate workforce, but also resources which are geographically well accessible and available in a timely manner. In this subsection we focus on possible geographic and waiting time barriers to healthcare access, based on six indicators:

- Self-reported unmet medical needs due to geographic reasons and waiting time (A-13)
- Self-reported unmet dental care needs due to geographic reasons and waiting time (A-14)
- Waiting time to get an appointment with a medical specialist (A-15)
- Waiting time to get an appointment with a GP (A-16)
- Deaths among people on waiting lists for organ donations (A-17)
- Population living within 20 km of the nearest hospital (A-18)

Self-reported unmet medical needs due to geographic reasons (as main reason)

Geographic accessibility of medical care can be evaluated on the basis of the EU-SILC, measuring the people who reported unmet needs for medical care due to geographic reasons as main reason (% of respondents) (A-13a). This indicator concerns unmet needs, meaning that people, whilst they felt they needed care, did not receive it. Geographic reasons can be either excessive distance or having no means of transport. In the years 2018-2022, no respondent (0.0%) reported unmet medical needs due to geographic reasons as main reason in Belgium – a slight improvement compared to the 2014-2017 period, where this value was 0.2% (see also section 8.4). With this zero value, Belgium scored better than both the EU-14 and EU-27 averages (0.1%) in 2022. The percentages were generally very low in Europe as it only concerned unmet needs (forgone care) and only that part of it for which geographic reasons were reported as the main reason.

Comparative data are available from the HIS, though with some important differences: in the HIS, people report *delayed* healthcare (not unmet needs or forgone healthcare like in the EU-SILC), and geographic reasons can be one of the reported reasons (it should not necessarily be reported as main reason as in the EU-SILC). This resulted in slightly higher percentages. The percentage of people who had to *delay* healthcare due to distance or transport problems increased from 1.2% to 1.6% between 2013 and 2018 (most recent data available from the HIS), but also remained low compared to other EU countries. It was highest in Wallonia (2.6% in 2018) and Brussels (2.0%) and lowest in Flanders (0.9%). Delayed healthcare due to distance or transport problems was more common in low-income respondents (3.8% in the lowest income group vs. 0.6% in the highest income group, see also section 7.1) and in single-person households (2.4% compared to 1.0% in couples with children).

Self-reported unmet medical needs due to waiting time (as main reason)

Timely access to care can be measured by an indicator on the self-reported unmet needs for medical care due to waiting time as the main reason (% of respondents) (A-13b). This indicator is also based on the EU-SILC. In the years 2017-2020, no respondent (0.0%) reported unmet medical needs due to waiting time as the main reason in Belgium. In 2021, there was a small increase to 0.5%, probably due to the COVID-19 pandemic, as resources were mobilised to address the crisis (see also section 8.4). The percentage then dropped back to 0.0% in 2022. With this zero percentage, Belgium scored better than the EU-14 (1.2%) and EU-27 average (1.5%). Differences by socioeconomic status are discussed in section 7.1.

Considerably higher percentages were seen in data from the HIS on people reporting *delay* in healthcare because of waiting time. In 2018, the percentage of people who had to *delay* healthcare because it took too long to get an appointment reached 6.6% for Belgium, 9.2% in Brussels, 7.1% in Wallonia and 5.9% in Flanders. This was still less than in most other EU countries. The above mentioned differences between the questions posed in the EU-SILC and the HIS can explain part of the differences between the two sources.

Self-reported unmet dental care needs due to geographic reasons and waiting time (as main reason)

Besides the two indicators on unmet medical needs, there are two similar indicators on unmet dental care needs, also based on the EU-SILC. For the 2013-2022 period, the percentage of patients reporting unmet dental care due to geographic reasons as main reason in Belgium averaged 0.0 to 0.1%, with 0.0% in 2022 (A-14a). This is similar to the EU-14 and EU-27 averages for 2022.

People self-reporting unmet needs for dental care due to waiting time as main reason (% of respondents) (A-14b) averaged between 0.0 and 0.1% from 2013 to 2020. In 2021, there was a slight increase to 0.6%, after which it dropped back to 0.1% in 2022. Differences by socioeconomic status are discussed in section 7.1.

Waiting time to get an appointment with a medical specialist or a GP

This section discusses two patient-reported indicators pertaining to the waiting times to get an appointment, either with a medical specialist (A-15) or a GP (A-16). They are both 'patient experience' indicators, based on waiting times reported by patients in the HIS. The first of these indicators (A-15) measures how many patients asking for a face-to-face appointment with a medical specialist could only get an appointment after more than two weeks. The second indicator (A-16) measures how many patients asking for a face-to-face appointment with a GP could only get an appointment after one day or more. Patients were also asked whether they experienced those waiting times as problematic.

In 2018, 48% of patients had to wait more than two weeks for an appointment with a medical specialist, an increase of 10 percentage points compared to 2013 (38%). In 2018, this percentage was highest in Wallonia with 55.6%, versus 45.6% in Flanders and 42.5% in Brussels. In 2018, 13.5% of patients experienced the waiting time to see a specialist as problematic (22.3% among those who had to wait 2 weeks or more). In all regions except Brussels, this percentage had increased compared to 2013.

For GPs, 42.1% of patients had to wait a day or more for their appointment in 2018, compared to 30.1% in 2013. This percentage was higher in Flanders (44.9%) and Brussels (43.6%) than in Wallonia (36.3%), with an increase in all regions compared to 2013. In 2018, 3.9% of patients experienced the waiting time to see a GP as problematic (24.7% among patients who had to wait just about a week or longer).

Not only were the waiting times for GPs increasing, also an increasing number of GPs were not accepting new patients. According to a recent report from 2023, 17% of Belgian GPs do not accept new patients and 58% only accept new patients under certain conditions.[62] The percentage of GPs who do not accept new patients is highest in Hainaut (27%) and lowest in West-Flanders (8%).

Deaths among people on waiting lists for organ transplant

A very specific indicator on timely access to care can be derived from the waiting lists for organ transplant. At the end of 2022, 1 504 persons were on a waiting list for organ transplant in Belgium. However, not all of them eventually got an organ transplant; the probability of dying while on the waiting list increases with the waiting time. The indicator A-17 assesses the mortality rate in people on the waiting list, based on data from Eurotransplant, an international collaborative framework responsible for the allocation of donor organs in seven European countries. In 2022, the mortality rate among people on a waiting list for organ transplant was 6.3% in Belgium. Though this was the lowest figure in the Eurotransplant framework, efforts to reduce it further are still warranted by increasing the supply in Belgium and in the other collaborative countries.

Population living within 20 km of the nearest hospital

Another indicator on geographic accessibility assesses how many people live within 20 km of emergency and hospital care (A-18) on the basis of data from Statbel. There is not really an evidence-based maximum distance to a hospital, so this indicator should be seen as an approximation. In 2021, 99.3% of the Belgian population lived within 20 km of the nearest hospital with emergency service (87.3% lived within 10 km). In 6 provinces out of 10, 100% of the population lived within 20 km of the nearest hospital. The most striking exception was Luxembourg, where only 81% of the population lived within 20 km and 36% within 10 km of the nearest hospital in 2021.

Assessing geographic accessibility comes with some challenges. Besides the difficulty of determining the maximum distance, it would be better to have data on the time it takes to reach a hospital (considering factors like the road network, traffic, etc.) instead of the number of kilometers, but these data are not available. Only for maternity services such data are available. In a separate KCE report, we analysed the proportion of women aged 15 to 49 years who live within 30 minutes of the closest maternity service (based on the average travel time by car on a normal weekday). In 2019, 99.8% of women lived within 30 minutes of one or more maternity services and 100% lived within 45 minutes of the nearest maternity service.

Conclusion

Geographic accessibility in Belgium is generally good, with the EU-SILC reporting no respondents with unmet needs for medical care due to geographic reasons as main reason, and Statbel reporting 99.3% of the Belgian population living within 20 km of the nearest hospital.

Timely accessibility of medical care, on the other hand, deteriorated between 2013 and 2018. The EU-SILC reported a zero percentage for unmet needs for medical care due to waiting time as main reason in Belgium, but these data only give a narrow view on accessibility as they only report unmet needs (i.e. care not received) because of waiting time. When we look at data from the HIS, on people reporting delay in healthcare, we see generally higher percentages. Data from the HIS also showed an increase in waiting time to get an appointment with a medical specialist or GP from 2013 to 2018. Furthermore a recent report from 2023, commissioned by the FPS Public Health, revealed that 17% of GPs do not accept new patients.

Table 9 – Accessibility: Indicators on health services distribution

(ID)	Indicator	Score	Belgium	Year	Flanders	Wallonia	Brussels	Source	EU-14	EU-27
Health services distribution – unmet needs (forgone healthcare)										
A-13a *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, EU-SILC)	ST	0.0	2022	0.0	0.1	0.1	EU-SILC	0.1	0.1
A-13b *NEW*	People with self-reported unmet need for medical care indicating waiting time as main reason (% of respondents, EU-SILC)	●	0.0	2022	0.0	0.1	0.1	EU-SILC	1.2	1.5
A-14a *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, EU-SILC)	ST	0.0	2022	-	-	-	EU-SILC	0.0	0.0
A-14b *NEW*	People with self-reported unmet need for dental care indicating waiting time as main reason (% of respondents, EU-SILC)	●	0.1	2022	-	-	-	EU-SILC	0.7	0.7
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, HIS)	●	48.4	2018	45.6	**55.6**	42.5	HIS	-	-
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, HIS)	●	42.1	2018	**44.9**	36.3	**43.6**	HIS	-	-
Health services distribution - other										
A-17 *NEW*	Deaths among people on waiting lists for organs (% of the population on waiting list)	C	6.3	2022	-	-	-	Eurotransplant	8.9*	-
A-18 *NEW*	Population living within 20 km of the nearest hospital (% of the population)	●	99.3	2021	100.0	97.7	100.0	Statbel	-	-

Good (●), average (●) or poor (●) results, globally stable (ST), improving (+) or trend not evaluated (empty).
For contextual indicators (no evaluation): upwards trend (↗), stable trend (→), downwards trend (↘), no trend (C).

** Eurotransplant countries*

5 SUSTAINABILITY OF THE HEALTH SYSTEM

Sustainability can be defined as the system's capacity to remain durably financed by public sources; to provide and maintain workforce (e.g. through education and training), infrastructure and equipment; to be innovative; to be responsive to emerging needs, and to reduce its environmental impact (adapted from NHPC 2001[63] and WHO 2017[64]). Sustainability does not only focus on the current situation but also tries to anticipate future evolutions (e.g. by using projections). Sustainability is analysed through five sub-dimensions:

- Financial sustainability (or 'financial resources generation');
- Health workforce capacity (or 'human resources generation');
- Health technologies and infrastructure (or 'physical resources generation');
- Governance
- Environmental sustainability (not yet developed)

5.1 Financial sustainability

This section firstly describes contextual elements related to health expenditure to have a better view of the Belgian health system.

Secondly, the fiscal sustainability, referring to the ability to raise public revenues (taxes and social contributions) to meet public expenditures is analysed.[65] **Public expenditure on health (S-3)** is used to reflect the fiscal sustainability of the system.[65]

To determine the importance of the health sector in the country's overall economy, current expenditure on health as a share of GDP is also presented, as well as **projections of public expenditure on health (acute and long-term care) as a proportion of GDP (S-20)** to assess the long-term financial sustainability.

For the latter, the higher the indicator is, the more pressure is put on the system, either because the health sector is taking a larger importance in the overall economy, or because it is increasingly financed by the public sector, or both.

Finally, a specific focus is made on **public expenditure on reimbursed pharmaceuticals (S-21)**.

Context

Current expenditure on health in Belgium continues to rise, reaching 55.5 billion euros in 2021 (+49.8% compared with 2010). The increase was particularly important in 2021 due to the COVID-19 pandemic. Current health expenditure per capita, expressed in Purchasing Power Parity (PPP) US$, was slightly higher in Belgium and in the neighbouring countries than the averages for EU-14 and EU-27 countries (US$ 6 022 in Belgium in 2021 compared with US$ 5 557 (EU-14) and US$ 4 410 (EU-27)).

Fiscal sustainability

The share of current expenditure on health financed by the public sector (S-3) remained stable (77.6% in 2021 compared to 76.3% in 2010) and increased only slightly in 2020 and 2021 due to the COVID-19 pandemic (as in other countries) (see also section 8.4).

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).

Importance of the health sector in the overall economy and long-term sustainability

In 2021, current health expenditure represented 11% of the Belgian gross domestic product (GDP) (See sub-analyses of S-3).

Regarding the public part (S-20), public expenditure on health in Belgium represented 8.0% of the GDP in 2022: public health expenditure on acute care represented 6.5% of the GDP and public health expenditure related to long-term care represented 1.5% of the GDP.

In the future, **public expenditure on health as a share of GDP (S-20)** is projected to increase to 8.9% (+0.9 percentage points) in 2027, 10.7% (+ 2.7 pp) in 2050 and 10.8% (+2.8 pp) in 2070. Public expenditure on health in Belgium, as a percentage of the GDP are projected to follow a similar trend as the EU average, although public expenditure on long-term care (as a share of GDP) in Belgium will stay above the EU average. On the other hand, public expenditure on acute care in Belgium will remain lower than the EU average.

Public expenditure on reimbursed pharmaceuticals

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. In 2022, pharmaceutical expenditure amounted 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). However, the use of managed entry agreements (MEAs) is rising, especially for new innovative and expensive pharmaceuticals and most of the time include financial compensation mechanisms that are confidential, so that the actual expenditure for individual medicines is unknown. It is estimated, that, when correcting for the MEAs' compensations, pharmaceutical expenditure amounted to 4.94 billion € in Belgium in 2022. Total **public expenditure on reimbursed pharmaceuticals (S-21)** is expected to increase by 48.9% between 2022 and 2027, corresponding to an average annual increase of 8.3%. When correcting for the MEAs' compensations it is expected to increase by 36.6% (corresponding to an average annual increase of 6.4%).

Conclusion

The share of public funding in Belgium is in line with the European average but budgetary pressures are expected in the future. Indeed, according to projections on health expenditure, there is an expected rise in public expenditure on health as a percentage of GDP. Furthermore, the projected future increase in public expenditure on medicines is important and cannot be neglected. This needs to be monitored.

Table 10 – Sustainability: Indicators on financial sustainability

(ID)	Indicator	Score	Belgium	Period	Flanders	Wallonia	Brussels	Source	EU-14	EU-27
S-3	Public funding of healthcare (% of current expenditure on health)	C	77.6	2021	-	-	-	OECD	78.4	77.3
S-20	Projection of public expenditure on health (% GDP), evolution in percentage points	🟡	+0.9 pp	2022-2027	-	-	-	Study Committee on Ageing		
S-21 ***NEW***	Projection of public expenditure on reimbursed pharmaceuticals	🔴	+36.6% +33.4%	2022-2027 2027-2032	-	-	-	Federal Planning Bureau		

Good (🟢), average (🟡) or poor (🔴) results, globally stable (ST), improving (+) or trend not evaluated (empty).
For contextual indicators (no evaluation): upwards trend (↗), stable trend (→), downwards trend (↘), no trend (C).

5.2 Health workforce capacity

Health workforce capacity is defined as the system's capacity to provide and maintain (in the future) a sufficient and qualified health workforce. This includes indicators on:

- Inflow: the number of new graduates (S-4 for physicians, S-8 for nurses), their specialisation (S-5 for physicians, and S-9 for nurses) and the share of foreign workers (S-14 for physicians, S-16 for nurses);
- Outflow: the share of the workforce that will retire in the near future (S-7 for physicians, S-10 for nurses);
- Potential (future) shortages: projections of the supply and the demand (S-18 and S-19 for GPs, S-22 for nurses), proxies of the workforce's well-being and satisfaction (R-1), proxies of absenteeism (R-2), and the number of nurses vacancies in hospitals (R-3). The latter three are currently developed in the resilience chapter (see section 8.3).

Physicians

In Belgium, a quota system limiting access to specialisation (so after the basic medical training) was decided in 1997, with the first effect observed in 2004. To meet these quotas, specific measures were also taken by the federated entities to limit the number of medical graduates (see the technical sheet for details). However, despite the introduction of this system, the number of **medical graduates (S-4)** has risen more than what was foreseen by the quotas. In 2021, the number of students graduating from Belgian medical schools almost doubled compared to 2010 and exceeded the overall quota for access to specialisation by 674 students (1 904 medical graduates against a quota of 1 230 for 2021, with a higher surplus in the French Community than in the Flemish Community). Among these medical graduates, the share of medical graduates with a Belgian diploma who had a foreign nationality differed greatly from one community to the other, with a share of between 4% and 7% in the Flemish Community (78% of them coming from the Netherlands in 2021) and an increasing share of up to 20% in the French Community in 2020 (half of them coming from France).

To ensure a number of medical graduates more in line with the quotas, additional measures were taken, and an entrance exam combined with a numerus fixus is now implemented in both communities, limiting the number of students starting medical studies.[66]

It should however be noted that, based on an analysis of future needs, quota have now been increased (from 1 230 in 2019 to 2 073 for 2029).[67]

Compared to EU-14 and EU-27 averages, the density of medical graduates in Belgium followed a similar pattern between 2010 and 2015 but from 2016 the density in Belgium was slightly higher. In 2021, Belgium had 2.3 more medical graduates per 100 000 population than the average for the EU-14 countries and 1.3 more per 100 000 population than the EU-27 average. 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.

The recruitment of **foreign-trained physicians (S-14)** also allows to maintain a sufficient number of physicians in a country. In the "Global Code of Practice on the International Recruitment of Health Personnel", the World Health Organization (WHO), however, encourages countries to achieve greater "self-reliance" in the training of health personnel.

In 2021, about 13% of all licensed to practice physicians in Belgium held a foreign diploma (9 526 foreign-trained physicians among 72 660 physicians licensed to practice); half of them came from France, The Netherlands and Romania. Overall, an increase of 5.3 percentage points was observed compared with 2010. Compared with other EU countries, 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). However, this proportion relates to physicians who are licensed to practice and not to practising physicians. The proportion is lower if we only look at practising physicians. Indeed, based on data from the PlanCad, only 6.4% of practising physicians in Belgium had a foreign diploma in 2021 (no international data available).

It should also be highlighted that orienting new graduates as GPs was an important objective these recent years and the efforts (such as the sub-quotas on GPs defined by the federated entities) have produced effects. The percentage of **medical graduates becoming GPs** (S-5) increased from 26.3% in 2011 to 38.3% in 2021. The most important impact was observed in the French community (based on the contact language). The percentage of French-speaking medical graduates becoming GPs is now higher that the percentage of Dutch-speaking medical graduates becoming GPs (40.7% vs 35.9% in 2021), while it was the contrary up to 2018.

Moreover, the proportion of GPs aged 55 years and over has decreased although this proportion remained large (44.6% in 2021). Other medical specialties with a **proportion of physicians aged 55 years and over** greater than 40% in 2021 were medical specialists in rheumatology (46.1%), in Ear-Nose-Throat (ENT) (41.2%), in radiology (41.0%), and in nuclear medicine (40.2%). For these medical specialties, the proportion was increasing over time. Compared to other countries, although the overall proportion of physicians aged 55 and over (in headcounts) has been decreasing since 2016, the proportion observed in Belgium (43.3%) remained higher than the EU-14 (35.1%) and EU-27 (37.4%) averages (based on 2020 data). Vigilance is therefore still required to ensure that the inflow of new physicians will be sufficient to replace those who will retire in the coming years and to respond to any growing demand.

Results from the microsimulation model PROMES showed 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 (demand) (S-18)** of 3.4% is projected for Belgium (3.2% in Brussels, 3.6% in Wallonia and 3.4% in Flanders). During roughly the same period (2021-2026), the **number of practising GPs (supply) (S-19)** in Belgium is expected to increase from 12 554 to 13 089, that is an increase of 4.3%. The number of practising GPs is predicted to increase by 4.3% between 2021 and 2026 in the French community and by 4.2% in the Flemish community. However, these increases in the number of practising GPs do not translate into an increase in the number of FTEs for which a drop of 8.6% is expected in the French community and of 7.1% in the Flemish community. Nevertheless, between 2026 and 2031, an increase is expected in the number of FTEs in the Flemish community (and a smaller decrease in the French community). From 2031 onwards, FTEs are expected to increase even more than headcounts (because the GPs will be, on average, younger).

Taking into account the new quotas for 2029 (see above), the number of practising GPs at the Belgian level is expected to increase by 13.3% between 2031 and 2036 and by 14.7% between 2036 and 2041) while FTEs are expected to increase by respectively 14.2% and 16.9%. Unfortunately, these long-term projections cannot be compared with projections on the number of contacts with GPs, which are only available for short / medium horizons.

Table 11 – Sustainability: Indicators on workforce capacity - Physicians

(ID)	Indicator	Score	Belgium	Period	Flanders	Wallonia	Brussels	Source	EU-14	EU-27
Inflow										
S-4	Medical graduates (/100 000 population)	↗	16.4	2021	-	-	-	FPS Public Health		
			16.6	2020	-	-	-	OECD	14.3	15.3
S-5	Medical graduates becoming GP (% of those with medical specialisation)	⊕	38.3%	2021	35.9% (NL)	40.7% (FR)		RIZIV-INAMI		
S-14	Foreign-trained physicians (% of those licensed to practice)	↗	13.1%	2021	-	-	-	FPS Public Health		
			12.7%	2020	-	-	-	OECD	14.9%	11.4%
Outflow										
S-7	Physicians aged 55+ (% practising), headcounts	⊕	43.3%	2020				OECD	35.1%	37.4%
	In FTE, based on contact language		38.6%	2021	36.3% (NL)	41.7% (FR)		RIZIV-INAMI		
	In FTE, based on region of contact				37.0%	42.8%	40.8%			
Potential shortage in the future (see also R-1)										
S-18	Projection of the number of contacts with GPs (Demand), evolution in %	↗	+3.4% +6.3%	2022-2027 2027-2032	+3.4% +6.4%	+3.6% +6.3%	+3.2% +5.1%	Federal Planning Bureau		
S-19a	Projection of the number of practising GPs (Supply), evolution in %	↗	+4.3% +3.9%	2021-2026 2026-2031	+4.2% +6.2%	+4.3% +0.8%		Planning Commission of medical supply		
S-19b	Projection of the number of FTE practising GPs (Supply), evolution in %	↘	-7.6% +0.1%	2021-2026 2026-2031	-7.1% +1.7%	-8.6% -2.5%		Planning Commission of medical supply		
	Assessment S-18/S-19	●								

Good (●), average (●) or poor (●) results, globally stable (ST), improving (+) or trend not evaluated (empty).
For contextual indicators (no evaluation): upwards trend (↗), stable trend (→), downwards trend (↘), no trend (C).

Nurses

In 2021, a total of 5 304 students graduated from nursing schools in Belgium. A decrease can be observed in 2019 due to the extension of the length of the studies and in 2021, the number remained lower than in 2014-2018 (6 446 nursing graduates in 2018). This should be monitored in the future, as it is possible that the combination of longer studies and the possible deterioration in the perception of the profession due to the COVID-19 pandemic could have a negative impact on the number of new nursing graduates in the future.

Compared to other countries; the density of 45.0 **nursing graduates per 100 000 population (S-8)** in Belgium was above the EU-14 average of 36.7 and the EU-27 average of 29.7 per 100 000 population (based on 2020 data to allow for comparison with a sufficient number of countries). Nevertheless, this comparison is biased by the substantial proportion of foreign students who usually leave Belgium after they graduate. The proportion of foreign students was substantial in the French Community (35.4% based on nationality and 21.9% based on the place of residence, 2021 data) and was increasing (+19.2 and +20.8 percentage points respectively compared to 2010). A smaller proportion of students had a foreign nationality in the Flemish Community, but the trend was also increasing (7.3% in 2021, 3.8% in 2019 and 1.7% in 2010).

The extension of the length of the studies also impacted the **percentage of nursing graduates with a bachelor's** degree (S-9)[m] in Belgium and in 2021, the percentage was below the level observed between 2010 and 2018 (48.8% compared with around 56%). This share was higher in the French community (58.7% in 2021) than in the Flemish community (42.0% in 2021). This needs to be monitored to ensure a sufficient share of nurses with a high education level for the forthcoming years.

The proportion of **foreign-trained nurses** among all nurses licensed to practice **(S-16)** in Belgium (4.2% in 2021) was much lower than the proportion of foreign-trained physicians (13.1% in 2021) but this share was increasing over time (from 1.5% in 2010 to 4.2% in 2021[n]). Compared to other EU countries, the proportion of foreign-trained nurses licensed to practice in Belgium was similar to the European averages (EU-14 and EU-27) in 2020 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).

Concerning the share of nurses that will retire in the near future, the proportion of **practising nurses aged 50[o] 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 as a sign of longer availability on the labour market (retirement at later age). Older nurses that remain active in the health sector nevertheless usually rather perform administrative tasks.

The **number of FTEs nurses active in the health sector (practising nurses) (S-22)** is expected to increase by 5 198 FTEs (4.6%) between 2023 and 2028. The number of FTEs nurses active in the hospital sector is expected to increase by 2 554 FTEs (3.7%) between 2023 and 2028, which is insufficient to ensure sustainable safe patient-to-nurse ratios in hospitals as defined by KCE report 325.[60] The number of FTEs nurses active in nursing homes is expected to increase by 1 292 FTEs (6.7%) between 2023 and 2028 and the number of FTEs nurses active in the home care sector is expected to increase by 1 242 FTEs (6.3%) between 2023 and 2028. No forecast of future demand is available to compare these supply forecasts with.

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[m] Among all nursing graduated with a diploma degree (3/3.5 years) or a bachelor's degree (4 years))

[n] including diploma with unknown country of origin (and from 1.2% in 2010 to 3.9% in 2021 by excluding diploma with unknown country of origin).

[o] Because nurses usually retire earlier than physicians (often around 60 years old) or change for more administrative tasks at the end of their carriers, a threshold of 50 years old was chosen instead of 55 years old.

Conclusion

Efforts to improve workforce capacity have had a positive impact, but vigilance is still needed as the number of contacts with GPs (demand) is expected to grow faster than the number of FTE practising GPs (supply) in the short to medium term. In addition, the proportion of physicians aged 55 and over remained high overall and increased in some specialties such as rheumatologists and ENT specialists.

For nurses, based on projections up to 2028, the number of FTE practising nurses is expected to increase, but not enough in the hospital sector to ensure sustainable safe patient to nurse ratio as defined in KCE report 325 (assuming constant policy).[60]

There is also a potential shortage in nursing homes to ensure sufficient quality standards, but this needs to be further investigated.

It will also be important to assess and monitor whether the increase in the length of nursing studies or the COVID-19 pandemic has a lasting negative impact on the number of new nursing students. In particular, a decline was observed concerning the number of nursing students following the bachelor route.

Table 12 – Sustainability: Indicators on workforce capacity - Nurses

(ID)	Indicator	Score	Belgium	Period	Flanders	Wallonia	Brussels	Source	EU-14	EU-27
Inflow										
S-8	Nursing graduates (/100 000 population)	↘	45.8	2021				FPS Public Health		
			45.0	2020				OECD	36.7	29.7
S-9	Nursing students following the bachelor route (% of new graduates)	🟡	48.8%	2021	**42.0%**	58.7%		FPS Public Health		
S-16	Foreign-trained nurses (% of those licensed to practice)	↗	4.2%	2021				FPS Public Health		
			4.1%	2020				OECD	5.3%	4.7%
Outflow										
S-10	Nurses aged 50+ (% practising nurses), Based on the region	↗	32.1%	2018	32.8%	30.1%	33.8%	FPS Public Health		
	Based on the language of the diploma				34.2% (NL)	28.9% (FR)				
Potential shortage in the future (see also R-1, R-2, R-3)										
S-22 ***NEW***	Projection of the number of FTE practising nurses (Supply), evolution in %	🟡	+4.6% +4.9%	2023-2028 2028-2033	+4.2% +4.9%	+5.1% +5.0%		Planning Commission of medical supply		

Good (🟢), average (🟡) or poor (🔴) results, globally stable (ST), improving (+) or trend not evaluated (empty).
For contextual indicators (no evaluation): upwards trend (↗), stable trend (→), downwards trend (↘), no trend (C).

5.3 Health technologies and infrastructure

Health technologies and infrastructure can be viewed as the system's capacity to provide and maintain (in the future) sufficient infrastructure and (innovative) health technologies, including health products, medical equipment and information technology (eHealth). This includes indicators on:

- Information technology: GPs meeting the activity thresholds for a selection of 6 **eHealth services** (% of active GPs) (S-27)
- Health products: The number of notifications of **temporarily unavailable** packs of medicines for human use with a **critical impact** (S-28)
- Infrastructure: The number of **acute care bed days per capita** (S-11). A link towards information on the number of beds is also provided.

Information technology (eHealth)

An integrated practice premium has been created for active GPs[p] to support them in their practice and promote their use of eHealth services. The amount of the premium depends on the reaching of activity thresholds for a selection of eHealth services (online prescription of pharmaceuticals, online invoicing, etc.). The share of GPs meeting the thresholds for a selection of 6 eHealth services eligibles for the premium increased from 51.2% in 2019 to 71.4% in 2021 (+20.2 percentage points). This share was higher for accredited physicians (74.7% compared to 24.1% for non-accredited physicians) and lower results were observed in Brussels (45.8%) compared to Flanders (78.0%) and Wallonia (66.6%). The eHealth services for which the activity thresholds were most reached were online registration of informed consent for patients who have opened a Global Medical Record (GMR) with the GP (95.1% in 2021), the use of MyCareNet to manage the electronic global medical record (GMR) (93.4% in 2021) and online prescription of medicines (91.8% in 2021). 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 between 2019 and 2021).

Health products

The number of notifications of temporarily unavailable packs of medicines for human use with a critical impact (S-28) increased from 21 in 2020 to 36 in 2022. Notifications with critical impact accounted for 1% of all notifications of temporarily unavailable packs of medicines for human use in 2022. The average duration of notifications with critical impact was 155 days. Immunoglobulins accounted for 56% of notifications for medicines with critical impact.

Infrastructure

The number of hospital beds and their geographic distribution can be found on the healthybelgium.be website (Key data in healthcare[q]). 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. In 2021, 10.6 million days were spent in acute care hospitals (classic hospitalisation only, excluding one day). Per capita, this represented 0.90 acute care bed days, which was close to the European averages of 0.88 (EU-27) and 0.87 (EU-14). Nevertheless, this number was quite high compared to neighbouring countries such as in the Netherlands (with 0.4 acute care bed day per capita in 2021). This figure slightly decreased in Belgium between 2010 (1.14) and 2019 (1.05), while in the same period the average length of stay decreased for most APR-DRG, and

[p] Headcounts; excluding GP working in medical houses with a capitation remuneration system (for which data are not available)

[q] https://www.healthybelgium.be/en/key-data-in-healthcare/general-hospitals/organisation-of-the-hospital-landscape/categorisation-of-hospital-activities

the number of classic admissions[r] increased. If the increase in the number of classic admissions is due to e.g. an ageing population, and the shorter length of stay does not result in adverse effects on health outcomes, the combined effect can be interpreted as an improved efficiency of the hospital sector at a macro level.

An unprecedented decrease was then 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 total hospital bed infrastructure capacity was therefore not threatened during the COVID-19 pandemic (see nevertheless R-6 for beds in intensive care units and beds for COVID-19 patients).

The number of bed-days per capita was higher in Brussels than in Flanders and Wallonia (with 1.30, 0.87, 0.88 acute care bed days per capita, respectively in 2021), which was explained by the fact the people living in provinces around Brussels were hospitalised in Brussels. The same phenomena may also happen between the province of Luxembourg and its neighbouring countries. Without cross-border cooperation, the infrastructure in the province of Luxembourg could therefore become unsufficient.

Conclusion

Thanks to the efforts made to develop eHealth in Belgium, positive results can be observed in the use of eHealth technologies.

However, regarding health products, a number of notifications of temporary unavailability of medicines were assessed as having a critical impact on patients, and even if this number was limited (36 in 2022, mostly concerning immunoglobulins), it remained too important.

Finally, in terms of infrastructure, as the activity assessed by the number of acute care bed days per capita was decreasing, there was no pressure on the number of beds available (freeze since 1982).

Table 13 – Sustainability: Indicators on health technologies and infrastructure

(ID)	Indicator	Score	Belgium	Period	Flanders	Wallonia	Brussels	Source	EU-14	EU-27
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)	+	71.4%	2021	78.0%	66.6%	**45.8%**	RIZIV-INAMI		
Health technologies: Health products										
S-28 ***NEW***	Notifications of temporarily unavailable packs of medicines for human use with a critical impact (Number)	●	36	2022	-	-	-	FAGG – AFMPS		-
Infrastructure										
S-11	Curative care bed-days (number/capita)	↘	0.92	2021	**0.87**	**0.88**	1.30	FPS Public Health		
			0.90	2021	-	-	-	OECD	0.87	0.88

Good (●), average (●) or poor (●) results, globally stable (ST), improving (+) or trend not evaluated (empty).
For contextual indicators (no evaluation): upwards trend (↗), stable trend (→), downwards trend (↘), no trend (C).

[r] i.e. admission involving at least one overnight stay

5.4 Governance

Since the COVID-19 pandemic, good governance has gained further importance as central government institutions were forced to rapidly adjust decision-making processes and cross-government policy-coordination, while pre-existing structures were not always adapted to respond to the multidimensional impacts of the COVID-19 pandemic.[68]

In the new Belgian HSPA framework, governance was therefore defined as the capacity of health decision makers to ensure accountability and agency, transparency, provide fit-for-purpose institutions and be responsive to the needs of the population (adapted from Papanicolas et al. 2022[11]).

This report includes four indicators that provide specific information on the governance of the healthcare system. The results give only a partial view of the performance of the Belgian health system governance and two of the indicators are based on self-reported key informant data. Nevertheless, some important conclusions can be drawn.

Responsiveness to population's needs and accountability and agency

In 2022, 90% of the Belgian population was satisfied with the healthcare system, which was the highest level among EU-27 countries. This indicator (S-29) can be considered an overall indicator of the performance of the Belgian health system, as it also relates to (sub-)dimensions beyond governance. 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 remained higher than the EU-27 average level. The discordance between the high satisfaction with the healthcare system and the average trust level in the healthcare system could potentially be related to differences in the time period of the survey or in the phrasing of the survey questions (satisfied vs dissatisfied for S-29 and a 1-10 scale for S-30).

In 2023, Belgium had a score of two (scale 1-3) for patients' formal participation role in health policy. Citizens or patient organisations were 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 time (2023: 1.7 and 1.8, respectively).

Transparency

Belgium had data available for 82% of health-related SDGs for at least one year between 2013 and 2017, which was a bit lower than the EU-27 and EU-14 averages. Based on a more recent OECD survey (2019-2020) of health data development,[69] Belgium scored 4.42 (out of 8) for health dataset availability, maturity and score and 11.86 (out of 15) for health dataset governance. These results indicated average 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 and high agreement with the health data governance policies and practices that were measured.

Conclusion

Although the Belgian population's satisfaction with the healthcare system has remained high over time, the country's performance on other indicators of governance was average, including trust in the healthcare system during the COVID-19 pandemic, patient having a formal participation role in health policy and the availability of data to monitor health-related SDGs. The latter is however based on old data[s] and in recent years, Belgium has made efforts to improve its health information system (see section 13.1).

As noted in KCE Report 370,[10] the selection of governance indicators has several limitations, including the exclusion of indicators related to the governance of specific sectors of the health system and the focus on quantitative indicators. Nevertheless, several indicators reported in the sub-dimension quality – people-centred care are also related to governance and more precisely the empowerment of the population and the responsiveness of the system to population needs. Some qualitative assessments can also

[s] No evaluation is therefore given.

be found in the Belgian Health Systems in Transition (HiT) profile[5]. The appendix of the KCE Report 370[10] provides to the interested readers the sections of the HiT that give qualitative information on the governance.

Table 14 – Sustainability: Indicators on governance of the healthcare system

(ID)	Indicator	Score	Belgium	Year	Flanders	Wallonia	Brussels	Source	EU-14	EU-27
S-29 *New*	People satisfied with the healthcare system (% of respondents)	ST	90	2022	-	-	-	Gallup World Poll*	73	68
S-30 *New*	Trust in the healthcare system, scored on a 1-10 scale	🟡	6.3	2021	-	-	-	Eurofound	6.5	5.9
S-31 *New*	Patient having a formal participation role in health policy (scored on a 1-3 scale)	🟡	2	2023	-	-	-	OECD	1.8	1.7
S-32 *New*	Availability of data to monitor health-related Sustainable Development Goals (SDGs) (%)	C**	82	2013-2017	-	-	-	WHO	88	87

** Via OECD Statistics ** No score given as data are old.*

Good (🟢), average (🟡) or poor (🔴) results, globally stable (ST), improving (+) or trend not evaluated (empty).
For contextual indicators (no evaluation): upwards trend (↗), stable trend (→), downwards trend (↘), no trend (C).

5.5 Environmental sustainability

Environmental sustainability is defined as the system's capacity to minimize negative impacts on the environment and leverage opportunities to restore and improve it to the benefit of the health and well-being of current and future generations.[64] For a question of timing and data availability, this sub-dimension is not yet developed in the Belgian HSPA report.

6 EFFICIENCY OF THE HEALTHCARE SYSTEM

Efficiency in healthcare usually concerns the relation between inputs (i.e. sustainability indicators such as financial resources, workforce, infrastructure) and intermediate outputs (i.e. accessibility and quality indicators such as waiting times, etc.) or ultimate health outcomes (i.e. health status indicators such as the life years gained), and is therefore considered as a transversal dimension. However, the relation between inputs and outcomes is complex and is driven by factors outside the control of health system managers.[70] A frequently used indicator of efficiency is for example life expectancy related to health expenditure per capita. Health expenditure is nevertheless only one of the many determinants of life expectancy. This is the reason why this type of analysis is not performed in the Belgian HSPA reports. In our reports, it was rather decided to analyse sub-sector specific indicators representative of a more efficient use of care services (such as the use of generic pharmaceuticals or the shift from inpatient to day-care hospitalisations).

Five indicators have been selected to evaluate the efficiency of the healthcare system (Table 15) but it should be noted that indicators on inappropriate care are also indicators of inefficiencies (see section 3.3 and the report on medical practice variation[t]).

As in other European countries, the trend in Belgium was towards a more efficient use of care services.

Indicators showed a positive trend over time: an increase in the shift from inpatient (at least one night) to one-day surgical hospitalisations (**E-1**) an increase in the use of low-cost medication (**E-3**), and a decrease in the length of stay for a normal delivery (which was a more comparable indicator between countries than the overall average length of stay because of differences in patient case mix, **E-2**): the Belgian postpartum length of stay was equal to the EU-14 average and slightly below the EU-27 average in 2021. The degree of substitution of biological treatments with biosimilars was however still very low in Belgium even if an increasing trend was beginning to appear (**E-4**). More details on the COVID-19 period are given in section 8.4.

Patients suffering from a chronic renal disease may need renal replacement therapy if the residual kidney function is insufficient. The preferred treatment is kidney transplant when available. The alternative is dialysis, for which there are several types: haemodialysis (at the hospital site, in a satellite centre, or even at home in some cases) or peritoneal dialysis. Haemodialysis in hospital setting is expensive ("high-care dialysis"), while alternatives such as haemodialysis in a satellite centre or at home, nocturnal or peritoneal dialysis are less costly ("low-care dialysis").[71] Since most patients can be treated with low-care dialysis at least initially, RIZIV – INAMI is encouraging hospitals to promote it in order to reduce the costs (the 2024 budget for dialysis fees -hospital, satellite centre or at home- amounts to 569 million EUR). In the dialysis financing agreement between RIZIV – INAMI and individual hospitals, the latter are expected to reach a proportion of low-care dialysis of 40%. In 2021, 48 out of the 52 hospitals reached this target.

[t] https://www.healthybelgium.be/en/medical-practice-variations

Table 15 – Indicators on efficiency of the healthcare system

(ID)	Indicator	Score	Belgium	Year	Target	Flanders	Wallonia	Brussels	Source	EU-14	EU-27
E-1	One day surgical admissions (%)	+	49.5	2021	-	52.0	45.1	49.7	MZG – RHM	-	-
E-2	Length of stay, normal delivery (days, mean)	+	2.7	2021	-	2.6	2.8	2.6	MZG – RHM	2.7	3.3
E-3	Use of low-cost medication (%, ambulatory care)	+	72.1	2022	-	72.7	71.0	71.6	Pharmanet	-	-
E-4	Biosimilar treatments (%)	+									
	Total		12.6	2021					INAMI – RIZIV	-	-
	Ambulatory care					7.8	**4.2**	**5.3**	INAMI – RIZIV	-	-
E-5	Low-care dialysis (% hospitals with ≥ 40% of dialyses)	+	92.3	2021	100	91.7	94.7	88.9	INAMI – RIZIV	-	-

Good (●), average (●) or poor (●) results, globally stable (ST), improving (+), deteriorating (-) or trend not evaluated (empty).

7 INEQUITY AND INEQUALITY

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.[22, 42] Ensuring affordable access to healthcare is at the heart of universal health coverage, and was reaffirmed numerous times as a key objective of the Belgian healthcare system.[22] In this respect, health policy in Western European countries has not only been concerned with an equitable distribution of healthcare payments (see section 4.1 on financial accessibility), but also with equity in healthcare use. Both are of course related, as healthcare financing arrangements create, reduce or break down potential (financial) barriers in the use of healthcare.[72, 73]

(In)equality versus (in)equity

It is important to note that there is a conceptual difference between (in)equality and (in)equity in healthcare use. While *equality* describes the situation in which something is distributed in the same quantity for each individual across society, *equity* concerns the fair distribution of it.

Inequalities as such or the absence thereof are neither inherently negative nor positive. Their assessment depends on the underlying causes of these disparities. Inequities, on the other hand, refer to inequalities that are deemed to be unfair or stemming from some form of social injustice, and require a normative judgement.

Two guiding principles are used to assess a fair distribution of healthcare use: (1) the *horizontal equity principle*, defined as equal (access to) care for people with the same healthcare needs, irrespective of other characteristics such as income, educational attainment, place of residence, race, etc. and (2) the *vertical equity principle*, defined as appropriate unequal treatment of people with different healthcare needs. Hence, differences in healthcare use are considered fair if they are related to differences in healthcare needs, and unfair if they result from access difficulties related to e.g. capacity to pay, health literacy or any kind of discrimination.

Note that with respect to preventive care, one could argue that differences in healthcare needs are irrelevant, as prevention is important and valuable irrespective of needs in order to preserve one's health status. That is partly true, but certain types of prevention are particularly recommended for individuals with specific health conditions or for individuals of high age, e.g. influenza vaccination.

Equity as transversal dimension

This chapter consists of two parts. **In a first part, we bring together socioeconomic inequalities reported for a selection of indicators from other dimensions and domains** covered in the Belgian HSPA framework. Socioeconomic inequalities are defined as inequalities observed between population subgroups with different socioeconomic status, e.g. between low-income and high-income households or individuals.

In a second part, socioeconomic inequities are examined for seven indicators on healthcare use. These indicators are a subset of the indicators assessed in KCE report 334 dedicated to the dimension equity within the Belgian HSPA and were identified by a group of experts as the most relevant in the Belgian context (more information on the in-depth revision of the dimension equity and the considered indicators can be found in KCE report 370).[10, 22]

7.1 Socioeconomic inequalities in use of health services

Research repeatedly showed that health and healthcare use are unevenly distributed across society.[22] As socioeconomic inequalities are present throughout the entire health system, their analysis is relevant in multiple domains. Information on disparities between social groups is, however, not available for all indicators or not relevant in some cases. In Table 16 we give an overview of socioeconomic inequalities for a selection of indicators from other dimensions and domains where information is available.

Socioeconomic inequalities in healthcare use have various underlying causes and do not only reflect differences in socioeconomic status (education, income, activity status).[74, 75] They can also be caused by differences in health status, disease prevalence and healthcare needs,

different individual choices and preferences with respect to using certain services, differences in availability of services, differences in lifestyle, different coverage by (supplementary) healthcare insurance, etc. The effect of the different factors is difficult to disentangle. Health status is for example systematically associated with socioeconomic status, and differences in use related to needs are likely to interfere with the measurement of socioeconomic inequalities.[22, 76, 77] Caution is thus needed when interpreting the results in the overview given in Table 16 as it is not always clear to what extent the observed (in)equalities can be considered fair or unfair.

Socioeconomic status is defined along three dimensions: financial resources of the individual or household (income quintiles, income threshold or consumption expenditure quintiles), education degree of the individual or the household head, and entitlement to increased reimbursement.

In Table 16 inequalities are quantified both in absolute terms, i.e. the difference between the average value observed in the least advantaged social subgroup and the most advantaged social subgroup, and in relative terms, the ratio of the average value observed in the least advantaged social subgroup and the average value of the most advantaged social subgroup. A ratio of 1 or close to 1 implies that inequalities are absent or relatively small, while a ratio below or above 1 indicate lower values in, respectively, the least or most advantaged social group.

Inequalities in financial access and use of preventive care and medicines

Table 16 presents the socioeconomic inequalities observed in a range of indicators. They are arranged by the dimensions and domains used throughout the report. The presented inequalities indicate that more disadvantaged groups (low educational attainment, low income or entitled to increased reimbursement):

- reported more unmet needs for medical and dental care due to costs. Measures taken to improve affordable access of healthcare have contributed to lower rates of unmet needs over time, but important socioeconomic inequalities still remain. Unmet needs were 4 to 5 times more frequent in the population with low educational attainment compared to high educational attainment and the differences by income quintile are even more pronounced. The share of individuals reporting unmet needs in the poorest and richest income quintile equals, respectively, 2.6% and 0.0% for medical examinations and 6.6% and 0.1% for dental examinations.
- were more likely to experience catastrophic health spending. The share of households that face catastrophic out-of-pocket (OOP) payments and may no longer be able to meet basic needs and pay for healthcare, was 2.5 times higher in the poorest quintile relative to the richest quintile (12.2% versus 4.9%). Households in the poorest quintile spent relatively less of their household budget (or were less able to spend) on healthcare.
- were more likely to consult a conventioned practitioner. While there was almost no difference for GP care (with convention rates high for GPs), beneficiaries of increased reimbursement were 30% more likely to consult a conventioned medical specialist and more than twice as likely to consult a conventioned dentist. Even then, beneficiaries of increased reimbursement relied for almost half of their specialist consultations and more than half of their dental contacts on partially or non-conventioned practitioners. Indicators further suggest that low-income patients were also more likely to experience delay in getting healthcare due to distance or transport issues or postpone care due to waiting time.
- were less prone to use preventive care. An important lower participation rate in breast cancer screening is observed for beneficiaries of increased reimbursement (for women aged 50-69: 43.1% versus 62.9%; within organised programme: 21.1% versus 33.9%). This suggests that there were other than financial barriers at play, because even health goods or services that are free of charge, such as organised breast cancer screening, can be characterised by under-consumption with an important social gradient. Also, regular visits to the dentist occurred less frequently (42.0% versus 56.8%). Entitlement to increased reimbursement had no impact on the take-up of influenza vaccination.

- had a higher propensity of using medication. A larger fraction of beneficiaries of increased reimbursement had used antibiotics in the past year (36.1% versus 31.8%) and antidepressants (22.5% versus 8.9%). Moreover, there was a 30% higher risk of polypharmacy from age 65 onwards, i.e. using five or more different medicines on a chronic basis (51% of the population with increased reimbursement versus 39% of the population without increased reimbursement).
- benefited from a good continuity of care. They had a similar high coverage of the global medical record, they were followed up more frequently by the same GP (UPC ≥0.75: 64.8% versus 59.2%) and had a higher probability of having an encounter with a GP within 7 days after hospitalisation (50.1% versus 40.0%). Beneficiaries of increased reimbursement were equally likely to be registered in a diabetes care model.
- were less likely to be appropriately followed up as diabetic patients, in particular for insulin-dependent patients.
- evaluated the interaction with their healthcare professionals equally good – in terms of involvement in treatment decision, discussion of priorities, quality of the consultation – relative to more advantaged groups. In terms of receiving timely and useful information to manage their health, a lower fraction of low-income patients was satisfied, i.e. 40.7% compared to 48.4% in high-income patients. On the other hand, a larger share of low-income patients reported to have a care plan that takes into account all their health and wellbeing needs (43.5% versus 26.8% in high-income patients).
- took up the role of informal carers less frequently from age 50 onwards.

Conclusion

People in more disadvantaged social groups (measured by level of education, financial resources or by entitlement to increased reimbursement) had, in comparison with the more advantaged social groups: higher barriers to affordable access to care both in terms of catastrophic health spending and unmet needs due to costs, a lower participation rate in cancer screening, fewer regular dental visits, a higher medication use (antidepressants, polypharmacy), a higher continuity of care especially by the GP, and lower rates of appropriate follow-up of diabetic patients. It is, however, not always clear to what extent the observed inequalities (e.g. in medication use) can be considered fair or result from unfair barriers in people's ability to access healthcare.

There were only minor socioeconomic inequalities with regard to people-centred care.

Table 16 – Indicators reported in other sections, results by socioeconomic group and measure of socioeconomic inequalities

ID	Indicator	Overall value	Year	Classification of SES	Value in lowest social group	Value in highest social group	Absolute difference (lowest minus highest SES)	Relative difference (lowest divided by highest SES)
Appropriateness of care								
QA-1	Appropriate follow-up of diabetes (% of people 18+ living with diabetes and under insulin)	42.7	2021	Increased reimbursement	38.3	45.3	-7.0	0.8
QA-2	Appropriate follow-up of diabetes (% of people 18+ living with diabetes and receiving glucose-lowering drugs other than insulin)	16.9	2021	Increased reimbursement	16.3	17.2	-0.9	0.9
QA-4	Use of antibiotics at least once in the year (% of population)	32.6	2021	Increased reimbursement	36.1	31.8	4.3	1.1
Safety of care								
OLD-13	Polypharmacy among older people (5 or more drugs of >80 DDD per year) (% of insured population 65+)	42	2022	Increased reimbursement	51	39	12	1.3
Continuity of care								
QC-1	Coverage of global medical record (% of population)	83.6	2021	Increased reimbursement	85.1	83.2	1.9	1.0
QC-2	Usual Provider Continuity index ≥ 0.75 (% of patients with 3 or more contacts with GP in last 2 years)	60.3	2021	Increased reimbursement	64.8	59.2	5.7	1.1
QC-3	GP encounter within 7 days after hospital discharge (% patients aged ≥65 years)	43.5	2021	Increased reimbursement	50.1	40.0	10.1	1.3
QC-4	Proportion of adults living with diabetes (under insulin) within a pass/pre-care trajectory, a care trajectory or a convention	86.0	2021	Increased reimbursement	84.7	86.9	-2.2	1.0
QC-5	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	26.6	2021	Increased reimbursement	28.0	26.0	2.0	1.1
People-centred care								
QP-8	Patients involved as much as they want to be in decisions about their care (% of respondents)	98.4	2022	Income: lowest (≤€1 700 / month) highest (≥€2 700 / month)	97.4	100	2.6	1.0
QP-9	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)	97.9	2022	Income: lowest (≤€1 700 / month) highest (≥€2 700 / month)	97.5	92.1	5.4	1.1

ID	Indicator	Overall value	Year	Classification of SES	Value in lowest social group	Value in highest social group	Absolute difference (lowest minus highest SES)	Relative difference (lowest divided by highest SES)
QP-10	Patients rating last consultation with healthcare professional (physician, nurse…) as good to excellent (% of respondents)	96.6	2022	Income: lowest (≤€1 700 / month) highest (≥€2 700 / month)	96.4	97.7	1.3	1.0
QP-11	Patients reporting they have a care plan that takes into account all their health and wellbeing needs (% of respondents)	33.9	2022	Income: lowest (≤€1 700 / month) highest (≥€2 700 / month)	43.5	26.8	16.7	1.6
QP-12	Patients reporting they receive useful information at the time they need it to help them manage their health and wellbeing (% of respondents)	46.0	2022	Income: lowest (≤€1 700 / month) highest (≥€2 700 / month)	40.7	48.4	7.7	0.8
Accessibility of care								
A-3	Sub-indicator: Out-of-pocket payments (% of household consumption, HBS)	6.3	2020	Consumption expenditure quintiles	4.2	7.2	-3.0	0.6
A-4	Households facing catastrophic out-of-pocket payments (% of respondents, HBS)	5.2	2020	Consumption expenditure quintiles	12.2	4.9	7.3	2.5
				Education degree of household head: primary or less, secondary, tertiary	8.2	4.2	4	2.0
A-6	People with self-reported unmet needs for medical examination due to financial reasons (% of respondents 16+, EU-SILC)	0.9	2022	Income quintiles	2.6	0.0	2.6	—
				Education degree: primary or less, secondary, tertiary	2.0	0.4	1.6	5.0
A-7	People with self-reported unmet needs for dental examination due to financial reasons (% of respondents 16+, EU-SILC)	2.5	2022	Income quintiles	6.6	0.1	6.5	66.0
				Education degree: primary or less, secondary, tertiary	4.7	1.2	3.5	3.9
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)	GP: 87.3 Specialist: 44.0	2021	Increased reimbursement	GP: 89.2 Specialist: 52.8	GP: 86.5 Specialist: 41.6	GP: 2.7 Specialist: 11.2	GP: 1.0 Specialist: 1.3
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	26.3	2021	Increased reimbursement	43.6	22.9	20.7	2.1

ID	Indicator	Overall value	Year	Classification of SES	Value in lowest social group	Value in highest social group	Absolute difference (lowest minus highest SES)	Relative difference (lowest divided by highest SES)
A-13A	Sub-indicator: People who experienced delay in getting healthcare due to distance or transport problems (% of respondents 15+, HIS)	1.6	2018	Income quintiles	3.8	0.6	3.2	6.3
A-13B	People with self-reported unmet need for medical care due to waiting time reasons (% of respondents 16+, EU-SILC)	0.5	2021	Income quintiles	0.6	0.1	0.5	6.0
A-14B	People with self-reported unmet need for dental care due to waiting time reasons (% of respondents 16+, EU-SILC)	0.6	2021	Income quintiles	0.6	0.4	0.2	1.5
Preventive care								
P-4	Influenza vaccination (% of population aged ≥65 years)	57.3	2021	Increased reimbursement	55.2	58.1	-2.9	1.0
P-6	Breast cancer screening (% women aged 50-69 years)	59.0	2021	Increased reimbursement	43.1	62.9	-19.8	0.7
P-7	Breast cancer screening - organised programme (% women aged 50-69 years)	31.5	2021	Increased reimbursement	21.1	33.9	-12.8	0.6
P-11	Regular contacts with dentist (% of population aged ≥3 years)	53.8	2021	Increased reimbursement	42.0	56.8	-14.8	0.7
Mental health								
MH-3	Waiting time for a first face-to-face contact in a centre for ambulatory mental health (days) (only Flanders)	41	2022	Increased reimbursement	50	36	14	1.4
MH-7	Use of antidepressants (% of adult population, at least once in the year)	13.7	2021	Increased reimbursement	22.5	8.9	13.6	2.5
MH-8	Use of short (< 3 months) antidepressant treatment episodes (% of adult population under antidepressant)	12.4	2020	Increased reimbursement	10.7	13.1	-2.4	0.8
Care for older people								
OLD-3	Informal carers (% of population aged 50+)	16.6	2018	Income quintiles	10.4	26.0	-15.6	0.4

Notes: SES = socioeconomic status

Box 11 – The fairness gap

The fairness gap is a methodology proposed by Fleurbaey and Schokkaert (2009, 2011),[74, 78] that allows to evaluate the horizontal equity principle. It is a generalization of the evaluation of horizontal inequity in healthcare as studied amongst other by the OECD.[79, 80]

The fairness gap is the difference between the observed healthcare use of an individual (e.g. GP or specialist consultation) and a needs-adjusted norm. The norm is not the same for each individual, but adjusted to the individual's healthcare needs (or more generally to all characteristics that are considered to lead to fair differences in healthcare use), but it is blind to the individual's socioeconomic position (or more generally to all characteristics that are considered to lead to unfair differences in healthcare use). Hence, the same norm of healthcare use applies to two individuals with the same healthcare needs, but a different income or education level. Technical details on the calculation of the fairness gap can be found in the methodological note on equity in the appendix of this report.

When we use the term *needs-adjusted healthcare use* in this chapter, we more precisely refer to the fairness gap.

In this report, we used age (EU-SILC); gender (EU-SILC); self-assessed health status, presence of chronic condition and limitations in daily activities (EU-SILC); pathology information based on medication use (IMA – AIM), incapacity to work or invalidity (IMA – AIM) and entitlement to the lump sum chronic illness (IMA – AIM) as proxies for healthcare needs regarding contacts with GP, medical specialist, ED, hospital inpatient care. As no specific variables are available to correct for dental care needs, only age and gender were used. However, one could argue that this is sufficient as regular dental care and in particular regular preventive dental care is recommended regardless of health status.

7.2 Socioeconomic inequities in use of health services

Inequalities deemed to be unfair are referred to as inequities. We evaluate inequity in healthcare use in this chapter by the *horizontal equity principle* which is defined as equal (access to) care for people with the same healthcare needs, irrespective of other characteristics such as income, educational attainment, place of residence, race, etc.[22] We assume that, on average, the *vertical equity principle* is satisfied, as without real diagnostic information available, it is difficult to verify the appropriateness of received care at the individual level.

The horizontal equity principle is put into practice using the **fairness gap***,* a methodology to correct an individual's healthcare use for differences in healthcare needs (see Box 11 for more details on the fairness gap). Such correction is necessary and crucial in understanding and interpreting disparities in healthcare use. Our results show for example that there are no socioeconomic inequalities in the use of specialist care by income or education level, but reveal important socioeconomic inequities once a correction is made for healthcare needs (see below and technical sheet EQ-3 in the appendix of this report). A unique dataset was created specifically for this analysis, linking rich individual level data on sociodemographic characteristics, socioeconomic status and health status from the EU-SILC survey from Statistics Belgium, with individual level data on healthcare use and complementary socioeconomic information from IMA – AIM, and municipality level data on healthcare supply from RIZIV – INAMI.

We assess if systematic disparities by socioeconomic group or along a socioeconomic dimension remain after healthcare use is adjusted for differences in healthcare needs. Systematic socioeconomic differences in needs-adjusted healthcare use are in violation of the horizontal equity principle and indicate that healthcare use is not equitably distributed.

Figure 3 and Table 17 give an overview of the results of this assessment for seven indicators on healthcare use. Figure 3 is a heatmap that presents the difference between needs-adjusted healthcare use in a specific subgroup and needs-adjusted healthcare use in the population. Values around zero (grey coloured) indicate that needs-adjusted healthcare use in the subgroup

and the population are similar. Positive (blue coloured) or negative (orange/red coloured) values imply, respectively, a higher or lower healthcare use in the subgroup than expected based on healthcare needs. Box 12 provides more information on how to interpret the results of the heatmap as well as an example. In Table 17 we report for each indicator the absolute concentration index, which is a summary score of the inequity in the distribution of needs-adjusted healthcare use along a socioeconomic dimension (distribution of income or educational attainment). If no socioeconomic inequity is found, the concentration index takes the value zero. Positive or negative values indicate higher levels of needs-adjusted healthcare use among, respectively, more advantaged or disadvantaged groups. A higher absolute value of the concentration index is indicative for higher levels of inequity. Box 13 provides more information on the concentration index.

The score (pictogram) given to the indicator in Table 17 is an overall assessment based on the socioeconomic inequities as presented in both Figure 3 and Table 17.

Box 12 – Interpretation of the heatmap

Figure 3 is a heatmap that presents differences in needs-adjusted healthcare use. It provides information on the (absolute) difference between the average fairness gap in the population and the average fairness gap in various population subgroups of interest for a given year (on the horizontal axis) and this for all 7 indicators (on the vertical axis).

The following *subgroups* are evaluated (a technical definition can be found in the methodological note on equity in the appendix of the report):

- Groups based on the highest obtained education degree: no degree, primary or lower secondary; upper secondary; tertiary. In case of preventive dental care for children, the education groups are based on the parents' educational attainment.
- Income groups based on equivalized household disposable income: at risk of poverty; lower middle class; core middle class; upper middle class; top income class.
- Other subgroups in a financially vulnerable situation: unemployed (aged 18-65); single (aged 18-65); beneficiaries of increased reimbursement, at risk of poverty with / without increased reimbursement; individuals in households with severe material deprivation (material deprivation refers to a state of economic strain with severe material deprivation indicating the inability to afford 4 or more out of the 9 measured items).

How to read the heatmap?

In each square the difference is indicated, both as a number and as a colour. Negative values (in orange and red) indicate that – after accounting for healthcare needs – the subgroup has a lower healthcare use than the population in general. Positive values (in cyan and blue), on the other hand, indicate that – after accounting for healthcare needs – the subgroup has a higher healthcare use than the population in general. Squares with a grey colour indicate that the difference between the subgroup and the population is small. The variation in colours allows for a rapid overview of inequity for a specific indicator (horizontal) or subgroup (vertical) and the evolution over time (2012, 2018 and 2021). For indicators on the number of medical care contacts, the difference is expressed in number of contacts and the bottom colour legend applies; for all other (binary) indicators, the difference is expressed in percentage points and the upper legend applies.

Example

The second row provides information on the probability to have at least one GP consultation in the past year. After a needs correction is performed and the fairness gap is calculated, we find that individuals at risk of poverty but without increased reimbursement (column 11) have a 6 percentage points lower probability to attend a GP in 2012 relative to the population average. The negative value is depicted by the orange background colour. The adjacent squares for 2018 and 2021 indicate that the gap with the population has further increased to a 10 percentage lower probability in 2021.

Box 13 – The concentration index

The concentration index is a standard disparity measure for assessing socioeconomic inequalities and inequities in the economics literature.[80-82] It summarises the observed inequity in one single score, which makes it easy to grasp the evolution over time. The concentration index measures the extent to which the healthcare indicator, e.g. having a contact with a GP or specialist in the past year, is concentrated among individuals when those individuals are ranked by socioeconomic status, i.e. from a low income to a high income or from a low educational attainment to a high educational attainment. The concentration index does not single out one specific income or education subgroup, but uses the entire distribution of income or education levels to summarise the disparity in a single score.

The summary score can be positive or negative. Positive values indicate higher levels of needs-adjusted healthcare use in the upper middle or top of the (income or education) distribution, while negative values imply higher levels of needs-adjusted healthcare use in the bottom/lower middle of the (income or education) distribution. A zero value indicates the absence of systematic inequities by socioeconomic status.

Financial situation more important driver of inequities than education

A first, general, conclusion from Figure 3 is that while inequities in healthcare use are observed by educational attainment (e.g. with respect to specialist care and dental care), the financial situation of individuals or households appears to be a more important driver of inequities in healthcare use.

Use of hospital inpatient care was fairly equitable

Results for **hospital inpatient care** (***indicator EQ-5***) show that differences in needs-adjusted use were small (Figure 3) and that the concentration index was close to 0 (Table 17). We conclude that hospital inpatient care use was in relation to healthcare needs and therefore access can be considered equitable.

But inequities in contacts with GP, medical specialist or ED

The large majority of the adult population had at least one contact with a GP, medical specialist or emergency department (ED) in the past 12 months. In 2021, about 89% consulted a GP, 66% consulted a specialist, 15% attended an ED, and a total of 93% of the population attended at least one of these three. As expected, high care groups had higher contact rates and a higher number of contacts.

After correcting for healthcare needs, we find that socioeconomic inequities in *GP, specialist and ED care* were more widespread than for hospital inpatient care. A similar pattern emerges for **contacts with GP, specialist or ED** (***indicator EQ-1***) and **GP consultations** (***indicator EQ-2***). GPs are first-line care provider and should be easily accessible. Despite the high contact rates and the fact that GP care is relatively inexpensive – small amount of co-payments and high convention rates (see indicator A-8) – Figure 3 suggests that barriers do exist that prevent some groups from consulting a GP when needs are present. Note that Belgium is one of a select group of EU countries where GP care is not free at the point of use or where low-income households are not exempt from OOP payments.[43, 83] Lower contact rates are observed most notably for individuals at risk of poverty, individuals in households with severe material deprivation, individuals in unemployment and singles between 18 and 65 years old. A positive finding is that beneficiaries of increased reimbursement had a probability to consult a GP in line with the population average, even when they are at risk of poverty (see also below). Moreover, some vulnerable groups had a lower contact rate, but once a first contact was made, they had a higher number of (follow-up) visits, as was the case for e.g. individuals at risk of poverty, individuals in the lower middle class, and individuals in households with severe material deprivation. This finding is also supported by the negative value of the concentration index regarding the number of GP consultations (Table 17). A higher number of GP consultations in favour of more disadvantaged groups is, on the one hand, a positive signal regarding affordable access to GP care, but on the other hand it may be a compensation for inequities observed for specialist care (see below) and should therefore also be regarded as a warning signal for access barriers in

other types of care. No similar negative value for the concentration index was found regarding the combined number of contacts (GP, specialist, ED).

Socioeconomic inequities in **specialist care** (***indicator EQ-3***) were more pronounced and clear social gradients can be discerned. There was not only a lower use of specialist care among individuals with low educational attainment and low income but also a higher use among high-educated and high-income individuals than can be explained by health status (Figure 3). The significant positive values of the concentration index indicate that disparities in favour of high-income and high-educated individuals not only relate to the decision to consult a specialist, but also to the number of consultations (Table 17). A substantial lower use of specialist care is also found for individuals in households with severe material deprivation, in unemployment, singles between 18 and 65 years old, and beneficiaries of increased reimbursement (Figure 3). The latter in contrast to GP care.

For emergency care (indicator EQ-4), socioeconomic inequities are found as well, but with a pattern opposite to specialist care: a higher use of emergency care by low-educated and low-income individuals. The inequities have reduced over time. Emergency care seems to act as a substitute for GP and specialist care among individuals at risk of poverty or with severe material deprivation, and to a lesser extent among low-educated individuals. One explanation is that emergency care is free at the point of use, while specialist and GP care are not. However, in the end, emergency care is not necessarily less expensive. Another explanation is that postponement of medical care for financial reasons (see indicator A-6) has resulted in an acute health condition requiring emergency care. There is a substantial higher risk of unmet needs among low-income and low-educated individuals (see Table 16).

It is debatable whether or not a higher use of emergency care by individuals in a financially vulnerable situation is inequitable. If it is the result of healthcare needs that have not been attended to in another setting due to access barriers, it should probably not be considered inequitable, but also in this case it remains a warning signal of access barriers in other types of care.

Large and increasing inequities for dental care

Only half of the Belgian population had regular dental contacts in the past three years (see indicator P-11), with even lower contact rates for preventive dental care. Moreover, there were large differences in dental care use along socioeconomic lines.

The socioeconomic inequities in dental care are in line with the pattern observed for specialist care, but more outspoken as illustrated by the results in Table 17 and Figure 3. There was a sharp social divide with, on the one hand, low rates of regular (preventive) dental care among low-educated and low-income individuals and, on the other hand, high rates among high-educated and high-income individuals. From Figure 3, we can derive for example that there was a gap of 19 percentage points in 2021 in contact rates for (preventive) dental care between adults at risk of poverty (-11 percentage points) and adults in the top income class (+8 percentage points). Furthermore, low rates of regular (preventive) dental care are found for all examined financially vulnerable population groups, in particular individuals in households with severe material deprivation.

Despite an exemption from co-payments for children, the socioeconomic inequities in regular preventive dental care for children were even larger than for adults. A discrepancy of 27 percentage points in 2021 was found in contact rates for preventive dental care between children in households at risk of poverty (-11 percentage points) and children in households in the top income class (+16 percentage points). These results are a clear signal that there are substantial access barriers to dental care that are not resolved solely by an exemption from co-payments, and necessitate further action.

Increased reimbursement: an effective instrument for GP care but not for other types of healthcare

Several protection measures have been introduced in the public health insurance to reduce or remove financial barriers in access to healthcare, increased reimbursement being one of them. Entitled individuals (about 20% of the population in 2022) benefit from reduced co-payments and the mandatory application of the third-party payer principle for GP consultations.[84, 85]

Based on the results in Figure 3, increased reimbursement seems an efficient measure to remove access barriers to GP care. After adjustment for healthcare needs, accessibility to GP care was better for beneficiaries of increased reimbursement relative to other financially vulnerable groups. Beneficiaries of increased reimbursement had a probability to consult a GP in line with the population average, even when at risk of poverty. This in contrast to other financially vulnerable groups, such as unemployed individuals and individuals in households with severe material deprivation.

Another important result highlighted in Figure 3 is the difference in use of GP care by individuals at risk of poverty with and without increased reimbursement. Contact rates as well as the number of contacts were substantially lower among individuals at risk of poverty but without increased reimbursement. Eligibility to increased reimbursement is means-tested and targeted at low-income households, but entitlement is not granted automatically for the majority of eligible households. Previous research revealed important non-take-up rates when people have to apply for the status, leaving a substantial fraction of individuals at risk of poverty unprotected (about 35% in 2021).[22, 42, 85-87] This group of households at risk of poverty, potentially eligible but not entitled, not only experienced reduced access to GP care, its underuse worsened over time and extended to other types of care.

With respect to specialist care and dental care, beneficiaries of increased reimbursement faced the same inequities as other financially vulnerable groups. Increased reimbursement status is thus less efficient in improving access to these types of care. A number of elements may explain this discrepancy. First, the benefits differ, more specifically the mandatory application of the third-party payer principle only applies to GP care and not to specialist or dental care. Second, convention rates of medical specialists and dentists are much lower than for GPs (see indicators A-8 and A-9), leading to price insecurity and increasing the likelihood of supplements. Moreover, for dental care more services are not covered contributing to a high share of OOP payments (see indicator A-2).

Conclusion

There were important socioeconomic inequities for regular dental care and specialist care with needs-adjusted use strongly increasing with educational attainment and income and lower contact rates in all examined financially vulnerable groups.

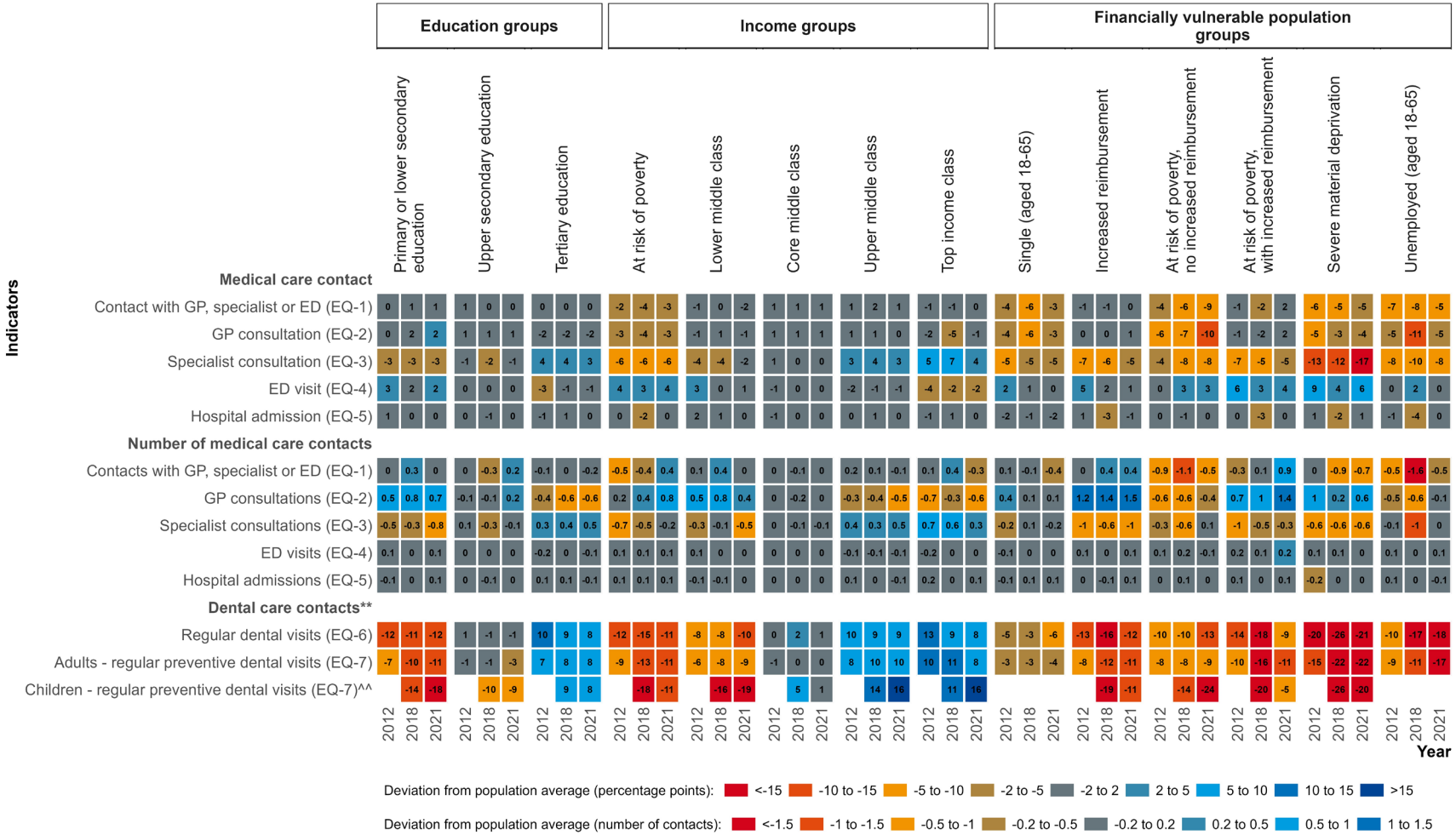
For GP care, socioeconomic inequities were smaller and access was strong for beneficiaries of increased reimbursement. No similar positive impact of increased reimbursement was observed for access to specialist or dental care.

Inequities for emergency care favoured low-income, low-educated and financially vulnerable individuals. A similar result was found with respect to the number of GP contacts. Both may be due to a substitution effect induced by access barriers in other types of care.

No inequities were found for hospital inpatient care.

Considering all indicators, needs-adjusted healthcare use was particularly low for unemployed individuals aged between 18 and 65 years old, individuals living in households with severe material deprivation and individuals at risk of poverty but without entitlement to increased reimbursement. Reducing non-take-up of increased reimbursement may help to overcome access barriers for the latter group.

Figure 3 – Deviations in needs-adjusted healthcare use between population and subgroups, by subgroup and year (2012, 2018, 2021)



*Notes: ** Healthcare needs in case of dental care are limited to age and sex (see Box 11); ^^ For children, education groups are based on the educational attainment of parents.*
Source: own calculations based on EU-SILC (Statistics Belgium) / IMA-AIM / RIZIV-INAMI

Table 17 – Indicators on equity in healthcare

(ID)	Indicator	Score		Average	Year	Absolute concentration index°° Income	Absolute concentration index°° Education	Source
EQ-1	Contacts with the healthcare system: general practitioner, medical specialist, emergency department (population aged 18+)	ST	At least one contact (% of respondents 18+)	92.5%	2021	**0.006**	-0.002	EU-SILC/IMA-AIM
			Number of contacts (given at least 1 contact)	9.9	2021	-0.077	-0.054	EU-SILC/IMA-AIM
EQ-2	Contacts with the healthcare system: general practitioner (population aged 18+)	ST	At least one contact (% of respondents 18+)	88.5%	2021	0.003	**-0.008**	EU-SILC/IMA-AIM
			Number of contacts (given at least 1 contact)	6.5	2021	**-0.263**	**-0.273**	EU-SILC/IMA-AIM
EQ-3	Contacts with the healthcare system: medical specialist (population aged 18+)	ST	At least one contact (% of respondents 18+)	66.1%	2021	**0.016**	**0.012**	EU-SILC/IMA-AIM
			Number of contacts (given at least 1 contact)	5.0	2021	**0.182**	**0.259**	EU-SILC/IMA-AIM
EQ-4	Contacts with the healthcare system: emergency department (population aged 18+)	+	At least one contact (% of respondents 18+)	14.5%	2021	**-0.010**	**-0.007**	EU-SILC/IMA-AIM
			Number of contacts (given at least 1 contact)	1.4	2021	**-0.030**	**-0.033**	EU-SILC/IMA-AIM
EQ-5	Contacts with the healthcare system: inpatient hospitalisation (population aged 18+)	ST	At least one contact (% of respondents 18+)	11.4%	2021	0.000	0.001	EU-SILC/IMA-AIM
			Number of contacts (given at least 1 contact)	1.3	2021	**-0.029**	**-0.043**	EU-SILC/IMA-AIM
EQ-6	Regular contacts with a dentist (population aged 18+)**	+	With regular contact (% of respondents 18+)	58.1%	2021	**0.045**	**0.042**	EU-SILC/IMA-AIM
EQ-7	Regular preventive contacts with a dentist (population aged 18+; population aged below 18 years)**	ST	With regular contact (% of respondents 18+)	38.4%	2021	**0.046**	**0.041**	EU-SILC/IMA-AIM
		ST	With regular contact (% of respondents aged below 18 years)^^	47.2%	2021	**0.068**	**0.049**	EU-SILC/IMA-AIM

*Notes: ** Healthcare needs in case of dental care are limited to age and sex (see Box 11); ^^ For children, education groups are based on the educational attainment of parents; °° The absolute concentration index of needs-adjusted healthcare use is reported with values significantly different from zero indicated in bold (p<0.05). A value of zero indicates no inequities, positive values indicate higher levels of needs-adjusted healthcare use among more advantaged groups, negative values indicate higher levels of needs-adjusted healthcare use among more disadvantaged groups. Higher absolute values of the absolute concentration index reflect higher level of absolute inequity in the distribution. Note that the (relative) concentration index can be obtained by dividing the absolute concentration index by the average value.*

8 HEALTH SYSTEM RESILIENCE TO THE COVID-19 CRISIS

8.1 What is health system resilience?

Health system resilience is defined as "*the capacity of a health system to (a) proactively foresee, (b) absorb, and (c) adapt to shocks (…) in a way that allows it to (i) sustain required operations, (ii) resume optimal performance as quickly as possible, (iii) transform its structure and functions to strengthen the system, and (iv) (possibly) reduce its vulnerability to similar shocks and structural changes in the future*".[10, 16, 88]

The above definition encompasses four main components of resilience:[16, 89]

a) Preventive capacity: the ability of the health system to proactively foresee the advent of a shock and minimise its potential future impact

b) Absorptive capacity: the capacity of the health system to cushion the impact of shocks

c) Adaptative capacity: the capacity of the health system to sustain required operations

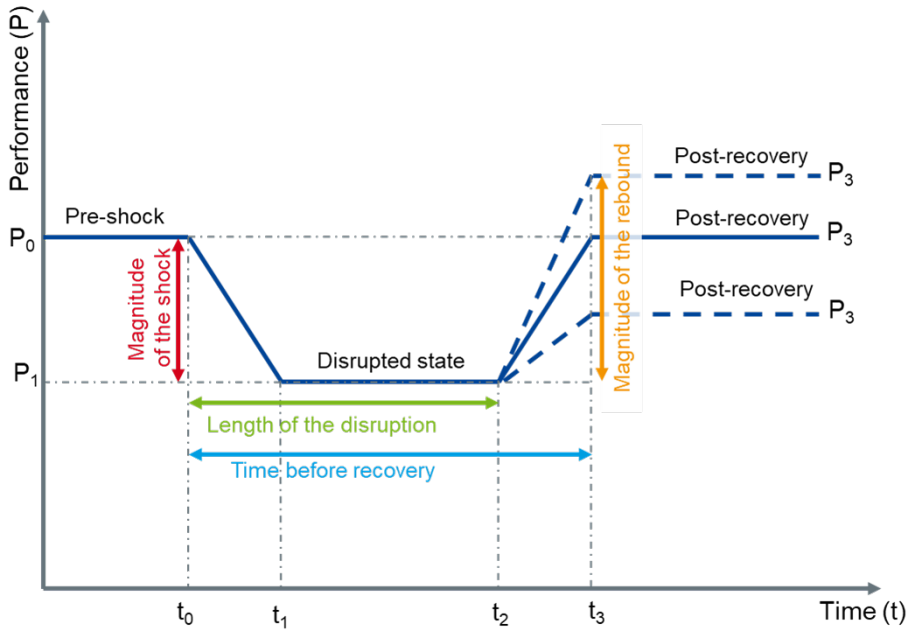
d) Transformative capacity: the capacity of the health system to transform its structure and functioning, making the system less vulnerable to future shocks.

Although, many types of very different shocks may affect the healthcare system in various ways, in this report, the analysis is restricted to health system resilience to the COVID-19 crisis only.

The concept of health system resilience can be graphically illustrated as shown in Figure 4 where P_t represents a given quantifiable time-dependant indicator of health system performance. When the health system experiences a shock that impacts it negatively, it is likely that the value of P_t will decrease. Then, the value of P_t will stay below its pre-shock state for a period of time that can be short or long. Eventually, P_t will increase again, to reach its post-recovery state. In this latter state, the value of P_t can be the same as in the pre-shock state, but in some cases it can either stay below the pre-shock state or, if the system has the ability to transform itself as a response to the shock, the value of P_t in the post-recovery state can even be above its initial value.

From this, resilience can be defined as the ability to minimise the impact of the crash (measured by the distance between P_0 and P_1), to minimise the duration of the disruption (measured by the distance between t_0 and t_2) and the time before recovery (measured by the distance between t_0 and t_3), and to transform its structure such that P_3 is equal to or higher than P_0. The preventive component of resilience is only studied in complementary analyses (see section 8.5) but does not constitute the focus of this chapter.

Figure 4 – Health system performance variation following a shock



Source: inspired by EU Expert Group on Health System Performance Assessment (2020)[16]

8.2 The COVID-19 crisis in Belgium

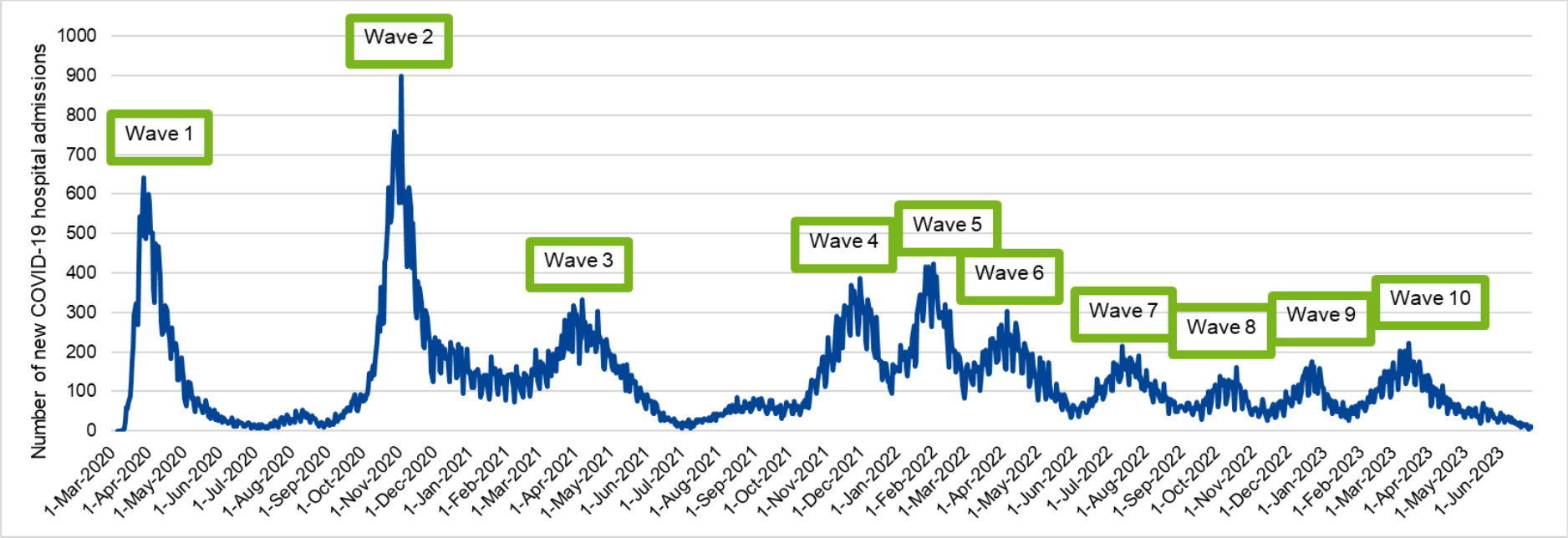
Health system resilience to the COVID-19 crisis must be analysed according to the successive waves of the pandemic. Between March 2020 and June 2023, ten waves have been identified in Belgium as shown in Table 18. An "interwave" period was clearly observed between the first and the second wave, as well as between the third and the fourth. This was not the case for the other waves. It is important to note that the designation of theses waves does not necessarily represents the severity of the epidemiologic situation or the public health burden during these periods. For instance, as shown on Figure 5, the number of COVID-19 hospital admissions was very different from one wave to another. For more information about the evolution of the COVID-19 crisis in Belgium, the interested reader is referred to epidemiological data available on the Sciensano dashboard and to key data in healthcare (organisation, care activity, funding and quality) released by the FPS Public Health on the healthybelgium.be website.

Table 18 – Waves of the COVID-19 epidemic in Belgium

COVID-19 epidemic wave	Start date
First wave	1 March 2020
Interwave	22 June 2020
Second wave	31 August 2020
Third wave	15 February 2021
Interwave	27 June 2021
Fourth wave	4 October 2021
Fifth wave	27 December 2021
Sixth wave	28 February 2022
Seventh wave	30 May 2022
Eighth wave	12 September 2022
Ninth wave	21 November 2022
Tenth wave	23 January 2023

Source: Sciensano (2023)[90]

Figure 5 – Number of new COVID-19 hospital admissions in Belgium, March 2020 – June 2023



Source: Sciensano (https://epistat.wiv-isp.be/covid).

8.3 Health system resilience to the COVID-19 crisis in Belgium

In what follows, HSPA indicators are used to measure, in the context of the COVID-19 crisis in Belgium:

- The **pre-shock** value of the indicator (P_0)
- The **worst** value of the indicator during the COVID-19 crisis (P_1). On Figure 4, P_1 is inferior to P_0, but the opposite can be true depending on the indicator. Therefore the term 'worst' is used rather than minimum or maximum.
- The post-recovery value of the indicator (P_3). In most cases, the most recent value of the indicator does not correspond to the best value of the indicator. Therefore, two values are calculated for P_3: "**most recent**" and "**best**" (that can be a maximum or a minimum depending on the indicator).
- The magnitude of the disruption (represented by the red arrow on Figure 4). Measuring the distance between P_0 and P_1 allows to assess the absorptive capacity, i.e. the ability to cushion the impact of the shock. The smaller the difference between P_0 and P_1 is, the more resilient the system is. Concretely, the magnitude of the disruption is calculated as **the difference between the pre-shock value and the worst value for the indicator** measured during the COVID-19 crisis.
- The length of the disruption (represented by the green arrow on Figure 4). Measuring how long it takes before the indicator starts bouncing back allows to assess the adaptative capacity of the system. A more resilient system starts bouncing back sooner. Concretely, the length of the disruption measures **the time between the moment a negative change is observed and the moment the bouncing back effect is observed** (i.e. a significant positive change is observed).
- The magnitude of the rebound (represented by the orange arrow in Figure 4). Comparing the post crisis value of the indicator with its disrupted level (P_1) allows to assess the capacity of the system to recover and even transform its structure and functioning. Concretely, the magnitude of the rebound is calculated as **the difference between the best (post-shock) value and the worst value for the indicator**.
- The time before recovery (represented by the blue arrow on Figure 4). It is calculated as **time between the moment a negative change is observed and the moment the best value is observed.**

For ease of presentation, indicators are grouped in three categories: (1) ensure adequate workforce (R-1, R-2 and R-3), (2) maintain essential health services and routine public health services (R-4 and R-5) and (3) scale-up existing capacity and implement new health services (R-6, R-7, R-8, R-9, R-10 and R-11).

For many of them a definitive assessment is premature. In particular, it is certainly too soon to entirely grasp the magnitude of the rebound. Also, in some cases the post-recovery level can be temporarily higher than the pre-shock level because of some catching-up effect (as the system has been disturbed for a while, it overcompensates during some time, but this effect does not necessarily last). For other indicators, it is difficult to assess the magnitude of the shock, for instance because data were not collected before the shock. Therefore, in many cases, only a partial analysis measuring some of the above elements is carried out.

To retrieve the magnitude of the disruption, the length of the disruption, the magnitude of the rebound and the time before recovery, a figure depicts, for each indicator, the evolution of the value over time (along with the stage of the pandemic as defined in Table 18) for Belgium and the three regions (Figure 6 to Figure 16). When possible, the pre-shock value, the worst value, the best value, and the most recent value are shown for Belgium and the three regions in Table 19.

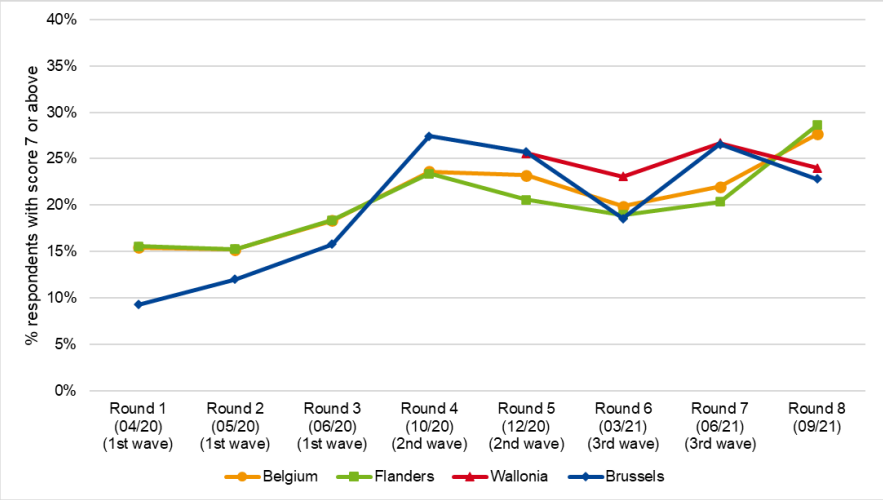
Ensure adequate workforce

It is largely acknowledged that the COVID-19 period exerted considerable pressure on healthcare professionals, in terms of increased workload, but also in terms of physical and psychological symptoms.[91-94] To counter that, countries have implemented various schemes to support the mental health of healthcare professionals and to offer financial and practical assistance.[95]

To measure Belgian health system resilience regarding the wellbeing of healthcare professionals, we use data from the Power to Care survey carried out by Sciensano and LIGB – KU Leuven. This survey counts eight rounds (of which the first four do not include professionals from Wallonia) between April 2020 and September 2021. The survey is not a longitudinal study and the number of respondents varies between rounds and regions. Therefore evolution across time should be interpreted with caution.

The **share of healthcare professionals with a high score for the item "considering leaving the profession"** (R-1, see Figure 6) increased from 15.4% in April 2020 to 23.6% in October 2020. This share was still 23.2% in December 2020, then slightly decreased but increased again to reach 27.6% in September 2021. This share was constantly higher in Wallonia and lower in Flanders, compared to national results, except in the last round. Between the first and the last round of the survey, the share of healthcare professionals considering leaving the profession increased by 12.2 percentage points. This increase can be qualified as the magnitude of the disruption. However, it should be kept in mind that no data are available for the pre-COVID period and that the four first round do not include respondents from Wallonia. A rebound (i.e. a permanent improvement of the indicator) could not be observed in the data, but no data are available after September 2021. In another survey carried out between December 2021 and February 2022 among 2 183 nurses working in intensive care units 43.9% of them had the intention to leave their job and 26.5% had the intention to leave the nursing profession.[96] This percentage was higher in Wallonia (37.5%) and Brussels (34.9%) than in Flanders (17.4%).

Figure 6 – Power to Care survey: share of healthcare professionals with a high score for "considering leaving the profession"



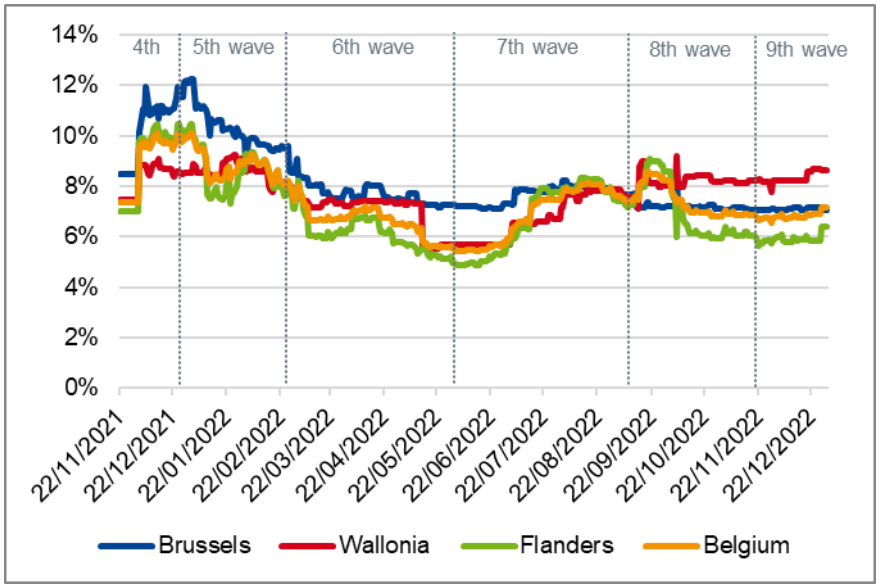
Source: Sciensano, calculations: KCE.

Shortage of staff resulting from absence of healthcare professionals, in particular nurses working in hospital services, is known to be both a consequence of the COVID-19 crisis and an obstacle to quality of care in COVID-19 times.[97, 98] Although nursing shortages were reported in most industrialised countries before the crisis, the COVID-19 pandemic amplified the issue. In Belgium, absences of health professionals have been quantified in limited contexts[99] but no administrative comprehensive data exist at the national level. To quantify the hospital staff absences and their evolution during the COVID-19 pandemic, we therefore rely on proxies.

As part of the daily data registered in the context of surge capacity plans, hospitals must register the number of **hospital beds closures due to staff absences or force majeure** (R-2, see Figure 7). These data were analysed for the period between 22 November 2021 and 31 December 2022. The share of hospitals beds closed due to staff absences or force majeure ranged between 5.4% and 10.1% over the studied period. It decreased between January and August 2022, then increased in September, before decreasing again and stabilising at the end of the year. In relative terms, more ICU beds were closed than other beds and strong provincial differences appear both for the share of hospitals beds closed as for the share of ICU beds closed. As the data were only collected from October-November 2021 onwards, it is not possible to assess the magnitude of the disruption.

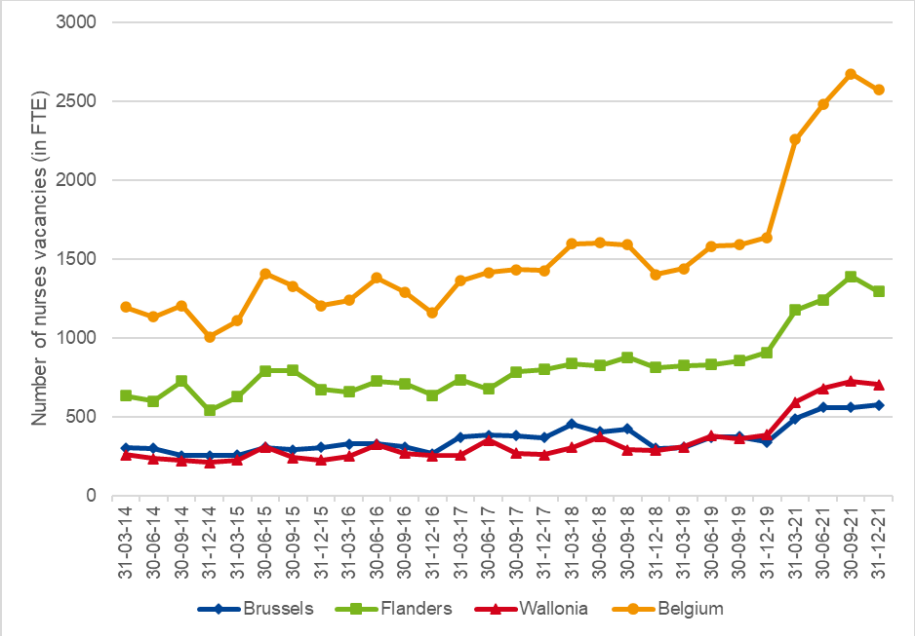
The yearly survey of hospital statistics contains, since 2013, a question about the **number of nurses vacancies** (R-3, see Figure 8). The number of vacancies is defined as "the number of vacancies for which a call (intern/extern) is launched". Hospitals are asked to complete this question for four moments in time each year: 31 March, 30 June, 30 September and 31 December. For 31 December 2021, 2 572 nurses vacancies in FTE were reported in the Belgian hospitals. The number of nurses vacancies in hospitals, which reflect the capacity of hospitals to recruit and to retain nurses, was impacted by the COVID-19 pandemic. The highest disruption was observed in Wallonia in September 2021 (+100.3% compared to September 2019), followed by Flanders (+62.4% compared to September 2019). In Brussels, the peak was observed in December 2021 (+68.3% compared to December 2019). It is nevertheless not possible to determine the exact magnitude of the disruption due to the lack of data for 2020.

Figure 7 – Share of hospital beds that are closed due to staff absences or force majeure



Source: FPS Public health, calculations: KCE.

Figure 8 – Number of nursing vacancies in hospitals (in FTE)



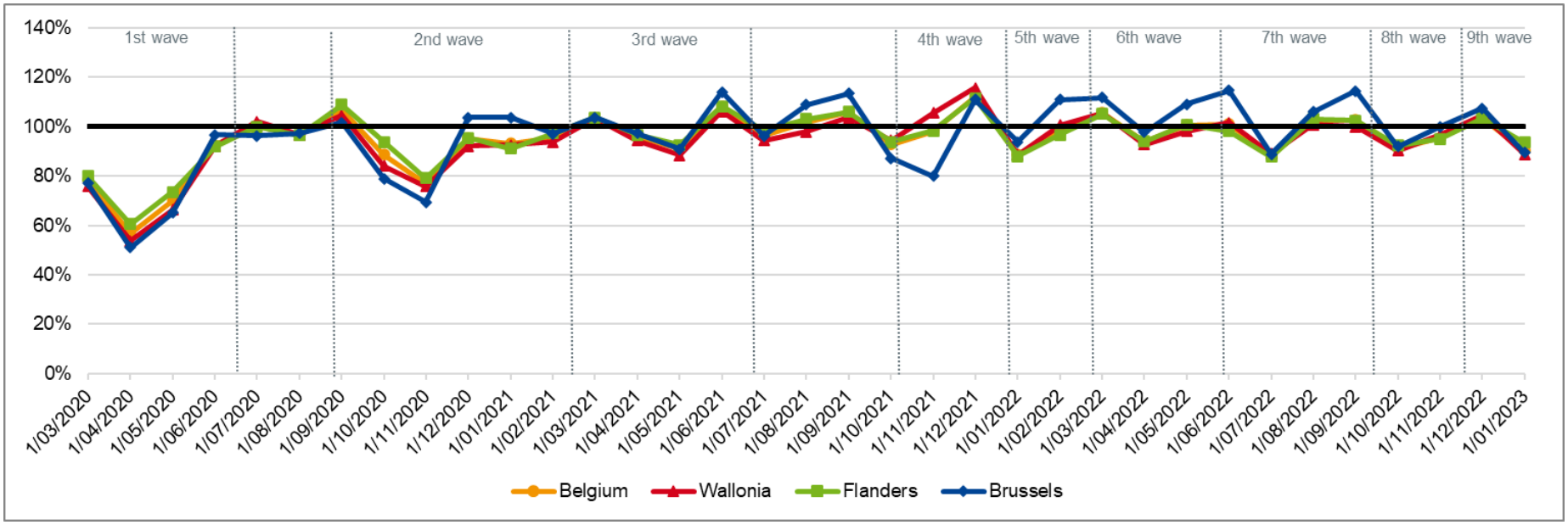
Data 2020 not available. Source: FPS Public Health; KCE calculations.

Maintain essential health services and routine public health services

From mid-March 2020, hospitals in Belgium and in other countries were asked to stop non-essential activities in order to free up equipment, nurses and physicians for the treatment of COVID-19 patients.[100] Belgian hospitals had to stop all elective consultations, investigations and procedures. It was however specified that essential care could continue. Nevertheless, no concrete formal definition of essential and non-essential care was provided. Hospitals were allowed to resume regular hospital care in a stepwise manner from 4 May 2020. During the first wave of the COVID-19 pandemic, several analyses showed indications of a decrease of non-essential care in Belgian hospitals, but also some decrease in essential regular care.[100-102] During subsequent waves of COVID-19, hospitals were asked to discontinue non-essential activities wherever this could impact the ICU capacity that was reserved for COVID-19 patients.

To assess the ability of hospitals to maintain essential activities, we use the number of hospital regular essential surgical hospital activities that was maintained with respect to what was expected based on 2018-2019 data (R-4, see Figure 9) following the methodology of the Hospital Audit Unit within RIZIV – INAMI, FPS Public Health and FAGG – AFMPS.[103, 104] In April 2020, 5.7% of non-essential hospital surgical activities were maintained, 29.8% of mixed activities (that can be essential or not depending on the context) and 56.9% of essential activities. This means that, although considered essential, 43.1% of these surgical activities were suspended in April 2020 (i.e. a magnitude of the disruption of -43.1%). These decreases were slightly less marked in Flanders than in the other regions. A second drop was observed in November 2020 but was less important. During this second wave, 76.8% of essential activities were maintained. A rebound was observed from November 2020 onwards (length of the disruption = 9 months). In 2021 and 2022, variations were much less marked. A minimum of 88.0% of essential activities were maintained. The percentage of maintained essential activities reached 100% for the first time in March 2021 (time before recovery = 13 months).

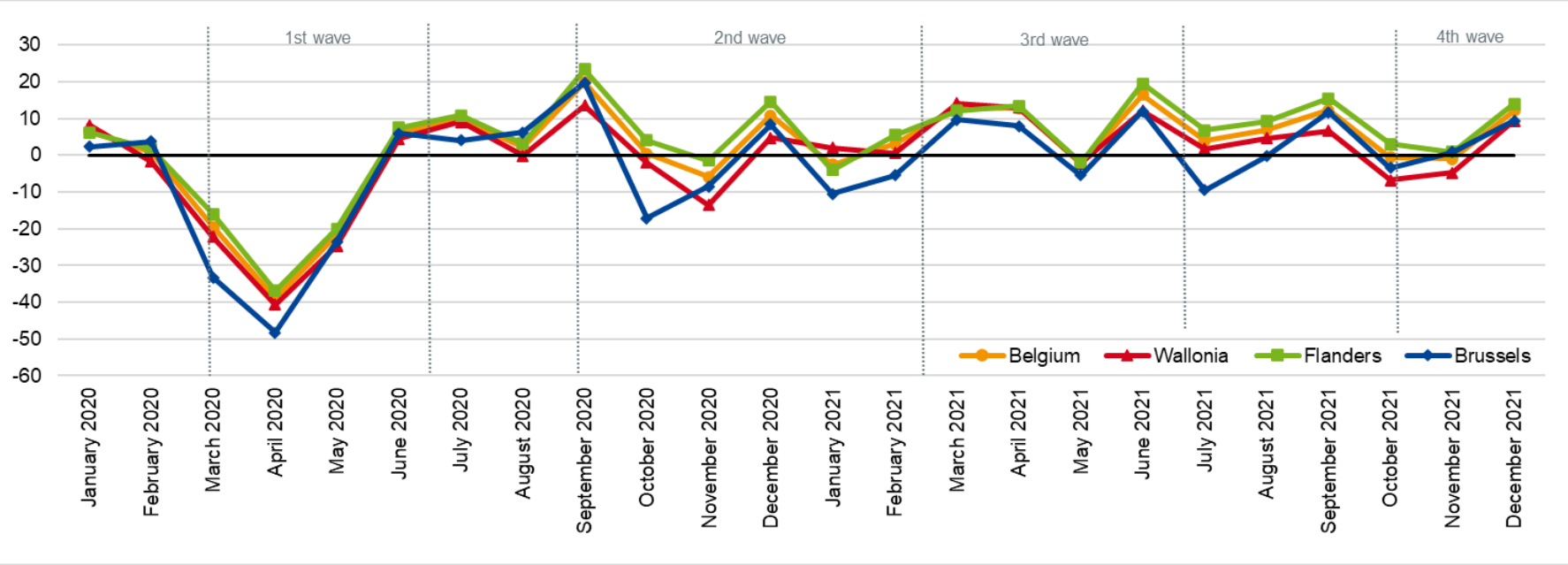
Figure 9 – Share of expected (based on 2018 and 2019 data) regular essential surgical hospital activities that was maintained



Source: Audit Ziekenhuizen RIZIV – FOD Volksgezondheid – FAGG / Audit Hôpitaux INAMI – SPF Santé Publique – AFMPS

In the week of 16 March 2020, organised population screening programmes for female breast cancer, cervical cancer, and colorectal cancer were suspended. They resumed mid-May 2020. Figure 10 shows the percentage change in new invasive cancer diagnoses per month relative to the same month in 2017-2019 (R-5) based on the Belgian Cancer Registry's incidence database. In March 2020, the number of new invasive cancer diagnoses was 19.3% lower than the average of March 2017-2019. This corresponds to a number of 1 222 "missing" cancer diagnoses in March 2020. In April 2020, the number of new invasive cancer diagnoses was 39.0% lower than the average of April 2017-2019, corresponding to 2 181 "missing" cancer diagnoses (magnitude of the disruption = -39.0%). In May 2020, the start of the rebound was observed (length of the disruption = 2 months). The number of new cancer diagnoses was still lower (by 21.7%) than in May 2017-2019, corresponding to 1 366 "missing" cancer diagnoses. In June 2020, the number of new invasive cancer diagnoses reached back its level of 2017-2019 (time before recovery = 4 months). In September 2020, it was higher (by 19.9%) than its level of 2017-2019. After that, it remained within the range -5.8%; +16.6% compared to its level of 2017-2019. The percentage of change in the number of new invasive cancer diagnoses followed a similar trend in the three regions of the country. However, the decreases were stronger in Brussels than in the other regions. This was not compensated by larger subsequent increases.

Figure 10 – Percentage of change in the number of new invasive cancer diagnoses during 2020-2021 compared to 2017-2019



Source: Belgian Cancer Registry.

Scale-up existing capacity and implement new health services

Intensive care resources faced enormous pressure during the pandemic, resulting in some places in intensive care demand exceeding available supply.[17] Increasing occupancy rates in intensive care units have been associated with increasing mortality.[105] In response, many countries increased their ICU capacity, creating "surge" capacity. From mid-March 2020, all Belgian hospitals were urged to create extra bed capacity ("surge capacity"), notably in ICUs. In particular, on 17 March 2020, hospitals were required to "do everything possible to create extra capacity in ICU".[106] On 1 April 2020, hospitals registered a maximum of 1 182 extra ICU beds, on top of the 1 993 licensed ICU beds, increasing total capacity by almost 60%. Later on, more concrete instructions were given regarding required number of surge beds, depending on the stage of the pandemic. Belgium has been praised for its ability to quickly increase its beds capacity.[95, 107]

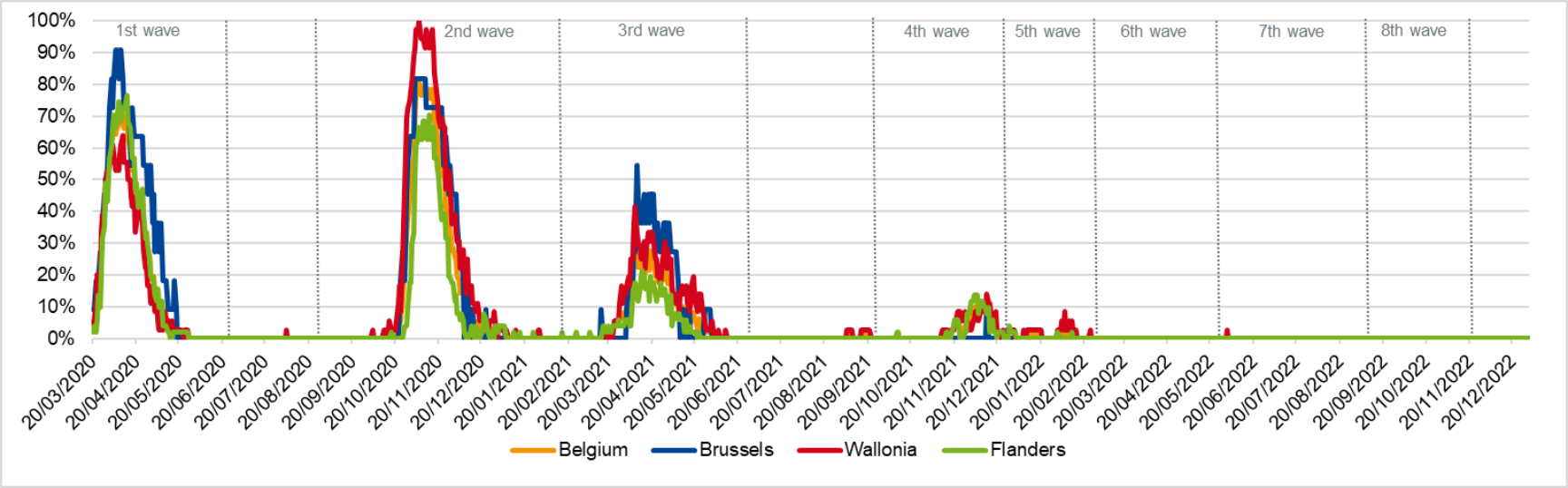
However, it was rapidly noted that the increase in ICU bed capacity was difficult to manage due to a lack of nurses with ICU expertise.[100, 108, 109] An analysis of in-hospital mortality of COVID-19 patients treated in ICU in Belgium during the first wave has shown evidence that the "ICU overflow" (when the number of ICU beds occupied by COVID-19 patients exceeds the number of licensed ICU beds reserved for COVID-19 patients) was an

explanatory variable of in-hospital mortality of COVID-19 patients.[110] From 30 September 2020, hospitals have been encouraged to search for a better distribution of COVID-19 patients between hospitals, rather than using extra ICU bed capacity.[100] The Patient Evacuation Coordination Center was also mandated to help hospitals in the distribution of COVID-19 patients.[111]

We analyse occupancy rates at the hospital level in order to capture variation between hospitals and provide insights on whether patients were distributed in a way that reduced mortality risks associated with overflow. Indeed, although national occupancy rate could stay high, a better distribution of patients across hospitals should lead to a reduction in the share of "overflowed" hospitals. As a measure of overflow, we follow Taccone et al. (2021)[110] and divide the number of COVID-19 patients by the number of licensed ICU beds reserved for COVID-19 patients that was set in March 2020 at 60% of the total number of licensed ICU beds.

Figure 11 shows the **share of hospitals with occupancy rate for COVID-19 patients in ICU licensed beds above 60%** (R-6). During the first COVID-19 wave, a maximum of 70.4 % of hospitals in Belgium faced an overflow in the ICU (i.e. an occupation rate above 60% of the licensed ICU beds). This share reached 80.6% during the second wave. Considering that share of overflowed hospital was null before the pandemic, the magnitude of the shock is equal to 80.6%. In April 2021, while the occupancy rate for COVID-19 patients in licensed ICU beds was still close to 50%, only 30% of the hospitals presented an ICU overflow, showing that the system has adapted. In December 2021, when the occupancy rate for COVID-19 patients in licensed ICU beds was again above 40% at the national level, only 10% of the hospitals presented an ICU overflow.

Figure 11 – Share of hospitals with occupancy rate for COVID-19 patients in ICU licensed beds above 60%

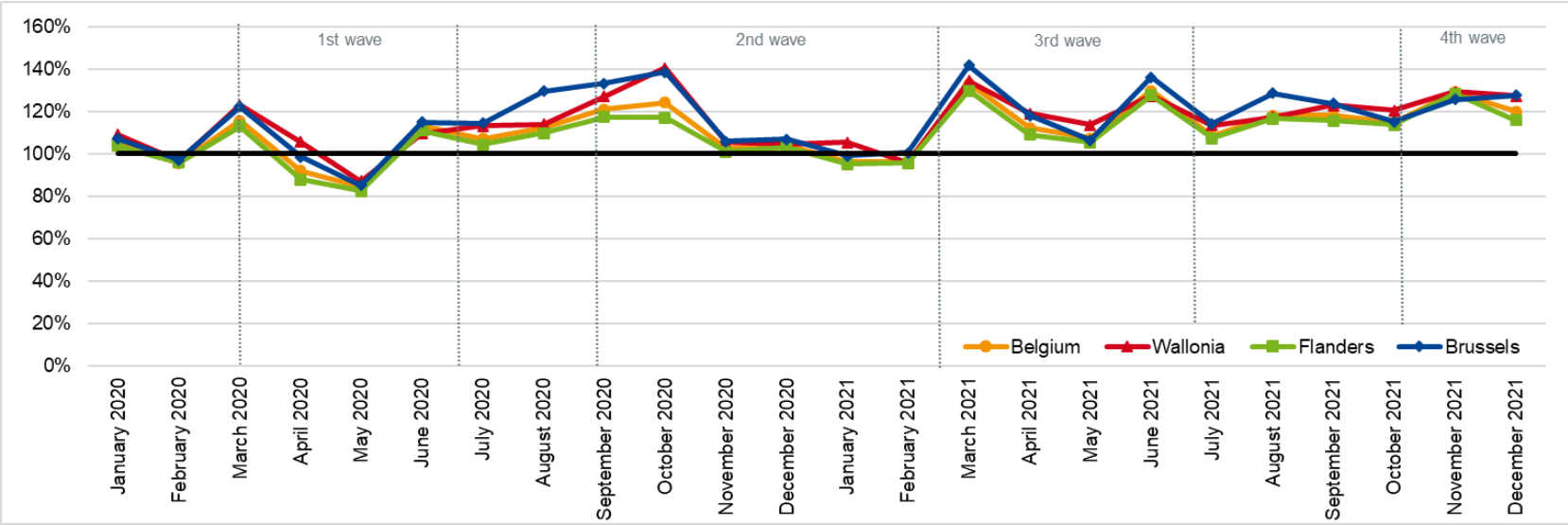


Source: FPS Public health, calculations: KCE.

The COVID-19 pandemic forced public authorities to encourage innovative ways of providing healthcare services. Among them, teleconsultations (as an alternative to in-person contact with physicians) have been largely promoted in many countries.[17] In Belgium, teleconsultations in primary care were initiated in March 2020 (by the creation of three billing codes) in order to ensure continuity of care while preventing the spread of the virus by avoiding direct contact between patients and health professionals. These teleconsultations were free of charge for the patient. Since August 2022, this temporary system has been replaced by a permanent one that implies a small co-payment for the patient.[112]

Figure 12 shows the **number of contacts (including teleconsultations) with a GP**, as a percentage of the total number of contacts with a GP in the same month of 2019 (R-7). During the first wave of COVID-19, a large drop of face-to-face contacts with GPs was experienced in the three regions of the country, but was largely compensated by the development of teleconsultations. A small disruption was observed in April and May 2020, the number of contacts including teleconsultations representing respectively 92.0% and 84.5% of the number of contacts in same month of 2019 (magnitude of the disruption = -15.5%). A bouncing back was already observed from June 2020 onward (length of the disruption = 2 months). After that, the number of contacts with GPs including teleconsultations was constantly above or close to its level for the same month of 2019 (time before recovery = 3 months).

Figure 12 – Total number of contacts (including teleconsultations) with a GP (as a percentage of the total number of contacts with a GP in the same month of 2019)



Source: RIZIV – INAMI, calculations: KCE.

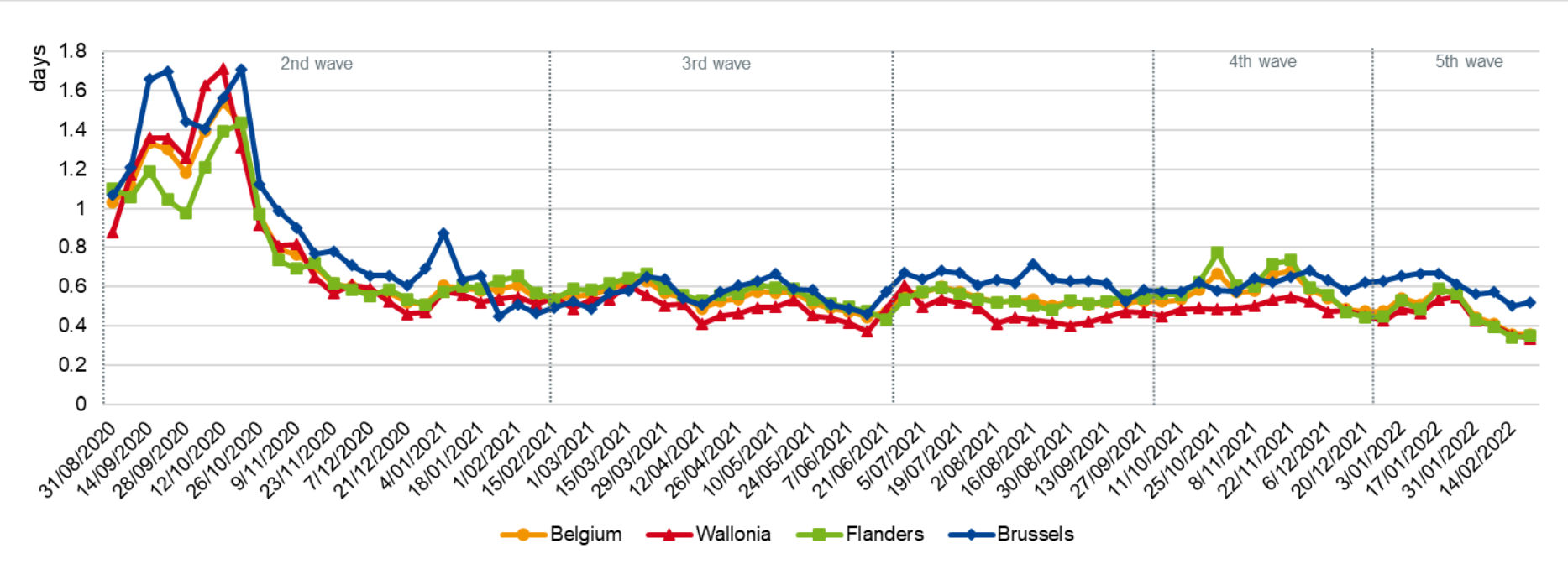
Large-scale population testing was also one of the essential means to control the outbreak.[113] To ensure efficient isolation and proper contact tracing, shortening the delay between sampling and results was also crucial. The EU health preparedness plan recommended that countries aim to have a Turn-Around-Time (TAT) of 24 hours (from request to be tested to communication of the test result) as a target.[114] TAT can be split up in two different phases: the time required from the prescription of a test to the moment the sample is taken, and the time between the sampling and the communication of the test result. The first phase is an indicator of sampling capacity while the second is more representative of testing capacity.

Figure 13 shows the latter, i.e. the **average duration between sampling of a COVID-19 test and test result** (R-8). Unfortunately, no data are available before September 2020, so that the average duration during the first wave of the COVID-19 pandemic cannot be estimated. During the second wave (September-October 2020), the average duration between sampling and test result reached 1.54 days. From November 2020 onwards, the average duration between sampling and test result remained below one day in all three regions, even when a very large number of tests was performed.

Part of this can be explained by the development of rapid diagnostic tools such as antigenic tests that were inexistent at the beginning of the pandemic but have been increasingly used later on. As this mode of sampling was characterised by an almost immediate communication of the result, their use decreased the average duration between sampling and result. Nevertheless, even at latter stages of the pandemic, these tools did not represent a large proportion of the samplings performed. Therefore, the observed reduction of the average duration between sampling and test result is also driven by a reduction of delays in molecular testing.

Regarding the delay between prescription and sampling (secondary indicator, not shown here), the average duration was around one day during most of the year 2021, so that the average TAT remained superior to one day. At the end of 2021, the average duration between prescription and sampling was reduced, reaching half a day in February 2022. During that period the average TAT was inferior to one day.

Figure 13 – Average duration between sampling of a COVID-19 test and test result (in days)



Source: Sciensano.

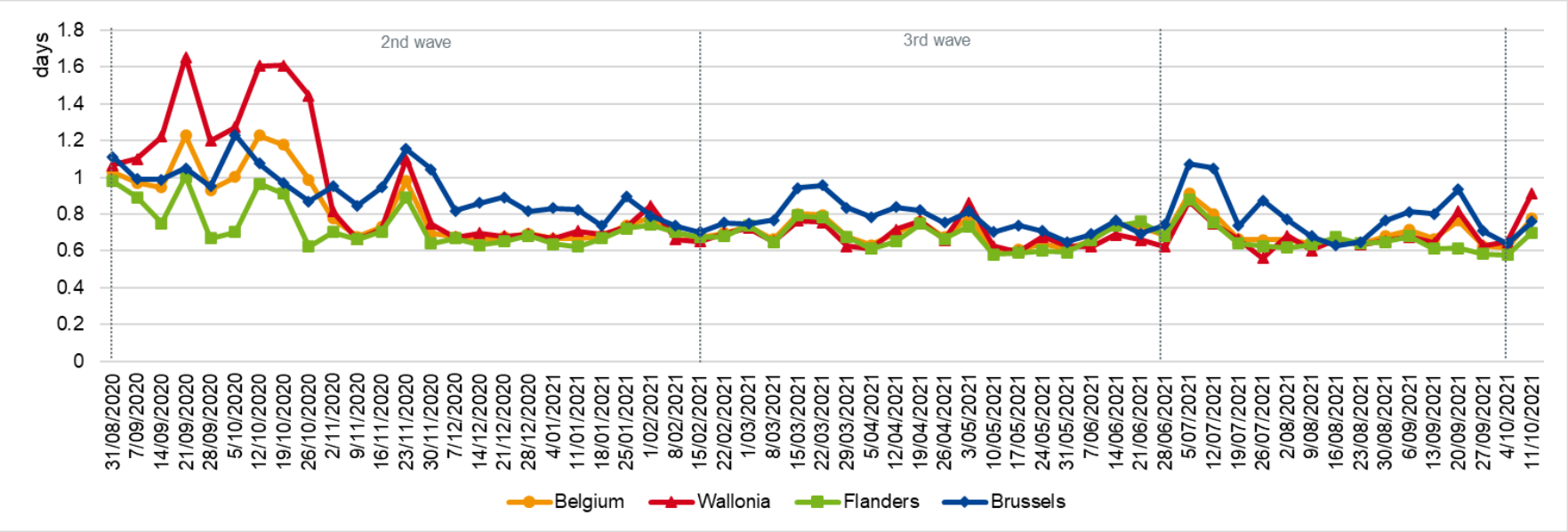
Contact tracing is also a major public health tool that has been developed to control the spread of COVID-19. However, many countries failed to implement it effectively.[115] Delays may occur at every stage of the process: between onset of symptoms and testing, between testing and results, and between a positive test result and the initiation of contact tracing. To interrupt the transmission of COVID-19, the ECDC recommended that "contact tracing should be done for as many cases as possible as fast as possible".[116]

To monitor this in Belgium, we measure the average duration between positive COVID-19 test result and contact tracing initiation (R-9, see Figure 14). The Sciensano test database was linked with the contact tracing database via the unique pseudonymized national registry number. Unfortunately, no data are available before September 2020, so that the indicator cannot be calculated for the period corresponding to the first COVID-19 wave. In addition, the duration between positive test result and contact tracing initiation is only calculated for index cases (i.e. persons with a positive diagnostic test) that were effectively contacted. As the percentage of index cases that could not be reached varies over time and depends on

the number of cases to be contacted, results are not comparable in all periods. The percentage of index cases that could not be reached stayed relatively constant (around 8%-9%) between September 2020 (no data available before) and mid-October 2021. However, this percentage was higher at the end of 2021 and the beginning of 2022 (delta and omicron variant) because of a very high number of index cases. For instance, it was 17.2% during the week of 18 October 2021, 45.8% during the week of 29 November 2021, and reached 67.0% during the week of 15 November 2022.[117-119] During this period several strategies have been used to prioritise the index cases that should be contacted (according for instance to the age, the virus load, the date of sampling, or the COVID-19 incidence in the area) and alternative methods to contact index cases via SMS and an online tool were deployed. As a result, measuring the average duration between positive test result and contact tracing initiation is less relevant for this period, and results could not be compared with the results obtained before October 2021. For that reason, the indicator is only calculated from week 36 of 2020 (week of 31 August 2020) to week 41 of 2021 (week of 11 October 2021).

During most of the study period the average duration between result and contact tracing initiation was shorter than one day in all three regions of Belgium. It was the highest, with a maximum of 1.23 days, at the beginning of the study period (September-October 2020), when a high number of persons needed to be to be contacted. It is not possible to evaluate if it was higher or not before September 2020.

Figure 14 – Average duration between result and contact tracing initiation (in days)



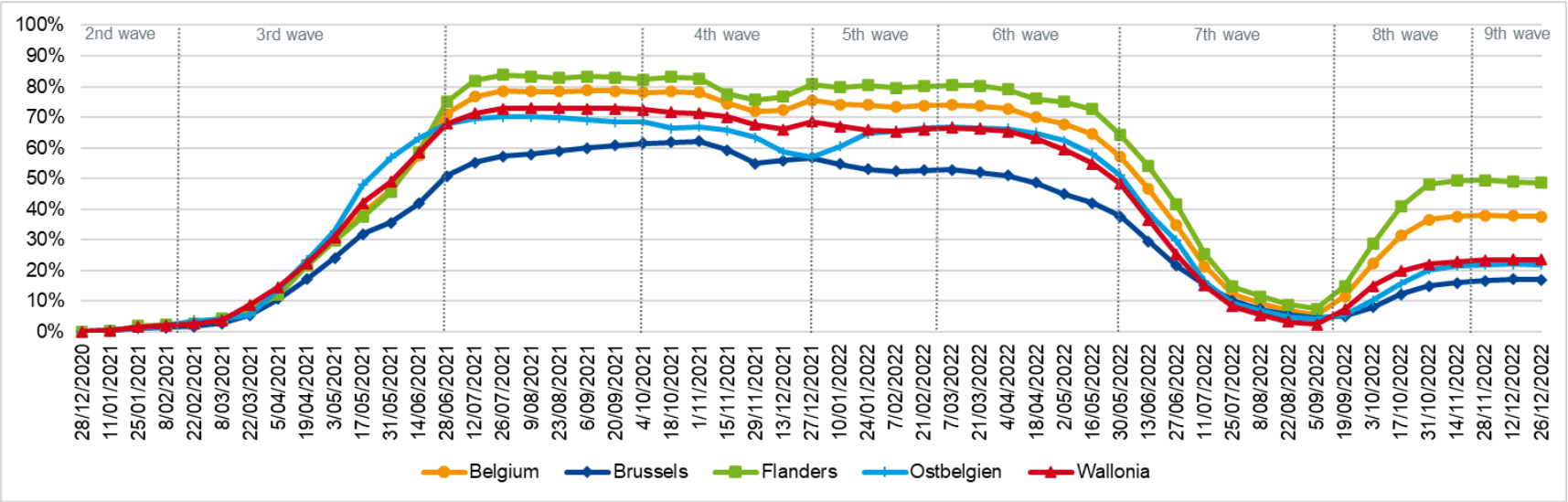
Source: Sciensano.

The rapid development and deployment of vaccines were also important elements contributing to pandemic management.[17] Coverage of COVID-19 vaccination in the adult population and among specific groups (65+, 85+, etc.) have been widely monitored using indicators such as the percentage of the population who received primary course vaccination, or primary course and booster vaccinations.[120] However, as time passes and a large share of the population is vaccinated, continuing to monitor these indicators appears to be less relevant. To assess the evolution of Belgian health system performance regarding COVID-19 vaccination, we use the percentage of the population who received at least one vaccine dose in the last six months (adult population: R-10, see Figure 15; population aged 65 years or more: R-11, see Figure 16).

The relevance of these indicators is highly dependent on stage of the pandemic and the type of variants that are prevalent. In particular, at the beginning of the vaccination campaign, it was advised to have a short delay between doses, in order to ensure a fast protection of the population. The first booster was advised for the whole adult population, and was mainly given during winter. Once the acute phase was passed, an annual booster, before each winter, was advised for at-risk populations. Therefore, the six-month interval is relevant to analyse during the winter, but is less relevant during summer. On the contrary, the number of persons receiving a vaccine dose during summer should be reduced, because these persons would face decreased vaccine effectiveness during the winter. In addition, vaccination is particularly advised to ensure protection against aggressive variants, and should be performed at the adequate moment to ensure it is adapted to the concerned variant. Due to that, the interpretation of the principal indicator must be nuanced, taking into account both the period of the year and the dominant type of variant.

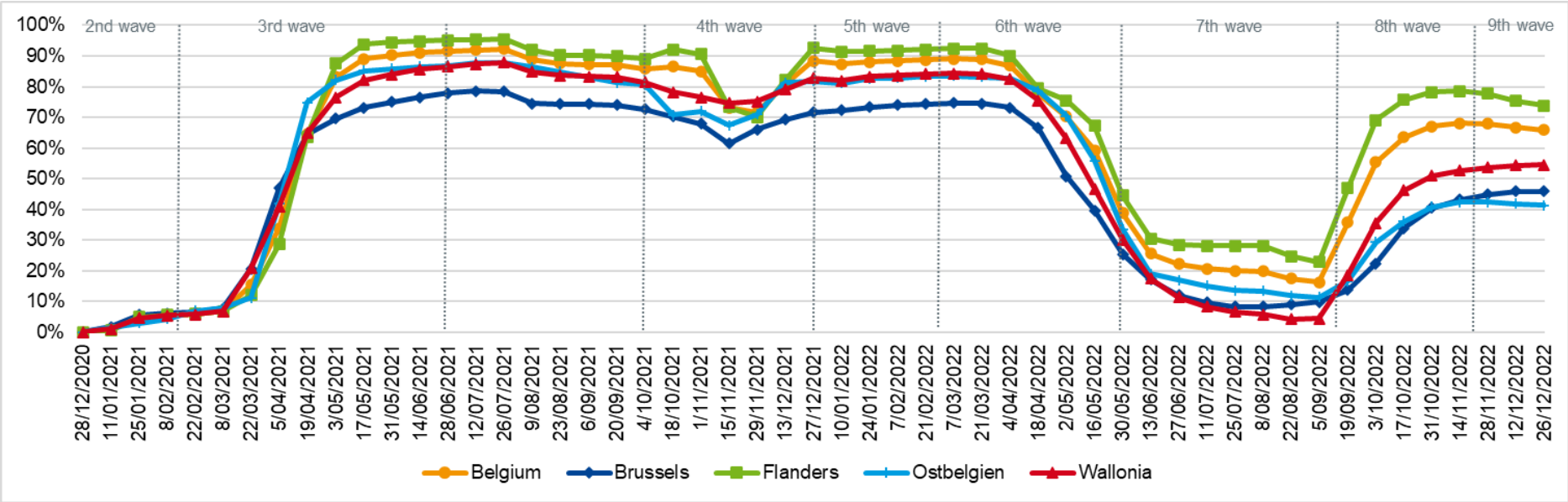
In Belgium, the overall majority (>97%) of persons aged 65 years or more were vaccinated with primary course vaccination. The share reached 89.3% for the overall adult population (aged 18 years or more), above the average in the EU-27 countries (77.0%). Also, more than 90% of the persons aged 65 years or more were vaccinated with primary course and first booster. The share reached 76.3% for the adult population, above the average in the EU-27 countries (65.4%) and in the EU-14 countries (73.1%). After the first booster campaign a decrease was observed in the share of the population who received at least one dose in the last six months. Owing the second and third booster campaigns, this share increased later on, but stayed largely below its previous level (a maximum of 68.1% was reached for the age group 65+ years and 38.0% for the adult population). At the end of 2022, 65.8% of the persons aged 65 years and 37.6% of the adults aged 18 years or more had received at least one dose in the last six months. Theses proportions were 73.8% and 48.6% in Flanders, 54.4% and 23.6% in Wallonia (excluding German-speaking community), 41.3% and 21.9% in the German-speaking community and 45.9% and 17.0% in Brussels.

Figure 15 – Percentage of the population aged 18+ years who received at least one COVID-19 vaccine dose in the last six months



Source: Sciensano.

Figure 16 – Percentage of the population aged 65+ years who received at least one COVID-19 vaccine dose in the last six months



Source: Sciensano.

Table 19 – Health system resilience

(ID) Indicator		Score	Belgium	Flanders	Wallonia*	Brussels	Period	Source
R-1 *New*	Healthcare professionals who consider leaving the profession (% of respondents, Power to Care)		Pre-shock ? Worst 27.6% Best 15.2% Recent 27.6%	Pre-shock ? Worst 28.6% Best 15.3% Recent 28.6%	Pre-shock ? Worst 26.7% Best 23.1%** Recent 24.0%	Pre-shock ? Worst 27.5% Best 9.3% Recent 22.8%	04/20-09/21 (** Wallonia 12/20-09/21)	Sciensano (Power to Care)
R-2 *New*	Share of hospital beds that are closed due to absence of staff or force majeure		Pre-shock ? Worst 10.1% Best 5.4% Recent 7.2%	Pre-shock ? Worst 10.5% Best 4.9% Recent 6.4%	Pre-shock ? Worst 9.3% Best 5.5% Recent 8.7%	Pre-shock ? Worst 12.2% Best 7.1% Recent 7.1%	22/11/21-31/12/22	FPS Public Health (ICMS)
R-3	Number of nursing vacancies in hospitals		Pre-shock 1636.9 Worst 2675.7 Best 2258.3 Recent 2572.1	Pre-shock 908.3 Worst 1390.2 Best 1176.7 Recent 1293.6	Pre-shock 387.5 Worst 724.9 Best 593.9 Recent 704.6	Pre-shock 341.1 Worst 560.5 Best 487.8 Recent 573.9	31/12/19-31/12/21	FPS Public Health
R-4 *New*	Number of essential surgical hospital acts (base 2019 = 100)		Pre-shock 100 Worst 56.9 Best 112.1 Recent 90.4	Pre-shock 100 Worst 60.5 Best 111.6 Recent 93.7	Pre-shock 100 Worst 53.7 Best 115.7 Recent 88.8	Pre-shock 100 Worst 51.1 Best 114.7 Recent 89.4	03/20-01/23	RIZIV – INAMI (Hospital Audit Unit)
R-5 *New*	Number of new invasive cancer diagnoses (per month) (as a percentage of number of new invasive cancer diagnoses in the pre-COVID period)		Pre-shock 100% Worst 61.0% Best 119.9% Recent 112.2%	Pre-shock 100% Worst 63.2% Best 123.4% Recent 114.1%	Pre-shock 100% Worst 59.4% Best 114.2% Recent 109.5%	Pre-shock 100% Worst 51.7% Best 119.8 Recent 109.4%	01/20-12/21	Belgian Cancer Registry
R-6 *New*	Hospitals with occupancy rate for COVID-19 patients in ICU licensed beds above 60% (% of general hospitals with ICU licensed beds)		Pre-shock ? Worst 80.6% Best 0% Recent 0%	Pre-shock ? Worst 76.5% Best 0% Recent 0%	Pre-shock ? Worst 100% Best 0% Recent 0%	Pre-shock ? Worst 90.9% Best 0% Recent 0%	20/03/20-31/12/22	FPS Public Health (ICMS and SC survey)
R-7 *New*	Number of contacts (including teleconsultations) with a GP (as a percentage of the total number of contacts with a GP in the pre-COVID period)		Pre-shock 100% Worst 84.5% Best 133.1% Recent 120.0%	Pre-shock 100% Worst 82.5% Best 129.7% Recent 116.0%	Pre-shock 100% Worst 87.1% Best 140.5% Recent 127.2%	Pre-shock 100% Worst 85.2% Best 141.8% Recent 127.6%	01/20-12/21	RIZIV – INAMI
R-8 *New*	Average duration between COVID-19 sampling and test result (days)		Worst 1.54 Best 0.36 Recent 0.36	Worst 1.44 Best 0.34 Recent 0.35	Worst 1.71 Best 0.34 Recent 0.34	Worst 1.71 Best 0.45 Recent 0.52	31/08/20-21/02/22	Sciensano

R-9 ***New***	Average duration between positive COVID-19 test result and contact tracing initiation (days)	🟡	Worst 1.23 Best 0.61 Recent 0.78	Worst 1.01 Best 0.58 Recent 0.70	Worst 1.65 Best 0.56 Recent 0.91	Worst 1.23 Best 0.63 Recent 0.76	31/08/20-11/10/21	Sciensano
R-10 ***New***	COVID vaccination in the last six months (at least one dose, % of the population)	🟡	Best 78.7% Recent 37.6%	Best 83.8% Recent 48.6%	Best 73.0% Recent 23.6%	Best 62.2% Recent 17.0%	28/12/20-19/11/22	Sciensano
R-11 ***New***	COVID vaccination in the last six months (at least one dose, % of the population 65+)	🟢	Best 92.3% Recent 65.8%	Best 95.5% Recent 73.8%	Best 87.8% Recent 54.5%	Best 78.6% Recent 45.9%	28/12/20-19/11/22	Sciensano

Good (🟢), average (🟡) or poor (🔴) results, globally stable (ST), improving (+) or trend not evaluated (empty).
*For contextual indicators (no evaluation): upwards trend (↗), stable trend (→), downwards trend (↘), no trend (C). * For R-10 and R-11, excluding German-speaking community.*

8.4 Impact of the COVID-19 crisis on other HSPA indicators

Besides the disruptions identified above, the COVID-19 crisis had an impact on many indicators and dimensions of the performance of the health system. However, because repeated data are lacking, it is not possible to measure the magnitude of the disruption, the length of the disruption and the magnitude of the rebound for all indicators. Nevertheless, Table 20 shows a comparison between results before and after/during the COVID-19 pandemic for a selection of relevant indicators identified in other dimensions of the Belgian HSPA framework.

Quality

A decrease in the total use of antibiotics in the ambulatory sector in Belgium (QA-3) was observed between 2016 and 2020, but 2020 shows a sharper fall (from 19.7 to 15.2 DDD per 1 000 inhabitants per day). This drop can be explained by several elements including a reduction of social contacts and therefore of transmission of communicable diseases and a reduction of the number of contacts with GPs. However, the trend then picked up in 2021, and over the next few years consumption will likely return to pre-crisis levels.

Imaging techniques for spine (QA-6) decreased from 10 153 examinations for 100 000 population in 2019 to 8 004 in 2020, as observed for many other hospital services during the pandemic. In 2021, the number of examinations has risen to a level between 2019 and 2020 (9 421 examinations per 100 000 population).

Hospital admission rate for asthma (QE-1) and for COPD (QE-10) both sharply decreased in 2020 compared to 2019, from 23.6 to 13.5 per 100 000 population for asthma and from 277.3 to 180.5 per 100 000 population for COPD. This is in line with the reduction of hospital regular care observed during the COVID-19 waves (see for instance R-4 above). In 2021, the hospital admission rate for asthma stayed close to its 2020 value (13.7 per 100 000 population) while the hospital admission rate for COPD decreased further (169.8 per 100 000 population).

Efficiency

The average length of stay for a normal delivery (E-2) fell from 2.99 days in 2019 to 2.71 days in 2020. This can at least partially be explained by the measures taken during the COVID-19 pandemic, such as early discharge or restricted visits. It is also possible that this led to more long-lasting changes in attitudes towards early discharges. In 2021, the average length of stay for a normal delivery was stable (2.69 days) compared 2020.

Accessibility

Out-of-pocket payments decreased due to lockdowns and the postponement of non-urgent care in response to COVID-19. In relative terms, OOP payments both as a share of current expenditure on health (A-2) and OOP medical spending as a share of final household consumption (A-3) 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.

COVID-19 also had a profound impact on OOP payments for hospital care (A-5), with similar contraction rates for co-payments and supplements, for inpatient care and day care. The rebound differed, however, with lower growth rates for inpatient care and co-payments compared to day care and supplements. 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.

The COVID-19 crisis had an impact on postponement of care in general, but not on the downward trend in self-reported unmet needs due to financial reasons (A-6 and A-7). The COVID-19 related measures such as the lockdowns and reduction of non-urgent care had an impact on the access to medical and dental 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 medical care (resp. dental 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 (resp. 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 care. The percentage of respondents with self-reported unmet medical need due to waiting lists (A-13B and A-14B) increased from 0.0%-0.1% in the four preceding years (2017-2020) to 0.5%-0.6% in 2021. In 2022, these percentages went back to their pre-COVID levels.

Sustainability

An increase in public funding of healthcare was observed during the COVID-19 pandemic. As a percentage of current expenditure on health, public funding of healthcare (S-3) increased by 2.67 percentage points between 2019 and 2020. This was mainly financed by an increase in transfers from government domestic revenue.

Preventive care

A substantial decrease in the estimated incidence of measles (P-5) was observed (from 38.1 cases per million to 4.0 cases per million), likely due to the restrictions put in place to stop the transmission of COVID-19. However, underreporting or delays in the notification of measles during the COVID-19 epidemic cannot be excluded. This decrease continued in 2021 (0.4 cases per million). On the other hand, an increase in the preventable mortality rates (P-13) is observed due to COVID-19 being added as a preventable cause of death.

Breast cancer screening (P-6 and P-7) also slowed down due to the COVID-19 crisis (see also R-6 above). The percentage of women aged 50-69 years who had a breast cancer screening decreased in 2020 compared to 2019. A bouncing back effect is observed in 2021, although the percentages are still lower than in 2019. In the same way, the percentage of the population aged 3 years and over with regular contacts with a dentist (P-11) decreased in 2020 compared to 2019 (from 55.7% to 54.4%). However, no direct bouncing back effect is observed, as it continued to decrease in 2021 (53.8%).

Influenza vaccination (P-4) benefitted from increased awareness during the COVID-19 period, so that the percentage of the population aged 65 years and over vaccinated increased from 52.9% in 2019 to 62.1% in 2020. In 2021, it decreased to 57.3%, which is still higher than in 2019.

Care for older people

The proportion of population aged 65 years and over receiving long-term care at home (OLD-2) slightly dropped in 2020 compared to 2019 (from 7.6% to 7.3%), likely due to the COVID-19 pandemic. In 2021, this proportion increased back to its 2019 level (7.6%).

End-of-life care

Over the period 2008-2019, the proportion of cancer patients who died at home (EOL-4) was more or less stable. In 2020 however there was an increase to 28.6% (from 22.6% in 2019), likely linked to the COVID-19 pandemic. No further data are available yet.

Table 20 – Impact of the COVID-19 crisis on other HSPA indicators

ID	Indicator	Pre-COVID value	Year	COVID value	Year	Post-COVID value	Year
	Quality						
QA-3	Use of antibiotics (total DDD/1000 inhabitants/day)	19.7	2019	15.2	2020	16.0	2021
QA-6	Spine imaging (X-ray, CT scan, MRI units per 100 000 population)	10 153	2019	8 004	2020	9 421	2021
QE-1	Asthma hospital admissions in adults (admission rate per 100 000 population)	23.6	2019	13.5	2020	13.7	2021
QE-10	Hospital admission for COPD in adults (admission rate per 100 000 population)	277.3	2019	180.5	2020	169.8	2021
	Efficiency						
E-2	Average length of stay for a normal delivery (days)	3.0	2019	2.7	2020	2.7	2021
	Accessibility						
A-2	Out-of-pocket (OOP) payments (% of current expenditure on health)	19.8	2019	17.4	2020	17.9	2021
A-3	Out-of-pocket (OOP) medical spending (% of final household consumption)	4.0	2019	3.6	2020	3.7	2021
A-5	Out-of-pocket (OOP) payments for hospital care (% of total hospital care expenditures (excluding budgetary twelfths))	18.6	2019	17.1	2020	17.6	2021
A-13a	People with self-reported unmet need for medical examination due to waiting time reasons (% of respondents, EU-SILC)	0.0	2020	0.5	2021	0.0	2022
A-14b	People with self-reported unmet need for dental care due to waiting time reasons (% of respondents, EU-SILC)	0.0	2020	0.6	2021	0.1	2022
	Sustainability						
S-3	Public funding of healthcare (% of current expenditure on health)	75.3	2019	77.9	2020	77.6	2021
	Preventive care						
P-4	Influenza vaccination (% pop aged ≥65 years)	52.9	2019	62.1	2020	57.3	2021

P-5	Incidence of measles (new cases per million population)	38.1	2019	4.0	2020	0.4	2021
P-6	Breast cancer screening (% women aged 50-69 years)	61.0	2019	57.7	2020	59.0	2021
P-7	Breast cancer screening - organised programme (% women aged 50-69 years)	32.3	2019	30.3	2020	31.5	2021
P-11	Regular contacts with dentist (% pop aged ≥3 years)	55.7	2019	54.4	2020	53.8	2021
P-13a	Preventable mortality, men (rate per100 000 population, age-adjusted)	193.4	2019	243.1	2020	-	-
P-13b	Preventable mortality, women (rate per100 000 population, age-adjusted)	91.6	2019	113.8	2020	-	-
	Care for older people						
OLD-2	Long-term home nursing care (% pop aged 65+)	7.6	2019	7.3	2020	7.6	2021
	End-of-life care						
EOL-4	Death at usual place of residence (home or in residential care) (% of cancer patients with poor prognosis who died)	22.6	2019	28.6	2020	-	-

8.5 Other indicators for health system resilience

Preparedness is one element of health system resilience. Table 21 describes two indicators of preparedness that are not specific to the COVID-19 pandemic: the perceived likelihood that government would be prepared for the next pandemic (R-13) and the country preparedness to public health risks and acute events (R-14). In 2021, approximately 37% of Belgian respondents to the OECD Survey on Drivers of Trust in Public Institutions (“Trust Survey”) expressed confidence that the government would be prepared for the next pandemic, which was lower than in the EU-14 (49%) and EU-27 (48%) countries. Using a self-assessment tool, the all-capacity average International Health Regulations (IHR) score provides information about a country’s preparedness capacity to public health risks and acute events. In 2022, Belgium’s all-capacity average IHR score (63%) was lower than both the EU-14 (77%) and EU-27 (76%) average scores. Belgium’s lowest IHR capacity scores were for “Policy, legal and normative instruments to implement IHR”, “IHR Coordination, National IHR Focal Point functions and advocacy”, “Zoonotic diseases” and “Food safety”.

Table 21 also contains an indicator on the constitution of a workforce reserve (R-12). This indicator was judged highly relevant to assess resilience to the COVID-19 pandemic, but, as no repeated data were available, has not been included in the above analysis. During the COVID-19 pandemic, Belgium has set up reserve lists to support the actual practising health workforce, with registration possible via dedicated platforms. Based on data from the Federated entities, it appears that almost about 19 000 health professionals have registered on these platforms: 12 779 were registered in Flanders on 28 April 2021, 5 865 new registrations were done in Wallonia between 2020 and 2022, 133 registrations were done in Brussels between August 2020 and December 2020 and 37 registrations were done for the German-speaking Community (no reference period given).

Table 21 – Other indicators for health system resilience

(ID) Indicator		Score	Year	Flanders	Wallonia	Brussels	German Community	Source
R-12 *New*	Number of health professionals registered in workforce reserve	**C**	2020-2021	~12 779	~5 865	~133	~37	Federated entities

(ID) Indicator		Score	Belgium	Year	Source	EU-14	EU-27
R-13 *New*	People who perceived that the government is likely to be prepared for the next pandemic (% of respondents, Trust)	🔴	37	2021	OECD Trust Survey	49	48
R-14 *New*	Country preparedness to public health risks and acute events (average score on a 1-100 scale)	🟡	63	2022	SPAR, WHO	77	76

Good (🟢), average (🟡) or poor (🔴) results, globally stable (ST), improving (+) or trend not evaluated (empty).
For contextual indicators (no evaluation): upwards trend (↗), stable trend (→), downwards trend (↘), no trend (C).

Conclusion

As in many other countries, the Belgian health system performance was affected by the COVID-19 pandemic crisis. During the first waves of the epidemic, indicators related to workforce, essential health services and routine public health services showed major disruptions. However, after this shock, the system showed some resilience, and a large group of indicators bounced back more or less rapidly to their pre-crisis level. Although it is premature to assess the extent of the rebound post-crisis, for many HSPA indicators, results in 2021 are better than in 2020, sometimes back to the 2019 level. The Belgian health system has also been able to adapt and transform itself, for instance limiting overcrowding in ICU by transfers between hospitals, developing teleconsultations, and implementing vaccination programs.

However, for indicators related to the system's ability to provide an adequate workforce, the situation is more alarming. In this chapter, indicators measuring healthcare professionals' well-being and absenteeism are analysed. Although these indicators are imperfect and only partially measure well-being and absenteeism, no bouncing back can be observed yet.

Also, confidence in the public authorities' preparedness for future crises is limited.

9 PREVENTIVE CARE

Preventive care includes two types of interventions: the first type of interventions, also called primary prevention, aims to reduce or suppress the occurrence of a disease (this is e.g. the purpose of vaccination); within the scope of this HSPA-report, only primary prevention organised by the health system will be described. The second type of preventive care, also called secondary prevention, aims to detect the occurrence of a disease at early stage, in order to initiate treatment as early as possible to limit the consequences in term of mortality and morbidity/disability (this is the purpose of cancer screening, or the check-up visit at the dentist).

For this report, we selected as primary prevention intervention, some vaccination against childhood vaccine preventable diseases and in older people. We selected as secondary prevention interventions the screening of some cancers and preventive dental care. All but one indicators in Table 22 are process indicators evaluating the coverage of preventive care. One indicator, the incidence of measles, represents an outcome indicator of the prevention.

It is noteworthy that the organisation of preventive interventions is mainly in the hand of the federated entities, with some involvement of the federal authorities for some of the reimbursements. Depending on the topics, the regional programmes can be quite similar in the different regions (like vaccinations in children, breast cancer screening) or present more or less important differences. For this reason, the evaluation of the performance should also be made at regional level, even if a national level has been computed.

Child and adolescent vaccination

Belgium performs rather well for infant vaccination: the coverage of the full schedule vaccination for DTP and polio (4 doses) reached around 94% in 2020, which is nevertheless slightly lower than the health target for polio and pertussis (95%). Many small outbreaks were still observed for pertussis. The coverage of the pneumococcus vaccination was satisfying.

WHO has defined quantified targets for the elimination of measles, namely reaching a 95% coverage rate for both doses of vaccination, and reducing the measles incidence to less than 1 case per million inhabitants. Concerning the **measles vaccination coverage** for the first dose, the 95% coverage target has been reached since 2012 on average for Belgium. The target was reached in Flanders in 2012, in 2015 in Wallonia, and was close in 2019 in Brussels (94.8%). However, for the second dose (given in early adolescence), the coverage only reached 83% on average for Belgium in 2020, which is far too low. Regional differences seemed important, as in Flanders it almost reached 90%, but in Wallonia and Brussels the coverage was around 51-75%. However, those figures have to be interpreted with caution, as the methodology differs between the regions, and the coverage in Brussels and Wallonia may be underestimated, especially during the last survey (51%). A new coverage survey is currently under analysis.

Concerning the **measles incidence**, after the two outbreaks of 2011 and 2017, and the outbreak of 2019, the estimated incidence of measles decreased in 2020 and 2021. This decrease is likely linked to the restrictive measures put in place to stop the transmission of COVID-19 and potentially due to underreporting during the crisis (see also section 8.4). In 2020, WHO declared measles eliminated from Belgium. However, continuous and targeted efforts are still needed, not only to reach 95% coverage for both doses of measles vaccination but also to detect and vaccinate clusters of unvaccinated adults.

For HPV vaccination, the national coverage for girls under 15 years (69.3%) was still far from the WHO target of 90%. Vaccination was started in September 2019 among boys. The vaccination coverage was higher in Flanders.

The COVID-19 pandemic had very little to no impact on young children's vaccination. However, there might have been a small impact on adolescent vaccination, particularly in the French-speaking community.

Vaccination against influenza

Vaccination of older people (≥65 years old and not residing in an institution) against influenza declined between 2010 and 2019, increased during the COVID-19 pandemic and decreased again to 57.3% coverage in 2021 (see also section 8.4). Differences in vaccination coverage by socioeconomic status were minor (see section 7.1), while the vaccination rate was slightly higher in women than men and higher in Flanders than in Brussels and Wallonia. However, the overall coverage remained far below the 75% WHO target. In 2021, Belgium's influenza vaccination coverage was between the EU-27 average and the EU-14 average.

Screening of breast, cervical and colorectal cancers

For the breast cancer screening, the overall coverage (including both the participation in organised screening programme and opportunistic screening) reached 59.0% in 2021, while a participation rate of 75% is recommended. This low coverage rate was stable over time (for the COVID-19 period, see section 8.4). The overall coverage in Flanders was 18 percentage-point (absolute difference) higher than the coverage rates in other regions, or a relative difference of 38%. Even wider regional differences were observed for coverage resulting from the organised breast cancer screening programme. Women in Flanders were mostly screened through the organised programme (49.2%), while this was rarely the case in Wallonia and Brussels (4.0% and 9.0% respectively), where women underwent breast cancer screening outside the organised programme. This raises questions about the overall efficiency of the programme. Moreover, there were important socioeconomic differences (see section 7.1).

In 2021, the coverage of cervical cancer screening was 53.7% of women aged 20-69 years without medical exclusions and 57.4% with medical exclusions. The coverage without medical exclusions was similar across the three regions (52%) and was below the desirable target of 85%. In Flanders, the only region with an organised cervical cancer screening program[u] (women aged 25-64 years), the coverage rate with medical exclusions reached 62.7% when using the target population of the program. The cervical cancer screening rate in Belgium was lower than the EU-14 average (59.6%) but higher than the EU-27 average (53.2%) in 2021.

Programmes of colorectal cancer screening through Faecal occult blood test (FOBT) run in Wallonia and Brussels since 2009 and in Flanders since 2013. Different indicators of coverage can be calculated, as the strategy is either to perform a FOBT if there is no risk factor, or to perform a colonoscopy if risk factors exist. The total colorectal cancer screening rate only was 53.6% in 2021, with 32.6% from screening in the program and 21.1% from screening outside of the program. The total screening coverage rate only reached the desirable target of 65% in Flanders, where the coverage was two-fold higher than in Brussels and Wallonia. The Belgian coverage rate was lower than the EU-14 average but higher than the EU-27 average.

Preventive measures in oral health, measured by regular contacts with a dentist

The indicator having regular contacts with a dentist[v] is the only one in this section which does not fall within the competences of the federated entities. The results are poor since only 53.8% of the population had regular contacts with a dentist in 2021, with lower rates in Wallonia (48.7%) and Brussels (47.4%) than in Flanders (57.6%). Rates remained relatively stable over time across all regions. Contact rates were lower in more disadvantaged groups (see section 7.1). For the COVID-19 period, see section 8.4.

The higher contact rate in children aged 5-17 years (67-71%) can probably be partly attributed to orthodontic treatment in that age group. The low attendance rates, despite the fact that most of preventive and restorative care is fully reimbursed for children up to 18 years, raise questions on the factors precluding access to (preventive) oral care.

[u] Currently in a pilot phase in Wallonia.

[v] Having regular contacts with a dentist is defined as having had at least two contacts in at least two different years during the last three years.

Preventable mortality

A death is said preventable if, in the light of understanding the determinants of health at the time of death, it could have been avoided through effective public health and primary prevention interventions.

Belgium ranked poorly among EU-14 countries for men and women. Preventable mortality was particularly high in 2020 due to the integration of COVID-19 as a cause of preventable mortality (see also section 8.4). Preventable mortality was more than twofold higher in men than in women. Regional differences increased in 2020. In men, premature mortality was 56% higher in Wallonia and 46% higher in Brussels than in Flanders, in women it is 51% higher in Wallonia and 33% higher in Brussels.

Conclusion

The performance of preventive care in Belgium was rather poor. Only the vaccination coverage in infant children reached an acceptable level, even if it should still improve to reach the defined targets. Measles and HPV vaccination in adolescents did not reach the target, particularly in Wallonia and Brussels. Despite an increase during the COVID-19 pandemic, the vaccination against influenza in older people remained too low in all three regions. Breast cancer screening was too low, even when looking at the global coverage (organised + opportunistic screening), and especially in Brussels and Wallonia. The coverage rate of cervical cancer screening was much lower than the desirable target rate in all regions and the coverage rate of colorectal cancer screening was below the target in Wallonia and Brussels. The proportion of the population that had regular contacts with a dentist remained too low. Finally, preventable mortality remained high and above EU averages.

Table 22 – Indicators on preventive care

(ID)	Indicator	Score	Belgium	Year	Target	Flanders	Wallonia	Brussels	Source	EU-14	EU-27
Vaccination coverage											
P-1	Polio (%, 4th dose)	+	94.0	2020	95	94.2	94.3	92.8	Sciensano Federated entities	-	-
P-12	Diphtheria, tetanus and pertussis vaccination in children (%, 4th dose)	+	93.9	2020	90-95	94.2	94.0	92.6	Sciensano – Federated entities	-	-
P-2a	Measles vaccination in children (%, 1st dose)	+	96.0	2020	95	96.1	96.5	94.8	Sciensano – Federated entities	-	-
P-2b	Measles vaccination in adolescents (%, 2nd dose)	●	83.0[a]	2020	95	89.2	***51.1[b]***		Sciensano – Federated entities	-	-
P-3	Pneumococcus vaccination in children (%, 3th dose)	●	93.8	2020	-	95.4	92.0	91.7	Sciensano – Federated entities	-	-
P-4	Influenza vaccination (% pop aged ≥65 years)[c]	ST	57.3	2021	75	64.7	**49.1**	**46.3**	IMA – AIM; OECD	62.8	43.2

P-14 *New*	HPV vaccination in girls (%, 2nd or 3rd doses following vaccines)	+	69.3	2020	90	84.3		**50.2**	Sciensano – Federated entities	-	-
Incidence infectious diseases preventable by vaccination											
P-5	Incidence of measles (new cases per million population)[d]	●	0.4[e]	2021	< 1	0.5	0.5	0	Sciensano – Federated entities	0.1	-
Cancer screening[f]											
P-6	Breast cancer screening (% women aged 50-69 years)	ST	59.0	2021	75	65.8	**49.2**	**48.0**	IMA – AIM; OECD	61.4	54.5
P-7	Breast cancer screening - organized programme (% women aged 50-69 years)	ST	31.5	2021	75	49.2	**4.0**	**9.0**	IMA – AIM	-	-
P-8	Cervical cancer screening (% women aged 20-69 years)	●	53.7	2021	85	52.0	51.8	52.0	BCR[g]; OECD	59.6	53.2
P-9	Colorectal cancer screening (% pop aged 50-74 years)	●	53.6	2021	65	66.1	**33.2**	**33.2**	BCR[g]; OECD	54.6	45.7
Oral health – contacts with dentist											
P-11	Regular contacts with dentist[h] (% population aged ≥3 years)	ST	53.8	2021	-	57.6	48.7	47.4	IMA – AIM	-	-
Preventable mortality											
P-13a	Preventable mortality, men (per 100 000 population, age-adjusted)	●	243.1	2020	-	200.9	**313.3**	**292.7**	Statbel, cause of deaths database		
			243.8	2020					Eurostat	210.6	265.7
P-13b	Preventable mortality, women (per 100 000 population, age-adjusted)	●	113.8	2020	-	96.0	**144.6**	**127.3**	Statbel, cause of deaths database		
			113.6	2020					Eurostat	87.6	101.6

Good (●), average (●) or poor (●) results, globally stable (ST), improving (+) or trend not evaluated (empty).
For contextual indicators (no evaluation): upwards trend (↗), stable trend (→), downwards trend (↘), no trend (C). [a] *The Belgian average was computed based on the data for 2020 for Flanders and 2015-2016 for Wallonia and Brussels (75%). b This study was done with another sample and methodology than the previous years and is not representative. A new study is under analysis and should provide new insights. c Excluding population residing in homes for the older people and nursing homes (no reliable data); d The regional differences observed during a specific year are not highlighted, since epidemic diseases in children show fluctuations that are poorly rendered by a one-year snapshot; e Measles cases have been strongly influenced by the pandemic and the control measures; there is still a risk of measles outbreaks in Belgium. f Within the last two years for breast and colorectal cancer screening, within the last three years for cervical cancer screening; g Multiple data sources were used, including: Statbel, CvKO, CHP, CIB and IMA – AIM. h Regular contacts is defined as patients who have at least two contacts in two different years during the last three years. Bold results indicate regions with a relative risk higher than 1.2 (or lower than 0.83) when compared to the region with the best results.*

10 MENTAL HEALTHCARE

Reforms focus on de-institutionalisation but lack of data to monitor this trend

During the last decennia of the 20th century, the mental healthcare sector in Belgium, as in most industrialised countries,[121] underwent several reforms characterised by a strong de-institutionalisation movement. This movement emphasized the need to reintegrate mentally disordered people into the society by shifting from large psychiatric hospitals towards alternative services in the community.[122] Yet, important data limitations hamper adequate performance measurement within the mental healthcare sector; in particular, the lack of unique patient identifier does not allow the follow-up of the patient after discharge, and few adequate data are available concerning outpatient care. The indicators relevant to monitor these evolutions (e.g. case management) could not be developed because of limitations in the current data structures. Instead, we relied on general indicators and indicators focusing on the psychiatric hospitalisation episodes (e.g. number of hospitalisation days in psychiatric hospitals; involuntary committals).

This report includes 11 indicators that yield specific information on mental health and healthcare. The results have several limitations and give only a partial picture of the performance of the mental healthcare sector. In addition, based on the analyses performed, the impact of the COVID-19 pandemic on mental healthcare could not be reliably assessed. Nevertheless, some important conclusions can be drawn.

Accessibility of mental healthcare

The density of practising psychiatrists was stable between 2011 and 2021 (1.7 per 10 000 population). In 2021, the density of practising psychiatrists was higher in Brussels (3.3 per 10 000 population) than in Wallonia (1.6 per 10 000 pop.) and Flanders (1.5 per 10 000 population); however, the region was mainly based on the home address of the psychiatrists, giving little information on the actual workplace. Belgium's density of practising psychiatrists was below the EU-14 and EU-27 averages (2.1 and 1.8 per 10 000 population, respectively).

The density of registered clinical psychologists at RIZIV – INAMI was 2.5 per 10 000 population in 2022, and was only slightly higher in Wallonia (2.6 per 10 000 population) than Flanders (2.4 per 10 000 population) and Brussels (2.3 per 10 000 population). Again, the region was mainly based on the home address of the psychologists, giving little information on the effective workplace. In Belgium, among the 14 641 licensed clinical psychologists in 2022, only 19.7% were registered at RIZIV – INAMI but a recent study reported that the accessibility to psychological care improved as a result of the implementation of the reform to improve access to primary mental healthcare in 2022 (see section 13.6).[123]

Data about waiting times for mental health services are not systematically collected for the entire Belgian mental healthcare system. Only data for waiting times to access Flemish ambulatory mental health centres are publicly available. In 2022, the average waiting time was 41 days from enrolment to first face-to-face contact with an ambulatory mental health centre and 48 days from first to second face-to-face contact. On average, waiting times were longest for children and young adults and for care for people with mental disabilities. Differences by socioeconomic status are discussed in section 7.1.

Appropriateness of mental healthcare

Results of reforms aiming to make a shift from inpatient mental healthcare towards ambulatory alternatives are starting to become visible. The number of psychiatric hospitalisation days decreased from 789 per 1 000 population in 2010 to 550 per 1 000 population in 2021. The number of psychiatric hospitalisations days was higher for men than women. However, two indicators which are expected to decrease (on the long-term) as a result of these reform efforts did not. The percentage of emergency room visits in general hospitals for social, mental or psychic reasons remained stable over time (from 1.5% in 2010 to 1.6% in 2021) and the number of involuntary committals in psychiatric hospitals rose from 7.1 per 10 000 population in 2010 to 9.4 per 10 000 population in 2021.

In addition, the number of hospitalisation days in psychiatric hospital wards was higher in Flanders than in other regions. It should be investigated if these admissions are appropriate or if they are due to shortcomings in the service offer (e.g. insufficient community-based alternatives, insufficient case management).

Continuity of care

The rate of 30 days readmission rate in psychiatric hospital wards (in the same hospital) was 17.6% in 2021, which is in the range of other similar countries. Brussels had a higher readmission rate (23.2%) than Wallonia (17.2%) and Flanders (17.1%).

Appropriateness of prescribing pattern in ambulatory patients

Although an increase in the prescription rates of antidepressant drugs can be observed throughout Europe, Belgian rates of antidepressant use (86.5 DDD per 1 000 population/day) were higher than the EU-14 and EU-27 averages (77.1 and 64.2 DDD, respectively). Women had a two-fold higher consumption of antidepressants than men. Figures were considerably higher in Wallonia (100.1 DDD) compared to Flanders (82.4 DDD) and Brussels (65.7 DDD). It should be investigated whether this can be explained by socioeconomic and demographical differences or whether this was due to other reasons (e.g. professional culture, dissemination of evidence-based guidelines).

Yet, the percentage of adults with antidepressant medication remained stable over time (from 13.3% in 2010 to 13.7% in 2021), but with large variations between regions (higher in Wallonia than in Brussels and Flanders). Furthermore, the percentage of adults with antidepressants prescribed was higher on lower socioeconomic groups (see section 7.1), it increased with age (with the highest prescriptions rates observed in adults aged 75 years or more), and was higher in women than in men.

A third indicator is a proxy measure of **guideline adherence.** Major depression requires at least three months of antidepressant use. A small percentage of adults received antidepressant therapy for a shorter period (<3 months): 12.4% in 2020. The percentage of short therapies was higher in men than women. Short-term antidepressant prescription rates have been decreasing in the past decade.

Conclusion

While the past reforms results started to become visible and the accessibility to psychological care improved, the results on the mental healthcare indicators remained poor overall. The appropriateness of mental healthcare remained average, the continuity of care deteriorated and the appropriateness of prescribing pattern in ambulatory patients remained unsatisfactory. In addition, performance monitoring in this domain remained challenging since data systems ideally should allow to monitor patients' entire care path (including outpatient care), which is to date insufficiently the case.

Table 23 – Indicators on mental healthcare

(ID)	Indicator	Score	Belgium	Year	Flanders	Wallonia	Brussels	Source	EU-14	EU-27
Accessibility of care										
MH-2	Practising psychiatrists (/10 000 pop)	→	1.7	2021	1.5	1.6	3.3	INAMI – RIZIV; OECD	2.1	1.8
MH-12 ***New***	Number of clinical psychologists registered at RIZIV-INAMI (/10 000)	C	2.5	2022	2.4	2.6	2.3	INAMI – RIZIV	-	-
MH-3	Waiting time for a first face-to-face contact in a centre for ambulatory mental health (days)	→	-	2022	41	-	-	Department Zorg	-	-
Appropriateness of care										
MH-4	Rate of involuntary committals in psychiatric hospital wards (/10 000 pop)	↗	9.4	2021	9.2	8.2	12.2	MPG – RPM	-	-
MH-5	Emergency rooms (ER) visits for social, mental or psychic reason (% of admission in ER in general hospitals)	ST	1.6	2021	**1.9**	1.3	**1.7**	MZG – RHM	-	-
Continuity of care										
MH-11	Readmissions within 30 days in psychiatric hospital wards (in the same hospital, % of admissions)	▬	17.6	2021	17.1	17.2	**23.2**	MPG – RPM	-	-
Appropriateness of prescribing pattern in ambulatory patients										
MH-6	Use of antidepressants (total DDD/1000 pop./day)	▬	86.5	2021	**82.4**	**100.1**	65.7	Pharmanet – Farmanet;		
			86.2	2021				OECD	77.1	64.2
MH-7	Use of antidepressants (% of adult population, at least once in the year)	→	13.7	2021	12.9	16.2	11.3	Pharmanet – Farmanet	-	-
MH-8	Use of short (<3 months) antidepressant treatment episodes (% of adult population under antidepressant)	↘	12.4	2020	12.6	11.5	14.7	Pharmanet – Farmanet	-	-
Contextual										
MH-10	Number of hospitalisation days in psychiatric hospital wards (/1000 population)	↘	550	2021	609	455	344	MPG – RPM	-	-

Good (●), average (●) or poor (●) results, globally stable (ST), improving (+) or trend not evaluated (empty).
For contextual indicators (no evaluation): upwards trend (↗), stable trend (→), downwards trend (↘), no trend (C).

11 CARE FOR OLDER PEOPLE

The group of older people represents a large and growing part of the population. In 2022, 2.3 million persons in Belgium were aged 65 and older, representing 19.6% of the total population. According to demographic projections made by the Belgian Federal Planning Bureau, the share of people aged 65 years and over in the total population is expected to further rise to 25.1% in 2050.[124] In this period (2022-2050), the number of persons aged 65 years or over will increase by 39% and the number of persons aged 80 years or over will nearly double.

This population group also requires particular health services. Not only is there a strong correlation between older age and demand for acute medical and hospital services, but many of them also need ongoing, longer-term support to help them with their day-to-day activities.

Informal care, i.e. care provided by family and friends (mostly spouses and children) have traditionally been an important source of care for people with long-term care needs. If informal care is no longer sufficient, **formal care** by professionals is required. Formal care can in first instance be provided at home, thereby avoiding institutionalisation. For support in mainly instrumental activities of daily living, there are **home assistance services** (‘*thuishulp*’-‘*aide à domicile*’). When a person rather needs nursing, there is **home nursing care** (‘*thuisverpleging*’-‘*soins à domicile*’).

If it can no longer be avoided, the person has to move to a residential facility. There are two main types of residential facilities (**homes for older people**) in Belgium: **rest homes**, which provide nursing and personal care to older persons with mainly low to moderate limitations (categories O, A, B, C, Cd and D on the Katz scale), and **rest and nursing homes**, for persons strongly dependent on care though without need of permanent hospital treatment (categories B, C, Cd and D on the Katz scale). Besides homes for older people, there are (semi-residential) care settings, such as **short stay care centers** and **day care centers**.

Furthermore, there are **service flats**. In service flats, called ‘*assistentiewoningen-résidences-services*’, people can live independently in an adapted and safe building, with a common room for interaction with other residents and with support from care services (including shared meals) if needed.

In Belgium, governance of long-term care is fragmented between the federal level and the federated entities (regions and communities). The coordination between the different levels is to be managed by interministerial conferences and inter-administration coordination structures.[125]

The federated entities are responsible for the programming, recognition, subsidisation and supervision of home assistance services and services for home nursing care. However, for home nursing care there is reimbursement by RIZIV – INAMI (at the federal level).

Since the 6th State Reform of 2014, the federated entities are also responsible for the programming, supervision, recognition, financing/subsidisation and price regulation of homes for older people, short stay care centers and day care centers. There is no reimbursement by RIZIV-INAMI for the day price of stays in homes for older people, but there is reimbursement for interventions by healthcare professionals, such as physicians and nurses, and for medication in it.

Furthermore, the federated entities are responsible for the programming, supervision, and recognition of service flats.

Regulation of the medical professions providing healthcare (physicians, nurses), on the other hand, is the responsibility of the federal level (Federal Public Service Health, Environment and Safety of the Food Chain).

The fragmentation of the responsibilities also has an impact on data availabilities at national level, as we will further on see.

Accessibility of long-term care services (OLD-1 and -2)

In order to live a good life at older age, people require smooth access to long-term care services, either at home, in homes for older people or in semi-residential setting. The first indicators in this chapter focus on residential care (OLD-1), home nursing care (OLD-2) and informal care (OLD-3). These indicators are intertwined: the higher the availability of informal carers and of home nursing care services, the lower the need for residential care is expected to be. Although informal care is not always a substitute for formal care; it can be a complement, supporting and coming on top of formal care.

Since the transfer of (part of) long-term care from the federal to the federated level, centralisation of data on the population in institution (homes for older people) has been problematic for the years 2019-2020-2021, especially for

Brussels and resultantly also for the total Belgian data. Most recent available data from 2021 on the Flemish and Walloon region show that 5% of the population aged 65 years or over stayed in a home for older people (OLD-1). The proportion of the population in homes for older people increased by age and more women were in homes for older people than men. Based on data for 2018 we see that in the population of 85 years and over, 14.0% of men and 27.7% of women were in a home for older people.

More detailed data in the technical sheet furthermore show that the mean age of persons in homes for older people got slightly higher over the period 2008-2021. In that period the mean age increased from 86 to 87 years for women and from 82 to 84 years for men.

Data for home nursing care, on the other hand, are complete over the years. This sector was not transferred to the federated levels and RIZIV – INAMI remains the reimbursement institute for the whole country. Data show that in 2021, 7.6% of the Belgian population aged 65 years and over received home nursing care (OLD-2) (see also section 8.4 on the impact of the COVID-19 pandemic). Of note is that there was considerable geographical variation in use of home nursing care. The proportion of people aged 65 years and over receiving home nursing care was particularly higher in the provinces Limburg (11.7%), West-Flanders (9.9%) and Hainaut (9.8%) and particularly low in Brussels (4.2%), Walloon Brabant (4.2%) and Luxembourg (4.3%).

Due to different ways of provision of long-term care for older people, international comparison is difficult. Based on the available data from OECD, Belgium appeared to score relatively high compared to other European countries with regard to the population in homes for older people. On the other hand Belgium appeared to score relatively low with regard to home (nursing) care.

Informal care givers (OLD-3)

Informal caregivers have traditionally been important contributors to fill the long-term care needs in a country. The last SHARE (Survey of Health, Ageing and Retirement in Europe)[126] showed that Belgium scored well with 19% of the population aged over 50 years providing informal care on daily or weekly basis (OLD-3) (see also section 7.1 for differences by socioeconomic status). This was amongst the highest rates in the survey. However, it will be important to monitor the future evolution. Also in Belgium, it is expected that, due to declining family size, increased geographical mobility and rising participation rates of women in the labour market, the availability of informal carers will decline in the coming decades.

In Belgium, support for informal carers is spread over federal and federated authorities, provinces and municipalities.[127] In recent years an important step was taken at federal level. Since September 2020 persons in Belgium can request an official recognition as informal carer. The condition for this is that the person provides care at least 50 hours per month or 600 hours per year. This recognition entitles the person to take ‘informal care leave’ of 3 months full-time or up to 6 months when taken part-time (half-time or 1/5th).[128]

Bed capacity in homes for older people (OLD-4)

Since 2018, the total number of beds in homes for older people in Belgium increased from 144 399 to 148 455 in 2021/22. Still, the number of beds per 1 000 population aged 65 years and over decreased from 68 to 65, which means that the population aged 65 years and over grew proportionately more than the number of beds (OLD-4). Furthermore, whilst the number of beds in rest and nursing homes increased considerably, the number of beds in rest homes decreased, as part of the latter type of beds were requalified as beds in rest and nursing homes.
Compared to other European countries, Belgium ranks relatively high for bed capacity in homes for older people. Belgium was only preceded by Luxembourg and the Netherlands, which had the highest density of beds (86 and 85 beds per 1 000 population aged 65 years and over respectively). Still, there are growing concerns in Belgium about the fast growing population aged 65 and 85 years and over in the coming decades. Needless to say that this will lead to a drastic increase in care needs, in residential setting as well as at home.

Besides the expected shortage of beds in homes for older people in the coming years, there are also widespread concerns about:

- the availability of personnel to meet the increasing needs (both for care at home and for residential care). Already currently, the field suffers from shortage of personnel.[129]
- the affordability of residential care for the older people. For many persons, the pension is not sufficient to cover the bill of the home for older people.[130]
- the growing privatisation of residential care and the challenges that come with it.[131-133]

Care profile of persons in homes for older people (OLD-5)

In order to help tempering the increase in needed beds, it should be ensured that the available beds are in priority used for older persons needing more intensive care. Especially for independent persons (category O of the Katz scale) but also for persons with low care-dependency (category A) it can be questioned whether moving to a residential facility is the most appropriate option. Over the period 2011-2021, the proportion of patients in level O or A staying in residential facility steadily decreased, from 32% in 2011 to 20% in 2021 (OLD-5). These data show a positive evolution, yet differences amongst regions indicate further potential for improvement. In Brussels, still 29% of people living in a home for older people had certain autonomy. In Wallonia, this proportion was 27%. In Flanders, this proportion was reduced to 16%.

To avoid too early institutionalisation of independent or low care-dependent persons, besides home care services and alternatives like service flats, also other alternative care possibilities should be expanded, as it may e.g. concern persons in need of mental healthcare or social lodging who cannot find a place elsewhere and for whom the residential facility is currently a last resort solution.[134]

Availability of geriatricians (OLD-6)

The ageing of the population not only poses pressure on long-term care services for older persons but also on acute care services for them. This is where geriatricians and geriatric nurses play an important role. With indicator OLD-6, we monitor the evolution of the geriatric medical workforce. In 2021, there were 377 practising geriatricians in Belgium. In the previous four years there was an average increase of 17 practising geriatricians per year. This growth is too low compared to the recommendations of the Planning Commission – Medical Supply of the FPS Public Health.[135, 136] In previous years, a number of actions were taken to motivate more physician students to choose for geriatrics. Furthermore, more RIZIV – INAMI codes were created to increase the remuneration of geriatricians. Considering the limited growth of geriatricians in recent years, nevertheless, further actions may be required.

Safety in residential care (OLD-7 and OLD-8)

Fall incidents are a common cause of morbidity and mortality in older people. Recent data on fall incidents in older people are only available for the Flemish community, where they are measured in the context of the Flemish Indicator Project in the homes for older people. Data from this project reveal that in 2021 a median of 12.8% of residents in Flemish homes for older people had a fall incident in one month time (OLD-7). This high percentage illustrates the high care need of residents in homes for older people and the need for further actions to prevent fall injuries in this population.

The occurrence of **pressure ulcers**, also known as bedsores, in patients (either hospitalised, in residential care or at home) has a serious negative impact on their individual's health. Pressure ulcers can be prevented with good quality nursing care. The occurrence of pressure ulcers is one of the quality indicators measured in the Flemish project on quality indicators in homes for older people. These data show that on first June 2021, on average 2.9% of the residents had decubitus category 2 or more (OLD-8). However, only in 1.6% of the residents the decubitus developed in the home for older people. Over the years 2018-2021, we observe a small decrease in the median percentage of residents with decubitus. However, when only

considering decubitus that developed in the home for older people, the evolution over time appears more or less stable.

For fall incidents and pressure ulcers in homes for older persons, no recent international data are available for comparison. It is recommended that these quality indicators also be measured in the other Belgian regions, both to monitor the situation and to draw attention to the continued need for preventive efforts, to reduce the risk of pressure ulcers and to avoid them leading to severe and fatal conditions.

Appropriateness of care

Because of their side effects especially in older patients, **anticholinergic drugs** should be avoided as much as possible in this population. Yet data show that in 2021, 18.7% of the Belgian population aged 65 years and over got delivered a dosage over 80 DDD of anticholinergic drugs, which indicates chronic use of these drugs (OLD-10). Persons staying in homes for older people were more frequently prescribed anticholinergics than those living at home (45.5% of persons aged 75 years and over in homes for older people compared to 18.0% of persons aged 75 years and over at home). Historical data since 2011, show a slight positive evolution (from 23.1% of persons aged 65 years and over in 2011 to 18.7% of persons aged 65 years and over in 2021). Furthermore, there was considerable regional variation. There is further need for improvement and the prescribing behaviors by clinicians should be improved through education, training and increased adherence to guidelines.

Antipsychotics are often prescribed for problem behaviour in patients with dementia, however, given the associated risks of these drugs, non-pharmacologic interventions are the recommended first step. Data show that in 2021, 5.5% of the population aged 65 years and over was delivered antipsychotics (≥1 DDD). Belgium ranked close to average compared to other European countries. The problem appears particularly acute in homes for older people. Among people aged 65 years and over in homes for older people, 27.3% were delivered antipsychotics (OLD-11A), compared to only 4.4% in people aged 65 years and over outside home for older people (OLD-12A). Reducing the overuse of antipsychotics in homes for older people remains a working point for Belgium. Also the use of **antidepressants** was particularly high in homes for older people (OLD-11B). 48.3% of people aged 65 years and over in homes for older people used antidepressants (≥1 DDD), compared to 18.1% in people aged 65 years and over outside home for older people (OLD-12B).

Polypharmacy in older people

Many older people take a large number of different medicines, particularly when they suffer from chronic diseases. However, the more medicines one takes, the higher the risk of adverse effects, drug interactions, non-compliance, deterioration of functional status, and increased frailty in people of very old age. A sound balance must therefore be determined between taking a reasonable amount of medicines and polymedication. Although the use of multiple drugs is widely referred to as polypharmacy, no consensus exists on what number should define the term. In the literature, polypharmacy has often been defined as taking at least five medicines concurrently.

The percentage of the insured population aged 65 years and over that used in the past year 5 or more different drugs of >80 DDD was 42% in 2022. Polypharmacy was increasing with age until the age group 85 to 89 years (53%) and then decreasing. However, a potential for improvement was also seen in younger age groups from 65 years old as there were important variations between districts. Special attention should be paid to people from lower socio-economic groups as they were more at risk for polypharmacy (see also section 7.1). No impact of the COVID-19 crisis was observed on polypharmacy.

Table 24 – Indicators on care for older people

(ID)	Indicator	Score	Belgium	Year	Flanders	Wallonia	Brussels	Source	EU-14	EU-27
Accessibility of long-term care services										
OLD-1	Long-term care in home for older people (% of population ≥65 years)	**C**		2021	5.0	5.0		IMA-AIM		
			5.7	2018			7.6	IMA-AIM		
				2020				OECD	3.2	3.0
OLD-2	Long-term home nursing care (% of population ≥ 65 years)	**C**	7.6	2021	8.3	6.8	**4.2**	IMA-AIM		
				2020				OECD	8.9	8.6
OLD-3	Informal carers (% of population ≥ 50 years)	**C**	16.6	2018	15.9	18.1	14.8	HIS		
			23.5	2019				OECD	14.4	12.8
OLD-4	Number of long-term care beds in homes for older people [a] (per 1 000 population ≥ 65 years)	**C**	65.4	2022	58.9	69.6 [b]	103.9	Regions		
				2019				OECD	49.4	44.5
OLD-5	Low care-dependent people in homes for older people (% of residents)	**C**	20.2	2021	15.9	**26.9**	**29.4**	IMA-AIM	-	-
Accessibility of acute care										
OLD-6	Practising geriatricians (per 10 000 population ≥ 65 years)	⊕	1.7	2021	**1.6**	**1.6**	2.6	RIZIV-INAMI	-	-
Safety in residential care										
OLD-7	Fall incident during the last month in homes for older people (% of residents)	●	-	2021	12.8	-	-	VIKZ	-	-
OLD-8	Prevalence of pressure ulcers (grade II-IV) in homes for older people (% of residents)	●	-	2021	2.9	-	-	VIKZ	-	-

(ID)	Indicator	Score	Belgium	Year	Flanders	Wallonia	Brussels	Source	EU-14	EU-27
Appropriateness of care										
OLD-10	Prescription of anticholinergic drugs >80 DDD in older people (% of population ≥ 65 years)	⊕	18.7	2021	17.0	**22.0**	19.2	EPS (RIZIV-INAMI)	-	-
OLD-11 A	Use of antipsychotics ≥1 DDD in homes for older people (% of residents ≥ 65 years)	⊕	27.3	2021	**29.7**	**26.3**	21.6	IMA-AIM	-	-
OLD-11 B	Use of antidepressants ≥1 DDD in homes for older people (% of residents ≥ 65 years)	●	48.3	2021	39.5	**54.8**	**51.5**	IMA-AIM	-	-
OLD-12 A	Use of antipsychotics ≥1 DDD outside homes for older people (% of population ≥ 65 years)	→	4.4	2021	4.9	3.6	3.2	IMA-AIM; OECD	5.6 (>0 DDD)	5.3 (>0 DDD)
OLD-12 B	Use of antidepressants ≥1 DDD outside homes for older people (% of population ≥ 65 years)	→	18.1	2021	17.1	20.0	16.8	IMA-AIM		
OLD-13	Polypharmacy among older people (5 or more drugs of >80 DDD per year) (% of population ≥65 years)	ST	42	2022	41	**45**	37	Pharmanet	-	-

Good (●), average (●) or poor (●) results, globally stable (ST), improving (+) or trend not evaluated (empty).
For contextual indicators (no evaluation): upwards trend (↗), stable trend (→), downwards trend (↘), no trend (C).

HIS = Health Interview Survey; VIKZ = Vlaams Instituut voor Kwaliteit van Zorg; EPS = Echantillon Permanent(e) Steekproef

a Homes for older people: woonzorgcentra (WZC) - maison de repos pour personnes âgées (MRPA)/maison de repos et de soins (MRS)

b Wallonia: German-speaking Community included

Summary of indicators specifically on population aged 65+/75+

Table 25 summarises the indicators reported in previous sections on older people, comparing where possible the population living in home for older people with the population living at home (receiving home care or not).

Overall, receiving home care or staying in a home for older people was associated with a higher influenza vaccination rate (P-4), a higher continuity of care with a regular GP (QC-2) and a higher contact rate with GPs (QC-3). The occurrence of short antidepressant treatment episodes was lower (and thus better) in homes for older people than outside (MH-8).

Staying in a home for older people however was also associated with a lower contact rate with ophthalmologists in diabetic patients (QA-1 and QA-2).

Use of antibiotics in older people (75+) was higher than in the general population (QA-4 and QA-5).

Conclusion

Data on fall incidents and pressure ulcers are only available for homes for older people in Flanders. It is recommended that these quality indicators also be measured in the other regions, to monitor the situation and to continue drawing attention to the need for preventive efforts.

Too much anticholinergic drugs were prescribed in older people and too many antipsychotics and antidepressants were prescribed in homes for older people. Prescribing behaviors of clinicians should be improved through education, training and increased use of and adherence to guidelines. The number of polymedicated patients remained relatively high compared to other countries but had slightly decreased over time.

Table 25 – Indicators reported previously in other sections, specifically on population aged ≥65 years or ≥75 years

(ID)	Indicator	Year	Source	Belgium	No long-term care (65+)	Receiving home care (65+)	In home for older people (65+)
Prevention							
P-4	Influenza vaccination (% of pop ≥65 years)	2021	IMA – AIM	57.3	56.7	62.5	71.8*
Continuity of care							
QC-2	Usual Provider Continuity index ≥ 0.75 (% of pop ≥65 years)	2021		60.3	59.6	77.0	64.6
QC-3	GP encounter within 7 days after hospital discharge (% of pop ≥65 years)	2021	IMA – AIM	43.5	34.6	54.0	56.6
Appropriateness of care							
QA-1	Proportion of people ≥65 years living with diabetes with an appropriate follow-up (% of people ≥65 years under insulin)	2021	IMA – AIM	43.1	45.8	35.2	17.9
QA-2	Proportion of people ≥65 years living with diabetes with an appropriate follow-up (% of people ≥65 years receiving glucose-lowering drugs other than insulin)	2021	IMA – AIM	17.1	17.4	14.6	6.5
QA-4	Use of antibiotics (% of pop ≥75 years, at least once in the year)	2021	AIM – IMA	39.8			
QA-5	Use of antibiotics of second intention (% total DDD antibiotics in pop 76-85 years)	2021	RIZIV –INAMI	42.3			
Mental health							
MH-8	Use of short (<3 months) antidepressant treatment episodes (% of pop ≥65 years under antidepressant)	2020	Pharmanet – Farmanet	12.4	10.9	9.3	5.1

**Influenza results for population aged ≥65 years in home for older people cover Brussels and Wallonia only (results for Flanders are not available in IMA – AIM data). Moreover, if vaccines come from group purchases made by the federated entities, they are not included in the data. Data for people living in home for older people should therefore be used with caution.*

12 CARE AT THE END OF LIFE

When the end of life is near and recovery is no longer possible, the care provided needs to change its purpose and instead focus on improving quality of life for the patients and their families, by preventing and relieving pain, whether physical or psychological, social or spiritual. This is what is called palliative care. This is a holistic approach which takes into consideration the different aspects of end-of-life problems, in a necessarily multidisciplinary way. Palliative care is for any person who is in a life-threatening condition (and not only for terminal cancer patients, as is sometimes believed), as well as for their families and close relatives.

Belgium has set up a high-performance palliative care system. **Palliative networks** have been installed in all provinces to organise training courses, coordinate and evaluate the actions of the different services, and ultimately promote the spread of a palliative care 'culture'.

For people who wish to end their days in their home, there are teams who are specialised in **palliative home care** and who also provide support to the patient's close relatives. In some regions, **daytime palliative care facilities** have also been set up in order to provide relief to patients and their families.

In hospitals, two types of palliative care facilities have been set up: **small palliative care units** (offering a total of approximately 400 beds for the whole country), and **mobile teams** who provide specific support to end-of-life patients who are hospitalised in other units (than the palliative care unit). A similar palliative function has been created in homes for older people.[137]

It has also been ensured that palliative care is financially accessible to all. When at home, therefore, palliative care patients do not need to pay any personal contribution for procedures performed by general practitioners, nor for certain procedures performed by nurses and physical therapists. There is also a palliative flat fee which covers additional costs generated by this care.

In addition to palliative structures, Belgium has a legal regulation for euthanasia in adults and children.[138]

Since November 2022, there is a new RIZIV-INAMI billing code for Advance Care Planning (ACP) for GPs, which is fully reimbursed to the patient. ACP is one of the ways to enhance quality of palliative care. With ACP, the GP analyses together with the patient his or her expectations and wishes regarding future, either curative or palliative, care. This billing code was too recently introduced to analyse its introduction and evolution over time in this report, but it certainly forms an interesting indicator to evaluate in a future edition of the performance report.

In what follows, we focus on end-of-life care for cancer patients. In the discussion and conclusion of this chapter, we will make reference to a broader Belgian study analysing appropriateness and inappropriateness of end-of-life care for two other patient groups besides cancer: COPD and dementia.

Access to and timing of palliative care received by cancer patients

The first two indicators in this chapter present data on palliative care received by cancer patients. In 2020, 56.8% of terminal cancer patients received palliative care (EOL-1), either at home or in hospital.[w] This percentage slightly increased over time and was higher in Flanders than in the other regions. This percentage is probably an underestimation of the reality, as patients may receive palliative care in the hospital without specific billing.

Yet, 18.6% of terminal cancer patients died within one week after the start of palliative care (EOL-2). Since 2013, this indicator stayed below 19% but there was no large improvement. The result remains a warning signal for

[w] Palliative care as identified in billing data: this includes patients receiving a lump sum for palliative care at the usual place of residence, patients with visits of the general practitioner or nurse within a palliative setting, patients hospitalised in palliative units or hospitalised patients with visits of multidisciplinary palliative care teams.

healthcare providers and patients to be aware of the importance of a well-timed initiation of palliative care.

Aggressiveness of care at the end of life in cancer patients

In addition to appropriate timing of palliative care, aggressiveness of care (e.g. inappropriate treatments in the final phase of life) can also be an important source of information for both healthcare providers and policymakers.[139] About 10.6% of terminal cancer patients still received chemotherapy in the last 14 days of their life (data from 2020) (EOL-3), with slightly higher rates in Wallonia. The data, however, make no distinction between curative and palliative chemotherapy, nor with unexpected deaths in cancer patients, which hampers the interpretation of these results. Since 2008, there was no substantial change in this indicator.

People-centred care

In spite of the current organisation of palliative services supporting the patient and his or her relatives to help the patient stay at home, 56.7% of cancer patients died in a hospital, 28.6% died at home and 3.1% in home for older people (thus 31.7% died in their usual place of residence, EOL-4) (data from 2020). The proportion of patients who died in a hospital was higher in Brussels. Over the period 2008-2019, there was a small decrease in patients who died in hospital (from 65.3% in 2008 to 63.1% in 2019). In 2020, likely due to the COVID-19 crisis, there was a considerable drop in patients who died in hospital (56.7% in 2020) (see also section 8.4 on the impact of the COVID-19 pandemic).

In general, patients should die as much as possible in their preferred place of death. However, it is unknown what proportion of patients prefers to die at home, in residential care or elsewhere, so the indicator has to be interpreted with caution. Healthcare professionals are encouraged to record patients' preferred place of death. These data could then be used to monitor the percentage of deaths in preferred place, which would be a more accurate indicator of people-centred care.

Conclusion and discussion

The four indicators focused on accessibility, timeliness, aggressiveness of therapy and people-centredness in cancer patients, showed a stable or slightly positive evolution since the previous performance report. However, they only give a partial image of the current practice of end-of-life care in Belgium, as it only concerns cancer patients. A recent Belgian study [140] analysed the appropriateness of end-of-life care in a broader group of patients, including besides cancer, COPD and dementia. For each of these three patient groups, a set of indicators for appropriateness of end-of-life care were developed and validated, comprising 26 indicators for people dying from cancer, 28 indicators for people dying from COPD, and 28 indicators for people dying with dementia. With regard to *appropriateness* of end-of-life care, the following indicators were analysed, most of which are common across the three patient groups:

- Number of contacts with GP
- Specialist palliative care
- Official palliative care status
- Opioids/opioids and neuropathic medication
- Death at home / Death at home or in home for older people
- Multidisciplinary oncology consult (for cancer)

With regard to *inappropriateness* of end-of-life care, the indicators were specific for each patient group:

- For cancer: Chemotherapy / Feeding tube or intravenous feeding
- For COPD: Continuous endotracheal intubation / Reanimation after Intubation / Coronary or abdominal surgery / Endotracheal intubation or tracheotomy / Repeated endotracheal Intubation / Inhalation therapy / Late initiation of physiotherapy
- For dementia: serotonin reuptake inhibitors / antihypertensives / NOAC's or vitamin K antagonists / prophylactic gout medication / statins / gastric protectors / chemotherapy / calcium vitamin D

- For all three patient groups:
  - Late initiation of palliative care
  - Hospital admissions / ICU / ED
  - Start taking antidepressant
  - Blood transfusion
  - Diagnostic testing: all / ECG or pulmonary function testing / medical imaging
  - Surgery
  - Hospital death (for COPD and dementia)

Overall, the authors of this Belgian study concluded that over time (period 2010-2016) there was an improvement in several indicators of appropriateness (such as use of specialized palliative care and GPs), but little reduction in indicators of inappropriateness (such as use of emergency department and ICU). This suggests that palliative care was often given on top of aggressive treatment and did not actually replace it. Systematic monitoring of quality indicator scores could help define goals for future improvement of the quality of end-of-life care.[140]

Table 26 – Indicators on end-of-life care (cancer)

(ID)	Indicator	Score	Belgium	Year	Flanders	Wallonia	Brussels	Source	EU-14	EU-27
Access to palliative care										
EOL-1	Cancer patients who received palliative care at the end of their life (% of cancer patients with poor prognosis who died) [a]	+	57%	2020	62%	**50%**	**49%**	BCR – IMA-AIM	-	-
Timeliness of palliative care										
EOL-2	Cancer patients who started receiving palliative care and died within one week after start of palliative care (% of cancer patients with poor prognosis who received palliative care and died)	+	19%	2020	17%	**22%**	**22%**	BCR – IMA-AIM	-	-
Aggressiveness of care at the end of life										
EOL-3	Cancer patients who received chemotherapy in the last 14 days of life (% of cancer patients with poor prognosis who died)	ST	11%	2020	9%	**12%**	**11%**	BCR – IMA-AIM	-	-
People-centred care										
EOL-4	Death at usual place of residence (home or in residential care) (% of cancer patients with poor prognosis who died)	C	32%	2020	31%	35%	23%	BCR – IMA-AIM	-	-

Good (●), average (●) or poor (●) results, globally stable (ST), improving (+) or trend not evaluated (empty).
For contextual indicators (no evaluation): upwards trend (↗), stable trend (→), downwards trend (↘), no trend (C).

[a] Palliative care as identified in billing data: this includes patients receiving a lump sum for palliative care at their usual place of residence, patients with visits of the general practitioner or nurse within a palliative setting, patients hospitalized in palliative units or hospitalized patients with visits of multidisciplinary palliative care teams

13 FOLLOW-UP OF THE 2019 HSPA REPORT

Since the publication of the 2019 HSPA report, several initiatives have been taken by federal and federated entities to improve the Belgian health system sustainability, accessibility, quality, and efficiency. This chapter describes a selection of them. To guide the selection, a questionnaire was sent in June 2023 to all members of the HSPA inter-administration working group, asking them which initiatives have been developed since the 2019 HSPA report (see the colophon of the report to have details on members (Stakeholders)). To help them in their responses, the warning signals identified in 2019 for each dimension/domain were again provided.

The initiatives described in this chapter are mainly based on their responses. The reforms described on the Health Systems and Policy Monitor (HSPM) platform developed by the European Observatory on Health Systems and Policies were used as secondary source of information.[141]

It should also be noted that the aim of this section is to focus on new measures since the latest 2019 HSPA report. Therefore, measures taken before are not presented here. In addition, during the COVID-19 pandemic, a lot of measures were taken to improve the resilience of the health system but are not listed here. These measures are summarised on the COVID-19 Health System Response Monitor (HSRM) platform developed by the European Observatory on Health Systems and Policies.[142] The focus is also done on measures related to indicators presented in this new report. Initiatives related to specific patients' groups that are not targeted (such as the domains of people living with a handicap, prisoners, or mother and newborns) are also not reported.

The list of measures described below is therefore not an exhaustive list.

13.1 Initiatives related to quality of care

To improve the quality of care in Belgium, the **law** of 22 April 2019 on the **quality of practice in healthcare** entered into force in July 2022 and contains measures to help ensure the quality and safety of care for patients. Among the measures introduced by this law, there is the obligation for healthcare providers to maintain a "dynamic portfolio" that proves their perseverance in undertaking continuing education. The law also contains measures concerning the minimum security conditions for certain high-risk interventions (e.g. the obligation to be transferred or have an emergency procedure in case of complications) and the legal reinforcement for participation in out-of-hours services extended to almost all health practitioners where relevant.

A lot of measures have been implemented to **reduce inappropriate care and improve safety of care:**

- The Belgian national action plan "One health" for the fight against antimicrobial resistance (AMR): this Belgian national action plan has been validated in November 2021 and is based on the three pillars of health (human health, animal health and environmental health). The plan suggests concrete actions to fight AMR in a comprehensive and coordinated way. In this context, awareness campaigns have been launched, in collaboration with the federated entities. Discussion are also currently in progress to mention the exact quantity of antibiotic on each prescription so that pharmacists only dispense the prescribed quantity.
- Specific measures related to the use of psychotropic pharmaceuticals were also implemented or are in progress: numerous practice tools and trainings have been developed for healthcare profesionnals to improve the rational use of psychotropic drugs. A specific task force has also been created and will look at the oversupply of some pharmaceuticals (see also the psychopharmaceutical action plan in section 13.6 on mental healthcare).

- Another measure to improve the appropriate use of medicines is the possibility given to the reference pharmacist to review the medication scheme for patients with polypharmacy, since april 2023;
- Initiatives were also taken to promote the correct use of medical imaging such as the awareness campaigns on medical imaging for back pain (in May 2021 and January 2023);
- The revision of the national fee schedule ('*nomenclature/nomenclatuur*') decided in 2019 among others aims to correct unjustified differences in the level of fees between general practitioners and medical specialists but also between medical specialists themselves; which could reduce inappropriate practices. Incentives to promote collaboration and quality are also forseen;
- The development of eHealth initiatives and the sharing of patients data between health professionals and settings also aimed to reduce the duplication of examinations.
- Other initiatives concern the feedback sent to physicians, the assessment of medical practices variations, and the creation of a working group to tackle indications of obvious deviations from good medical practice. Three indicators have been selected in 2022: an indicator on bariatric surgery, to ensure a minimum of three months between the first consultation with the surgeon and the surgery; an indicator on magnetic resonance imaging to avoid inappropriate supplements for non-urgent services in ambulatory settings, and an indicator on inefficient use of arthroscopic meniscectomy in patients aged 50 years and over with degenerative knee disease. The aim is to raise awareness among health professionals and encourage them to adapt their practice to more appropriate care. If necessary, measures may be taken, such as warnings and even asking the reimbursement of the amounts unduly paid to the healthcare professional.[x] These initatives are developed at the federal level by RIZIV-INAMI but initiatives are also developed by the federated entities, such as the efforts to continue the development of quality indicators (e.g. by the Flemish Institute for quality of care (VIKZ) or Platform for Continuous Improvement in Quality of Care and Patient Safety(PAQS) for Wallonia and Brussels) or the reviewing of quality standards in hospitals and nursing homes.

Some initiatives are also related to the **continuity and coordination of care as well as to people-centred care:**

- To face the challenges of ageing and the increase of people with chronic conditions, the Belgian healthcare system has progressively evolved from a disease-management approach to a more people-centred care approach. Integrated care initiatives, in the form of pilot projects, have been progressively put in place and can be grouped into three main domains: care for people living with a chronic disease, care for older people, and mental healthcare. In 2020, Wallonia has also provided a budget to hospital networks to develop transmural cooperation and improve the communication between those working in the hospital sector and those working with older people or people living with a disability. However, people working in the field have the impression that some initiatives are not yet sufficiently coordinated and too scattered.[143] Therefore, a new interfederal plan on integrated care is planned for early 2024 to try to tackle this lack of coordination.
- New care pathways have been developed (or are in progress), in addition to the care pathways for diabetes and chronic renal insufficiency (introduced in 2009) and the integrated care projects for the management of chronic patients (introduced in 2018):
  - Since July 2022: care pathways for long COVID-19 patients;
  - In progress: care pathways on childhood obesity / for children and youngsters with eating disorders; multidisciplinary perinatal care pathways (pre- and postnatal) for vulnerable women; care pathways around the patient before and after an abdominal

[x] https://www.riziv.fgov.be/fr/themes/qualite-soins/indicateurs/Pages/default.aspx (Last access: 11 October 23)

transplant; a better somatic screening for psychiatric patients, and a start-up pathway for patients with type 2 diabetes in an early stage: an initiative to also improve the appropriateness of care (because currently, pre-trajectories are underused by these patients).

13.2 Initiatives related to accessibility of care

Several measures were dedicated to the **financial protection** of the population:

- Access to the maximum billing system has been improved for households with low incomes, i.e. the ceiling on their co-payments was lowered from € 450 to € 250 per year from January 2022;
- Interventions in the travel costs for access to care of some people living with a chronic disease (dialysis, oncological care, functional rehabilitation of disabled patients living in a cart/wheelchair, and children followed up in a functional rehabilitation centre) have been increased by 20% from January 2020;
- Since January 2022, all care providers are authorised to apply, on a voluntary basis, the third-party payment system for all patients. With this system, instead of paying the full cost of the service and receiving retrospective reimbursement, patients only pay the out-of-pocket payments. Before 2022, this system was already mandatory for patients entitled to increased reimbursement (for GP consultations) or in some specific situations (such as for the opening of a global medical record) or could by applied, on a voluntary basis, by physicians and dentists for people with the chronic illness status, but was not authorised for the rest of the population concerning most ambulatory care.
- Measures were taken in 2022 to facilitate and enlarge access to the increased reimbursement entitlement.[y] Moreover, children and young adults (up to 24 years old) entitled to increase reimbursement and having a GMR are now fully reimbursed for their consultations with a GP or a medical specialist (according to the fee schedule) (Royal decree of 25 June 2023)[z].

To maintain access to healthcare providers during the COVID-19 pandemic, a reimbursement framework was developed for remote consultations (consultations by phone and video consultations).[aa] Pilot projects on tele-expertise (e.g. allowing GPs to quickly obtain an expertise from a dermatologist) or on the remote monitoring of Covid-19 patients from their home environment were implemented.[bb]

Measures to promote **full adhesion to the agreement on national tariffs** were also token: 100 million euros are foreseen in the 2023 budget of the compulsory health insurance to compensate for structural extra costs linked to the crisis, but only for professionnals who fully acceded to the agreement (fully conventionned healthcare providers). This corresponds to an annual premium of around € 1 000 for each conventionned physician.

To have a better **view on supplements in ambulatory care**, all physicians and dentists are now required, since September 2023, to disclose to the sickness funds the fee supplements they charge to the patient for services that are billed via eFact (electronic third-party payer scheme) or attested via eAttest (digital attestation for services outside the third-party payer scheme). In a next step, OOPs on a selection of non-reimbursed services will also have to be transmitted.

It should also be noted that since the 6th State reform, the **organisation of primary care** is now under the competences of the federated entities. Some previous federal measures were thus adapted by each federated entity, with

y https://www.inami.fgov.be/fr/themes/cout-remboursement/facilite-financiere/Pages/intervention-majoree-meilleur-remboursement-frais-medicaux.aspx (Last access: 11 October 23)

z https://etaamb.openjustice.be/fr/arrete-royal-du-25-juin-2023_n2023043357.html (Last access: 11 October 23)

aa https://www.riziv.fgov.be/nl/professionals/individuele zorgverleners/artsen/verzorging/Paginas/tele-expertise-pilootproject-dermatologie.aspx(Last access: 11 October 23

bb https://www.riziv.fgov.be/nl/covid19/Paginas/zorg-afstand-covid1-patienten-thuis-telemonitoring.aspx (Last access: 11 October 23)

a focus on given incentives for GP working in a priority zone or stimulating GP group practices including other healthcare providers, such as nurses. Platforms or institutions were also created to support and provide guidance to primary care and social care professionals and to promote multidisciplinary dialogue.

13.3 Initiatives related to health system sustainability

Several initiatives have been taken to address the potential **shortage of health workers** and improve the **attractiveness** of health professions:

- The quota for access to medical specialisation was increased (from 1 230 in 2019 to 2 073 for 2029)[67], following the advice of the Planning Commission of Medical Supply of the FPS Public health. Planning Commissions were also created by the federated entities for setting subquotas per medical specialties (e.g. 43% must opt for general medicine in the French Community) as well as the numerus fixus on the number of students starting a medical basic training;
- An agreement was signed in July 2020 to upgrate the remuneration of salaried health professions (such as nurses working in hospitals). A new salary grid has been developed (the so-called IFIC system[cc]), which focuses on the actual function of the health worker rather than his / her diploma. It also increases the salaries of new entrants to the sector. This agreement is now fully implemented. A budget of 600 million was foreseen in 2022 to improve the attractiveness and the well-being of these professions.
- A number of fees for self-employed health professionals were also increased (e.g. some fees related to dental care).
- During the COVID-19 pandemic, bonuses were given (e.g. for self-employed home nurses) and logistic support to nurses was provided by the federated entities in homes for older people (rest and nursing homes).
- New roles and profile have been developed (or are under development) to allow task shifting:
  - The advanced practice nurses are recognised in the legislation since 22 April 2019[dd] but implementing decrees are still needed;
  - New roles were given to pharmacists: there are now allowed to perform COVID-19 vaccination and to review the medication scheme of people with polypharmacy. From 15 October 2023, they are also authorised to perform influenza vaccination;
  - Since October 2022, oral hygienists have been authorised to provide some dental services within the compulsory health insurance;
  - A working group that works on "task differentiation, task delegation and task transfer" concerning nursing care has made concrete recommendations and based on its report, the recognition of the following new profiles is in progress: assistant in nursing care (basic nurse, HBO5), clinical research nurse, and qualified carer;
  - The development of practice assistants is also in progress. This new profile will be developped to support GPs. These paramedical professionals will be responsible for administrative tasks as well as some technical support tasks (such as taking samples for the laboratory or measuring weight), under the supervision of the physician.
- Initiatives have been taken since 2020 to optimise the functioning of GP out-of-hours services (financing of organised GP duty post during the week after 18h and up to 8h).[ee]

cc https://www.if-ic.org/fr/a-propos-de-nous/que-fait-l-ific (last access: 11 October 2023)

dd https://etaamb.openjustice.be/nl/wet-van-22-april-2019_n2019012159.html (last access: 11 October 2023)

ee https://www.inami.fgov.be/fr/covid19/Pages/financement-poste-garde-medecins-generaliste-semaine-nuit.aspx (Last access: 11 October 23)

- The development of a new model for the organisation and financing of GPs and GPs practices is currently in progress. The objective of this model is a.o. to allow the GP (practice) to care for more people, with delegation of tasks and support and to develop a financing model that better takes into account out-of-hours availability, interdisciplinary cooperation, continuity of care, quality, prevention and patient empowerment. At present, the majority of GPs are paid mainly on a fee-for-service basis and only a small part of their income consists of a lump sum payment per patient (such as for the global medical record) or per practice (such as a telematic allowance). In the new model proposed, the aim will be to increase the lump-sum part (including a capitation payment) and to reduce the fee-for-service part. The capitation payment will be adjusted according to the patients' complexity of care. Premiums are also foreseen as a third pillar of financing, with a focus on quality, support, and availability (with integrated practice premium, availability fees, interventions for care pathways, etc.), as well as optional premiums for large GP practices, with a collaboration premium (depending on the number of providers and the number of patients) and a premium for the presence of a nurse in the practice.

In recent years, special attention has also been paid to the development of **eHealth** services in Belgium:

- With the implementation of successive eHealth plans (2013-2015, 2016-2018, 2019-2021, 2022-2024), efforts were performed by both federal and federated administrations to digitise medical information in electronic health records (EHR), to share these data between healthcare professionals and settings, and to improve the collection and use of health data that could be useful for healthcare decision-making;
- Specific premiums were introduced to promote the use of eHealth services by GPs, dentists, midwives, and nurses;
- Specific e-services were developped, such as telemedicine (teleconsultation, tele-expertise, and telemonitoring) during the COVID-19 pandemic or the development of the online medication plan (see also indicator S-27 for a description of the following eServices: ePrescription, eInvoice, eConsent, SUMEHR, eGMR, eMedication Plan, CEBAM evidence linker, eAttestation, eDisability and eChapter IV). The use of the eGMR is also mandatory for GPs since 2021 (and even earlier in some situations).

To tackle **temporary shortage of critical pharmaceuticals**, a royal decree was published on 20 January 2023 that introduces the possibility to require an authorisation before exporting medicines that are produced for the Belgian market and, if necessary, to limit the volume exported or temporarily prohibit export by wholesale distributors under some specific conditions.[ff] It should also be noted that 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 use on PharmaStatus and analyses the impact of the unavailability on the patients (critical impact, alternatives possibles, import possible, etc.).

In terms of **governance**, initiatives to define Belgian health and healthcare priorities and targets were launched:

- The healthcare budget is now based on a new methodology, that is, a multi-year budget trajectory for healthcare that integrates healthcare objectives. By combining a dynamic multi-year budget framework with a greater focus on appropriate care (that is, the right care at the right time), the objective is to develop a medium- and long-term strategic vision of the compulsory health insurance and to provide the necessary resources to achieve these objectives. The aim is not to save money, but rather to make the best use of available resources, improving the performance of the system, and having a long-term vision for effective care. The aim is also to systematically take into account the warning signals highlighted in the performance report when prioritising objectives. Five priority areas have been selected:preventive care and chronic diseases, healthcare access, care pathways, mental health,

[ff] https://www.ejustice.just.fgov.be/eli/arrete/2023/01/19/2023030395/moniteur (Last access: 11 October 23)

and integrated care. The Quintuple Aim (QA) philosophy was used as a guide for the strategic and operational objectives. Some of the initiatives described in this document came from this long-term vision.

- The development of public health priorities on the basis of the burden of disease and of a method for identifying unmet medical needs are also in progress.

13.4 Initiatives related to health system efficiency

Potential savings in the health system are possible among others through **shorter hospital stay**, the use of **day surgery**, or the use of **biosimilars**. Regarding these aspects, the following initiatives were taken or are in progress:

- Since April 2019, a premium is given to accredited physicians prescribing outpatient biosimilars (such as anti-tumour necrosis factor biosimilars). In addition, for biologicals for which a biosimilar is available, hospitals can only invoice 85% of the price. A working group has also reviewed the "purchasing policy" (mandatory tendering) for medicines in hospitals – in particular biological medicines and biosimilars. Based on this work, a revision of the regulatory process has begun.
- The development of a multidisciplinary perinatal care (pre- and postnatal) pathway for vulnerable women, as well as other new care pathways described in section 13.1 (on quality) are expected to reduce the length of hospital stays.
- Already before the 2019 HSPA report, incentives had been introduced to promote day care. However, the payment rules are complex (some interventions are financed within a closed end budget and others, on a nominative list, are paid for by lump sums) and lack transparency. RIZIV–INAMI therefore has the project to incentivise day hospitalisations by removing financial obstacles (for both hospitals and patients)[gg].

The following measures were also implemented or are in progress to increase the **centralisation of complex care**:

- Since 2020, complex surgery of pancreas and oesophagus are only reimbursed in a limited number of hospitals with proven experience.
- Loco-regional hospital networks were created by the law of 28 February 2019 . On 20 July 2022, the Council of Ministers approved a draft of the royal decree listing the loco-regional care missions that will have to be offered in each network and the supra-regional care missions that cannot be offered in each network.
- RIZIV–INAMI plans to adapt the reimbursement rules so that only recognised breast clinics can offer certain reimbursed treatments to breast cancer patients.

Development of **hospital at home** is also in progress:

- Hospital at home (HAH) consists of delivering care in the patient's place of residence that would otherwise need to be delivered in an acute hospital. HAH pilot projects were already launched in March 2017 but from July 2023, HAH is rolled out on a more structural basis in the fields of oncology and antibiotic therapy for relevant patients.

[gg] https://organesdeconcertation.sante.belgique.be/sites/default/files/documents/cfeh_d_499-1_-_hospitalisation_de_jour.pdf

13.5 Initiatives related to prevention

To improve **flu vaccination**, several initiatives have been taken:

- A better reimbursement and the possibility to have a direct access to the vaccine in a pharmacy without prescription (for people aged 50 years and over) since October 2020;
- From mid-October 2023, the possibility to be vaccinated by pharmacists.
- Federated entities also organised awareness campaigns. Similar campaigns were also done for other vaccination and **screening** programs via increased communication channels (television, radio, social networks, hospitals, GP waiting rooms, pharmacies, sickness funds). Mobile vaccination teams providing vaccines to underserved groups were also developed.

Several public health policies to strengthen the health status of the population were also implemented (see the HSR report), such as the ban on the sale of tobacco products to people aged below 18 years since 2019 or the sale of tobacco products in plain packaging since 2020. In 2023, a new Alcohol Plan 2023-2025 was approved.

Specific measures were also related to dental care to improve accessibility of dental care and therefore also regular visits with the dentists:

- Since 2016 (so before the 2019 HSPA report), the reimbursement for some dental care is conditional upon a registered dental contact during the previous year. During the COVID-19 pandemic, such deadline was nevertheless extended.
- In 2022 and 2023, some age limits for access to reimbursement have been changed. For example, dental extractions are reimbursed from the age of 50 years (instead of 53 years) from 2022 and the full reimbursement for most preventive and restorative procedures for all children up to the age of 18 years (introduced in 2009) has been extended up to the age of 19 years in 2023.

13.6 Initiatives related to mental healthcare

Enhancing access to psychological care has been a priority since the last HSPA report. In September 2021, RIZIV-INAMI announced an increased financing for psychological care via the local mental health networks. The aim is to provide primary psychological care as close as possible to the patient's living environment (including the development of teleconsultations or the use of mobile team). These conventions cover the whole country and replace and expand those from 2019 for adults and 2020 for children and adolescents (introducing a reimbursement for consultations with a psychologists). Patients only pay official co-payments (i.e., the third-party payer system applies). In 2022, additional support was also agreed concerning the "For-K" intensive care units intended for young people who have been placed under judicial supervision by a youth court and who present a serious psychiatric problem, and lump sum payments are now provided for the somatic care of patients admitted to psychiatric hospitals, with the obligation to draw up transmural treatment plans and medication schemes. To reduce waiting lists in mental health services, the Wallonia has also increased the number of FTEs working in these services.

In addition, a psychopharmaceuticals Action Plan 2019-2021 and a related Communication Plan 2021-2023 aimed at optimising psychopharmaceutical prescribing behaviour of healthcare professionals (clinical guidelines, practical tools and training were developed). Other measures related to an appropriate use of pharmaceuticals are described in section 13.1 (on quality).

During the COVID-19 pandemic, the continuity of mental healthcare was also ensured thanks to the development of teleconsultations with psychiatrists, and the remote monitoring for individuals discharged from psychiatric hospitals. Psychological support was also provided to health professionals during this period.

13.7 Initiatives related to care for older people

The “Protocol 3” pilot projects, already in place before the previous HSPA report, had developed alternative forms of care and care support for frail older people, who have a loss of autonomy in their daily life, or an observable reduction in their cognitive performance. Based on the evaluation of the Protocol 3 pilot projects, “cost-effective” interventions have been identified: case management, occupational therapy and psychological monitoring. These services are therefore now reimbursed through a convention concluded between the RIZIV-INAMI and each of the individual P3 projects at the beginning of 2022 for a period of two years. The convention is designed as a transitional agreement pending the establishment of a long-term financing for these interventions. This framework will be developed through the Interfederal Plan for Integrated Care (see above, section 13.1).

In September 2020, the law recognising informal carers entered into force, given a status to people who helps a highly dependent person (not limited to older people). Initiatives to increase support for informal carers are also underway. For example, Wallonia plans to strengthen respite care and support services for informal carers (in 2023-2024).

It should also be noted that since 2022, the German-speaking community has developed its own care allowance for older people with a loss of autonomy living in a German-speaking community (already existing in Brussels, Flanders, and Wallonia).

Initiatives for an appropriate use of pharmaceuticals such as antipsychotics are described in section 13.1 (health system quality).

13.8 Initiatives related to end-of-life care

To guarantee the quality of palliative care, RIZIV–INAMI has decided, from November 2022, to fully reimburse consultations dedicated to the development of advance care planning for palliative care patients. During these ‘planning’ consultations, patients (identified as ‘palliative’ on the basis of the Palliative Care Indicator Tool, PICT) and their GP jointly determine the patient’s curative and palliative care desires (positive declaration of intent) but also the care not desired by the patient (negative declaration of intent), define individualised care objectives based on the patient’s need, and possibly designate a legal representative if the patient is no longer in a state to decide for him/herself. This planning remains ever evolving and the patient can modify his/her choices at any time.[hh]

[hh] https://www.inami.fgov.be/fr/themes/cout-remboursement/par-mutualite/palliatif/Pages/soins-palliatifs-parler-plus-tot-meilleure-qualite-soins-vie-advance-care-planning.aspx

14 DISCUSSION AND CONCLUSION

Some strengths of the Belgian health system as well as positive developments are highlighted in this report. Some issues and warning signals should nevertheless also be considered. These elements are summarised in the following sections.

14.1 Strengths and weaknesses related to the quality of care

Quality of curative care show sign of improvement

Regarding the quality of care, the majority of indicators have a performance in line with the EU-14 average, or are even better: lower treatable mortality, lower AMI-case fatality rates, better breast cancer or colorectal cancer survival (but the evolution was decreasing for the latest) and fewer avoidable hospital admissions for asthma. The role of the GP in maintaining continuity of care was reinforced, and patient experiences with ambulatory care were generally positive. Favourable evolutions were also observed for MRSA infections in hospitals even if improvements are still needed.

Concerning people living with diabetes, results are quite disappointing, despite the measures that have been put in place for these patients (such as the creation of care models and pathways). The percentage of people living with diabetes receiving a follow-up in line with the recommendations is too low and varied according to age category (e.g. a lower proportion of older people living in a residential setting had appropriate care). This is due to a.o. less than recommended ophthalmologist consultations, which can also point to problems in accessibility for some specialities and, for people receiving glucose-lowering drugs other than insulin, few microalbuminuria measurements. Results are especially low for people receiving glucose-lowering drugs other than insulin. Continuity and coordination of care via care models is also poor for these people. Concerning people under insulin, a high proportion is included in a care model but such a proportion decreased in 2021.

Also concerning chronic care, it should also be noted that the share of people with multiple medication having a reference pharmacist remains too low (<50%).

Other weak points mainly concerned the appropriateness of care and the safety of care:

The use of antibiotic remains high compared to the EU-14 and EU-27 averages and the choice of antibiotics prescribed in first intention still does not adequately align with recommendations. Although there has been some improvement, the use of quinolones, for example, remains disproportionately high.

Inappropriate use of medical imaging for low back pain is still important. A slight improvement can be seen, mainly due to the decreased use of X rays from 2016 to 2020; however, between 2016 and 2022, no improvement on spine CT examination has been observed except in Flanders.

In terms of safety of care, half of health workers in hospitals consider that staffing levels are insufficient to provide the best care for patients. In addition, in the 2019 HSPA report, the prevalence of healthcare associated infections in hospitals was too high in comparison with what would be expected based on the case mix of hospitalised patients. More recent data on this indicator are not yet available but will be updated on the website healthybelgium.be.

Box 14 – Warning signals on quality

- The appropriateness of care and the continuity of care is quite disappointing for people living with a diabetes, especially for those receiving glucose-lowering drugs other than insulin.
- The proportion of patients with a reference pharmacist among the targeted patients is too low (38.7% in 2021).
- The choice of antibiotics that are prescribed in first instance does not adequately meet the recommendations; only a slight improvement has been observed.
- Inappropriate use of medical imaging for low back pain is still important.

- Half of health workers in hospitals consider that staffing levels are insufficient to provide the best care for patients.
- In the 2019 HSPA report, it was mentioned that the prevalence of healthcare associated infections in hospitals was too high and not improving. New data on this indicator are not yet available but an update will be done on the website healthybelgium.be.

14.2 Strengths and weaknesses related to accessibility of care

An accessible health system, but continued attention and effort is needed for financially vulnerable households

In its striving for universal health coverage, the Belgian compulsory public health insurance system covers a wide range of services for nearly the entire population with no selection based on health risks and with financial protection measures for individuals with high care needs and households with limited resources (maximum billing, increased reimbursement of medical expenses, reinforcement of the third-party payer system).

Coverage of the compulsory public health insurance system amounted to 99.1% in 2022. However, financial and/or administrative barriers persist that impede full population coverage. It should also be noted that specific vulnerable groups, like undocumented migrants, are not covered by the compulsory public health insurance and not included in these calculations. This does not mean that these people have no right to necessary medical care. They can be covered through other systems, such as the urgent medical assistance. Nevertheless, data concerning uncovered groups remain limited and impede a good view on their accessibility to the Belgian health system.

Out-of-pocket payments in Belgium are high (17.9% of current health expenditure in 2021) in comparison with neighbouring countries, although the situation is improving over time. In addition to co-payments, high OOP payments are the result of direct payments for non-covered goods and services and the widespread use of supplements as demonstrated for hospital care (fee supplements represent 50% of OOP payments in hospital care), and suggested by the low outpatient activity shares of conventioned medical specialists and dentists (less than half of the consultations of medical specialists and about 1 in 4 patient contacts with a dentists were performed by a conventioned practitioner, with important variation by specialty). This is problematic as protection measures (such as the maximum billing and the increased reimbursement) do not apply to supplements and direct payments.

OOP payments can be a financial barrier to access health services resulting in unmet needs due to financial reasons, or lead to financial hardship for people using care (catastrophic health spending). For both indicators of (un)affordable access, Belgium has an average performance. The highest rates of unmet needs due to cost and catastrophic health spending were found in the poorest income quintile, in subgroups with low educational attainment and among working-age individuals in inactivity or unemployment.

The OOP share of current health expenditure for dental care, medical products, outpatient care and medicines are particularly high, types of care that were also identified as main drivers for catastrophic health spending. Moreover, for dental care, outpatient care and inpatient care, the OOP share of current health expenditure is well above the EU averages in 2021.

Disparities in workforce distribution for some medical specialties

The density of practising physicians in Belgium is below the EU-14 and EU-27 averages while the density of practising nurses is above.

While numbers alone do not provide a complete picture of whether healthcare needs are being met, the analyses showed, for several medical specialties, important variations in the density of physicians across provinces, with lower densities especially for the province of Luxemburg, and, to a lesser extent, for Hainaut, Limburg, and West Flanders.

Geographic accessibility is generally good, but waiting times are deteriorating

Given the high density of hospitals in Belgium, hospital care is geographically highly accessibly with 99.3% of the Belgian population living within 20 km of the nearest hospital. Furthermore no unmet needs due to geographic reasons were reported.

Almost half of the population nevertheless experienced long waiting times to get an appointment with a GP (≥1 day) or a medical specialist (>2 weeks) in 2018 (more recent data not yet available) and results were worse than in 2013.

Box 15 – Warning signals on accessibility

- There is a lack of data on population groups not covered by the compulsory healthcare insurance.
- The Belgian health system has relatively high out-of-pocket payments. The OOP share of current health expenditure is particularly high for dental care, medical products, outpatient care and medicines and above the EU averages for dental care, outpatient care and inpatient care.
- Less than half of the consultations of medical specialists and about 1 in 4 patient contacts with a dentist were performed by a conventioned practitioner, with important variation by specialty.
- Fee supplement account for 50% of OOP payments in hospital care.
- Unmet need for medical/dental examination due to costs and catastrophic OOP payments are of particular concern for some population subgroups (low income, low education, unemployment).
- Disparities in health workforce distribution were observed for a number of medical specialities.
- Almost half of the population has experienced waiting times to get an appointment with the GP (≥1 day) or the medical specialist (≥2 weeks).

14.3 Strengths and weaknesses related to health system sustainability

A share of public funding in line with the EU-14 average but budgetary pressures are expected in the future

In 2021, current health expenditure represented 11% of the Belgian gross domestic product (GDP) and was financed to a large extent by public funds (77.6%). The share of public funding slightly increased during the COVID-19 pandemic and followed the EU-14 average.

However, according to projections on health expenditure, there is an expected rise in public expenditure on health as a percentage of GDP, which may exert growing pressures on the budget. Furthermore, the projected future increase in public expenditure on medicines can also not be neglected, even though these estimates do not consider the safeguard provided by the clawback system for pharmaceutical budget overruns[ii]. It should also be noted that the confidential nature of medicines purchased under Managed Entry Agreements (MEAs) makes it difficult to get a full picture of future pharmaceutical expenditure.

Efforts to improve the workforce capacity have had a positive impact but vigilance is still required

The proportion of physicians aged 55 years and over, particularly GPs, has been of particular concern in the last few years. However, since the previous performance report, the measures implemented by the federated entities to ensure that a sufficient percentage of medical graduates specialise in general medicine have had a positive impact. As a result, the proportion of GPs aged 55 years and over is now falling. The projections on the number of practising GPs showed further improvements, especially in the long run. However, vigilance is still required in the short/medium term as it is expected

[ii] In case of a budget overrun for pharmaceuticals, pharmaceutical companies have to pay back overspending (but limited to a maximum; € 105 million in 2019).

that the number of contacts with GPs (demand) will increase at a more rapid pace than the number of FTE practising GPs (supply).

It should also be noted that the proportion of physicians aged 55 years and over remained high and was increasing for some specialities such as rheumatologists and ENT specialists.

Concerning nurses, the number of nursing graduates decreased in 2019, primarily due to the extended duration of the studies. As of 2021, the pre-2019 levels have not yet been reached. While it may be premature to raise the alarm, it is crucial to evaluate and monitor whether the increase in the length of nursing studies or the perception of this profession since the COVID-19 pandemic has a lasting negative impact on the number of incoming nursing students.

Moreover, based on projections until 2028, the number of FTE practising nurses is expected to rise, but insufficiently in the hospital sector to ensure sustainable safe patient-to-nurse ratios as defined by KCE report 325 (under the assumption of constant policy[jj]).[60] According to another recent KCE exploratory survey performed during the COVID-19 pandemic, it would also appear that the current number of FTE nurses in a sample of nursing homes is below nursing home staffing standards.[61] This study was nevertheless based on a small sample and cannot be extrapolated to Belgium. It is also not possible to determine if the expected increase presented in the projections would allow to reach nursing home staffing standard in the future. This should be further explored.

A continuous increase in the use of eHealth services

In recent years, special attention has been paid to the implementation of eHealth services in Belgium, with the development of successive eHealth plans. Thanks to these efforts, the increase in the use of eHealth services by general practitioners has achieved the desired results, even though there is still room for improvement regarding the use of some recent support tools (the CEBAM linker and the eMedication Plan).

Several temporarily unavailable medicines with a critical impact

While the temporary unavailability of medicines is not necessarily a problem (e.g. when there are alternatives), the Federal Agency for Medicines and Health Products now provides information on the number of notifications of shortages having a critical impact on patients. Even if this number was limited, it remained too important (36 in 2022, mostly concerning immunoglobulins).

High population satisfaction at first glance but the COVID-19 pandemic seems to have impacted trust in the health system

The Belgian population has been highly satisfied with the health system, but a recent survey conducted during the COVID-19 pandemic showed that confidence in the health system was only average (6.3/10). A substantial part of the population also expressed concerns about Belgium's preparedness for future crises (see the section on resilience). In terms of governance, efforts concerning data collection and patient's participation in health policy should also continue (e.g. more regular population surveys).

[jj] For instance, if the hospital sector is reformed and inefficient services closed, patient-to-nurse ratios could improve without an increase in the workforce

Box 16 – Warning signals on sustainability

- The rise in public health expenditure, particularly in pharmaceuticals, is expected to exert increasing budgetary pressure. While increased health spending could result from justified political choices, measures will be needed (among the large range of policy options that can be explored on both the expenditure and revenue sides) to reduce the pressure and ensure the sustainability of the health system.
- The number of nursing graduates decreased in 2019 due to an extension of the duration of studies and in 2021 the number remained lower than during the 2015-2018 period. This should be monitored to determine whether action is needed.
- The (future) number of nurses seems to be insufficient in some sectors (hospitals and nursing homes) to ensure quality.
- Efforts to increase the number of medical graduates specialising in general practice must be maintained to face increased needs.
- Several temporarily unavailable medicines have a critical impact on patients. Shortages mostly concerned immunoglobulins.

14.4 Strengths and weaknesses related to equity

Barriers to affordable access, lower use of preventive care and higher medication consumption among more disadvantaged groups

Socioeconomic inequalities quantified for a selection of indicators from other dimensions and domains indicate that people in more disadvantaged social groups (measured by level of education, financial resources or entitlement to increased reimbursement) have, in comparison with more advantaged social groups: higher barriers to affordable access to care both in terms of catastrophic health spending and unmet needs due to costs, a lower participation rate in cancer screening, fewer regular dental visits, and a higher medication use (antidepressants, polypharmacy). On a positive note, they benefit from a higher continuity of care by the GP.

From (in)equality to (in)equity

Socioeconomic inequalities in healthcare use are not easily interpretable as they may have various underlying causes (health status, capacity to pay, availability of services etc.) and do not only reflect differences in socioeconomic status. Some differences in healthcare use are considered fair, for example if they are related to healthcare needs, others are unfair. Inequalities deemed to be unfair are referred to as inequities.

Inequities in outpatient specialist and dental care, mixed results for GP care

After adjusting healthcare use for healthcare needs, socioeconomic inequities are shown to be important for outpatient specialist care and dental care, with contact rates strongly increasing with income and educational attainment. All examined financially vulnerable groups have needs-adjusted contact rates for specialist and dental care substantially below the population average. For GP care, socioeconomic inequities are smaller. Entitlement to increased reimbursement improves access to GP care relative to other financially vulnerable groups. No similar positive impact of increased reimbursement is, however, observed for access to specialist or dental care. Inequities for emergency care favour low-income, low-educated and financially vulnerable individuals, which may be due to a substitution effect induced by access barriers in other types of care. No socioeconomic inequities are found for hospital inpatient care.

Needs-adjusted healthcare use (GP, specialist and dental care) is particularly low for unemployed individuals, individuals living in households with severe material deprivation and individuals at risk of poverty but without entitlement to increased reimbursement. Reducing non-take-up of increased reimbursement may help to overcome access barriers for the latter group.

The conclusion that access to GP care is more equitable than to outpatient specialist and dental care can at least partly be explained by results from other indicators, such as the low convention rates of specialists and dentists relative to GPs (indicators A-8 and A-9), the share of OOP payments that is particularly high for dental care (due to supplements and non-covered services, indicator A-2), and by the mandatory application of the third-party payer principle in GP care for beneficiaries of increased reimbursement.

Box 17 – Warning signals on equity

- Barriers to affordable access (unmet needs, catastrophic health spending) are of concern for socially disadvantaged groups.
- Participation in preventive care is lower in socially disadvantaged groups.
- Medication use is higher in socially disadvantaged groups.
- Access to outpatient specialist and dental care is inequitable. When accounting for differences in healthcare needs, large differences in use remain along socioeconomic lines.
- There are lower contact rates for GP care for individuals in households with severe material deprivation, unemployed individuals and financially vulnerable individuals not protected by increased reimbursement. Reducing non-take-up of increased reimbursement may help to overcome access barriers to GP care.
- Increased reimbursement is an effective instrument to improve access to GP care but not for outpatient specialist or dental care.

14.5 Strengths and weaknesses related to health system resilience

Similar to many other countries, Belgium faced initial challenges at the beginning of the COVID-19 pandemic crisis, as shown by most of the selected indicators to evaluate the resilience of its health system. However, a more or less rapid recovery was observed for most indicators. Although it is premature to assess the extent of the rebound post-crisis, Belgium has been able to adapt and transform itself, especially in swiftly implementing teleconsultations and vaccination programs.

However, for a specific group of indicators, namely those related to the system's ability to provide an adequate workforce, the situation is particularly alarming. Even if only indirect indicators were used to measure the absenteeism and the well-being of health professionals (the share of healthcare professionals who consider leaving the profession, the share of hospital beds that are closed due to lack of staff or force majeure, and the number of nursing vacancies in hospitals), a deterioration rather than a bouncing back can be observed. The crisis has severely affected health professionals, and it is important to continue to implement measures to support them. It will also be essential to monitor these indicators, but this will require, among other things, maintaining the Power to Care study over time or having a better monitoring of staff absenteeism.

Public confidence in the government's preparedness for the next pandemic is also limited.

Box 18 – Warning signals on resilience

- Indicators related to the system's ability to ensure an adequate workforce (measured indirectly by the share of healthcare professionals who consider leaving the profession, the share of hospital beds that are closed due to lack of staff or force majeure, and the number of nursing vacancies in hospitals) showed that health professionals have been severely hit by the COVID-19 pandemic. For these indicators, no bouncing back effect was observed after the initial disruption.
- Only about one third of the population perceived that the government is likely to be prepared for the next pandemic.

14.6 Strengths and weaknesses related to health system efficiency

The efficiency of the health system is increasing, but there is still room for improvement

The health system is becoming more efficient in many aspects, as suggested by the increased use of low-cost medication, the shift from inpatient (at least one night) to one-day surgical hospitalisations, and the decrease in the length of stay for a normal delivery (which is now close to the EU-14 average). However, the share of biosimilar treatments remains insufficient even if it is improving.

Inefficiencies also persist in different areas, as indicated by unexplained geographic variation in some interventions or healthcare costs, over-use of investigations/equipment and inappropriate treatment in many domains of care (see the medical practice variations on www.healthybelgium.be).

Box 19 – Warning signals on efficiency

- The share of biosimilars remains low even if improving
- Some unexplained variations of practice can still be observed (see the variations in medical practice on the website www.healthybelgium.be).

14.7 Strengths and weaknesses related to prevention

Preventive care deserves more attention

Preventive care does not always meet (inter)national targets: vaccination coverage for some diseases is still lower than the recommended immunisation threshold (measles and HPV vaccination in adolescents and influenza vaccination in older people), breast cancer, cervical and colorectal cancer screening coverage is suboptimal and a large share of the population has no regular contact with a dentist (even if it is slowly improving, especially in children below 18 years old). Moreover, preventable mortality is higher than the EU-14 average.

Box 20 – Warning signals on prevention

- Influenza vaccination in the population aged 65 years and above is below the WHO target.
- Measles and HPV vaccination in adolescents are below the WHO targets.
- The screening rate of breast cancer in the target group is relatively low and stagnates. Moreover, the screening rate of organised breast cancer is too low to be efficient. Screening rates of cervical and colorectal cancer is also insufficient.
- Only half of the population has a regular contact with a dentist.
- Preventable mortality is higher than the EU-14 average.

14.8 Strengths and weaknesses related to mental healthcare

Mental healthcare shows worrying signals

The results for the mental healthcare indicators remain alarming and recent reforms in the mental healthcare sector are not yet sufficiently visible. Waiting time for access to mental health centres is long (only data for Flanders are available) and the use of antidepressants is increasing. The number of readmissions within 30 days in psychiatric hospital wards is also increasing.

It should also be noted that consultations with a clinical psychologist are now reimbursed if the psychologist is registered at RIZIV – INAMI but that the share of registered clinical psychologists among the total number of licensed psychologists was limited in 2022. However, a recent study reported that the accessibility to psychological care improved as a result of the implementation of the reform to improve access to primary mental healthcare in 2022 (see section 13.6).[123]

Box 21 – Warning signals on mental healthcare

- The use of antidepressants (total DDD/1000 population/day) in Belgium remains above the EU-14 and EU-27 averages and continue to increase.

14.9 Strengths and weaknesses related to care for older people

Mixed results concerning accessibility and quality of care for older people

Quality of care for older people shows mixed results: the number of polymedicated patients is relatively high compared to other countries but it remains constant over time. Data on falls and pressure ulcers in nursing homes are not generalisable because they are only available for Flanders. It is recommended to also measure these indicators in the other regions.

A point of concern is the over-prescription of anticholinergics and antipsychotics in homes for older people, as these drugs have an impact on their safety. However, the situation has slightly improved in recent years for these types of drugs. Also antidepressants are abundantly prescribed in homes for older people, but no decrease was observed in recent years for the latter.

Overall, receiving home care or staying in a home for older people is associated with a higher influenza vaccination rate, a higher continuity of care and a higher contact rate with GPs. Staying in a home for older people however is also associated with a lower contact rate with ophthalmologists in diabetic patients.

Box 22 – Warning signals on care for older people

- The percentage of people living with diabetes with appropriate follow-up is low for patients in residential care because visits to the ophthalmologist are less frequent. This raises questions about the coordination of care for older people in residential settings.
- Almost half of the persons aged 75 years or over in residential care are prescribed antidepressants, the appropriateness of which may be questioned.
- A high percentage (18.7% in 2021) of older people (65+ years old) are prescribed anticholinergic drugs, which are known to have side effects in this population (e.g. falls), but the situation has slightly improved recently.
- Antipsychotics are prescribed to almost a third of people aged 65 years and over in residential care, but the situation is modestly improving.

14.10 Strengths and weaknesses related to end-of-life care

The four indicators on end-of-life care give only a partial picture of current practice in Belgium, focusing on timeliness, aggressiveness of therapy and people-centred care for cancer patients. Since the last performance report, the data show a positive, albeit small, evolution and none of the indicators show a red warning signal. Efforts must continue for people at the end of life.

14.11 Regional disparities

Regional disparities are also observed for many indicators and merit further investigation. Indicators for which the results of one of the regions differ by 20% or more from those of the region with the best result are listed in Box 23. All regional disparities (except for contextual and resilience indicators) are listed, even if possible actions to tackle them are not under the responsibility of the federated entities. It should also be noted that these regions differ in terms of geographical, demographic, and socio-economic characteristics and comparisons should be used with caution.

Box 23 – Warning signals on regional disparities

In Brussels:

- QE-5 Case fatality within 30 days after admission for AMI (% of the population aged 45+, admission-based)
- QE-7a Case fatality within 30 days after surgery for colon cancer (% of the population, surgery based)
- QE-7b Case fatality within 90 days after surgery for colon cancer and rectal cancer (% of the population, surgery based)
- QE-8 Treatable mortality (per 100 000 population, age-adjusted)
- QC-1 Coverage of global medical record (% of people who had a contact with a GP or a previous GMR)
- QC-3 GP encounter within 7 days after hospital discharge (% patients 65+)
- 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)
- QC-7 People with a referral pharmacist (% of target patients)
- QS-8 Proportion of Escherichia coli with reduced susceptibility to 3rd or 4th generation cephalosporins (3GC/4GC I/R E. coli) in acute care hospitals (%, median)
- 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 (excluding budgetary twelfths)
- 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)
- 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 practicing physicians)
- A-16 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, HIS)
- S-27 GPs meeting the thresholds for a selection of 6 eHealth services eligible for the integrated practice bonus (% of active GP)
- E-4 Biosimilar treatment in ambulatory care (%)
- P-2b Measles vaccination in adolescents (%, 2nd dose)
- P-4 Influenza vaccination (% pop aged 65+ years)
- P-14 HPV vaccination in girls (%, 2nd or 3rd doses following vaccines)
- P-6 Breast cancer screening (% women aged 50-69 years)
- P-7 Breast cancer screening - organised programme (% women aged 50-69 years)
- P-9 Colorectal cancer screening (% pop aged 50-74 years)
- P-13 Preventable mortality (per 100 000 population, age-adjusted)
- MH-5 Emergency rooms (ER) visits for social, mental or psychic reason (% of admission in ER in general hospitals)
- MH-11 Readmissions within 30 days in psychiatric hospital wards (in the same hospital, % of admissions)
- OLD-11b Use of antidepressants ≥1 DDD in homes for older people (% of residents ≥ 65 years)
- EOL-1 Cancer patients who received palliative care at the end of their life (% of cancer patients with poor prognosis who died)

- EOL-2 Cancer patients who started receiving palliative care and died within one week after start of palliative care (% of cancer patients with poor prognosis who received palliative care and died)
- EOL-3 Cancer patients who received chemotherapy in the last 14 days of life (% of cancer patients with poor prognosis who died)

In Wallonia:

- QE-10 COPD hospital admissions in adults (/100 000 population)
- QE-5 Case fatality within 30 days after admission for AMI (% of the population aged 45+, admission-based)
- QE-7a Case fatality within 30 days after surgery for colon or rectal cancer (% of the population, surgery based)
- QE-7b Case fatality within 90 days after surgery for rectal cancer (% of the population, surgery based)
- QE-8 Treatable mortality (rate/100 000 population, age-adjusted)
- 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)
- QC-7 People with a referral pharmacist (% of target patients)
- 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)
- QA-6 Spine imaging (X-ray, CT scan, MRI per 100 000 population)
- QS-7 Proportion of methicillin-resistant Staphylococcus aureus (MRSA) in acute care hospitals (%, median)
- QS-8 Proportion of Escherichia coli with reduced susceptibility to 3rd or 4th generation cephalosporins (3GC/4GC I/R E. coli) in acute care hospitals (%, median)
- 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)
- A-12 Practising dentists (Number per 1000 population)
- 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, HIS)
- E-4 Biosimilar treatment in ambulatory care (%)
- P-2b Measles vaccination in adolescents (%, 2nd dose)
- P-4 Influenza vaccination (% pop aged 65+ years)
- P-14 HPV vaccination in girls (%, 2nd or 3rd doses following vaccines)
- P6 Breast cancer screening (% women aged 50-69 years)
- P7 Breast cancer screening - organised programme (% women aged 50-69 years)
- P-9 Colorectal cancer screening (% pop aged 50-74 years)
- P-13 Preventable mortality (rate/100 000 population, age-adjusted)
- MH-6 Use of antidepressants (total DDD/1000 pop./day)
- OLD-6 Practising geriatricians (per 10 000 population ≥ 65 years)
- OLD-10 Prescription of anticholinergic drugs >80 DDD in older people (% of population 65+)

- OLD-11a Prescription of antipsychotics in homes for older people (% of residents 65+)
- OLD-11b Use of antidepressants ≥1 DDD in homes for older people (% of residents ≥ 65 years)
- OLD-13 Polypharmacy among older people (5 or more drugs of >80 DDD per year) (% of insured population 65+)
- EOL-1 Cancer patients who received palliative care at the end of their life (% of cancer patients with poor prognosis who died)
- EOL-2 Cancer patients who started receiving palliative care and died within one week after start of palliative care (% of cancer patients with poor prognosis who received palliative care and died)
- EOL-3 Cancer patients who received chemotherapy in the last 14 days of life (% of cancer patients with poor prognosis who died)

In Flanders:

- QE-2 Complication of diabetes hospital admissions in adults (/100 000 population)
- QE-10 COPD hospital admissions in adults (/100 000 population)
- QE-7a Case fatality within 30 days after surgery for rectal cancer (% of the population, surgery based)
- QA-2 Appropriate follow-up of diabetes (% of people 18+ living with diabetes and receiving glucose-lowering drugs other than insulin)
- QP-11 Patients reporting they have a care plan that takes into account all their health and wellbeing needs (% of respondents)
- 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 practicing 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 practicing dentists)
- A-10 Practising physicians (Number per 1000 population)
- A-12 Practising dentists (Number per 1000 population)
- A-16 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, HIS)
- S-9 Nursing students following the bachelor route (% of new graduates)
- MH-5 Emergency rooms (ER) visits for social, mental or psychic reason (% of admission in ER in general hospitals)
- MH-6 Use of antidepressants (total DDD/1000 pop./day)
- OLD-6 Practising geriatricians (per 10 000 population ≥ 65 years)
- OLD-11a Prescription of antipsychotics in homes for older people (% of residents 65+)

14.12 Limitations and conclusion

This report represents the fifth assessment of the performance of the Belgian health system. It employs a comprehensive set of 142 indicators[kk] to provide a helicopter view of the health system's performance. These indicators shed light on both the strengths and weaknesses of the system. Concerning the latter, they serve as warning signals regarding the status of the health system in terms of quality, accessibility, sustainability, efficiency, resilience, and equity.

In some cases, policymakers may already be aware of these issues and have already initiated policy actions (see chapter 13) or commissioned further analyses to identify the necessary actions. In other cases, these signals are new to policymakers, and necessitate more in-depth analysis. In any case, the comprehensive and structured way indicators are presented intends to facilitate the prioritisation of needed actions and/or further studies (see also Box 24).

Among the warning signals summarised in the previous sections, **preventive care** emerges as a domain with significant room for improvement. It is one of the few sections where performance can be assessed based on (inter)national targets. Despite the efforts that have been dedicated to improve preventive care in the recent years (see section 13.5), performance indicators in this domain are often below the targets and results are suboptimal. Prevention must therefore be placed high on the political agenda.

Furthermore, despite the notable improvements observed in many dimensions of performance and the overall high quality and accessibility of the Belgian health system, many **socioeconomic inequalities and inequities** persist for a non-negligeable number of indicators. Social gradients were particularly visible with regard to indicators on affordable access to healthcare, use of preventive care, outpatient medicines, outpatient specialist and dental care. To tackle these inequalities, one could resort to an approach of progressive or proportionate universalism, that is take policy actions that are universal, but prioritize poor or vulnerable population groups. Moreover, policies should not be limited to the health system alone, but a more holistic approach should be adopted (in line with our global population health framework that for example also include social determinants of health, see section 1.3).

The ultimate goal of the health system is to improve the health of citizens living in Belgium. We hope that this report will serve as a valuable tool in achieving this fundamental objective.

Box 24 – Be cautious when drawing conclusions

- Effects due to policy changes are very difficult to monitor only through figures, especially in HSPA reports whose scope is not to provide a detailed analysis on a specific issue. The HSPA should not be seen as a tool to evaluate policies, its aim is to give a broad view of the health system performance rather than an in-depth analysis of specific aspects of the health system or specific policies.
- Results presented in HSPA reports do not depend on a single factor, but have several causes, which can also come from outside the health system. The indicators presented in HSPA reports are intrinsically complex and are never the result of a single action but reflect the interaction of a full set of variables and parameters. Caution is therefore required when interpreting the results.
- The Belgian HSPA report must be seen as a tool that provides warning signals with respect to the status of the health system in terms of quality, accessibility, sustainability, efficiency, equity, and resilience, but these signals will then require further in-depth analysis.

[kk] Some of them are sub-divided in two and are counted as one, e.g. QE-8 on treatable mortality for men and treatable mortality for women. This explains the difference with the number given in the KCE report 370 on the new conceptual framework.

- The frequency of data collection and the quality of these data also determine what can be learned from the indicators. Areas for improvement in the provision of relevant health data have been identified in the previous report on the revised HSPA conceptual framework and are still relevant today (see box 12 of the KCE report 370[II]).[10]
- The concept of performance is implicitly linked to the achievement of objectives. In the absence of quantifiable objectives for most indicators, this report describes the current situation and trends in Belgium, and compares these where possible with international targets and benchmarks.
- Initiatives to develop Belgian health and healthcare priorities and objectives are nevertheless ongoing. If these initiatives lead to the definition of explicit and measurable priorities and objectives, endorsed by the federal authorities and the federated entities, our HSPA indicators (existing or new) could be linked to them. This will help to build HSPA reports that better respond to the needs of policymakers.

[II] It should nevertheless be noted that since this report, additionals steps have now been taken regarding the registration of supplements and OOPs for some non reimbursed services in ambulatory care (see also section 13.2)

RECOMMENDATIONS[mm]

Recommendation 1 to policymakers and administrations responsible for public health and healthcare: continue to tackle the problems stressed by the warning signals

One objective of the performance report is to inform policymakers on areas that require attention. In light of this, it is strongly recommended that relevant institutions and bodies continue to address the warning signals outlined in Boxes 14 to 23, where significant opportunities for improvement have been highlighted.

Recommendation 2 to policymakers and administrations responsible for public health and healthcare: pursue the current initiatives to define measurable health and healthcare objectives and priorities

The concept of performance is implicitly linked to the attainment of objectives. Efforts are currently being made to establish health and healthcare priorities and objectives in Belgium. If these initiatives lead to the definition of explicit and measurable priorities and objectives, endorsed by the federal authorities and the federated entities, the HSPA indicators (existing or new) could be linked to them.

Recommendation 3 to administrations responsible for public health and healthcare: continue to improve the availability of high-quality health data

Data quality and timeliness are essential for the analysis of HSPA indicators to be relevant. The recommendations made in the KCE report 370 (on the new HSPA framework and indicators selection) are still relevant today. In addition, the efforts to transmit updated information to international organisations (OECD, Eurostat, WHO) as well as to accelerate the linkage of existing databases for scientific analyses must be continued.

[mm] The KCE has sole responsibility for the recommendations.

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