

# PERFORMANCE OF THE BELGIAN HEALTH SYSTEM REPORT 2012





## Belgian Health Care Knowledge Centre

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HEALTH SERVICES RESEARCH



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## ■ FOREWORD

Even though our era is often pejoratively associated with the cult of performance, it has to be said that, in the area of health and health care, it speaks for itself and is actually rather reassuring that we should continuously try to improve our performance. In fact, is there anyone who could possibly complain about a high-quality, effective, efficient, accessible and fair health system? How can we fault a health promotion system that effectively reduces health inequalities and ensures that health levels improve continually?

On the basis of 74 indicators, rigorously established by the researchers of the KCE [Belgian Health Care Knowledge Centre], the Scientific Institute of Public Health and INAMI [National Institute for Health and Disability Insurance], the present report offers you a snapshot of this performance. The work of these researchers was made possible and was enriched thanks to the involvement of numerous experts from the academic world and civil society alike. Members of the administration and the world of politics have been following the production of this report every step of the way. We would like to thank everyone for their participation which has added credibility to the result and will make it more likely that its outcome will be taken on board by all the stakeholders.

We will let you discover the strengths of our system, such as our fellow citizens' self-perceived health or the vaccination coverage for children, all efforts that must be commended and sustained, for yourself. However, it must also be recognised that certain areas such as the under-screening of certain cancers or their deferment for financial reasons require careful and increased attention. At that, a watchful eye will need to be kept on the numerous disparities between socio-economic or regional categories.

In spite of all the care and rigour every indicator was established with, this report must nevertheless be interpreted with some caution. Some of the most recent data available, notably those obtained from surveys, were in fact already a couple of years old. Also the time it takes before the effects of public health interventions can be translated into figures must be taken into account. The administration and the political world have taken measures that should improve matters in areas such as health provision, adequacy of care or equity in health care. So, we will have to regularly get back to this document to check whether the pace at which we are progressing on the path towards performance is fast enough. More than likely, new data will need to be recorded, while certain indicators may need to be amended or replaced. In matters of health and health care, like in other areas of human activity, there is no such thing as sitting on one's laurels, as efficiency and equity will always be in a state of becoming.

Raf MERTENS  
Chief Executive Officer



## ■ EXECUTIVE SUMMARY

### INTRODUCTION

Health System Performance Assessment (HSPA) is a process that allows the health system to be assessed holistically, a “health check” of the entire health system. It uses measurable indicators to monitor the system and links health outcomes to the strategies and functions of the health system. HSPA is specifically mentioned in the Tallinn Charter, signed by all countries from the European region of the World Health Organization (WHO), but each HSPA is developed along the lines of a strategic framework that is specific to the country. A first Belgian Health System Performance Assessment was published in June 2010. Two years later, the HSPA Report 2012 attempts to monitor the accessibility, quality, efficiency, sustainability and equity of the Belgian health system, and to serve as a source of information for policy makers competent for health in Belgium.



## OBJECTIVES

### Strategic objectives of the Performance Assessment Process

1. To inform the health authorities of the performance of the health system and to be a support for policy planning;
2. To provide a transparent and accountable view of the Belgian health system performance, in accordance with the commitment made in the Tallinn Charter;
3. On the long term, to monitor the health system performance over time.

### Overall objective of the 2012 report

To propose and measure a set of indicators covering all domains and chosen dimensions of the Belgian health system, while keeping the number of indicators manageable (in this report, 74).

### Operational objectives of the 2012 report

1. To review the core set of 55 indicators of the previous report, with a special focus on the 11 indicators for which there was no data in 2010;
2. To enrich the core set with indicators from the following domains: general medicine, mental healthcare, long-term care, end-of-life care, health promotion; to add indicators on continuity of care and patient centeredness (two sub-dimensions of quality); and, finally, to propose indicators on equity in the health system;
3. To measure the selected indicators when possible, or to identify gaps in the availability of data;
4. To interpret the results in order to provide a global evaluation of the performance of the Belgian health system by means of several criteria, including an international benchmarking when appropriate.

## METHODS

Indexed literature and grey literature were extensively searched for new indicators in the domains/dimensions mentioned above. Selection of most relevant indicators occurred in collaboration with external experts of each domain.

A total of 74 indicators have been selected and measured. For each indicator, analyses have been performed at national level, at regional level (when data were available), by socio-demographic status (when applicable). Results have also been benchmarked to EU-15 countries. Finally, a global evaluation has been provided.

### Source of Data

Maximum use has been made of routinely available data (e.g. administrative databases, national registries or repeated surveys): the hospital administrative discharge data (RHM - MZG), the EPS (échantillon permanent - permanente steekproef), databases from the RIZIV – INAMI (doc N, Pharmanet), the Belgian Cancer Registry, the registry of hospital-acquired infections, the Health Interview Survey (HIS), vaccination surveys and data from the “statistics and economic information general direction”.



## RESULTS

### Health status (4 indicators)

The four **health status** indicators show positive evolutions over time. The life expectancy result is slightly lower than the EU-15 average, while health expectancy (defined as the remaining years lived from a particular age without activity limitation) and infant mortality ranks at an intermediate position. The rate of persons people perceiving their health as (at least) good ranks higher than the EU-15 average.

### Accessibility of care (13 indicators)

With regards to **the financial accessibility**, despite a universal insurance coverage and the existence of social care nets (maximum billing, OMNIO, Special Solidarity Fund), some concerns exist: high level of out-of-pocket expenditures and some level of delayed contacts with health services due to financial reasons.

**Accessibility of preventive measures** shows discrepant results, with a quite middling cancer screening rate (with social and some regional disparities), a medium vaccination rate in the elderly against influenza, but good vaccination rate in children.

Another aspect of the accessibility is the availability of healthcare workforce supply (physicians, nurses) related to the population needs. While an important effort was made to make data on the supply side available, information on workforce needs is still lacking.

### Quality of care: Effectiveness (7 indicators), Appropriateness (8), Safety (6), Continuity (7), Patient centeredness (3)

Quality was subdivided into 5 sub-dimensions. **Effectiveness** showed a mixed picture. It scored very well on cancer survival rates, but with concerns on the field of mental health, since Belgium has the second highest suicide rate in Europe (with very high regional disparities), and increasing level of involuntary commitments. More indicators and data are needed to describe the effectiveness in mental health.

**Appropriateness of care** is rather disappointing with high and increasing rates of breast cancer screening outside the target groups, moderate follow up of guidelines (antibiotics, diabetic patients), and increasing rates of caesarean sections with large variability between hospitals.

**Safety of care** shows encouraging results, with decreasing trends in the exposure to medical radiation, hospital-acquired MRSA, hospital mortality after hip fracture, and stable incidence of post-operative sepsis and prescription of anti-cholinergic antidepressants to older persons. However, the incidence of pressure ulcers is increasing.

**Continuity and coordination of care** shows mixed results, with a good relational continuity with the same physician, average and increasing rate of multidisciplinary consultation for cancer cases, but a low coverage of the Global Medical Record and a high readmission rate in psychiatric hospitals.

**Patient centeredness** could only be very partially assessed. A high satisfaction rate with health services was found, as well as a trend to die more at the place of residence. More data need to be collected for this topic.



### Efficiency of the health system (3 indicators)

**Efficiency** of the health system shows average to good results with an increase in prescription of low-cost drugs, in use of one day surgical care, and decrease in length of stay for a normal delivery. However, the positive message has to be tempered with the inappropriateness, and thus waste of resources, as shown by some indicators, such as the abovementioned mammograms outside the target group.

### Sustainability of the health system (6 indicators)

**Sustainability** of the health system shows some interpellant results regarding the lack of replacement of the current cohort of GPs. Data on nursing workforce needs, coupled with data on the evolution of the supply of nurses are needed.

### Equity (analyses of all indicators by socio-economic status and 2 contextual indicators)

The dimension of equity has been approached by two complementary ways. First, inequalities in health, health determinants and healthcare utilization have been analyzed by socio-economic position. Strong inequalities were observed in the health and lifestyle indicators. Inequalities were also observed for cancer screening, and for the follow-up of chronic patients. However, most hospital-based indicators could not be studied by social status in this work, and the conclusions are still largely incomplete qua inequalities in care provision and quality.

Equity was also approached by two indicators highlighting this issue at a macro level. The progressivity of healthcare financing is decreasing, which is an evolution towards less equity. The Gini index corresponds to the level of inequality in the global distribution of incomes in Belgium, and has been showed to be correlated with lower global health status. It is relatively low but increases over time, indicating a less equal distribution of income in Belgium.

### Health Promotion (15 indicators)

Finally, **health promotion** was mostly approached by conventional health and lifestyle indicators, complemented with some indicators related to health policies, healthy settings, and individual skills. Since the very limited availability of suitable indicators and data outside the conventional health/lifestyle indicators, only a fragmentary overview could be given.

Most health/lifestyle indicators show an intermediate national rate compared to EU-15 countries, but important regional/social disparities are observed. We pinpoint the problem of obesity/overweight that shows quite high and increasing trend with severe disparities. The tobacco consumption decreases, but with large social and regional disparities. The fruits and vegetables consumption is far lower than the daily needs, but improves. The lack of social support also shows important social and regional disparities, and is particularly of concern for old people.

Belgium ranks at an intermediate level on the international Tobacco Control Scale. Some complex indices aim to measure the strength of the local health promotion policies in various settings (schools, municipalities, enterprises), but are only available in Flanders and are difficult to interpret without an in-depth analysis.



## CONCLUSION AND DISCUSSION

By means of 74 indicators, this report provides a broad picture of the performance of the Belgian health system, pointing to some directions for policy actions and generating questions for further follow-up or research.

Building on the first HSPA, which was mainly a feasibility study, this report represents a substantial improvement of the previous tool: it is more comprehensive and updates the former set of 55 indicators with more relevant ones. Moreover, it allows to measure the evolution of some indicators. Also, previous gaps in basic data have been filled, such as infant mortality rate and survival rate after cancer. However, not all domains of care or particular groups of patients are equally covered.

The indicators provide warning signals with respect to the status of the health system in terms of accessibility, quality, efficiency, sustainability and equity. In some cases, policy makers may already be aware of the problems, and have already commissioned additional analyses to know which action to take. In other cases, these signals are new to policy makers, and will thus require further in depth analysis. In any case, the comprehensive and structured way indicators are presented intends to facilitate the prioritising of needed actions and/or further studies.

Belgium is not the first country having taken up this challenge. With the signing of the 2008 Tallinn charter on health systems, the Member States formally committed themselves to the monitoring and evaluation of health system performance. Several neighbouring countries, having years of experience with health system performance measurement, served as an example for this report, notably the Dutch Performance Report. One of the weaknesses hampering the usefulness of the performance measurement (also identified in former Dutch performance reports), is the poor availability of up-to-date data. Dynamic publishing of updated results on a website could partially solve this problem. This is one of the options that could be considered.

With the European Directive on the application of patients' rights in cross-border care, this commitment becomes a common concern among member states<sup>a</sup>. As from the implementation of the Directive into national legislation in October 2013, member states will need to ensure that patients coming from another member state, can receive relevant information on safety and quality standards in order to make an informed decision for cross-border healthcare. In that context, this report not solely lays down the basis of a future systematic performance assessment but can be considered as a first step towards Belgium's responsibility to ensure safe, high quality, accessible and efficient health care for Belgian as well as foreign patients.

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<sup>a</sup> Directive 2011/24/EU of the European Parliament and of the Council of 9 March 2011 on the application of patients' rights in cross-border healthcare, Official Journal L 88/45, 4 April 2011



## ■ RECOMMENDATIONS<sup>b</sup>

### General recommendation to policy makers

The concept of performance is implicitly linked to the attainment of objectives. Even though this report takes stock of "the current situation", it should first and foremost be used to "improve the situation". In that light, policy makers should clarify the measurable objectives and set deadlines by which these objectives should be attained, keeping the following recommendations in mind.

### Positive findings (situation to be maintained) and negative findings (warning signals)

In general terms, the institutions and bodies concerned are advised to base themselves on the findings hereafter and to either stay the course in the areas where positive findings were made or to adjust their course to improve the situation in areas where warning signals have been issued.

#### *Sticking with the positive findings:*

- Health status: the 'reported' or 'perceived' health status measured by the health surveys (Institute for Public Health) is better than the European average.
- Coverage of preventative measures: the vaccination rate of children exceeds the European average.
- Quality of the health care:
  - Effectiveness of curative care: excellent survival rates 5 years after a breast cancer or colorectal cancer diagnosis in comparison with other European countries.
  - Excellent relational continuity with general practitioners and (more than 90% of) Belgians are extremely happy with their experience of the health system.
- Efficiency: an increase in day hospital and the use of less expensive medication attest to an increase in efficiency.

#### *Issues to be taken into consideration in terms of steering future health policies:*

- Health status:
  - The very high suicide rates in comparison with the European average are challenging.
  - A growing number of people has been found to be overweight or obese while the number of people engaging in physical activity seems to be relatively low, this still compared to the European average.

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<sup>b</sup> The KCE retains sole responsibility for issuing recommendations to the public authorities.



- **Coverage of preventative measures:**

The coverage rate of breast and cervical cancer screening in the target groups is low in comparison with the European average. The organised coverage of breast cancer screening is too low to be efficient. Another key element, the screening of people who do not come within the breast cancer target groups is important and is on the increase amongst 40 to 49 and 70-to-79-year-olds, which is counterproductive in terms of public health and the use of collective resources.
- **Equity/ social inequalities:**

People of a lower socio-economic status (measured by level of education or by access to preferential health care reimbursement schemes) have, in comparison with the highest socio-economic group: a worse health status (life expectancy, healthy life expectancy, infant mortality, obesity), a less healthy lifestyle (diet, smoking, physical activity), enjoy poorer cancer screening coverage, a poorer follow-up of patients suffering from diabetes, less social support and die more often in hospital than in their usual place of residence.
- **Quality of the health care:**
  - (In)appropriate care: several indicators show that medical practice is not always appropriate. For instance:
    - The choice of antibiotics that are prescribed in first instance does not adequately meet the recommendations and shows no signs of improvement over the course of time (save in children).
    - The percentage of patients suffering from diabetes that is correctly followed up in line with recommendations is too low.
    - Even though the level is a little below that of the average in other European countries, the rate of caesarean sections is high (20%) and the numbers of caesarean sections performed following a complication-free pregnancy vary greatly from hospital to hospital.
  - Health care safety: even though the levels of radiation of medical origin are slightly lower than in 2011, they remain high compared to the European average.
  - Continuity of care: certain indicators show that there is a weakness in this area. For instance:
    - In spite of a continuous increase, the percentage of patients with a global medical file remains low.
    - The percentage of readmissions to psychiatric hospitals is relative high in comparison with the European average.





- **Sustainability of the system:** The health system relies on primary care in which general medicine plays a key role. Even though the average age of general practitioners continues to rise, the quotas laid down by the planning commission have not been filled for a few years now. If this remains the case, this may very quickly pose problems in terms of the functioning of that primary care.

#### Recommendation to improve the health information systems

The quality of the data and the speed at which they are made available are essential in terms of ensuring the relevance of the indicators that depend on them.

- **Timeliness of the data:**
  - Continuing the efforts to transmit recent updates to international organisations (OECD, Eurostat, WHO);
  - Accelerating access to administrative databases (Minimum Hospital Data).
- **Data per area of care:**
  - **Mental health care:** reforming the Minimum Psychiatric Data so as to bring them in line with international standards (unique patient identifier) and with developments in the sector. A review, that would allow patients' entire care path, including the care they receive outside of hospital, to be monitored, is needed.
  - **Long-term care:** ensuring that the data collected within the framework of the BelRai project are indeed available at national level to ensure that the various indicators selected can be measured.
  - **Oral health:** oversampling the group of 12-year-olds in the oral health survey to ensure that the international indicators can be calculated correctly.
  - **End-of-life care:** making better use of the existing data (Cancer Register and network of Sentinel General Practitioners)
  - **Public health:** completing the medication usage database to ensure that data are available on all the medication used, including on drugs that are not refunded but which need to be studied for public health or patient safety purposes (benzodiazepines, certain anti-inflammatories).

#### Recommendations for the collection of new data or new research

Certain data needed to develop indicators that have already been selected must still be collected.

- **Socio-economic inequalities:** administrative databases can only offer a partial answer. Some data are simply unavailable (for instance, socio-economic status or ethnicity do not



feature in the hospital data), others are either not very specific or not differentiating enough (for instance the recipients of preferential reimbursement).

- **Affordability:** enhancing the household budget survey to record the full health-care-related cost to patients and to facilitate an analysis by socio-economic level.
- **Patient experience:** data will become available thanks to the next Scientific Institute of Public Health survey, which will deal with general practitioners and consultants across the board (though data per specialty will need to be collected.)
- **Health promotion:**
  - There are no data on "health literacy" in Belgium. More specifically, it is advisable that Belgium would take part in European research aimed at developing tools to measure health literacy and that it would collect data on this topic.
  - Community-based health promotion: initiatives have been taken in the different regions of the country, yet, there are no statistics on these initiatives to hand. In Flanders, health-promotion data on certain communities (schools, towns, companies) are collected via the Flemish Institute for Health Promotion and Disease Prevention (VIGeZ). We would therefore recommend that the other regions would collect data on health promotion in communities more systematically in function of the information they need to document and support their policies.
  - Finally, it would be advisable to check whether health promotion indicators, more specifically in the area of health care, could be included in the next report.

**Recommendations for the next performance report (scheduled for December 2015)**

- **For the attention of the FPS Public Health, the National Institute for Health and Disability Insurance (INAMI) and the Scientific Institute of Public Health (ISP)**
  - Calculating the indicators for which there are presently no data available but for which data will be on hand by the next report (the outpatient care paths project, the BelRAI project, patient experience in the health survey, the prevalence of hospital-acquired infections, time to reimburse new medications).
  - For monitoring purposes, it would be desirable if more recent results could be included in the future. These indicators should preferably be routinely measured by the institutions/administrations and the respective administrative database managers. The results shall be forwarded to the teams tasked with updating the report, in accordance with an as yet to be specified schedule and framework.
  - Following international developments (OECD, WHO, Eurostat) in order to, where necessary, adjust the set of indicators in Belgium.



- **For the attention of the research teams**
  - **Identifying new indicators for poorly documented issues (the labour force issue in nursing care, for instance).**
  - **Updating the performance review on the basis of more recent data.**
  - **Analysing the overall coherence (notably with a view to reinforcing the efficiency and sustainability dimensions) and updating the set of indicators in light of new evidence or new priority issues.**





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## LIST OF ABBREVIATIONS

ABBREVIATION	DEFINITION
ADL	Activities of Daily Living
ADQ	Average Daily Quantity
AIDS	Acquired Immunodeficiency Syndrome
BIM – RVV	Bénéficiaire de l'Intervention Majorée – Rechthebbenden op de Verhoogde (verzekerings)tegemoetkoming
BMI	Body Mass Index
CAP	Community Acquired Pneumonia
CII	Concentration Index of Inequalities
CM – MC	Christelijke Mutualiteiten – Mutualités Chrétiennes – Christian Sickness Funds
DDD	Defined Daily Dose
DGSIE – ADSEI	Direction générale Statistique et Information économique – Algemene Directie Statistiek en Economische informatie
DMFT	Decayed, Missing, Filled Teeth
DTP	Diphtheria - Tetanos - Pertussis
EARSS	European Antimicrobial Resistance Surveillance System
ECDC	European Centre for Disease Control and Prevention
ECHIM	European Community Health Indicators Monitoring
EMA	European Medical Agency
EPS	Echantillon Permanent – Permanente Steekproef
ER	Emergency Room
EU	European Union
EU – SILC	European Union Statistics on Income and Living Conditions
FOBT	Faecal Occult Blood Test
FPS	Federal Public Service
FTE	Full Time Equivalent
GDP	Gross Domestic Product
GMD – DMG	Globaal Medisch Dossier – Dossier Médical Global
GMR	Global Medical Record



GP	General Practitioner
HAI	Healthcare Acquired Infections
HBSC	Health Behaviour in School-aged Children
HCQI	HealthCare Quality Indicator
Hib	Haemophilus Influenzae B
HIS	Health Interview Survey
HIV	Human Immunodeficiency Virus
HLY	Healthy Life Years
HSPA	Health System Performance Assessment
IMA – AIM	Intermutualistic Agency - InterMutualistisch Agentschap – Agence InterMutualiste
IMR	Infant Mortality Rate
ISCED	International Standard Classification of Education
LE	Life Expectancy
LOS	Length of Stay
MAB	Maximum Billing System
MMR	Measles - Mumps - Rubella
MOC – COM	Multidisciplinair Oncologisch Consult – Consultation Multidisciplinaire d'Oncologie
MRPA – ROB	Maisons de Repos pour Personnes Agées - Rustoorden voor Bejaarden
MRS – RVT	Maison de Repos et de Soins – Rust- en Verzorgingstehuis
MRSA	Methicillin-Resistant Staphylococcus Aureus
NSIH	National Surveillance of Infections in Hospitals
OECD	Organisation for Economic Co-operation and Development (OESO – OCDE)
ONE – KG	Office National de l'Enfance – Kind en Gezin
OOP	Out-of-Pocket
OR	Odds Ratio
PA	Physical Activity
PAF	Population Attributable Fraction
PPP	Purchasing Power Parities



PSI	Patient Safety Indicator
PYLL	Potential Years of Life Lost
RAI	Resident Assessment Instrument
RHM – MZG	Résumé Hospitalier Minimal - Minimale Ziekenhuisgegevens
RIZIV – INAMI	Rijksinstituut voor ziekte- en invaliditeitsverzekering – Institut national d’assurance maladie-invalidité- National Institute for Health and Disability Insurance
RR	Relative Risk
SE	Socio-economic
SHA	System of Health Accounts
SP	Specialist Physician
SPMA	Standardized Procedures for Mortality Analysis
SSF	Special Solidarity Fund
THE	Total Health Expenditures
UK	United Kingdom
UPC	Usual Provider Index
VIGeZ	Vlaams Instituut voor Gezondheidspromotie en Ziektepreventie
WHO	World Health Organisation
WIV – ISP	Wetenschappelijk Instituut Volksgezondheid – Institut de Santé Publique- Institute of Public Health



## ■ SYNTHESIS

# 1 BACKGROUND, CONCEPTUAL FRAMEWORK AND OBJECTIVES

## 1.1 Background

The first Belgian Health System Performance Assessment (HSPA) was published in June 2010.<sup>1</sup> The report was articulated around two main sections. First, the Belgian HSPA framework was constructed on the basis of international experiences, tailored to the Belgian context. Second, a core set of 55 indicators was initially selected, of which 40 could eventually be measured. Strengths, weaknesses, evolution over time and proposed actions were discussed.

### What is a Health System Performance Assessment (HSPA)?

A HSPA is a country-owned process that allows the health system to be assessed holistically, a “health check” of the entire health system. It is based on statistical indicators which provide “signals”, aiming to contribute to the strategic planning of the health system. Each HSPA is developed along the lines of a strategic framework that is specific to the country.<sup>2</sup>

After the publication of this first report, the commissioners of the Belgian HSPA requested the project to be continued, aiming at a systematic evaluation of the Belgian Health System. The commissioners also requested to enrich the set of indicators with indicators in specific domains: health promotion, mental healthcare, general medicine, long-term care and end-of-life care, as those were insufficiently covered in the first report. Lastly, three dimensions (i.e. continuity of care, patient centeredness and equity) were considered to be insufficiently represented, and new indicators had to be proposed to assess these dimensions. The current Belgian Health System Performance Report 2012 presents the result of this work.





**The Tallinn Charter (2008), an international commitment to measure the performance of European health systems**

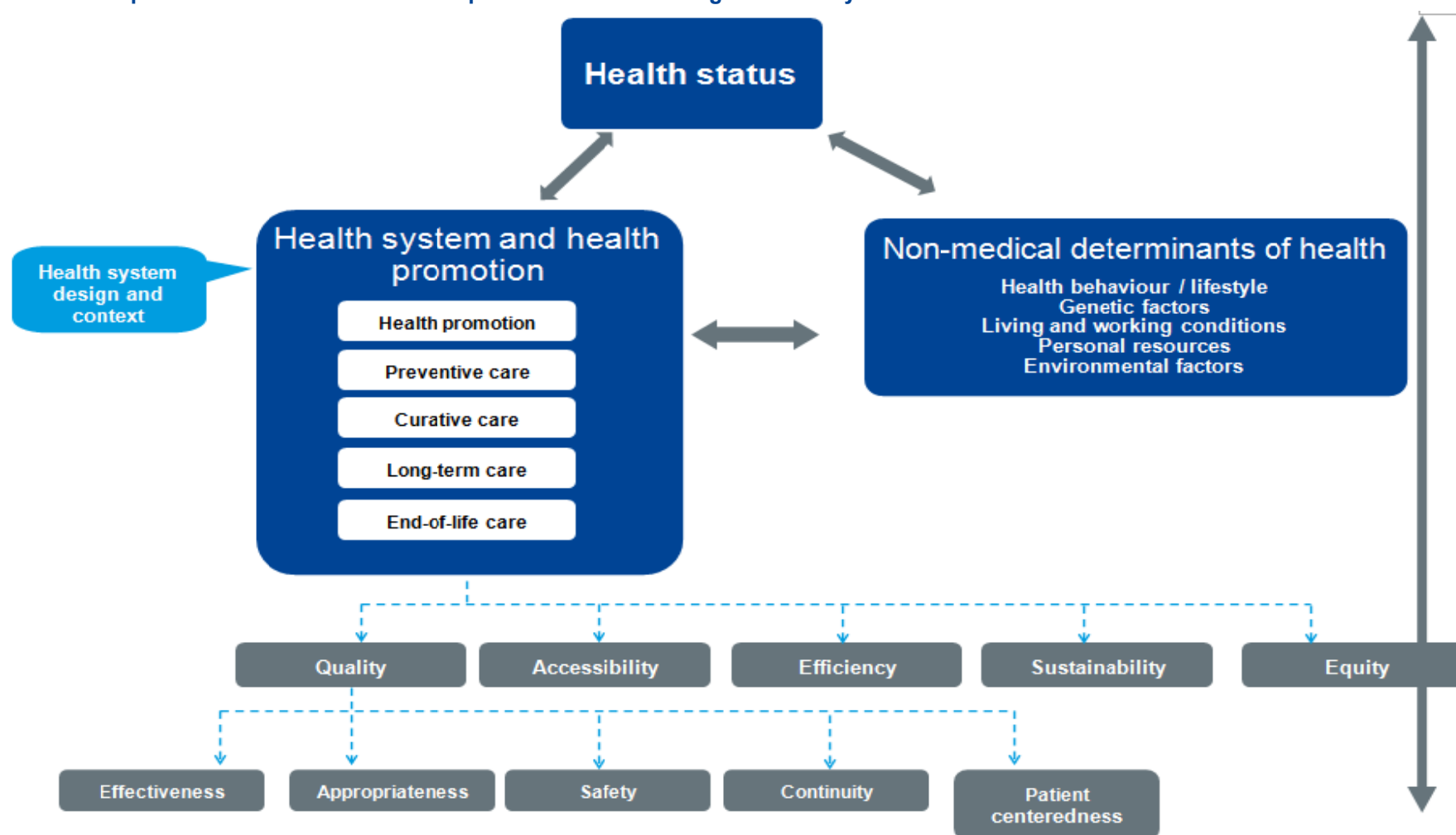
In June 2008, the 53 Ministers of Health from the countries belonging to the European region of the World Health Organisation (WHO) signed “The Tallinn Charter on Health Systems for Health and Wealth”. Of the seven commitments signed, the third is related to health system performance: “the member states commit to promote transparency and be accountable for health systems performance to achieve measurable results”.<sup>3</sup>

**1.2 Conceptual framework to evaluate the performance of the Belgian health system**

The conceptual framework is presented in Figure 3.



Figure 1 – Conceptual framework to evaluate the performance of the Belgian health system



Note: In this report, there is no specific chapter on non-medical determinants of health indicators. Indicators of lifestyle are presented in the chapter on health promotion.



### 1.3 Objectives of this report

Systematic evaluation of health system performance is an ongoing process, with the publication of HSPA reports as important milestones. Strategic objectives can be defined as the objectives of the former, ongoing process. These have to be differentiated from the specific objectives and operational sub-objectives of the present report.

#### 1.3.1 *Strategic objectives of the Health System Performance Assessment process*

The HSPA process pursues three strategic objectives:

1. To inform the health authorities of the performance of the health system and to be a support for policy planning;
2. To provide a transparent and accountable view of the Belgian health system performance, in accordance with the commitment made in the Tallinn Charter;
3. On the long-term, to monitor the health system performance over time.

#### 1.3.2 *Overall and operational objectives of the 2012 report*

To propose and measure a set of indicators covering all domains and chosen dimensions of our health system, while keeping the number of indicators manageable (in this report, 74 indicators).

Four operational objectives have been defined:

1. To review the core set of 55 indicators of the previous report, with a special focus on the 11 indicators for which there were no data in 2010<sup>a</sup>;

2. To enrich the core set with indicators from the following domains: health promotion, general medicine, mental health, long-term care, end-of-life care; to add indicators on patient-centeredness and continuity of care (two sub-dimensions of quality); and, finally, to propose indicators on equity in the health system;
3. To measure the selected indicators, when possible, or to identify gaps in the availability of data;
4. To interpret the results in order to provide a global evaluation of the performance of the Belgian health system by means of several criteria, including an international benchmarking when appropriate.

The Belgian Health System Performance Report is a national monitoring report in which Belgium is also compared internationally. By means of 74 indicators, the Belgian Health System Performance Report attempts to monitor the accessibility, quality, efficiency, sustainability and equity of the Belgian health system, thus to serve as a source of information for the different policy makers competent for health and health promotion.

<sup>a</sup> Number of practising nurses; additional-illness related costs for chronically ill people; prescription according to guidelines; colorectal cancer screening; decayed, missing, filled teeth at age 12; cardiovascular screening in individuals aged 45-75; 5 year survival rate (breast, colon, cervix); premature mortality; incidence of pressure ulcers in long-term care facilities and for individuals at risk.



## 2 STRENGTHS AND WEAKNESSES OF THE BELGIAN HEALTH SYSTEM


### 2.1 How to read the synoptic tables presenting the results?

The results of the 74 indicators are discussed below, by domain and/or dimension. A specific chapter is dedicated to health promotion.

These synoptic tables contain the following information:

- First, a pictogram shows, whenever possible, a global evaluation of the results of the indicator, based on the integration of several criteria: value at a national level versus national or international objectives when they exist or versus international benchmarks; trends over time; regional or socio-economic disparities. This global evaluation has not been possible for all indicators.
- In the column “Belgium”, the value of the indicator for Belgium is compared to the results of the countries of the EU-15<sup>b</sup> (international benchmarking), and rendered with a colour code.
- The next column identifies the year of the most recent results available for Belgium. This is important information for policy makers, e.g. to avoid decisions based on outdated data and to encourage more recent data collection if needed.
- Next, a rough trend over time is presented (increase, decrease, and stable), when possible, over the last five available years. There is no evaluation of the magnitude or clinical importance of the changes.

<sup>b</sup> The term **EU-15** refers to the 15 Member States of the European Union as of December 31, 2003, before the new Member States joined the EU. These 15 Member States are Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, and the United Kingdom.

- The last columns present subgroup analyses (when appropriate, and when data are available): by gender, socioeconomic position (low or high)<sup>c</sup> and by region (Flanders, Wallonia and Brussels). For these subgroup analyses, colours help the reader to appreciate the size of the relative differences. With respect to the regional comparison, the specific context of the Brussels Region has to be kept in mind: indeed, 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 environments.
- Finally, areas where additional research is needed are indicated with an  **R**.







#### Source of Data

Maximum use has been made of routinely available data (e.g. administrative databases, national registries or repeated surveys): the hospital administrative discharge data (RHM - MZG), the EPS (échantillon permanent - permanente steekproef), databases from the RIZIV – INAMI (doc N, Pharmanet), the Belgian Cancer Registry, the registry of hospital-acquired infections, the Health Interview Survey (HIS), vaccination surveys and the database of the “Direction générale Statistique et Information économique- Algemene Directie Statistiek en Economische informatieve” (DGSIE-ADSEI).

<sup>c</sup> Depending on the source of data, socioeconomic status is based either on the education level, or on the entitlement to increased reimbursement of healthcare expenses.



## Legend for the synoptic tables

Global evaluation		International comparison (EU-15) Belgium is situated <sup>§</sup> in the group of countries with:	Relative risks by gender, socioeconomic status and region
	Very bad results	the worst results	Very large differences between groups: Results are at least twice as bad or at least half as good in the comparison group than in reference group <sup>£</sup>
	Bad results	results worse than average	Large differences between groups: results are at least 50% worse or better
	Average results	average results	Moderate differences between groups: results are between 20% and 50% worse or better
	Good results	results better than average	Small or no differences between groups: results are at maximum 20% worse or better.
	Very good results, all criteria satisfied	the best results	Characteristic not pertinent for this indicator
	More data/research is needed		Data not available

§ Quintiles are calculated based on the results of all countries.

£ Reference group: the higher socioeconomic status, the gender group (male/female) with the best results, the region (Wallonia, Flanders, Brussels) with best results.

Fictive examples: Twice as bad: 20% smokers in low socioeconomic group versus 10% smokers in high socioeconomic group OR Half as good: 13% healthy nutrition in low socioeconomic group versus 26% in high socioeconomic group.

## 2.2 Health status

We describe 4 global health status indicators which can be seen as general and ultimate outcomes of the health system/health promotion interventions, beside all other determinants of health.

The four indicators show a positive evolution over time (Table 1). The result ranks low for life expectancy as compared to the EU-15 average (0.7 year below the EU-15 average), while health expectancy (defined as the remaining disability-free years lived from a particular age) and infant

mortality ranks at an intermediate position. The percentage of people perceiving their health as (at least) good ranks higher than the EU-15 average. Large differences are observed between men and women, except for health expectancy at 25 years. The latter live longer than men but with more years of activity limitation, and they perceive their health as being less good. All parameters are worse for lower socioeconomic groups. As to the regions, there are better outcomes in Flanders, except for infant mortality.



Table 1 – Indicators assessing the global health status

Indicator	Global	Belgium	Most recent data	Trend over time	M	F	Socio Low	Socio High	Flanders	Wallonia	Brussels
Life expectancy (years)	☹️	80.0	2010	increase	77.4	82.6	M: 47.6 <sup>i</sup> F: 54.0	M: 55.0 F: 59.9	80.9	78.5	80.0
Health expectancy (at 25 years)	☹️	41.0 <sup>ii</sup>	2008	increase	41.3	41.2	M: 27.7 F: 28.9	M: 46.3 F: 47.1	M: 43.7 F: 42.3	M:37.4 F:39.1	M:38.5 F:40.6
Self-perceived health (% in good or very good health)	😊	76.8	2008	increase	79.5	74.3	57.4	85.7	78.6	73.7	74.3
Infant mortality rate (number of deaths/1000 live births)	☹️	3.5	2010	decrease	4.2	3.4			4.0	3.1	4.6

<sup>i</sup> Life expectancies by socioeconomic status refer to life expectancies at 25 years old.

<sup>ii</sup> International comparison is based on health expectancy at birth.

<sup>iii</sup> Colour coding for socio-demographic differences in life expectancy and health expectancy is not based on the size of relative risk (as for all other indicators), but on the size of the absolute differences: yellow (1 to 2 years differences), orange (2 to 6 years difference), red (more than 6 years difference).



## 2.3 Accessibility

Accessibility is defined as the ease with which health services are reached in terms of physical access (geographical distribution), cost, time, and availability of qualified personnel.<sup>4</sup> Accessibility of a health system is a prerequisite of a high-quality and efficient health system.

Thirteen of the 74 indicators assess the accessibility of the healthcare system and are grouped into different themes: healthcare workforce available, financial accessibility, coverage of preventive measures, accessibility of residential care for older persons, availability of informal carers for older persons and timeliness of palliative care at the end of the life.

### Workforce available: practising physicians and nurses

A lot of effort has been put into the improvement of the estimate of the available workforce (practising physicians and nurses) in Belgium. This is acknowledged by the addition of these two indicators for which there were no complete results in the previous report. However, these indicators alone do not allow assessing whether this workforce is sufficient to meet the population health needs.

### Financial Accessibility

Despite a universal insurance coverage and the existence of many social safety nets (maximum billing, OMNIO, Special Solidarity Fund), 14% of households declared that they had to postpone some healthcare (medical care, surgery, drugs, glasses or lenses, mental healthcare) due to financial reasons, and this percentage has been increasing since the end of the nineties. Moreover, patient out-of-pocket expenses represent 19% of total health expenditure, which is substantially higher than the EU-15 average of 15%.

### Coverage of preventive measures

With regard to the coverage of preventive measures, Belgium can certainly perform better.

Coverage of breast cancer screening (60%) is quite low compared to the EU-15 average (68.3%). This proportion remained stable, despite the existence of an organized breast cancer screening programme since 2002.

The latter accounts for only half of the women screened. Moreover, differences between regions are striking, raising questions about the efficiency of the program.

The coverage of cervical cancer screening (62%) shows less disparity between regions. The results hover around the EU-15 average, but remain mediocre with regards to the commonly accepted European objective of 80%. The coverage also remains stable over time.

No data are presented for the coverage of colon cancer screening, as it is too early to evaluate the new program in the French Community.

For the influenza vaccination of older persons, the WHO target (75%) is not met and coverage is only very slowly increasing. For the vaccination of infants, Belgium performs well.

### Accessibility of long-term care

The number of beds in residential care facilities has remained constant over the past decade, at 70 beds per 1000 persons of 65 and over. Overall, it is much higher in Wallonia and Brussels than in Flanders.

Informal caregivers, defined as people providing assistance with basic activities of daily living (ADL) for at least one hour per week, are an important component in the long-term care process.<sup>5</sup> The percentage of the population aged 50 and older being an informal caregiver varied from 8% in Sweden to 16.2% in Italy. The Belgian figure of 12.1% is slightly higher than the overall average of the OECD-countries (11.7%). It has to be contextualized because it depends on the way of living, societal values and the presence or not of specific facilitating measure to stay at home.

As there are currently no data on patient needs, these two indicators are still insufficient to evaluate the accessibility of long-term care.

### Timeliness in palliative care

The start of palliative care is sometimes delayed until patients are in terminal phase. This can denote either problems of accessibility of end-of-life care, or the fact that the decision to start palliative care was taken too late. In 20% of the cases, patients died within the week of application for the palliative care lump sum at their sickness fund, which seems to indicate a rather late onset. More data are needed on this indicator (evolution over time, international comparison).



Table 2 – Indicators assessing accessibility of healthcare

	Indicator	Global	Belgium	Most recent data	Trend over time	M	F	Socio Low	Socio High	Flanders	Wallonia	Brussels
Workforce	Number (per 1000 population) of: - practising physicians	⚠️ R	2.9	2010	stable							
	- practising nurses		9.9 <sup>i</sup>	2009								
Financial accessibility	Health insurance status of the population (%)	😐	99.0	2010	stable							
	Co-payments and out-of-pocket expenditures (% of total health expenditures)		19.4	2010	stable							
preventive	Delayed contacts with health services because of financial reasons (%)		14	2008	increase			27.0	4.0	11.0	14.0	26.0
	Cancer screening - Breast (% women aged 50-69)	😞	60.1	2010	stable			48.6	62.9	64.9	55.3	51.9
Coverage measures	- Cervix (% women aged 25-64)		61.8	2010	stable			48.9	64.2	61.0	64.6	63.6
	Vaccination coverage children - % DTP-Hib (3)	😊	97.9	2009	increase					98.3	96.9	98.6
Long-term care	- % MMR (1)		94.5	2009	increase					96.8	92.4	91.1
	Influenza vaccination (% of the 65+)	😐	65.0 <sup>ii</sup>	2009	increase			63.5	46.3	65.8	60.9	59.2
Long-term care	Number of beds in nursing and residential facilities (per 1000 pop aged 65+)	⚠️ R	70.3 <sup>iii</sup>	2011	stable					58	83	101
	Informal caregivers (% of population aged 50+)		12.1	2007								
	<b>Timeliness of palliative care: deaths within one week after start of palliative care service (%)</b>	⚠️ R	(20.0) <sup>iv</sup>	2006								

<sup>i</sup> OECD data not comparable enough.

<sup>ii</sup> national values based on HIS, socio economic disparities based on EPS.

<sup>iii</sup> Value and international comparison based on data 2010.

<sup>iv</sup> No national data, value based on one single study from Christian Sickness Fund.

DTP-Hib (3) Diphtheria-Tetanus-Pertussis-Haemophilus Influenzae B (3rd dose-coverage); MMR (1) Measles-Mumps-Rubella (first dose).





## 2.4 Quality of care

Quality 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".<sup>6</sup> It is further subdivided into 5 sub-dimensions: effectiveness, appropriateness, safety, continuity of care and patient- centeredness.

### 2.4.1 Effectiveness

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". All indicators are thus outcome (results) indicators.

Seven indicators were chosen to assess the effectiveness of health care: survival rate after breast, cervix or colorectal cancer, hospital admission rate for asthma, and three new indicators on mental health: suicide rate per 100 000 population (this is also an indicator of the health status of the population), the ratio of the employment rate of persons with a mental health disorder to the rate for person with other disabilities (such as musculoskeletal), the proportion of involuntary committal hospitalisation related to all psychiatric hospitalisations.

Relative survival after breast or colorectal cancer is good compared to other European countries. The evolution of survival data is currently not available.

Hospital admission for asthma, an indicator of the poor effectiveness of ambulatory services, shows admission rates slightly above the EU-15 average (and thus less good in terms of efficacy).

With regard to the indicators of effectiveness in mental healthcare, we observe extremely high suicide rates compared to other European countries. However, suicide depends also of personal and societal factors, and is thus only an indirect indicator of the efficacy of mental healthcare. Nevertheless, the results indicate that concerted action is required to decrease suicide rates in Belgium. The second indicator, the employment ratio of persons with mental health disorders compared to the employment rate of persons with other disabilities, is difficult to interpret and shows the necessity to collect more data. The last indicator, the percentage of involuntary committals among psychiatric hospitalisations shows an increase over time, with variations across regions. The high percentage in Brussels should be interpreted with caution (as these disparities could be more urban than regional).



Table 3 – Indicators assessing effectiveness of care

Indicator	Global	Belgium	Most recent data	Trend over time	M	F	Socio Low	Socio High	Flanders	Wallonia	Brussels
Curative care	😊	88.0	2008 <sup>ii</sup>						87.6	88.8	88.0
		69.8	2008 <sup>ii</sup>						70.6	69.1	67.7
		M: 62.3 <sup>i</sup> F: 64.6	2008 <sup>ii</sup>		62.3	64.6			M: 62.5 F: 64.5	M: 62.5 F: 64.9	M: 59.9 F: 64.3
Hospital admissions for asthma (/100 000 pop aged 15+)	😐	48.4 <sup>iii</sup>	2009 <sup>ii</sup>	stable	28	52					
Mental health	⚠️	18.6	2008 <sup>iv</sup>	stable	28	10			17	24	14
		0.7	2002 <sup>vi</sup>								
Involuntary committals (% of all psychiatric hospitalizations)		8	2009	increase					8	7	14

<sup>i</sup> Results for colorectal cancer in OECD Health Data for Belgium;<sup>ii</sup> Last data available for Belgium in OECD Health Data: 2004 (this was the basis of the international comparison);<sup>iii</sup> This is the result from OECD Health Data for Belgium, after age-adjustment. Rate for Belgium without adjustment is 40/100 000;<sup>iv</sup> Last data available in OECD Health Data for Belgium: 2005 (this was the basis of the international comparison);<sup>v</sup> Ratio of employment rate of people with mental health disorder to employment rate of all people with disabilities (source European Labour Force Study 2002);<sup>vi</sup> Results from last EU Labour Force Survey.



### 2.4.2 Appropriateness

Appropriateness can be defined as “the degree to which provided healthcare is relevant to the clinical needs, given the current best evidence”. The link between effectiveness and appropriateness reflects the link between outcomes and processes.

Eight indicators were selected to measure the appropriateness of care, and they show in general bad results, especially for the indicators related to inappropriate breast cancer screening (not in target population) or the compliance with guidelines (for antibiotics or for follow-up of diabetic patients).

Caesarean section rate shows an increasing trend and a high variability between hospitals.

Two indicators describe the consumption of antidepressants and antipsychotics in the general population, and show that the consumption, above EU-15 average, is increasing.

Finally, one indicator of the aggressiveness of the end-of-life care, the percentage of cancer patients receiving chemotherapy in the last two weeks of their life, has been measured, but these data are difficult to interpret without any norms, benchmarking or trends over time.

**Table 4 – Indicators assessing appropriateness of care**

Indicator	Global	Belgium	Most recent data	Trend over time	M	F	Socio Low	Socio High	Flanders	Wallonia	Brussels
Mammograms outside target group (%)	☹️										
-Women aged 40-49 years old		35.5	2010	stable			28.6	36.6	28.6	46.4	47.7
-Women aged 71-79 years old		20.8	2010	increase			16.2	23.2	16.4	27.7	31.2
Antibiotics (% amoxicilline compared to amoxyclav)	☹️	44.9	2008	stable	46.4	51.1	44.4	49.4	46.0	42.8	47.1
Appropriate follow up of adult diabetic patients * (%)	☹️	54	2008	stable	54	55	48	58	57	52	48
Caesarean sections (per 1000 live births)	☹️	193	2009	increase							
Prescription of (average daily quantity/1000 pop)	⚠️										
- Antidepressants		68.4	2010	increase	43.1	92.8			60.6	85.8	57.1
- Antipsychotics		10.5	2010	increase	10.8	10.3			9.6	11.9	11.7
Cancer patients receiving chemotherapy in the last 14 days of life (%)	⚠️	(12%/23%) <sup>i</sup>	2005								

<sup>i</sup> Of those who died at home/of those who died in hospital, no national data; values based on one single study from Christian Sickness Fund;

\* Adult diabetes patients with regular retinal exams and blood tests



### 2.4.3 Safety

Safety can be defined as “the degree to which the system does not harm to the patient”.

Six indicators evaluate the safety of care, and show moderate results: still high exposure to medical radiation, but there seems to be a decrease in 2011; decreases in hospital-acquired MRSA; decrease in hospital mortality after hip fracture; and stable incidences of postoperative sepsis and prescription of anticholinergic antidepressants to older persons. Only the incidence of pressure ulcers of hospitalized patients is increasing.

**Table 5 – Indicators assessing safety of care**

Indicator	Global	Belgium	Most recent data	Trend over time	M	F	Socio Low	Socio High	Flanders	Wallonia	Brussels
Medical radiation exposure of the Belgian population (MSv/capita)	☹️	2.2	2011	Small decrease in 2011							
Incidence of hospital-acquired MRSA infections (/1000 admissions)	😐	1.5	2010	decrease					1.2	2.2	1
Incidence of postoperative sepsis (/100 000 discharges)	😐	1224	2007	stable							
Incidence of pressure ulcers in hospitals (%)	😐 ⚠️	16.8	2007	increase							
In-hospital mortality after hip fracture (%)	😐	6.3	2007	decrease	1.84 <sup>i</sup>						
Patients prescribed anticholinergic antidepressant drug (% of patients aged 65+ on antidepressants)	😐	14	2010	stable	13	14			17	11	10

<sup>i</sup> OR Odds Ratio



### 2.4.5 *Continuity of Care*

Continuity of care is a concept that encompasses different dimensions, such as the continuity in information between providers, the planning of contacts with different health providers, the relational aspect of the patient-GP contacts or the coordination between providers or organisations. The current set of 7 indicators allows drawing conclusions on each of these dimensions, which is a real improvement compared to the previous performance report.

Contrary to well established indicators on health status or on effectiveness of care described above, it is very difficult to compare the results of coordination of care in Belgium to those of other European countries. Some indicators are very specific to our healthcare system (global medical record, multidisciplinary team meeting- “consultation multidisciplinaire en oncologie – multidisciplinair oncologisch consult” (MOC – COM)). Other indicators are well described in scientific literature, such as the Usual Provider of Care index (UPC)<sup>d</sup>, but not many countries have the proper national databases of individual patient data required to measure it.

Only one result, the UPC index, is considered as positive, and suggests a good quality relationship with the usual GP. Moderate results are found for contact with GP after hospitalisation and discussion at MOC – COM. Negative results concern the use of global medical record and the readmissions in psychiatric hospital. This latter is the only one that is currently collected by the OECD and it focuses specifically on mental health.

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<sup>d</sup> UPC, the Usual Provider of Care index, is the proportion of contacts with the usual GP of a patient; 1 indicates that the patient has always seen the same GP; the indicator presents the percentage of patients who had a UPC of at least 0.75; i.e. who had at least 3 contacts on 4 with their usual GP.



Table 6 – Indicators assessing continuity and coordination of care

Indicator	Global	Belgium	Most recent data	Trend over time	M	F	Socio Low	Socio High	Flanders	Wallonia	Brussels
Patients with a global medical record (%)	☹️	47	2010	increase	42	50	54	44	58	32	29
Patients with cancer discussed at the multidisciplinary team meeting (%)	😐	68.8	2008	increase					73.8	62.7	55.7
GP encounter within the week after hospital discharge (% patient aged 65+)	😐	58.4	2009	stable	55.4	60.8	64.2	54.6	60.6	57.8	42.5
Proportion of contacts with the usual GP (%)(UPC <sup>iii</sup> index)	😊	71.4	2010	stable	72.1	71.2	76.7	70.5	70.8	74.4	65.9
Readmission within 30 days in the same psychiatric hospital (%)	☹️										
- diagnosis of schizophrenia		20.2	2009 <sup>i</sup>	increase					25.2	17.2	10.2
- diagnosis of bipolar disorder		15.6	2009 <sup>i</sup>	stable					19.7	13.4	7.1
Patients having a contact with their GP during the last week of their life (%)	⚠️	(72%) <sup>ii</sup>	2005								

<sup>i</sup>: Those are the last national data, while the last OECD data for Belgium date from 2007;

<sup>ii</sup> 72% of persons dying at home have seen a GP during the last week of life (no national data, values based on one single study from Christian Sickness Fund);

<sup>iii</sup> UPC, the Usual Provider of Care index, is the proportion of contacts with the usual GP of a patient; 1 indicates that the patient has always seen the same GP; the indicator presents the percentage of patients who had a UPC of at least 0.75; i.e. who had at least 3 contacts on 4 with their usual GP.



### 2.4.6 Patient-Centeredness

Patient-centeredness is defined as “providing care that is respectful of and responsive to individual patient preferences, needs, and values, and ensuring that patient values guide all clinical decisions”. The previous performance report contained no indicator assessing patient-centeredness. After a thorough search for indicators and data, only three indicators can be presented. This reflects the fact that there is currently a real lack of data, and the few measurable indicators only provide fragmented information of a complex subject.

Results show a general good satisfaction with different healthcare services. Only one study could provide data on the central issue of control of pain. Belgium performs relatively poor compared to other countries. Finally, one indicator on the place of death shows a positive trend over time (fewer patients die in the hospital) but with large differences by socioeconomic status.

**Table 7 – Indicators assessing patient-centeredness of care**

Indicator	Global	Belgium	Most recent data	Trend over time	M	F	Socio Low	Socio High	Flanders	Wallonia	Brussels
Satisfaction with healthcare services (% good or very good)		>90% <sup>ii</sup>	2008			no difference	no difference		higher	lower	lowest
Pain always controlled during hospitalization (% of patients)		(41.0) <sup>iii</sup>	2009								
Persons dying in their usual place of residence (%)		(45.1) <sup>i</sup>	2007	increase					45.1 <sup>i</sup>		45.1 <sup>i</sup>

<sup>i</sup> National data are not yet available. Results for Flanders and Brussels are reported together;

<sup>ii</sup> The satisfaction level is above 90% for contacts with GP, dentists, specialists and home care services. Only for hospitals the satisfaction level is a bit lower (87%),

<sup>iii</sup> Results from one single study only in RN4cast project;

<sup>iv</sup> Based on study of Christian Sickness Fund and other publications.



## 2.5 Efficiency of the healthcare system

Efficiency is defined as “the degree to which the right level of resources (i.e. money, time and personnel, called input) is found for the system (macro-level) and is ensuring that these resources are used to yield maximum benefits or results (called output)”<sup>4,8</sup>

Three indicators have been selected to evaluate the efficiency of the healthcare system. As in other European countries, the trend in Belgium is towards a more efficient use of care services, as the three indicators show positive evolutions over time: increases in prescription of low-cost drug, increases in use of one-day surgical care, and decreases in length of stay for a normal delivery (which is a more comparable indicator between

countries than total average length of stay), but still higher than the EU-15 average.

Other indicators analysed in this report can also give indications on the efficiency of the system. The increase of the number of patients with a global medical record, for example, may lead to a reduction of test duplication. Other indicators show less positive trends. For instance, the fact that half of breast cancer screening occurs outside the national program raises questions on the efficiency. Unexplained variability in health interventions can also be a proxy of a lack of appropriateness, which is directly related to efficiency. This has been shown for caesarean sections of instance.

**Table 8 – Indicators assessing efficiency of care**

Indicator	Global	Belgium	Most recent data	Trend over time	M	F	Socio Low	Socio High	Flanders	Wallonia	Brussels
Surgical day,case (%)	😊	46.2	2008	increase							
Average length of stay for normal delivery (days)	😐	4.3	2008	decrease							
Prescription of ambulatory low-cost medications (% DDD on total)	😊	46.0	2010	increase					46.2	45.9	45.3
Other indicators discussed in the appropriateness section	😞 ⚠️										

DDD = Defined Daily Dose





## 2.6 Sustainability

Sustainability is defined as the system's capacity:






- To provide and maintain infrastructure such as workforce (e.g. through education and training, facilities and equipment);
- To be innovative;
- To stay durably financed by collective receipts;
- To be responsive to emerging needs.

For all four elements of the definition, specific indicators were selected. The last indicator, total health expenditures, is a generic indicator of financial sustainability.

Results show a mix of negative results (poor capacity of the system to replace the cohort of GPs getting older and about to reach retirement), intermediate results (acute-care bed days per inhabitant; insufficient utilization of electronic medical file by GPs), and indicators which cannot be interpreted without data on needs (nursing graduates).

Expressed as a percentage of the GDP, total health expenditures represented 10.5% en 2010. In absolute terms, this amount was € 27.6 billions in 2003 and € 37.3 billions en 2010.

**Table 9 – Indicators assessing the sustainability of the health system**

Indicator	Global	Belgium	Most recent data	Trend over time	Dutch speaking <sup>i</sup>	French speaking <sup>i</sup>
% Medical graduates becoming GPs		30.1	2009	decrease	29.2	31.0
Mean age GP		51.4	2009	increase	51	52
Nursing graduates (per 1000 population) <sup>ii</sup>		41.7	2010	stable		
% of the GPs using an electronic medical file	 	74.0	2010	increase	83.7	62.5
Acute-care bed days (number of bed-days per capita) <sup>iii</sup>		1.2	2009	stable		
Total Health Expenditures (% of GDP)		10.5	2010	increase		

<sup>i</sup> For this series of indicators, data are not available per region, but per language (French or Dutch speaking);

<sup>ii</sup> This indicator has to be interpreted together with the indicator on the density of practising nurses (in section on accessibility);

<sup>iii</sup> This indicator has to be interpreted together with the indicator on the percentage of surgical day-cases (in section on efficiency).

GDP Gross Domestic Product



## 2.7 Health Promotion

For several reasons, it has not been possible to show a complete overview of the health promotion performance within the scope of this work:

1. Health promotion, which is the "process of enabling people to increase control over and to improve their health" is a very broad concept. Its strategic axes (defined in the Ottawa Charter), involve responsibilities situated mainly outside of the healthcare system and even beyond the health system<sup>e</sup>. A large number of indicators structured within a specific conceptual framework would be necessary.
2. Most of the indicators that would be needed to evaluate the health promotion are not ready to use. Some still necessitate developmental work, while others necessitate being adapted to the Belgian/regional context.
3. Few data are available.
4. The conventional, easy to measure (although narrow-viewed), health/health behaviours-related outcome indicators are distal outcomes influenced by health promotion as well as by other factors. Much more indicators, with their values and some kind of benchmarking, are needed to pilot health policies.

Consequently, only a partial view of the performance of health promotion is given here by means of 15 indicators, as shown in Table 10.

For many of the classical indicators of the health outcomes and healthy lifestyle categories, the national rates are intermediate, while important regional/social disparities are observed, with more favourable lifestyle in

Flanders and in more educated classes (at the exception of alcohol consumption).

Few indicators could be internationally benchmarked. We pinpoint the problem of obesity that is quite high, still increases, and shows severe disparities. The tobacco consumption, while being still too high with 20% daily smokers, decreases, but again with very large social disparities and quite large regional disparities. The fruits and vegetables consumption is far lower than the daily needs, but an improvement is seen. The weekly alcohol consumption is not very high, but it seems that addiction tends to increase. The rate of alcohol consumption should however be interpreted with caution since it is particularly susceptible to social desirability bias. No regional/social disparities are observed for this indicator (unless a higher rate of "problematic drinking", meaning a tendency to addiction, in Brussels).

The HIV diagnosis rate in Belgian citizens increased slowly in the past years; nevertheless, a large increase is observed in men who have sex with men. No international comparisons are shown here, since the diagnosis rate in non-Belgian people could consist of a large proportion of imported cases, which are not so relevant for the health promotion policies in Belgium.

With regard to the other indicators, the lack of social support shows important social and regional disparities. Moreover, the rate is much higher in older people.

Belgium ranks at an intermediate level on the Tobacco Control Scale Policies, which internationally compares the Public policies to control the tobacco consumption.

The other indicators are indices aiming to measure the strength of the local health promotion policies in various settings. They are only available in Flanders (through the VIGEZ surveys). They are difficult to interpret without an in-depth analysis. Trends measured by successive surveys seem to show that the health promotion culture is improving in the schools (the participation culture is quite good), the supply of physical activity is improving. However, health promotion policies are not well implemented in many municipalities.

<sup>e</sup> The five axes of the Ottawa Charter are:

- building healthy public policies (the responsibility of the health authorities is to put health in the agenda of all policies)
- create supportive environments (life settings)
- develop individual skills
- strengthen the community action
- reorient health services

The main values and dimensions of health promotion are: participation, empowerment, equity, sustainability, multistrategic, multisectoriality.



Table 10 – Indicators of health promotion

Indicator	Global	Belgium	Most recent data	Trend over time	M	F	Socio Low	Socio High	Flanders	Wallonia	Brussels
Overweight or obese adults (%)	☹️	46.9	2008	increase	53.7	40.4	57.8	40	47.1	48.9	39.8
Obese adults (%)		13.8	2008	increase	13.1	14.4	19.1	9.1	13.6	14.6	11.9
Decayed, missing, filled teeth at age 12-14 (mean score)	☹️ ⚠️	1.3 <sup>iv</sup>	2010								
Diagnosis rate of HIV in Belgian pop (/100 000 pop)	☹️	3.9	2010	increase	6.9	0.7			3.8	2.40	8.9
Daily smokers (% 15+)	☹️	20.5	2008	decrease	23.6	17.7	22.1	13.1	18.6	24	22.3
Alcohol consumption (% 15+)	☹️										
-Problematic <sup>i</sup>		10.2	2008	increase	13.1	7.3	11.5	11	9.5	10.7	14.4
-Overconsumption <sup>ii</sup>		7.9	2008	stable	10.1	5.9	5.9	8.4	7.9	8.4	6.7
-Binge drinking <sup>iii</sup>		8.1	2008		12.8	3.7	8.3	7.6	8.9	7	6.2
At least 200g vegetables and 2 fruits per day (%)	☹️	26.0	2008	increase	23.4	28.5	21.7	29.4	30.0	19.2	25.3
At least 30 minutes of physical activity per day (%)	☹️	38.1	2008	stable	48.7	28.3	24.0	42.8	45.1	28.4	24.7
Poor social support (%)	☹️	15.5	2008		15.1	16	24.4	10.1	12.4	20.0	22.9
Tobacco Control Scale	☹️	50/100	2010								
Score of supply of physical activity at school	⚠️		2009	increase					5.5/10		
Health promotion policies in the municipalities <sup>vii</sup>	⚠️		2009						37/36/50 <sup>vi</sup>		
% of schools with a health-team <sup>vii</sup>	⚠️		2009	increase					42/64/54 <sup>vi</sup>	40% <sup>v</sup>	40% <sup>v</sup>

<sup>i</sup>: Calculated on the population of persons who drink alcohol (non abstinent) and based on CAGE, 2+ cut off;

<sup>ii</sup> 15+ in women; 22+ in men;

<sup>iii</sup> Risky single-occasion drinking (≥6 drinks) at least once a week ;

<sup>iv</sup> some data but too few countries ;

<sup>v</sup> for Wallonia and Brussels together;

<sup>vi</sup> indicators from VIGEZ; respectively in tobacco prevention, healthy eating and physical activity (scores from VIGEZ);



## 2.8 Equity and equality

Equity is a key feature in the evaluation of the performance of a health system.<sup>1</sup> It is also a controversial normative issue, referring to judgement and political position. A broad range of perspectives and definitions have been proposed in the literature. We present them in Supplement S2 of this report: “The place of equity in assessments of the performance of health systems” (available on the website).

Being aware of this feature, we have approached the dimension of equity in two complementary ways. First, we have documented the inequalities in health, health determinants and healthcare utilization in Belgium across the socioeconomic position (results in Table 11). Second, we have proposed contextual indicators that can highlight issues of equity in healthcare at a global level (results in Table 12 and Figure 2).

Equity in health is sometimes defined as “the absence of systematic inequalities in health/health determinants between social groups who have different positions in a social hierarchy”. For this reason, this chapter focuses only on the socio-economic inequalities. Other inequalities (e.g. by gender or region) are showed in the synoptic tables for each dimensions, and are discussed in the detailed indicator-sheet (see Supplement S1). We have also restricted the socioeconomic position to one characteristic only: the educational level (for the indicators from the HIS) or the preferential reimbursement (BIM) status for the administrative databases. Other dimensions of the social inequality, like employment status, income or ethnicity, were not studied here.

### 2.8.1 *Socioeconomic inequalities*

Major socioeconomic inequalities could be measured in the field of overall health outcomes (life and health expectancies, self-perceived health); those are endpoint measures pinpointing equality problems in the chain of health determinants. Inequalities were also observed in many indicators of the health promotion section (smoking, being overweight/obese, eating too few fruits and vegetables, practising a physical activity, and social support). Inequalities were observed for the dimension of accessibility. Unfortunately, for most indicators of the other dimensions, no socioeconomic data were available, and the inequalities could not be measured.



Table 11 – Summary table of socioeconomic inequalities

	Overall value (f)	Value in lowest social group (f)	Value in higher social group (f)	Absolute difference (lowest vs highest)	Relative Risk (lowest vs highest)	Summary measure (CII or PAF)
<b>General Health Status</b>						
Life Expectancy at 25 in men, 2001 <sup>i; ii</sup>	51.38	47.56	55.03	-7.47	n.a.	3.73%
Life Expectancy at 25 in women, 2001 <sup>i; ii</sup>	57.09	53.98	59.9	-5.92	n.a.	1.43%
Healthy Life Years at 25 in men, 2001 <sup>i; ii</sup>	40.47	27.75	46.33	-18.58	n.a.	15.30%
Healthy Life Years at 25 in women, 2001 <sup>i; ii</sup>	40.42	28.92	47.1	-18.18	n.a.	16.56%
% of the population (aged 15+) that assess their health as good or very good <sup>iii</sup>	76.8%	57.4%	85.7%	-28.3%	0.67	11.6%
<b>Accessibility of care</b>						
Delayed contacts with health services because of financial reasons (% of households) <sup>iv</sup>	14.0%	27.0%	4.0%	23.0%	6.75	-71.4%
Breast cancer screening (% women aged 50-69) <sup>v</sup>	60.1%	48.6%	62.9%	-14.3%	0.77	4.7%
Cervix cancer screening (% women aged 25-64) <sup>v</sup>	61.8%	48.9%	64.2%	-15.3%	0.76	3.9%
<b>Appropriateness</b>						
% of adult diabetes patients receiving appropriate care, in terms of regular retinal exams and blood tests <sup>v</sup>	54.0%	48.0%	58.0%	-10.0%	0.83	7.4%
<b>Health promotion</b>						
% of the population (aged 15+) that reports to smoke daily <sup>iii</sup>	20.5%	22.0%	13.1%	8.9%	1.68	-36.1%
% of the population (aged 15+) reporting a poor social support <sup>iii</sup>	15.5%	24.4%	10.1%	14.3%	2.42	-34.8%
% of the adult population considered as being obese (BMI ≥ 30) <sup>iii</sup>	13.8%	19.2%	9.1%	10.1%	2.11	-34.1%
% of the adult population considered as being overweight or obese (BMI ≥ 25) <sup>iii</sup>	46.9%	57.8%	40.0%	17.8%	1.45	-14.7%
% of the population reporting to eat at least 200g vegetables and 2 fruits per day <sup>iii</sup>	26.0%	21.7%	29.4%	-7.7%	0.74	13.1%
% of the population reporting to practice at least 30 minutes of PA per day <sup>iii</sup>	38.1%	24.0%	42.8%	-18.8%	0.56	12.3%

<sup>i</sup> in years; <sup>ii</sup> 5 educational levels; <sup>iii</sup> 4 educational levels; <sup>iv</sup> 5 income levels; <sup>v</sup> 2 reimbursement categories; rates are not adjusted for age; summary measures= CII (Concentration Index of inequalities) relative for life and health expectancy, PAF (Population Attributable

Fraction) for all the other indicators

Source: Health Interview Survey and EPS (WIV - ISP and KCE calculations)  
PA physical activity



### 2.8.2 Contextual indicators of equity

We have selected two contextual equity indicators: an indicator of progressivity of public financing of healthcare and an indicator of the repartition of the national income. First, the computed ratios in Table 12 show that the share of regressive financing sources (indirect tax payments) has increased. Generally, indirect tax payments are regressive because the rich and the poor pay the same rate of indirect taxes on consumption goods and services and richer persons save a higher proportion of their income. Hence, the average rate of indirect taxes (indirect tax payments divided by income) decreases with income. However, we have to be cautious with the interpretation of the trend because the two last years are only budgeted amounts.

Second, because the health status can be influenced by the level of income inequality in a country, we show the evolution of the Gini index since 1988 in Belgium. Given that the value of the Gini index increases with income inequality, we observe that the inequality is increasing in Belgium and is higher in Brussels than in the two other regions.

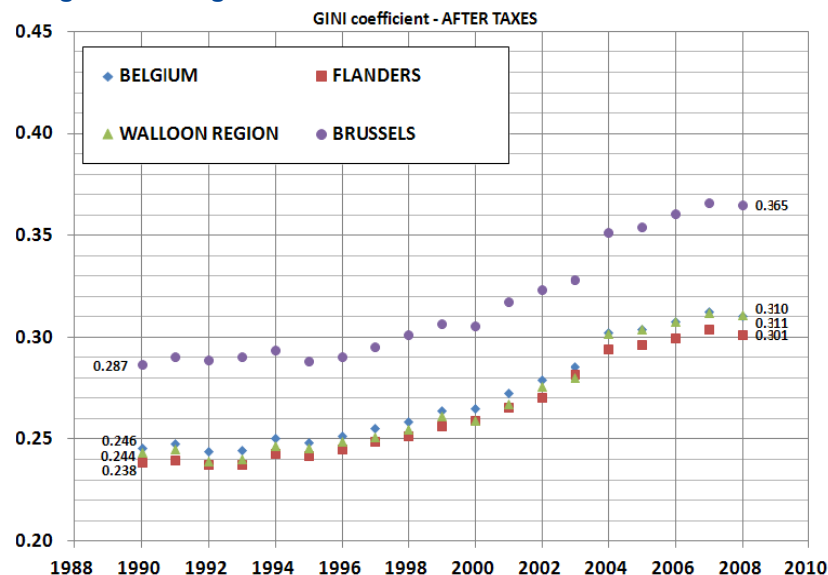
**Table 12 – Indicator of equity: progressivity indicators of the public financing of the healthcare system**

Indicators of progressivity	2005 (final accounts)	2006 (final accounts)	2007 (final accounts)	2008 (provisional accounts)	2009 (provisional accounts)	2010 (budget)	2011 (budget)
<b>Ratio proportional receipts/total receipts</b>	71.1%	71.0%	72.0%	70.6%	69.4%	64.8%	61.4%
<b>Ratio progressive receipts/total receipts</b>	18.9%	19.0%	18.0%	17.3%	17.2%	19.4%	18.4%
<b>Ratio regressive receipts/total receipts</b>	10.0%	10.0%	10.0%	12.1%	13.4%	15.8%	20.2%
<b>Total</b>	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: *Vade mecum de la sécurité sociale*, RIZIV – INAMI, KCE calculations



**Figure 2 – Indicator of equity: Gini index after taxation and transfers, in Belgium and regions**



Source: DGSIE (Belgium)

Note: the Gini coefficient is a coefficient for inequality of income in a population. When there is perfect equality (everybody has the same income), the coefficient is 0. When there is perfect inequality, the coefficient is 1 (one person has all the income). A lower coefficient indicates a more equal distribution of the incomes.

## 2.9 Conclusions on strengths and weaknesses

### Health status

The four **health status** indicators show positive evolutions over time. The life expectancy result is slightly lower than the EU-15 average, while health expectancy (defined as the remaining years lived from a particular age without activity limitation) and infant mortality ranks at an intermediate position. The percentage of people perceiving their health as (at least) good ranks higher than the EU-15 average

### Accessibility

With regard to the **financial accessibility**, despite a universal insurance coverage and the existence of social safety nets (maximum billing, OMNIO, Special Solidarity Fund), some concerns subsist (high level of out of pocket expenses, and some level of delayed contacts with health services due to financial reasons).

The **accessibility of preventive measures** shows quite discrepant results, with relatively poor cancer screening rate (with social and some regional disparities), a moderate vaccination rate in the older persons, and a good vaccination rate in children.

Another aspect of the accessibility is the availability of healthcare workforce supply related to the needs. While an important effort has allowed getting data on the side of the supply, data on the needs are still lacking.

### Quality of care

The quality was studied by means of 5 dimensions. The **effectiveness** showed a mixed picture, since it scored very well on cancer survival rates, but with concerns on the field of mental health, since Belgium has the second highest suicide rate in Europe (with very high regional disparities), and a high and increasing level of involuntary commitments in psychiatric hospitals. More indicators and data would be needed to describe the effectiveness in mental health.

The **appropriateness of care** is rather disappointing with high and increasing rates of breast cancer screening outside the target groups, moderate follow up of guidelines (antibiotics, diabetic patients), increasing rates of caesarean sections with large variability between hospitals.





The **safety of care** shows encouraging results, with decreasing trends in the exposure to medical radiation, hospital- acquired MRSA, hospital mortality after hip fracture, and stable incidence of post operative sepsis and prescription of anticholinergic antidepressants to older persons. However the incidence of pressure ulcers is increasing.

The **continuity and coordination of care** shows mixed results, with a good relational continuity with the same physician, average and increasing rate of multidisciplinary consultation for cancer cases, but a low coverage of the Global Medical Record and high readmission rate in psychiatric hospital.

**Patient-centeredness** could only be very partially assessed. A high satisfaction rates with health services was found, as well as a trend to die more at the place of living. More data need to be collected for this topic.

### **Efficiency**

The efficiency of the healthcare system shows average to good results as assessed with an increase in prescription of low-cost drugs, in use of one day surgical care, and decrease in length of stay for a normal delivery. However, this has to be tempered by the poor results of some indicators showing some degree of inappropriateness, and thus waste of resources, like the above mentioned mammograms outside target group.

### **Sustainability**

Sustainability of the Belgian health system shows some puzzling results regarding the replacement of the current cohort of GPs. As mentioned above, data on the needs on nurses coupled with data on the evolution of the supply are urgently needed.

### **Equity**

The dimension of equity has been approached by two complementary ways. First, inequalities in health, health determinants and healthcare utilization have been analysed by socioeconomic position. Strong inequalities were observed in the health and lifestyle indicators and were discussed above. Inequalities were also observed for the cancer screening, and for the follow up of chronic patients. However, most hospital-based indicators could not been studied by social status in this work, and the conclusion is still largely incomplete qua inequalities in care provision and quality. Equity was also approached by two contextual

indicators, highlighting this issue at a global level. The progressivity of the financing of healthcare is decreasing (more based on financial taxes), which is an evolution towards less equity. The Gini index corresponds to the level of inequality in the global distribution of incomes in Belgium, and has been shown to be related to the global health status. It is relatively low in Belgium (hence not important inequality) but increases over time, which can be interpreted as less equal distribution.

### **Health Promotion**

Finally, health promotion was mostly approached by conventional health and lifestyle indicators, complemented with some indicators related to health policies, healthy settings, and individual skills. Since the very limited availability of suitable indicators and data, only a fragmental view could be showed. Most health/lifestyle indicators show an intermediate national rate, but important regional/social disparities are observed. We pinpoint the problem of obesity/overweight that shows quite high and increasing rates with severe disparities. The tobacco consumption decreases, but with large social and regional disparities. The fruits and vegetables consumption is far lower than the daily needs, but improves. The lack of social support also shows important social and regional disparities, and is particularly of concern in old people. Belgium ranks at an intermediate level on the international Tobacco Control Scale Policies. Some complex indices aim to measure the strength of the local health promotion policies in various settings (schools, municipalities, enterprises), but are only available in Flanders and are difficult to interpret without an in-depth analysis.

More data on our website!

For each of the indicators described above, a documentation sheet is available on the KCE website in the document entitled Supplement S1. It summarises the rationale for choosing the indicator, technical information on data sources and computation, all results, including subgroup analyses and benchmarking, limitations in interpretation, and all bibliographical references.





### 3 THE 2012 PERFORMANCE REPORT: USEFULNESS, ADDED VALUE AND LIMITATIONS

#### 3.1 What is the usefulness of the Performance Report?

The ultimate goal of the health system is to be a high-performing system that contributes to improving the health of citizens living in Belgium. This means that the information presented in this report should serve to improve the health system's performance when necessary. It should also help the policy makers to formulate new health-related objectives at federal or regional level. The formulation of health(-related) objectives is a key-step in the process of assessing performance, since it would allow, in the next reports, to compare stated objectives to actual measures.

By means of 74 indicators, this report provides a broad picture of the performance of the Belgian health system. The indicators provide warning signals with respect to the status of the health system in terms of accessibility, quality, efficiency, sustainability and equity. In some cases, policy makers may already be aware of the problems, and have already commissioned additional analyses to know which actions to take. In other cases, these signals are new to policy makers, and will thus require further in depth analysis. In any case, the comprehensive and structured way indicators are presented intends to facilitate the prioritising of needed actions and /or further studies.

#### 3.2 What is the added value of this report compared to the previous one?

The previous report, called "a first step towards performance assessment", was mainly a pilot study. Its main conclusion was that, in Belgium, it was feasible to conduct such an evaluation, not in the least thanks to the good collaboration between administrations. This second report presents the first full performance evaluation of the Belgian health system. The following strengths can be identified.

##### **Improved data availability**

Significant improvement in data availability was achieved: data are now available for cancer survival, for infant mortality, and the delay with regard to the availability of national mortality data was largely reduced.

##### **A more comprehensive set of indicators for a more comprehensive view on the system**

As stated in the operational objectives, the set of indicators has been enriched for those domains or dimensions that were less or not at all covered in the previous report. Indicators have been added in the fields of mental healthcare, care for older persons, continuity of care, and to a lesser extent in end-of-life care, long-term care, patient centeredness and health promotion. Two contextual indicators of equity have been added, and the indicators have been systematically analysed by socioeconomic status (when data were available).

##### **Simplification of the structure of the set of indicators for an easier understanding**

The structure of the set of indicators has been clarified in many ways. Only measured indicators are retained in the current set. Indicators for which we could not find data are discussed in the section "data available soon" or "indicators under development" (see supplement S1). This facilitates the comprehension of the set of indicators, highlights near changes in data availability and points at gaps in data. Also, the former distinction between primary and secondary indicators has been removed, as it proved not to play a role in their interpretation.



### Systematization in data analysis

The analysis of data has been systematized, and the indicators are always presented by using the same structure: evolution over time, evolution over time by region, subgroup analyses by socioeconomic characteristics and international benchmarking.

### Use of already available information

Maximum use has been made of routinely available data (e.g. in administrative databases or in national registries): the Health Interview Survey (HIS), the hospital administrative discharge data (RHM - MZG), the EPS (échantillon permanent - permanente steekproef), databases from the RIZIV – INAMI (doc N, Pharmanet), registry of hospital-acquired infections, vaccination surveys, Belgian Cancer Registry. The use of routinely available data necessitating no additional cost for data collection facilitates the analysis of trends over time.

### Improve communication of results

Finally, synoptic tables with colour codes have been developed to allow a quick and easy overview of the results and of their interpretation; it also allows comparison of indicators.

## 3.3 What are the limitations of this report?

### 3.3.1 *Performance against which target? Benchmarking with other European countries does not solve the problem*

Unfortunately, very few specific and measurable objectives have been defined in Belgium. When such targets exist, the value of the indicator was assessed by comparison to the value of the objective. Otherwise, the judgement was based on external (e.g. WHO-defined) targets, or by comparing with the results of other countries. Whenever it was possible, the indicators have been compared with the average of the EU-15 countries. This allows to position Belgium as compared to its near neighbours, but does not solve the question of “are our results good or bad?” Indeed, some results can be good when compared to other countries, whilst they are not when confronted with the country objective. Moreover, interpreting the results of international comparison of performance is still under debate<sup>9</sup>, and there are many pitfalls, such as

methodological and contextual variations, making meaningful comparisons difficult.

Several international organisations already benchmark Belgium against other European countries on health status and healthcare indicators: the WHO with the “World Health Report 2000”<sup>10</sup>, the biannual report “Health at a glance Europe”<sup>11,12</sup> resulting from a collaboration of OECD and the European Union, the website of the ECHI indicators, supported by the European Union<sup>13</sup> and the Euro Health Consumer Index<sup>14</sup> from the private Swedish organisation Health Consumer Powerhouse.

### 3.3.2 *Make decisions on outdated data?*

Some data are clearly outdated, and even the most recent ones date back from 2 years ago. This is inherent to the use of administrative data or registries. For international comparison, we sometimes had to rely on data from 2005! In several cases, it would be difficult for policy makers to base decisions on such outdated information. Regarding the indicators provided by the HIS, very recent data are expected in the next performance report since a new HIS will be conducted in 2013.

### 3.3.3 *A more comprehensive view, but still some gaps in the tool*

Most issues relate to the lack of suitable indicators, the lack of (recent) data, the need to look for a better indicator or for more details

#### 1. **Global health status: add an indicator with high potential for action: avoidable/amenable mortality.**

The previous report included premature mortality as an indicator of health status, expressed as potential years of life lost (PYLL) before the age of 70. Instead, the study of mortality expressed by group of causes, and the study of avoidable/amenable mortality, could provide interesting information on the effectiveness of health services.



**2. Financial accessibility: need for a more comprehensive picture.**

A prerequisite to guide policy within the domain of financial accessibility is an improved transparency in ambulatory supplements as well as in private hospital insurances (the percentage of people with private hospital insurance, and what is specifically covered by these private insurances, at what cost).

**3. Financial accessibility and equity:** A more complete way to measure the equity of the system is to take into account the distribution of private expenditures (official co-payments, supplements, net reimbursement by private insurance and intervention of the maximum billing) in function of the socio-economic status. Individual patient data on income and all expenses are needed to calculate such a distribution

**4. Workforce counts:** better data on the supply side available, but data on the need side still lacking. An effective healthcare workforce planning should be considered within a global policy taking into account supply and patient needs. Data on the supply side undoubtedly improved these last years. But no indicators of the needs have been defined yet in this report. On the other hand, the needed workforce is not only depending on the medical needs but also on the way the health care system is organized, for instance primary versus hospital care

**5. Mental healthcare:** current indicators do not reflect the recent changes in the sector. The most recent reform efforts to attain a balanced integrated care model focus on the development of “care networks” (the so-called ‘Art. 107 project’). The main aim is that community services should be offered whenever possible, while hospital services should be available when ambulatory care cannot provide a good answer to the patient’s needs. Some new indicators have been proposed to monitor these evolutions (e.g. the percentage of patients with case management; the percentage of expenditures on community care compared to total expenditures on mental health care). But they could not yet been measured because of limitations in the current data.

**6. Continuity and coordination of care:** new data soon available with the new pathways in ambulatory care, but still many gaps remain. The results of the new pathways in ambulatory care (zorgtrajecten/trajets de soins) for type 2 diabetes or chronic renal failure patients are currently being evaluated. Those elements will be included in the next edition of this report. However data on other relevant indicators, such as patient experiences with coordination of care, or availability of patient health information at any time, are lacking.

**7. Patient-centeredness:** many initiatives but few data. Patient centeredness is intrinsically difficult to measure with quantitative data, because it is related to the health system’s ability to successfully answer to the particular needs of the patient or to encourage the patient’s involvement. To improve our understanding in that domain, the next wave of the Health interview Survey will contain a set of questions on the patient’s experience with ambulatory healthcare services (GP or specialists), based on the OECD questionnaire to facilitate international comparison.<sup>15</sup> Patient’s experience with ambulatory care will thus be included in the following update of this report.

**8. Long-term care:** Several indicators have been chosen to assess the quality of long-term care for older patients, as the prevalence of malnutrition, the percentage of older patients physically restrained, the prevalence of falls, the incidence of pressure ulcers and the problem of poly-medication. Those indicators could not be measured yet, which highlights the current lack of data in this domain. However, the BelRAI will soon provide data on some selected indicators. BelRAI is an instrument developed to assess needs of older persons in residential facility or receiving nursing care at home.



9. **End-of-life care:** many local studies in Belgium, but few national data. The few indicators in this report are based on the population of patients dying from cancer, or on the population of patients receiving palliative care at home. This does not cover the whole population of patients eligible for palliative care, which highlights a real gap in data availability. Moreover, so far no data at national level have been published on accessibility nor on quality of end-of-life care. Compared to the other domains of care, end-of-life care is little or not at all represented in databases from international organisations.
10. **Health promotion:** data on health literacy are lacking, while they are already available in other European countries. Health literacy is a relatively new concept considered as a crucial resource in health management. It can be defined as the individual skills necessary to understand and manage factors interacting with one's health. This gives individuals the opportunity to make healthier choices. It has been defined as a priority of action for the 2008-2013 European Union strategy, and results from the EU Health Literacy Survey for some countries are now available.
11. **Efficiency would deserve more attention in future report.** Obviously, efficiency in healthcare cannot be sufficiently assessed with the few indicators selected in this work. International literature proposes efficiency measures which explicitly identify inputs and outputs.<sup>8, 16</sup> This could certainly be an interesting area of research.
12. **Inequalities** could not be studied for all indicators, because in some data sources (RHM-MZG) no socio-economic data were available. In the health insurance data, the information on the socio-economic status is rather crude and approximate.

## 4 GENERAL CONCLUSION

This report presents the results of a first global evaluation of the performance of the Belgian health system, building on a former feasibility study. By means of seventy-four indicators with numerical values, this report intends to provide an overall overview of the health system performance, pointing to some directions for policy actions and generating questions for further follow up or research.

It represents a substantial improvement over the previous report, by being more comprehensive and by updating the former set with more relevant indicators. Moreover, it allows in some cases the measurement of evolution. Also, important previous gaps in basic data have been filled since the last edition, like the cause specific mortality rates or the cancer survival.

Belgium is not the first country having exercised this challenge. With the signing of the 2008 Tallinn charter on health systems, the Member States formally committed themselves to the monitoring and evaluation of health system performance. Several neighbouring countries, having years of experience with health system performance measurement served as example for this report, this is certainly true for the Dutch Performance Report. One of the weaknesses hampering successful performance measurement (also identified in former Dutch performance reports) is the availability of up to date data. Regular updating of administrative data and dynamic publishing of results on a website could be one possibility to investigate.



With the Directive on the application of patients' rights in cross border care, the commitment taken in Tallinn becomes a common concern among member states<sup>f</sup>. As from the implementation of the Directive into national legislation in October 2013, member states will need to ensure that patients coming from another member state, can receive relevant information on safety and quality standards in order to make an informed decision for cross-border healthcare. In that context this report not solely lays down the basis of a future systematic performance assessment but can be considered as a first step towards Belgium's responsibility to ensure safe, high quality, accessible and efficient health care for Belgian as well as foreign patients.

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<sup>f</sup> Directive 2011/24/EU of the European Parliament and of the Council of 9 March 2011 on the application of patients' rights in cross-border healthcare, Official Journal L 88/45, 4 April 2011



## ■ SCIENTIFIC REPORT

### 1 BACKGROUND AND APPROACH

#### 1.1 Context

##### 1.1.1 *International context*

#### **The Tallinn Charter in 2008**

In June 2008, the 53 Ministers of Health from the countries belonging to the European region of the World Health Organisation (WHO) signed “The Tallinn Charter on Health Systems for Health and Wealth”. The primary objective of the Tallinn Charter is to commit member states to improve people’s health by strengthening their respective health systems. Of the seven commitments signed, the third is related to health system performance: “(the member states commit) to promote transparency and be accountable for health systems performance to achieve measurable results”. The rationale of that commitment is given earlier in the text: “well functioning health systems are essential to improving health, and therefore health systems need to demonstrate good performance”. The Charter also acknowledged that health systems are more than healthcare and include disease prevention, health promotion and efforts to influence other sectors to address health concerns in their policies, an approach that was already extensively developed by the WHO in its “Health in All Policies”.<sup>17</sup> Other commitments in the Tallinn Charter include promoting shared values of solidarity, equity and participating, investing in health systems and fostering investment across sectors that influence health, making health systems more responsive to people’s needs, preferences and expectations and ensure that health systems are prepared and able to respond to crisis. The last commitment proved afterwards to be visionary, as no long after the Tallinn Conference the world was struck by a global economic and financial crisis.

#### **From values to actions, from Tallinn to Health 2020**

By signing the Tallinn Charter, all member states of the WHO in the European region reinforced that they share the common value of the highest attainable standard of health as a fundamental human right. From this common value a set of goals were listed: improve health on an equitable basis, contribute to social well-being and cohesiveness by





distributing the burden of funding fairly according to people's ability to pay and aim at efficiency by making the best use of available resources.<sup>3</sup> An interim report on the implementation of the Tallinn Charter details how member states have made operational these various commitments.<sup>18</sup> In parallel, the WHO European region has launched in 2010 a new health policy, Health 2020.<sup>19</sup> It aims to provide a coherent evidence-based health policy framework in light of the trends that have become salient over the past decades in Europe: changes in demography (increasing ageing, decreasing fertility), globalisation and migration (including health workers), accelerating technological innovation (including genetics), rapidly increasing access to information for patients and the general public. The four policy priorities focus on:

- (1) Investing in health through a life-course approach and empowering people, demonstrating the importance for the WHO of the expected benefits of health promotion,
- (2) Tackling Europe's major health challenges (among which recognising the burden of non-communicable diseases, tobacco, diet and physical activity, HIV/AIDS, antibiotic resistance),
- (3) Strengthening people-centred health systems, public health capacity and preparedness for emergencies and
- (4) Creating a healthy and supportive environment.<sup>19</sup>

### 1.1.2 National context

#### 2010, publication of the report on Belgian Health System Performance Assessment

Two years after the signature of the Tallinn Charter, the first Belgian report on Health System Performance Assessment (HSPA) was published in June 2010.<sup>1</sup> The title of this report "A first step towards measuring of the performance of the Belgian healthcare system" is illustrative of the prudence of the authors: healthcare system is mentioned instead of health system (a much broader scope), and it is the first step only... The reasons of this prudence lie in the amount of work needed for this first evaluation:

new collaborations between administrations of the federal and regional levels had to be initiated, and stakeholders were consulted extensively. The report was articulated around two main sections. First, the Belgian HSPA framework was constructed based upon international experiences tailored to the Belgian context. Second, a core set of 55 indicators was selected, and 40 of them could be measured. Based on these indicators, results, strengths, weaknesses, evolution over time and proposed actions were discussed.

After the publication of the first report, the commissioners of the Belgian HSPA requested the project to be continued, aiming at a systematic evaluation of the Belgian Health System. The commissioners also requested to enrich the set of indicators with indicators in specific domains such as mental healthcare, long-term care and end-of-life care, as those were insufficiently covered in this first report. In addition, the regions and communities requested new indicators to assess the performance of health promotion by enlarging the set from the evaluation of the healthcare system to a full evaluation of the health system. Lastly, three dimensions (i.e. continuity of care, patient centeredness and equity) were considered to be insufficiently represented, and new indicators had to be proposed to assess these dimensions.

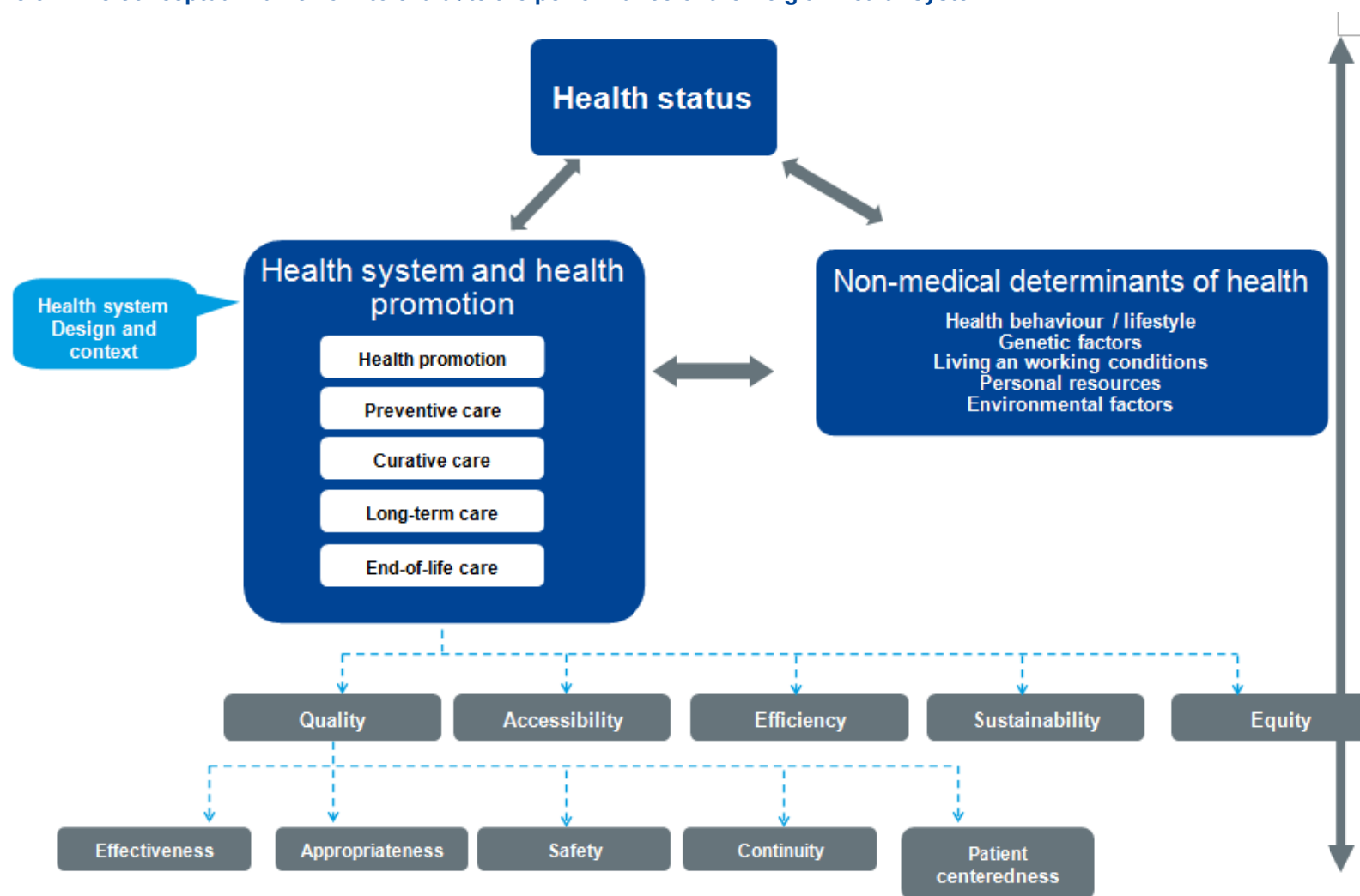
## 1.2 The Belgian performance framework and definitions

The Belgian performance report makes use of a conceptual framework (see Figure 3) inspired by the Dutch and Canadian frameworks,<sup>20, 21</sup> tailored to the Belgian health system.

The conceptual framework is composed of three interconnected tiers, which do not represent a hierarchy. The three tiers include health status, non-medical determinants of health and the health system itself, consisting of 5 domains: health promotion, preventive care, curative care, long-term care and end-of-life care. Each of these domains can be evaluated on different dimensions: their quality, accessibility, efficiency or sustainability. Equity has been defined as an overarching dimension.



Figure 3 – The conceptual framework to evaluate the performance of the Belgian health system







### Definitions used in the conceptual framework

These definitions are based on the following sources: WHO (2008)<sup>3</sup>, Arah (2006)<sup>4</sup>, Vlayen (2006)<sup>6</sup>, Australian National Health Performance Committee (2001)<sup>22</sup> and the Ottawa Charter<sup>23</sup>.

#### Health status

This tier addresses the question “How healthy is the population residing in Belgium?”, covering several dimensions, such as health (prevalence of disease, disorder, injury, trauma or other health-related states), human functions (alterations to body, structure or function [impairment]), activities [activity limitation] and participation [restrictions in participation]), well-being (physical, mental, and social well-being), and death.

#### Non-medical determinants of health

This tier encompasses the determinants that have an effect on health and on if, when and how we use care. These determinants include health behaviour/lifestyle (e.g. smoking, physical activity), genetic factors, living and working conditions, personal resources, and environmental factors (e.g. air, water, food and soil quality resulting from chemical pollution and waste disposal).

#### Health system

Within the political and institutional framework of each country, a health system is the ensemble of all public and private organizations, institutions and resources mandated to improve, maintain or restore health. Health system encompasses both personal and population services as well as activities to influence the policies and actions of other sectors to address the social, environmental and economic determinants of health.

#### Domains of the health system and health promotion

The health system has been grouped into 4 domains: preventive care, curative care, long-term care and end-of-life care. The health promotion goes far beyond the boundaries of the health system.

- Preventive care: healthcare aiming to prevent the occurrence of a disease (primary prevention, i.e. vaccination; secondary prevention, i.e. taking medication to prevent myocardial infarction after a first

episode) or to detect health problems before they occur (regular testing, screening for diseases, and other services that detect health problems early before they manifest symptoms).

- Curative care: healthcare that tends to overcome disease, and promote recovery.
- Long-term care: The term “long-term care services” refers to the organisation and delivery of services and assistance to people who are limited in their ability to function independently on a daily basis over an extended period of time. There are two complementary components of this definition: first, the care continues over a long time period, and second, the care is usually provided as an integrated program across service components.<sup>24</sup> This report focuses on two main populations: first, long-term care for older persons, and second, long-term care for persons with mental disorder. Long-term care for older persons include the following major services: home nursing care, homes for the elderly and nursing homes.<sup>9</sup>
- End-of-life care: the care of a person from the moment it has become clear that the person is in a progressive state of decline. End-of-life care includes palliative care but also broader social, legal and spiritual elements of care relevant to the end of the life.

<sup>9</sup> **Home nursing care** is available for persons with low to severe activities of daily living (ADL) and/or cognitive limitations, irrespective of their age. Care provided by home nurses includes technical nursing interventions (for example wound dressing and administering medication) and basic nursing care (mainly hygienic care in patients with ADL dysfunction).

In the **residential sector**, **homes for the elderly** (“maison de repos pour personnes âgées”, MRPA / “woonzorgcentra”, previously called “rustoorden voor bejaarden” ROB) provide nursing and personal care as well as living facilities to older persons with mainly low to moderate limitations. Older persons who are strongly dependent on care but who do not need permanent hospital treatment are admitted to **nursing homes** (“maison de repos et de soins” MRS / “rust- en verzorgingstehuis” RVT). While medical costs and costs of care in residential care facilities are covered by public health insurance, board and lodging costs are to be paid by the resident.



- Health promotion has been defined by the WHO as “the process of enabling people to increase control over their health and its determinants, and thereby improve their health”. The health promotion goes far beyond the boundaries of the health sector: indeed one of the means of health promotion occur through developing healthy public policy that addresses the prerequisites of health such as income, housing, food security, employment, and quality working conditions. The other axes defined in the Ottawa Charter are: create healthy settings, increase the role of the community, increase the skills of the individuals, reorientation of the health services.<sup>23</sup>

### Health system performance

This is a much broader conceptual approach to measuring performance than healthcare system performance by explicitly using non-medical determinants, healthcare and contextual information to give a clearer picture of population health.

### Dimensions of Health System Performance

Health system performance, which is presented and analysed for each health system domain, is grouped into four main dimensions: accessibility, quality, efficiency and sustainability, and the overarching dimension of equity.

**Accessibility** is defined as “the ease with which health services are reached”. It recovers physical (geographical distribution), organizational, financial, cultural, psychological dimensions of access. Access requires that health services are a priori available.

**Quality** 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”. It is further subdivided into five sub-dimensions, including effectiveness, appropriateness, safety, patient-centeredness and continuity.

- 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”.

- It is therefore closely related to appropriateness, which can be defined as “the degree to which provided healthcare is relevant to the clinical needs, given the current best evidence and the provider’s experience”. The link between effectiveness and appropriateness reflects the link between outcomes and processes.
- Safety can be defined as “the degree to which the system has the right structures, renders services, and attains results in ways that prevent harm to the user, provider, or environment”. Including the provider and environment in this definition extends the dimension beyond quality.
- Patient-centeredness is defined as “providing care that is respectful of and responsive to individual patient preferences, needs, and values, and ensuring that patient values guide all clinical decisions”.
- Finally, continuity addresses “the extent to which healthcare for specified users, over time, is smoothly organised within and across providers, institutions and regions”, and to which the entire disease trajectory is covered. This also means that ‘coordination’ (i.e. smooth organisation across providers, institutions and regions) is considered to be part of continuity.

**Efficiency** is defined as “the degree to which the right level of resources (i.e. money, time and personnel) is found for the system (macro-level) and ensuring that these resources are used to yield maximum benefits or results (i.e. allocative efficiency)”.

**Sustainability** is the system’s capacity to provide and maintain infrastructure such as workforce (e.g. through education and training), facilities and equipment, and be innovative and responsive to emerging needs. Important factors for the maintenance of the workforce also include the health personnel’s satisfaction and working conditions.

**Equity** is a *transversal dimension*, being considered and presented across all three tiers of the framework. Equity is concerned with the fairness of the distribution of healthcare across populations and with the fairness of payment for healthcare. Above this, “equity” can be estimated for non-medical determinants of health and for health status. There are many overlaps with the dimension of accessibility.



### Assessment of the Health promotion

*Only a partial assessment of the health promotion performance could be made into the scope of this work. More details are given in Chapter 7 Performance of health promotion.*

- Outcomes of the health promotion can be categorized (see further, Nutbeam's framework in Chapter 7 Performance of health promotion) into outcomes very distal to action (like health outcomes), intermediate health outcomes (like adopting healthy lifestyle), and more direct outcomes, called "health promotion outcomes" (like health literacy).
- The main values and principles of the health promotion are: participation, empowerment, equity, multistrategic/multisectorial interventions, sustainability.

### Health system design and context

This includes the important design and contextual information that may be specific to the Belgian health system, and which are necessary for interpreting the health system performance. Context should be interpreted in a broad way, encompassing both the local (national) factors that influence the health system (e.g. federal vs. regional context, legal framework, financing) and the international context factors (e.g. Europe). This also means that the articulation between the different authorities (federal, regional, local) is considered to be a characteristic of the health system influencing its performance, rather than a dimension of performance itself. An additional contextual factor is the local culture, which has an important influence on ethical questions.

### Health in all policies

This is a dimension linking non-medical determinants of health to the health system. It can be defined as a horizontal, complementary policy-related strategy contributing to improved population health (<http://www.euro.who.int/document/E89260.pdf>). The core of "health in all policies" is to examine determinants of health that can be altered to improve health, but which are mainly controlled by the policies of sectors other than health.

## 1.3 Objectives of the performance project

Systematic evaluation of health system performance is an on-going process, with publication of HSPA reports as important milestones. Strategic objectives, defined as the objective of the on-going process, have to be differentiated from the specific objective of the present report, and its operational sub-objectives.

### 1.3.1 Strategic objectives of the HSPA process

The HSPA process pursues three strategic objectives:

1. To inform the health authorities of the performance of the health system and to be a support for policy planning;
2. To provide a transparent and accountable view of the Belgian health system performance, in accordance with the commitment made in the Tallinn Charter;
3. On the long-term, to monitor the health system performance over time.

### 1.3.2 Overall and operational objectives of the 2012 report

#### Overall objective:

To propose and measure a set of indicators covering all domains and chosen dimensions of our health system, while keeping a reasonable number of indicators. With a too small set, important dimensions or domains would be missed. But a too large set is difficult to manage and the profusion of results would dilute main messages. For the 2012 report, we aimed at a set of about 80 indicators.

Four operational objectives have been defined:

1. To review the core set of 55 indicators of the previous report, with a special focus on the 11 indicators for which there were no data in 2010;
2. To enrich the core set with indicators from the following domains: health promotion, general medicine, mental health, long-term care, end-of-life care; to add indicators on patient centeredness and continuity of care (two sub-dimensions of quality); and finally to propose indicators on equity in the health system;
3. To measure the selected indicators, when possible, or to identify gaps in the availability of data;



4. To interpret the results in order to provide a global evaluation of the performance of the Belgian health system by mean of several criteria, including an international benchmarking when appropriate.

#### 1.4 Methods to reach operational objectives

*Operational objective 1: To review the core set of 55 indicators, with a special focus on the 11 indicators for which there were no data in 2010.*

The update of the former 55 indicators was made in a consensus meeting between the research team and a specialist in health indicators of the Federal Public Service (FPS) Public Health.

*Operational objective 2: To enrich the core set with indicators illustrating the following domains: health promotion, general medicine, mental health, long-term care, end-of-life care; to add indicators on patient centeredness and continuity of care (two sub-dimensions of the quality); and finally to introduce indicators on equity-inequality in health/health system.*

The strategy for the selection of new indicators in a variety of domains and dimensions consisted of the following:

The indexed literature was searched using usual standards of literature search for Health Services Studies.<sup>25</sup> Many indicators were also found in the grey literature, mainly reports of national (e.g. Dutch performance report) or international organizations (e.g. OECD Health Data, WHO Health for All Database, Eurostat, and reports specific to the domain or dimension studied). This resulted in long lists of indicators. The selection process occurred on an iterative way, involving both the research team and panels of expert specific for each topics. In some cases, a two step scoring allowed to select the more appropriate indicators, with regards to many criteria (relevance, content validity, reliability, interpretability and potential for action). In the other cases, the selection was based on a consensus among experts.

Indicators on the performance of general medicine were selected from a recent RIZIV – INAMI project using the same methodology.<sup>26</sup>

Indicators on the equity of the system were derived from international literature. A specific working paper “The place of equity in assessments of the performance of health systems can be found in Supplement S2 of this report.

The whole set of indicators was then reviewed by the research team to avoid redundancies in indicators and enhance the consistency of the set.

*Operational objective 3: To measure the indicators selected in operational objective 2, and to identify gaps in the available data.*

After the setting up of an updated set of indicators, the research team gathered the data to measure them. Indicators without (yet) available data were classified into two categories: those for which data will be available within the next two years, and those for which it is not clear how and by whom these indicators should be collected. Nevertheless, in spite of the lack of relevant data, these indicators were selected by the experts as being relevant, and were kept under a section “indicators under development”.

For each measurable indicator, a complete documentation sheet was written with detailed results, including international comparisons.

*Operational objective 4: To interpret the results in order to provide a global evaluation of the performance of the Belgian health system.*

When the data were available, the following analyses were performed: analysis at national and regional level (with trends over time), analysis by demographic and socioeconomic factors, and finally benchmarking of most recent results compared to European Union (EU)-15 countries. These results were discussed with the expert groups to facilitate interpretation and identify shortcoming and areas for further development.

The documentation sheets and the detailed results of the indicators are gathered in Supplement 1. A synoptic table summarises the main results for all indicators using colour-coded cells.



### 1.5 The 2012 set of performance indicators and structure of this report

The selected 74 indicators which could be measured are classified by domain and by performance dimension in Appendix A of this report. The results (values) of the indicators are summarized and discussed in the following chapters of this report.

Chapters 2 to 6 have the same structure. Each chapter discusses the indicators illustrating one dimension (e.g. quality, sustainability) and consists of three parts:

1. First, we explain how the dimension was evaluated which boils down to a motivation of the selection of the indicators.
2. The “facts and figures” section is the core of each chapter. For each indicator we present the main results of the data analysis for Belgium, for the three regions (where possible) and put these results in perspective with international results and trends. Detailed results are also available in each documentation sheet in the Supplement S1 (available on the website).
3. At the end of each section, we summarize the results of the data analysis in key findings – mostly one key finding per indicator.

The following chapters illustrate some specific issues: health promotion is discussed in Chapter 7 and Chapter 8 discusses the aspects of health inequalities and equity. The conclusion and discussion are in the synthesis at the beginning of this document.

Indicators for which there are currently no data have been discussed to identify gaps in availability of data in Belgium, and to provide recommendations to policy makers in Chapter 9.

The result of reviewing the 2010 set of indicators (operational objective 1) can be found in Appendix 2. From the 11 indicators with data missing in 2010, 5 indicators could be measured in this report. The others have been either removed from the set, either moved to the indicators to be measured soon. Another 12 indicators have been removed from the 2010 set, because they were deemed as not being relevant anymore, or because data were outdated.

In addition to these 74 indicators, 11 indicators for which data are expected within a two-year timeframe have been selected. Probably, they will be included in the next edition of the performance report. These indicators are listed in Appendix 3.

More documents are available on the KCE website:

- In Supplement S1: one documentation sheet per indicator has been presented, summarising the rationale for choosing the indicator, technical information on data sources and computation, limitations in interpretation, and the bibliographical references.  
A list of indicators that were deemed pertinent by the expert groups, but for which no initiatives are currently taken to collect data, is also presented in this Supplement S1. These indicators have been discussed to identify gaps in availability of data in Belgium, and to provide recommendations to policy makers which are discussed in details in Chapter 9.
- In Supplement S2: “The place of equity in assessments of the performance of health systems” (author: Christian Léonard): a specific paper on equity, indicators for equity and review of available work performed in Belgium.
- In Supplement S3: All technical details of literature searches and selection of indicators (MESH terms, databases searched, list of indicators initially selected, scoring of experts) for the following domains: Health promotion / Mental health / Continuity of care / Patient centeredness / Long-term care and care of the elderly / End-of-life care.





## 2 OVERALL HEALTH STATUS OF THE POPULATION

### 2.1 How did we describe the overall health status of the population?

The objective of this performance report was not to perform an assessment of the health status of the Belgian population. We describe anyway 4 global health status indicators. Those can be seen as very distal general outcomes of the health system/health promotion interventions, as well as a reflection of the global developmental level of a society. Those 4 indicators are:

1. Life expectancy
2. Health expectancy
3. Percentage of population perceiving their health as good or very good
4. Infant mortality rate

Four other health status indicators were described in other sections. As a matter of fact, while those four particular indicators can be influenced by individuals and societal actors, they make part of the evaluation of some specific domain or dimensions. Those four indicators are:

- Suicide rate (described in section 4.1.1, effectiveness of mental health care)
- Overweight and obesity rates (described in section 7.2.1, health and social outcomes)
- Rate of new HIV diagnosis (described in section 7.2.1, health and social outcomes)
- Mean number of decayed, missing, filled teethes in children (described in the section 7.2.1, health and social outcomes)

### 2.2 Facts and figures

This section is a short summary of the detailed results which are presented for each indicator in the Supplement S1 of this report (available on the website).

#### Life expectancy and Health expectancy

Life expectancy (LE) at birth in Belgium was 80 years as of 2010.<sup>27</sup> Life expectancy has remarkably increased since decades, reflecting sharp reductions in mortality rates at all ages. These gains in longevity can be attributed to a number of factors, including rising living standards, improved lifestyle, better education and greater access to quality health services.<sup>5</sup>

LE was 5.3 years higher in women (82.6 years) than in men (77.4 years) in 2010 and is higher in Flanders than in Wallonia (difference of 3 years in men and 1.8 years in women) (Table 13). Life expectancy in Belgium is slightly lower than the average of the EU-15, 80.7 years in 2010 (Figure 4).

Health expectancy represents the remaining years lived from a particular age without long-term activity limitation. This is the structural European indicator named 'Healthy Life Years' (HLY).<sup>28</sup> It extends the concept of life expectancy to morbidity and disability in order to assess the quality of years lived. HLY can be computed for several ages. In order to be consistent with previous published work, we present the HLY at 25 years, but data for many other reference ages can be found.

HLY at 25 in Belgium was 41 years in men and women in 2008<sup>h</sup>. Women live thus about 5 years longer than men, but those additional years are lived in activity limitation. HLY increases slowly in men but remains stable in women. The HLY at 25 is higher in Flanders than in the other regions, for both sexes (Table 13).

<sup>h</sup> SPMA: [https://stats.wiv-isp.be/SASStoredProcess/quest?\\_program=%2FEhleis%2FStored+Process%2FHealth+Expectancy+Statistics&\\_action=properties](https://stats.wiv-isp.be/SASStoredProcess/quest?_program=%2FEhleis%2FStored+Process%2FHealth+Expectancy+Statistics&_action=properties)



For international comparisons, Eurostat computes the HLY at birth.<sup>29</sup> Belgium is situated close to the average of EU-15 countries: for women 62.6 years versus 63.0 years in EU-15, and for men 64.0 versus 63.1 in EU-15.

**Table 13 – Life expectancy at birth (2010), and Healthy Life Years at age 25 (2008), by sex and region**

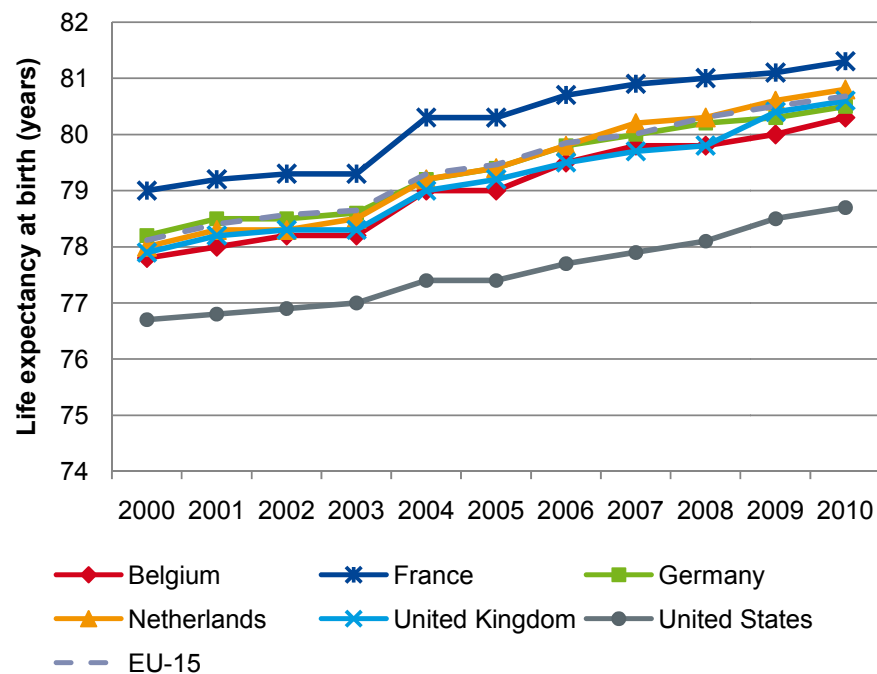
	Belgium	Brussels	Flanders	Wallonia
Male				
Life Expectancy at birth*	77.4	76.9	78.5	75.5
Healthy life years at 25**	41.3	38.5	43.7	37.4
Female				
Life Expectancy at birth*	82.6	82.8	83.3	81.5
Healthy life years at 25**	41.2	40.6	42.3	39.1

Source: \* DGSIE, data 2010; \*\* SPMA<sup>i</sup>, data 2008

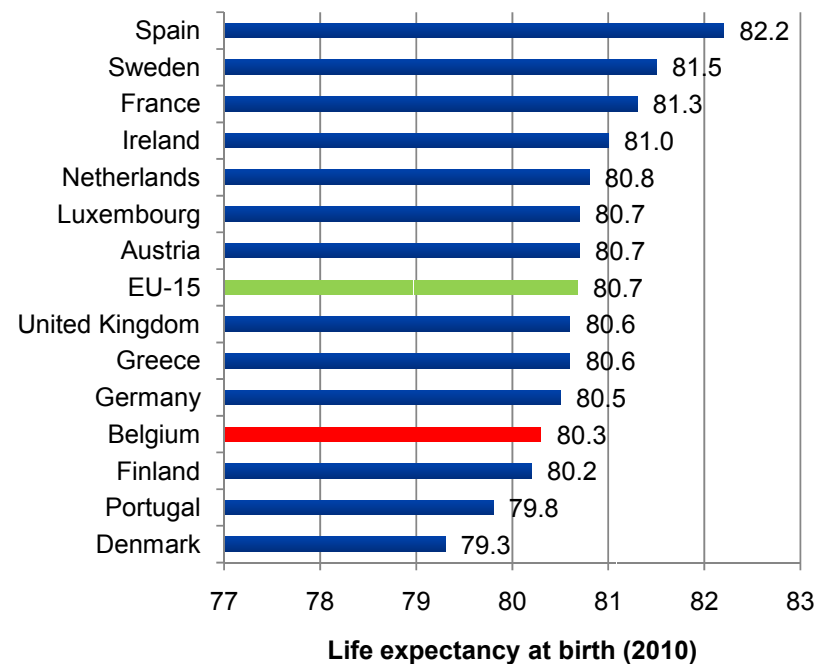
<sup>i</sup> [https://stats.wiv-isp.be/SASStoredProcess/guest?\\_program=%2FEhleis%2FStored+Process%2FHealth+Expectancy+Statistics&\\_action=properties](https://stats.wiv-isp.be/SASStoredProcess/guest?_program=%2FEhleis%2FStored+Process%2FHealth+Expectancy+Statistics&_action=properties)



Figure 4 – Life expectancy at birth: international comparison (2000-2010)



Source: OECD Health Data 2012







### Self-perceived health

Self-perceived health has been proven as a reliable reflection of morbidity, and as highly predictive of mortality.

In 2008, 77% of the people aged 15 years or older rated their health as good or very good. This rate has slightly increased over time. The subjective appraisal of health status was slightly less favourable in women, even after adjusting for age. It was higher in Flanders than in the other regions.

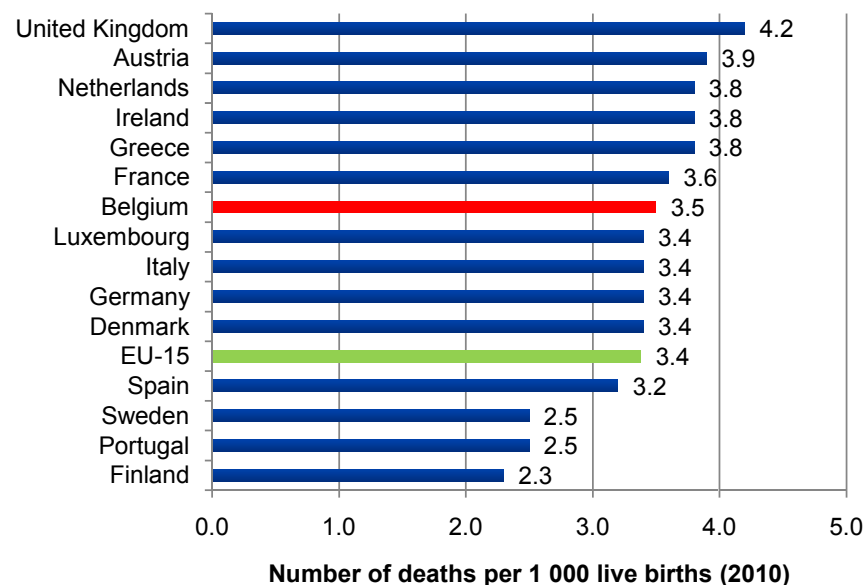
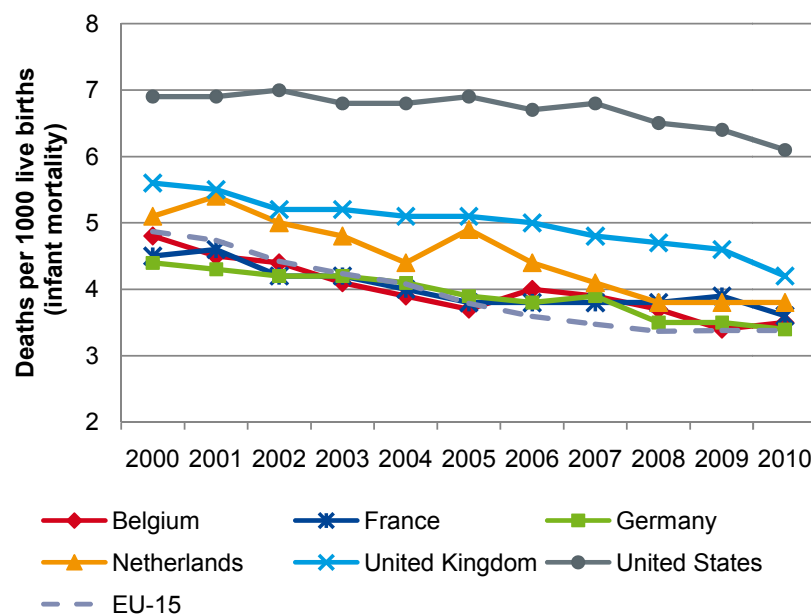
Two databases provide information for the international comparison: the OECD Health Data (in which data from Belgium come from the HIS) and the European Union Statistics on Income and Living Conditions (EU-SILC) survey. The former database was chosen for its comparability with results

above. Belgium compares very well with other EU-15 countries (average of 71.7%).

### Infant mortality rate

The infant mortality rate (IMR) is a basic indicator for population health and quality of health care services, and is highly correlated to a country's level of development. The IMR has regularly decreased over the last decades in EU countries, such as in Belgium (around 5 deaths/1000 live births in 2000 to 3.5/1000 live births in 2010, which is within the EU-15 average of 3.4/1000 live births (Figure 5). Data per region (from 2008) show similar rates in the three regions. Rates are also higher for male infants (4.2/1000) than for female infants (3.4/1000).

**Figure 5 – Infant mortality rate: international comparison**



Source: OECD Health Data 2012



## 2.3 Key findings

- Life expectancy at birth in Belgium was 80 years as of 2010. It is increasing over time, and is higher for women. It is higher in Flanders. Life expectancy in Belgium is slightly lower than the average of the EU-15 (80.7 years in 2010).
- Although women live longer than men, they do not live much longer in good health since the number of years with (self-reported) activity limitation is higher in women. Belgium is ranking within the average as compared with the EU-15.
- 77% of the population reported their health to be good to very good in 2008. This proportion is higher for men as compared to women, and drops with age. Belgium compares very good with other EU-15 countries (average of 71.7%).
- Infant mortality has decreased regularly over the last decades. The figures are similar in the three regions and are close to 4 for 1000 live births in 2010. Infant mortality rates in Belgium are close to the average EU-15 rates, and better than in the neighbouring countries.

## 3 ACCESSIBILITY OF CARE

### 3.1 How did we evaluate the accessibility of healthcare?

Accessibility is defined as the ease with which health services are reached in terms of physical access (geographical distribution), costs, time, and availability of qualified personnel.<sup>4</sup> Accessibility of a health system is a prerequisite of a qualitative and efficient health system.

In this report, we have defined twelve indicators to evaluate the accessibility of the healthcare system. Some indicators are related to the workforce, addressing the availability of healthcare personnel, others are used to determine financial access, focusing on insurance status, out-of-pocket payments and delaying contacts with healthcare due to financial reasons. Another group of indicators measures the coverage rates for preventive policies such as cancer screenings and vaccinations. Finally, one indicator relates to the timing (or timeliness) of access to palliative services.

#### Workforce

1. Number of practising physicians per 100 000 population
2. Number of practising nurses per 100 000 population

#### Financial accessibility

3. Coverage of the population in terms of health insurance
4. Amount of co-payments and out-of-pocket payments
5. Percentage of consumers who delay contact with health services because of financial reasons

#### Coverage of preventive measures

6. Breast cancer screening (women aged 50-69 years)
7. Cervix cancer screening (women aged 25-64 years)
8. Coverage of vaccination for young children
9. Coverage of influenza vaccination for the elderly (65 years and older)

Accessibility of long-term care (residential care for elderly and informal carers)

10. Number of beds in residential care facilities per population 65 years and older



11. Percentage of population over 50 years old reporting to be an informal carer

Accessibility of end-of life-care: timeliness of start of palliative care

12. Start of palliative care very close to death

### 3.2 Facts and figures

This section is a short summary of the detailed results which are presented for each indicator in the Supplement S1 of this report (available on the website).

#### Workforce

The number of care providers gives information on the medical workforce currently active in the healthcare sector, and thus indirectly on the accessibility of the healthcare system.

The number of practising physicians<sup>j</sup> increased from 28 999 in 2000 to 31 815 in 2010, corresponding to a density of 2.91/1000 population. Of these, 38.4% were GPs and 6.07% psychiatrists and 56% were non-psychiatrist specialists. Expressed in full-time equivalents (as calculated by the RIZIV – INAMI since 2009), this density reduces to 1.99/1000 population (Table 14).

Few EU-15 European countries report the number of practising physicians to the OECD. Before 2009, Belgian data on practising physicians included all registered physicians at the RIZIV – INAMI (potentially practising). This way of counting resulted in a physician density of 4.03/1000 population which was one of the highest in Europe.<sup>1</sup> Since 2009 (and retrospectively on data older than 2009) the density is based on the number of practising physicians, giving a better picture of the 'useful' medical density in Belgium. Compared to other OECD countries which also report the density of practising physicians, the density in Belgium is lower than in Germany, but is slightly higher than in the UK (in 2009) (Figure 6).

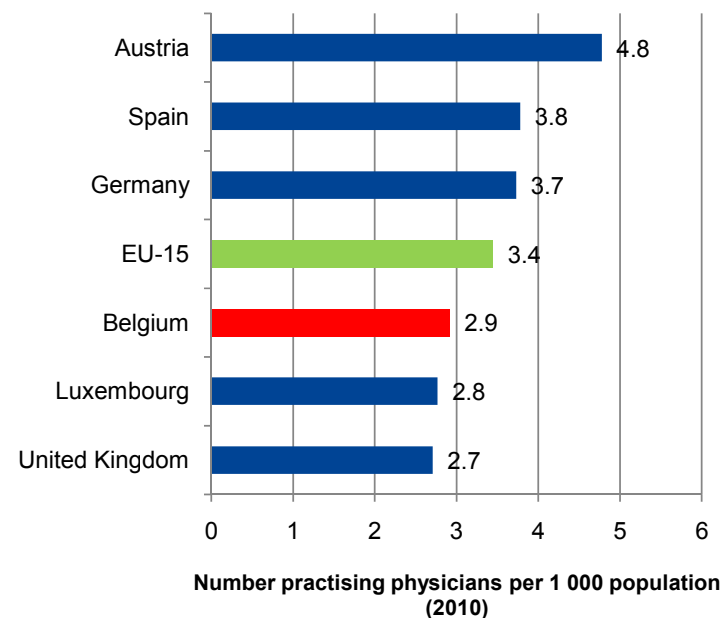
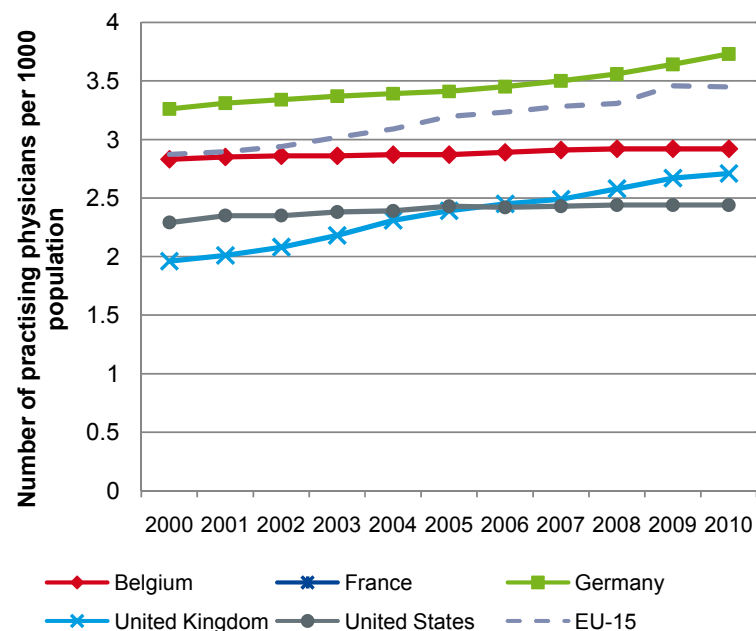
<sup>j</sup> For international comparisons, the practising physicians are defined by RIZIV – INAMI as those who provided more than one reimbursed clinical service during a year.

**Table 14 – Number of practising physicians, estimation of Full Time Equivalent, and density (/1000 population) (2010)**

Profession	Total practising	Density	Total FTE	Density
<b>Medical doctors</b>	31 815	2.92	21 691	1.99
<b>GPs</b>	12 228	1.12	8 646	0.79
<b>Psychiatrists</b>	1 932	0.18	1 260	0.12

Source: RIZIV – INAMI

Note: Practising physicians are defined as those who provided more than one reimbursed clinical service during a year.

**Figure 6 – Number of practising physicians (per 1000 population): international comparison**

Source: OECD Health Data 2012

Nurses are generally the most numerous health professionals, greatly outnumbering physicians in almost all OECD countries.<sup>5</sup> Estimating the number of practising nurses is even more challenging than evaluating the number of practising medical doctors; indeed, many nurses are on the payroll of hospitals or nursing homes, and there is no centralized counting of them. Only nurses outside the hospitals are registered in the RIZIV – INAMI databases. For that reason, the FPS Public Health organized a large survey to measure the number of practising nurses in 2009. Results showed that on the 152 376 nurses included in the study, 70% were active in the healthcare sector (39% in hospitals, and the rest in residential care for older persons or in nursing home care). This corresponds to a density

of practising nurses of 9.9/1000 population.<sup>30</sup> However, we still do not know the number of corresponding FTE.

International comparison based on OECD Health Data is currently meaningless, as Belgian data still represent all nurses (on the basis of their diploma, and not on their working status in healthcare).



### Financial accessibility

A prerequisite for financial accessibility is coverage with health insurance. A compulsory health insurance, in principle, covers the whole population of citizens living in Belgium. In practice, some categories of citizens (e.g. asylum seekers) may not fulfil administrative and/or financial requirements, and hence are not affiliated to a sickness fund. This does not mean that they have no right to necessary medical care, but their healthcare expenses are covered by the public municipal welfare centres (OCMW – CPAS), and not by the sickness funds. The data for Belgium in OECD Health Data report a constant percentage of 99% insured persons, up to 99.5% in 2009. Other European countries report similarly high coverage (with many countries reporting 100%). Nevertheless, total health insurance coverage, both public and private, is an imperfect indicator to compare the level of accessibility across the countries, since the range of services covered and the degree of cost-sharing applied to those services can vary across countries. Another indicator of financial accessibility is the coverage of complementary health insurance (usually private), but no data are currently available in Belgium.

Low out-of-pocket (OOP) payments are another condition for good accessibility to the healthcare system. Out-of-pocket payments are expenditures borne directly by a patient where health insurance does not cover the (full) cost of the health good or service. They include co-payments (ticket modérateur / remgeld), costs of over-the-counter medications and other expenditures paid directly by private households. Between 2003 and 2010, the OOP expenditures rose from €5.33 to €7.25 billion, but compared to the total health expenditures, their share remained constant during the same time period (20.0% in 2003, 19.4% in 2010). Co-payments represented 26.7% of all out-of-pocket expenditures in 2010. Expressed per inhabitant, out-of-pocket payments represent a total of €665 in 2010.

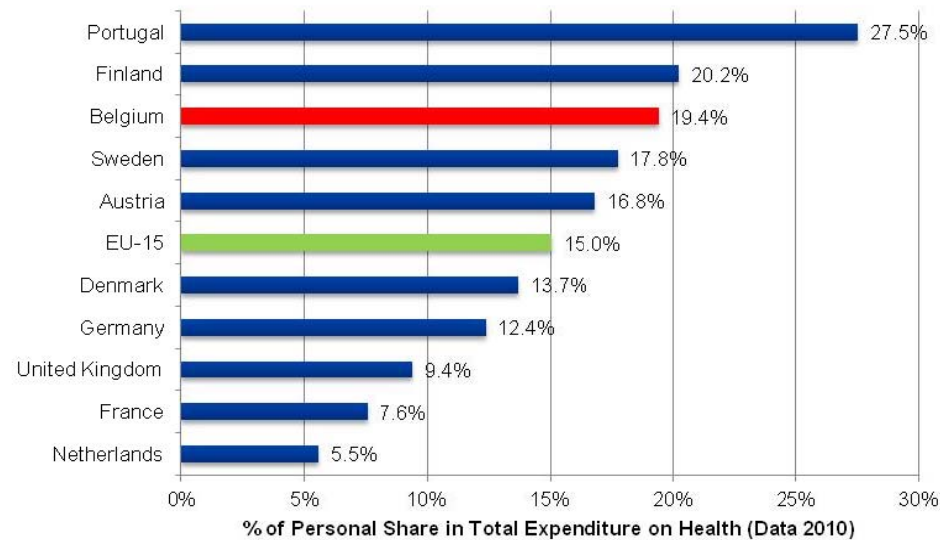
Comparison of health expenditures across European countries are based on the System of Health Accounts (SHA). The SHA, developed jointly by Eurostat, WHO and OECD, is a common way to report and classify health expenditures at a national level. The comparison shows that OOP expenditures in Belgium (expressed as a % of total health expenditures) are at the higher end, with countries such as France, the Netherlands and UK lying below 10% (Figure 7). Again, this statement should require a very detailed scrutiny of all expenses included or not by countries in the calculation of their System of Health Accounts.

**Table 15 – Out-of-pocket expenditures (2003-2010)**

Year	2003	2004	2005	2006	2007	2008	2009	2010
All out-of-pocket expenditures								
Billion €	5.53374	5.53049	5.68334	6.27044	6.73778	7.02868	6.85982	7.25518
% expenditure on health	20.0	18.8	18.6	20.5	20.9	20.3	18.9	19.4
€/capita	533.31	530.70	542.37	594.47	634.10	656.27	635.38	665.88
Co-payments only								
Billion €						1.85261	1.96620	1.93881
% of all out-of-pocket expenditures						26.4	28.7	26.7

Source:

- Out-of-pocket expenditures: System of Health Accounts (SHA), OECD Health Data 2012
- Co-payments (tickets modérateurs/remgeld): RIZIV – INAMI

**Figure 7 – Out-of-pocket expenditures (as a percentage of total health expenditures): international comparison**

Source: OECD Health Data 2012



To guarantee financial accessibility of healthcare in Belgium, legislators have introduced several “social care nets”, which aim is to protect households with low financial means or with very high healthcare expenses against catastrophic healthcare expenses<sup>k</sup>. However, despite these social care nets, 14% of the households declared that they had to postpone healthcare (medical care, surgery, drugs, glasses or lenses, mental healthcare) for financial reasons. In Brussels, this percentage reaches 26% of the households (14% in Wallonia and 11% in Flanders). In 1997, this percentage was below 10%.

It is difficult to benchmark these data: indeed, data on global unmet clinical needs are available in OECD Health Data, but those also include problems due to waiting times or distances.

The five following indicators measure in which way specific preventive measures are effectively accessible and used by the population.

#### Coverage of screening for breast and cervical cancer

These two interventions currently run with different organizational modalities: organized national program for the breast cancer and opportunistic screening for the cervix cancer. It is still too early to evaluate the colorectal cancer screening program.<sup>l</sup>

<sup>k</sup> Only to cite some of them: the entitlement to increased reimbursement of co-payments (introduced in 1963), the Maximum Billing System (MAB, implemented in 2002) and the OMNIO status (introduced in 2007).

<sup>l</sup> For colorectal cancer, there is no national program in place, but different regional approaches co-exist: in the French Community (Wallonia and Brussels), a screening programme was started in March 2009. Every two years, persons aged 50-74 years old are invited to perform a FOBT (fecal occult blood test), or directly a colonoscopy for individuals at high or very high risk.<sup>31</sup> There has been a preliminary evaluation of the start of the program, but it is still too early to evaluate the global coverage.<sup>32</sup> In Flanders, pilot projects were also started.<sup>33</sup>

- For breast cancer, a national screening program exists (since 2001 in Flanders and 2002 in Wallonia and Brussels) for women aged 50-69 years. The latter co-exists with opportunistic screening (mammograms performed outside of the program). Mammograms within this program are called hereafter “mammothests”, to be distinguished from all other mammograms (opportunistic screening or diagnostic test)<sup>m</sup>.

Result: In 2010, the total coverage of breast cancer screening was 60%, far below the EU-15 average of 68%, and even further of the 75% target set by the EU.<sup>5</sup> (Figure 9) Moreover, only half of this coverage occurred within the program (30% screening coverage with the “mammothests” in 2010). Differences between regions are striking with regard to the coverage within the program: 46% in Flanders, while only 11% in Brussels and 7% in Wallonia. (Figure 8) This is probably partially due to the persistence of pre-existing higher levels of opportunistic screening in Wallonia and Brussels before the start of the program.<sup>34</sup>

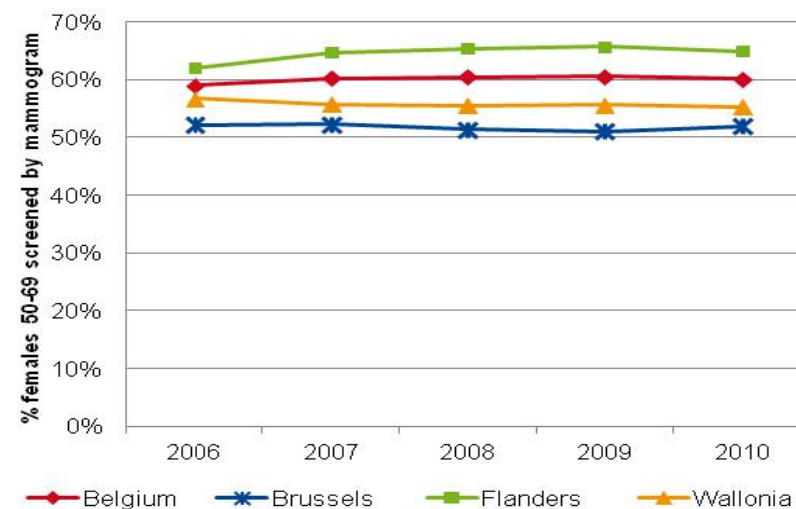
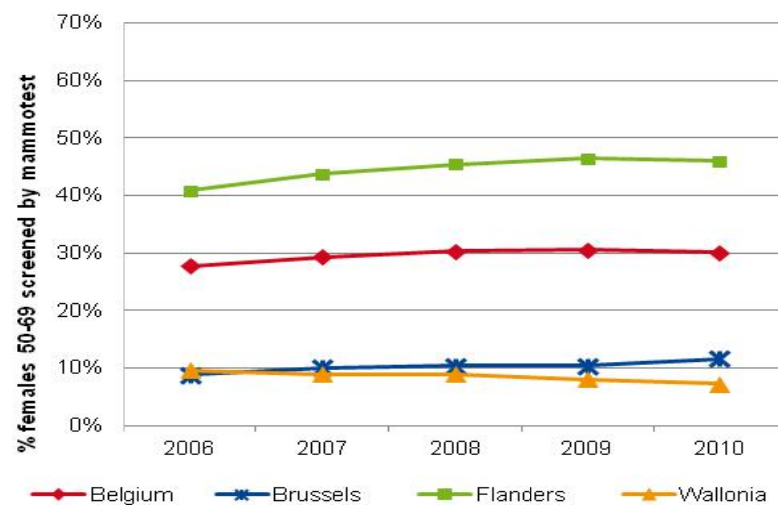
- Cervical cancer, a cancer with a low incidence and a medium to poor prognosis, can be largely detected in a curable stage by the smear test (or Pap test).<sup>35</sup> This test is recommended every three years for women aged 25-64 years. Currently, the screening for cervix cancer is essentially opportunistic.

Result: The cervical cancer screening coverage has remained stable around 62% between 2007 and 2010. In a previous study from 1998-2000, the coverage rate was already 59%.<sup>36</sup> Compared to other European countries, Belgium caught up with the EU-15 average of 61% in 2008, but is still far from some countries such as UK (80%) or Finland (70%) (Figure 9).

<sup>m</sup> It is not possible to distinguish in the nomenclature between mammograms done for opportunistic screening from mammograms done for a diagnostic.



Figure 8 – Percentage of women (aged 50-69) who had a mammogram (within program (a) or overall (b)) within the last two years, by region (2006-2010)

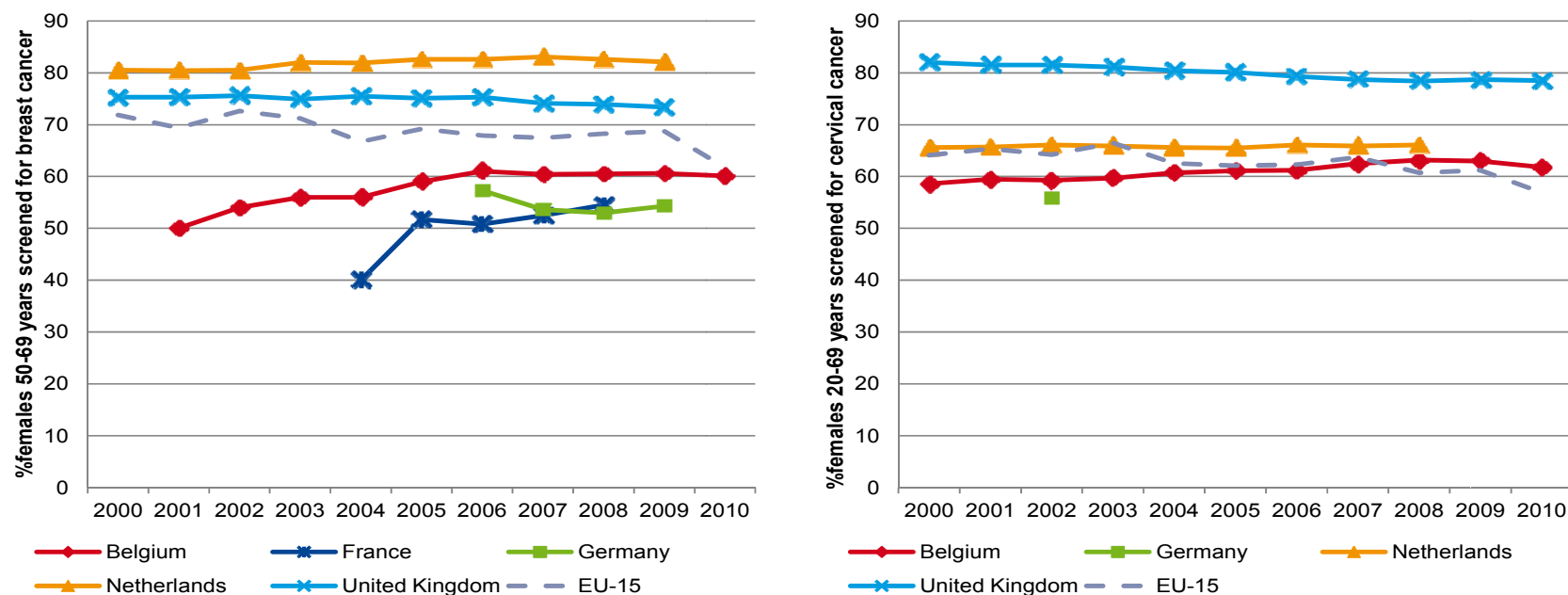


Note: mammotest = organised screening program, mammogram = organized + opportunistic screening + diagnostic test; Source: IMA-EPS, KCE calculation





**Figure 9 – Breast cancer and cervical cancer screening: international comparison (2000-2010)**



Source: OECD Health Data 2012, except IMA-EPS for Belgium 2008-2010 (KCE calculation)

### Coverage of vaccination

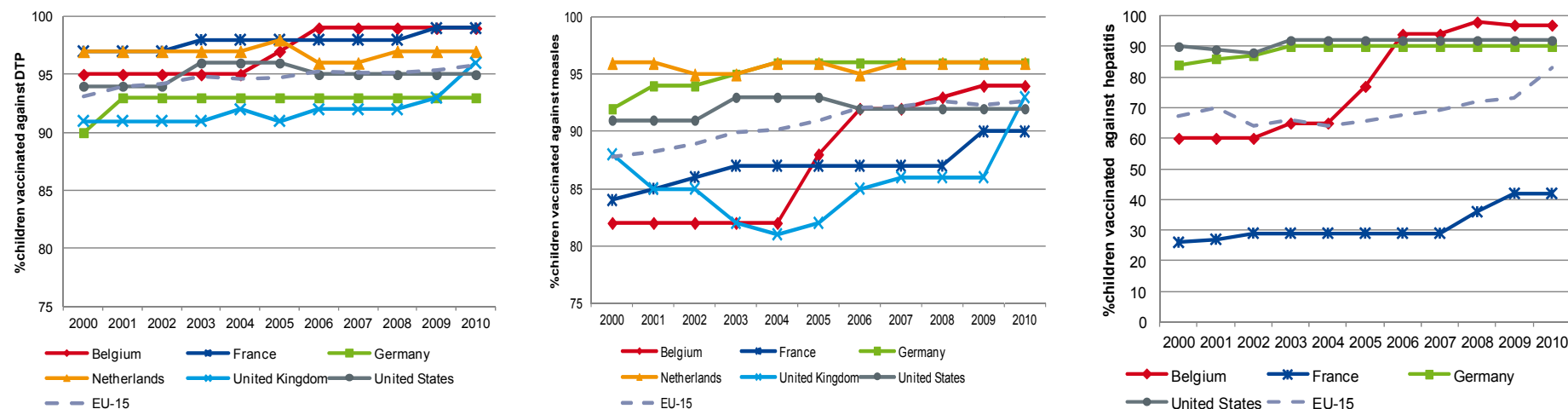
Immunisation is one of the most powerful and cost-effective forms of primary prevention. The choice of the vaccinations included in our set is based on the international indicators from European Community Health Indicators Monitoring (ECHIM) and OECD. In Belgium, as vaccination is a regional health competence, the vaccination rates are measured at regional level, and a national rate is computed as a weighted average of the three regional rates.

The WHO-recommended target rate for a collective immunisation is 90% for Diphtheria-Tetanus-Pertussis (DTP) and 95 % for measles. In general,

the recommended coverage rates are reached in Belgium. The 3rd dose-coverage of Diphtheria-Tetanus-Pertussis (DTP3), Haemophilus Influenzae B (Hib), poliomyelitis (Polio3), hepatitis B (Hep3) has increased and exceeds 95%. Only for Measles-Mumps-Rubella (MMR) the coverage was still just below 95% in 2009. It must be noticed that some small epidemic outbreaks of measles have occurred in recent years, in all regions and a large outbreak of measles occurred in 2011.<sup>37</sup>

Compared with other European countries, Belgium ranks very good for DTP3 coverage, particularly since 2003. For measles (1st dose), the global coverage ranks good, has much improved and reaches almost the recommended level.

Figure 10 – Percentage of children covered by main vaccinations (2000-2009): international comparison



Source: OECD Health data 2012

In Belgium, seasonal influenza vaccination is currently recommended in 5 groups of persons defined as being of influenza complications (like persons aged >65 years and all persons living in institutions; healthcare professionals; pregnant women; persons aged 50-64 years with health risks like obesity; chicken and pig farmers).<sup>38</sup> The WHO recommends a target vaccination rate of 75% for the elderly.<sup>39</sup> The last Intermunicipal Agency (IMA) report which covers the winters 07-08 and 08-09, shows that the vaccination coverage of elderly does not reach the WHO target (63% in 2008-2009)<sup>40</sup>, except for elderly residing in institutions (83%). Compared to other countries, coverage in Belgium is lower than in France, UK and the Netherlands (between 70% and 80%), and similar to the EU-15 average (63%).

### Accessibility of long-term care (residential care for elderly and informal carers)

Relative to the 65+ population, the number of beds in residential care facilities has remained constant over the past decade, at 7 beds per 100 persons of 65 and over in 2010.<sup>41</sup> This stable figure hides large shifts in the sector: the number of beds in homes for the elderly has decreased steadily in the last decade, from around 88 000 in 2000 to 64 000 in 2011, while the number of beds in nursing homes almost doubled, from around 33 000 to 65 000 over the same period. There are also large differences between regions. In 2010, the number of beds in homes for the elderly per 100 inhabitants of 65 years and older was considerably higher in Wallonia and Brussels than in Flanders (Table 16) while the density of nursing home beds does not diverge much between the regions. Overall, the number of beds in residential facilities in relation to the elderly population is much higher in Wallonia and Brussels than in Flanders.

**Table 16 – Number of accredited beds in homes for the elderly and nursing homes per 100 population 65 years and older, per region, 2010**

	Beds in homes for the elderly			Beds in nursing homes		
	Wallonia	Flanders	Brussels	Wallonia	Flanders	Brussels
Number of beds /100 inhabitants 65 +	4.9	2.5	6.3	3.4	3.3	3.8

Source: RIZIV – INAMI 2011

Data are available internationally for the proportions of population over 65+ recipient of long-term care (LTC) in residential care. With a percentage between 6% and 7%, Belgium is higher than the EU-15 average (that is between 4% and 5%), and similar to the Netherlands. No data are available for recipients of home care.

Informal carers, defined as people providing assistance with basic activities of daily living (ADL) for at least one hour per week, are an important component in the long-term care process.<sup>5</sup> The number of informal carers is estimated to decrease in the coming decades, as a result of declining family size, changes in residential patterns of people with disabilities and rising participation rates of women in the labour market.

The average proportion of informal carers varied from 8% in Sweden to 16.2% in Italy. The Belgian average of 12.1% of the population aged 50 and older is slightly higher than the overall average of the OECD-countries (11.7%).<sup>5</sup>

Other results are available in the documentation sheets (Supplement S1 available on the web) and include data on share of women, weekly hours of care, distribution of care recipients, employment rate and hours of work, leave from work, flexible work schedule, and mental health problems related to informal care giving.

As there are currently no data on patient needs, these two indicators are still insufficient to evaluate the accessibility of long-term care.

#### **Accessibility of end-of-life care: timeliness to start palliative care**

The last indicator of accessibility is specific to end-of-life care. The start of palliative care is sometimes delayed until patients are in terminal phase. This can denote either problems of accessibility of end-of-life care, either that the decision to start palliative care was taken too late. There is currently very little information on the real moment when palliative care is started, but the time when the palliative lump sum is requested for a patient can provide some indication.<sup>n</sup> A study from the Christian Sickness Funds (2006) gives some indications: the application for the palliative lump sum occurred for half of the patients in less than a month before their death. In 20% of the cases, patients died within the week of application.<sup>42,43</sup> More data are needed on this indicator.

<sup>n</sup> Patients who stay at home and have a life expectancy of less than three months can benefit from a “palliative statute”. It involves a lump sum and the abolition of patient co-payment for nursing, GP visits and visits of the physiotherapist. The use of palliative lump sums at home increased from 8 504 lump sum in 2004 to 20 170 in 2010 (source: RIZIV – INAMI).



### 3.3 Key findings

#### Workforce

- The density of practising physicians (those who performed more than one reimbursed clinical act) increased slightly from 2.83 /1000 population in 2000 to 2.91/1000 population in 2010. Expressed in full-time equivalents, medical density decreased to 1.95 /1000 population.
- The density of practising nurses in the healthcare sector was 10/1000 population in 2009. On 100% nurses, 68% were active in the healthcare sector (37% in hospitals, and the rest in residential care for older persons or in nursing home care). This result was not available in the previous report.

#### Financial accessibility

- The coverage of population by health insurance is very high (99.5%), due to compulsory affiliation to a sickness fund.
- Between 2003 and 2010, the out-of-pocket (OOP) expenditures rose from €5.33 to €7.25 billion. Their share in total health expenditures remained constant during the same time period: 20.0% in 2003 and 19.4% in 2010. OOP expenditures per capita amounted to €665 in 2010. Comparison with other European countries shows that OOP expenditures (expressed as a % of total health expenditures) in Belgium are at the higher end, with countries such as France, the Netherlands and the United Kingdom lying below 10%.
- In 2008, 14% of the households declared that they had to postpone some of their healthcare (medical care, surgery, drugs, glasses or lenses, mental healthcare) due to problems of financial accessibility. In 1997, this percentage was below 10%.

#### Coverage of preventive measures

- During the last five years, the coverage of organized breast cancer screening stagnates around 30%, with huge differences in participation between regions (Brussels: 12%, Flanders: 46%, Wallonia: 7%). Overall coverage, including all mammograms, stabilized around 60%, which is far below the EU-15 target (75%).
- Coverage of cervical cancer screening was stable between 2007 and 2010 (62%-63%), while the number of tests performed annually was divided by 2 between 2008 and 2010, due to changes in reimbursement rules. Coverage in Belgium is within the EU-15 average (63%) but lower than in the UK (around 80%).
- In general, the WHO-recommended coverage rates of children vaccination are reached in Belgium. The coverage rates of diphtheria-tetanus-pertussis, poliomyelitis, hepatitis B have increased and are now above 95%. Only for measles the coverage was still just below 95% in 2009.
- The WHO-recommended coverage of elderly vaccination against influenza is not met: 63% in the winter 2008-2009 against a 75% target. Vaccination rates for elderly residing in an institution are higher (82%).



#### Accessibility of long-term care (residential care for elderly and informal carers)

- Relative to the 65+ population, the number of beds in residential care facilities has remained more or less constant over the past decade, from 71 beds per 1000 persons of 65 years and over in 2000 to 70 beds in 2010. With 6%-7% of 65+ residing in residential care, Belgium is higher than the EU-15 average, between 4% and 5%, and is similar to the Netherlands. No data on home care users are available for international comparison.
- Informal carers, defined as people providing assistance with basic activities of daily living (ADL) for at least one hour per week, are an important component in the long-term care process. The Belgian average of 12.1% of the population aged 50 and older reporting to be an informal carer is slightly higher than the overall average of the OECD-countries (11.7%).

#### Timeliness to start palliative care

- There is currently little information about the moment when a palliative status is requested. A study from the Christian Sickness Funds (2006) gives some indications: the application for the palliative lump sum occurred for half of the patients in less than a month before death. In 20%, patients died within the week of application. More data are needed (trend over time, international comparison) on this indicator.

## 4 QUALITY OF HEALTHCARE

Quality 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”.<sup>6</sup> It is further subdivided into 5 sub-dimensions: effectiveness, appropriateness, safety, continuity of care and patient centeredness.

### 4.1 Effectiveness of care

#### 4.1.1 How did we evaluate the 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”. All indicators are thus outcome (results) indicators.

##### 4.1.1.1 Preventive care

No indicator provides information on the effectiveness of preventive care, as updating this set of indicators for preventive care did not belong to the operational objectives of this 2012 report. Examples of such indicators include: declines in mortality for cancer for which there is a screening programme, shifts in staging at diagnosis of cancer and incidence or mortality of epidemics for which vaccination exists.

##### 4.1.1.2 Curative care

Four indicators have been selected to assess the effectiveness of curative care: three indicators related to the survival after a diagnosis of cancer, and one indicator on the effectiveness of ambulatory services to treat patients with a chronic condition (in this case: asthma).

#### Cancer Care

1. 5-year relative survival after breast cancer, by stage
2. 5-year relative survival after cervical cancer, by stage
3. 5-year relative survival after colon cancer, by stage

#### Chronic care

4. Avoidable hospital admissions for asthma



#### 4.1.1.3 Long-term care

Three indicators are selected to assess the effectiveness of mental healthcare:

1. Suicide rate
2. Rate of involuntary committals as a percentage of all hospitalizations
3. Participation rates by people with mental illness of working age in employment

With regard to the effectiveness of long-term care for the elderly, no data are currently available at a national level. However, the BelRAI<sup>o</sup> will provide data soon on a selected indicator: the prevalence of malnutrition in elderly being in residential care facility or receiving home care (BMI<19)<sup>p</sup>.

#### 4.1.1.4 End-of-life care

Some indicators have been proposed by the expert groups, such as the percentage of palliative patients for which physical symptoms (pain for instance) have been assessed and controlled, but there are currently no data available for this indicator.

### 4.1.2 Facts and figures

This section is a short summary of the detailed results which are presented for each indicator in the Supplement S1 of this report (available on the website).

<sup>o</sup> The Resident Assessment Instrument (RAI)<sup>44</sup> is originally developed to assess the care needs of the elderly in institutions, and has later been extended with instruments for different care settings and subgroups. In Belgium a national pilot project (the BelRAI) is ongoing, but is not yet implemented in all care settings: the assessment instruments for home care, for long-term care facilities and acute care have already been adapted to the Belgian situation (details in Appendix C).

<sup>p</sup> This indicator is already measured in the Netherlands (Dutch Health Care Performance Report 2010<sup>3,20</sup>) and also belongs to the set of indicators proposed by the OECD working group on long-term care quality indicators.<sup>45</sup>

#### 4.1.2.1 Survival after a cancer

Survival rates after cancer are one of the key indicators of the effectiveness of the healthcare system and are commonly used to track progress in treating disease over time. They reflect both how early the cancer was detected, and the effectiveness of the treatment.<sup>5</sup> In Belgium national 5-year relative survival data became available only recently and no evolution of relative survival can be given already in this report. For international comparisons, data refer to the incidence year 2004. Rates are expressed as “relative 5-year survival years”, meaning that they have been corrected for the age-specific expected mortality.

The 5-year breast cancer relative survival rate is 80% in most OECD countries<sup>5</sup> and has improved in all countries between 1997-2002 and 2004-2009. In Belgium, the 5-year relative survival of women diagnosed between 2004 and 2008 was 88%.<sup>46</sup> Survival rates are very good compared to other European countries (Figure 11).

The 5-year cervical cancer relative survival rate was 69.8% for women diagnosed between 2004 and 2008. Compared to other EU-15 countries, relative survival rates of patients diagnosed in 2004 are within the EU average (Figure 11).

All countries have also shown improvement in 5-year colorectal cancer relative survival over the years. There are differences in colorectal cancer relative survival between gender across countries: survival rates are usually higher for females.<sup>5</sup> In Belgium, on the cohort of patients diagnosed with colon cancer between 2004 and 2008, the relative survival was 62.3% for males and 64.6% for females. Again, relative survival rates after colorectal cancer<sup>q</sup> are very good compared to other European countries (Figure 11).

Only for breast cancer and colon cancer, the US has higher survival rates than Belgium (data shown in documentation sheet in Supplement S1). To be able to distinguish the effect of early screening from the actual care, relative survival rates should be compared across countries by stage, information which is not yet available at international level.

<sup>q</sup> Survival rates after colorectal cancer, and not specifically colon cancer, are available in the OECD Health Data 2012.

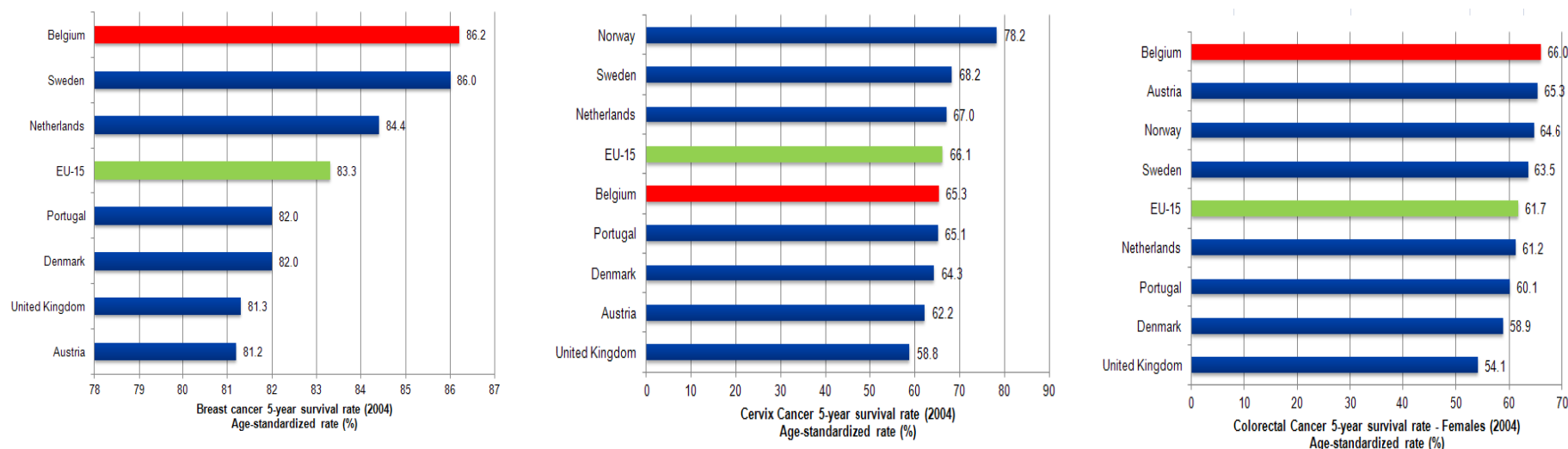


**Table 17 – 5-year relative survival by stage, period 2004-2008:  
Belgium**

Cancer type	All patients	Stage					missing
		I	II	III	IV		
Female breast cancer	88.0%	99.8%	93.3%	73.8%	29.2%		73.4%
Cervical cancer	69.8%	92.2%	63.6%	54.5%	17.0%		64.6%
Colon cancer: males	62.3%	91.6%	86.1%	61.7%	14.5%		54.5%
Colon cancer: females	64.6%	96.3%	86.1%	62.1%	16.0%		55.5%

Source: Belgian Cancer Registry and Evaluation of Cancer Plan (Cancer Centre)<sup>46</sup>



**Figure 11 – 5-year relative survival after breast, cervix and colorectal cancer for females: international comparison (2004)**

Source: OECD Health Data 2012

Note: results for colorectal cancer males give similar results for Belgium

### Effectiveness of ambulatory care for a chronic condition

Asthma, a chronic condition, is either preventable or manageable on an outpatient basis through proper prevention or primary care intervention. Proper management of asthma in primary care setting can reduce exacerbation and costly hospitalisations. The hospital admission rate for asthma commonly serves as a proxy for primary care quality. Hence, high admission rates may indicate poor effectiveness of primary care, or poor care coordination or continuity.<sup>5</sup> This indicator belongs to the set of HCQI (healthcare quality indicator) of the OECD.

Across OECD countries, there is an 11-fold difference in hospital admission rate for asthma. Females have consistently higher rates for asthma admissions compared to males (on average 85% higher).<sup>5</sup> This is

also the case in Belgium: in 2009, the asthma admission rate for females was 52/100 000 inhabitants and 28/100 000 inhabitants for males. Belgian rates in the OECD Health data (2007) show that 48.4/100 000 inhabitants are slightly above the EU-15 average (47.2/100 000 inhabitants). This might highlight the need for more effective and targeted care in primary care setting.

**Effectiveness of mental healthcare: suicide rate in the general population, involuntary committals within the psychiatric hospitalization and working status of persons with mental illness**

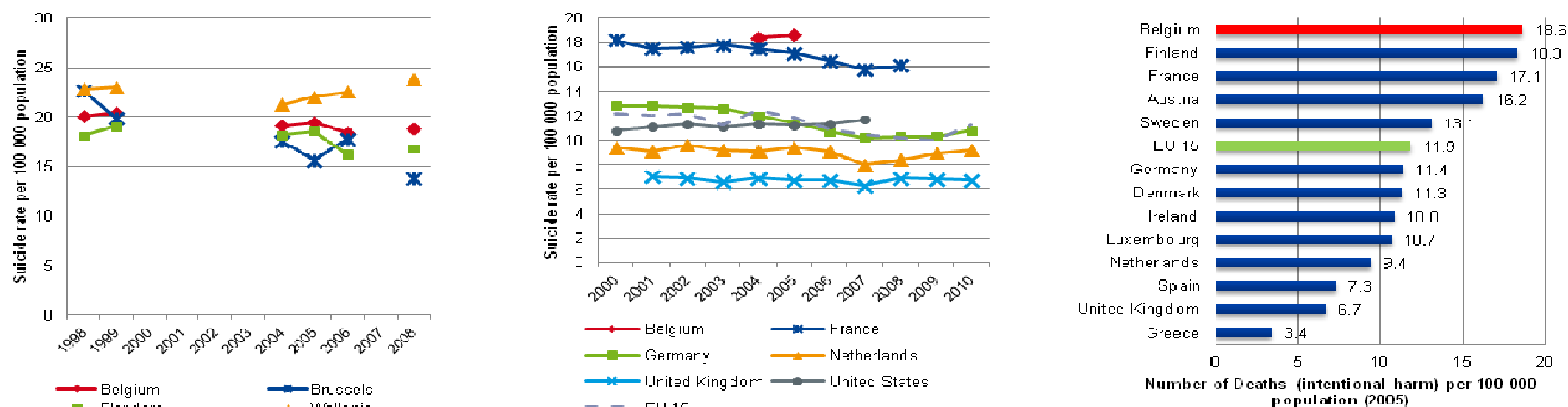




### Suicide rate

Despite a slight decrease (from 20.05/100 000 inhabitants in 1998 to 18.75/100 000 inhabitants in 2008) the number of suicide deaths in the general population is considerably higher than in other European countries. For the time period of the analysis, suicides rates are higher in Wallonia than in Flanders and Brussels (Figure 12). Important differences within regions were also found in previous research. In Wallonia, the highest suicide rates are found in the province of Namur (25.4/100 000 inhabitants) while in Flanders the highest rates are observed in East Flanders (21.4/100 000 inhabitants).<sup>47</sup> The suicide rate is also higher for men than for women, and higher for middle-aged adults (aged 40-64 years).

**Figure 12 – Suicide rates (number per 100 000 population) per region (1999-2008) and international comparison**



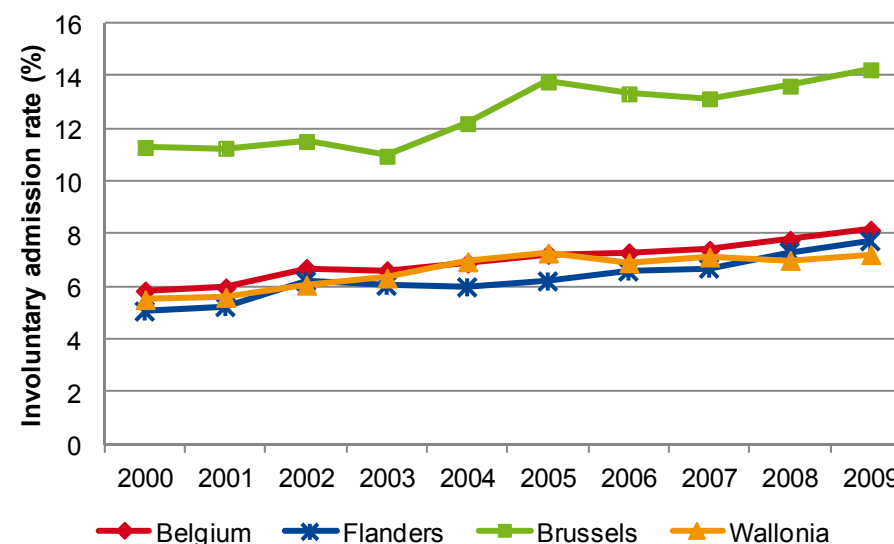
Source: DGSIE (Belgium) and OECD Health Data 2012 (international, data for Belgium only available in 2004-2005)



### *Involuntary committal in psychiatric hospitals*

The percentage of involuntary psychiatric hospitalizations ("for observation"; "internment"; "prolongation involuntary admission"; "probation"; "other judicial conditions";) in Belgium steadily increased between 2000 and 2009 from 5.8% to 8.2% of all psychiatric hospitalizations (Figure 13). The rate in Brussels is twice as high compared to the two other regions (Brussels 14.2%, Flanders 7.7%, Wallonia 7.2%). The three most common conditions among the 7 719 involuntary committals registered in 2009 were schizophrenia (n=1 579 or 20.46%); psychotic conditions (n=1 270 or 16.45%) and alcohol abuse (n=723 or 9.37%). The three conditions with the largest share of involuntary committals in 2009 were paraphilia (57/157 or 36.31%); schizophrenia (n=1 579/6 274 or 25.17%) and psychotic conditions (n=1 270/5 747 or 22.10%). Results based on old data (year 1998) showed that rates of involuntary committal are very low in Belgium compared to other European countries. These results have been confirmed in analyses of involuntary committal population rates.

**Figure 13 – Percentage of involuntary committals in psychiatric hospitals, by region (2000-2009)**



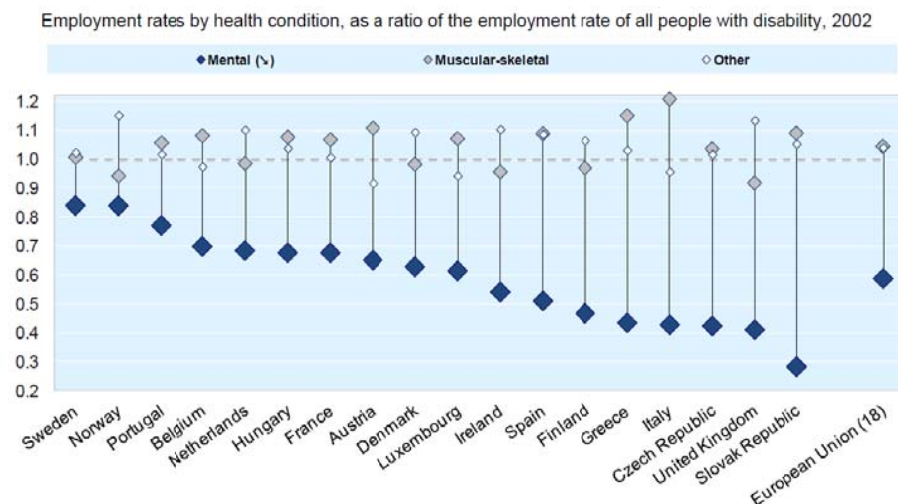
Source: FPS Public Health, Minimum Psychiatric data (RPM – MPG)

### *Participation rate by people with mental illness of working age in employment*

The last EU Labour Force Survey performed in 2002 showed that the employment rate of people with mental disabilities is low compared to the employment rate of people with other disabilities.<sup>29</sup> Belgium performs well but is ranked lower than Norway, the Netherlands, Sweden and Portugal (Figure 14). An update of this study (year 2011) is expected to be released soon.



**Figure 14 – Employment rates by health condition, as a ratio of the employment rate of all people with disability: international comparison (2002)**



Source: European Labour Force Study 2002

#### 4.1.3 Key findings

- The relative survival 5 years after a diagnosis of breast cancer, cervix cancer and colon cancer is respectively 88%, 70% and 63% (62% for men, 65% for women). Belgium has the highest 5-year relative survival rate in Europe for female breast cancer, and colon cancer, but the cervical cancer survival is lower than the EU-15 average.
- Hospital admission rates for asthma are stable over time (2004-2009), and Belgium is just above the EU-15 average.
- The suicide rate is considerably high compared to other European countries, even if it decreased slightly in Belgium between 1998 and 2008. The suicide rate is higher for men than for women, and higher for middle-aged adults (aged 40-64 years). For the period analysed, the rate is higher in Wallonia than in Flanders and Brussels.
- The percentage of involuntary psychiatric hospitalizations in Belgium steadily increased between 2000 and 2009 from 5.8% to 8.2% of all psychiatric hospitalisations. The rate in Brussels is twice as high as in the two other regions (Brussels 14.2%, Flanders 7.7% and Wallonia 7.2%). Results are based on old data (year 1998). They showed that rates of involuntary committal are very low in Belgium compared to other European countries.
- The last EU labour survey (in 2002) showed that Belgium performs well compared to EU countries concerning the employment rate of people with mental disabilities, but more recent data are lacking.



## 4.2 Appropriateness

### 4.2.1 How did we evaluate the appropriateness of care?

Appropriateness can be defined as “the degree to which provided healthcare is relevant to the clinical needs, given the current best evidence”. The link between effectiveness and appropriateness reflects the link between outcomes and processes.

Seven indicators were selected to measure the appropriateness of care:

Screening out of the target groups

1. Breast cancer screening for women younger than target age group (aged 40-49)
2. Breast cancer screening for women older than target age group (aged 71-79)

Application of guidelines

3. Follow-up of diabetic patients (blood and eye exams)
4. Prescription of antibiotics according to guidelines

Geographic variation in surgical interventions

5. Geographical variation in caesarean sections per 1000 live births

Mental Health

6. Average daily quantity (ADQ) of medication prescribed (antidepressants / antipsychotics / hypnotics and anxiolytics)

Aggressiveness of care at the end-of-life

7. Proportion of cancer patients receiving chemotherapy in the last 14 days of their life

### 4.2.2 Facts and figures

This section is a short summary of the detailed results which are presented for each indicator in the Supplement S1 of this report (available on the website).

#### Mammograms coverage outside of the target groups

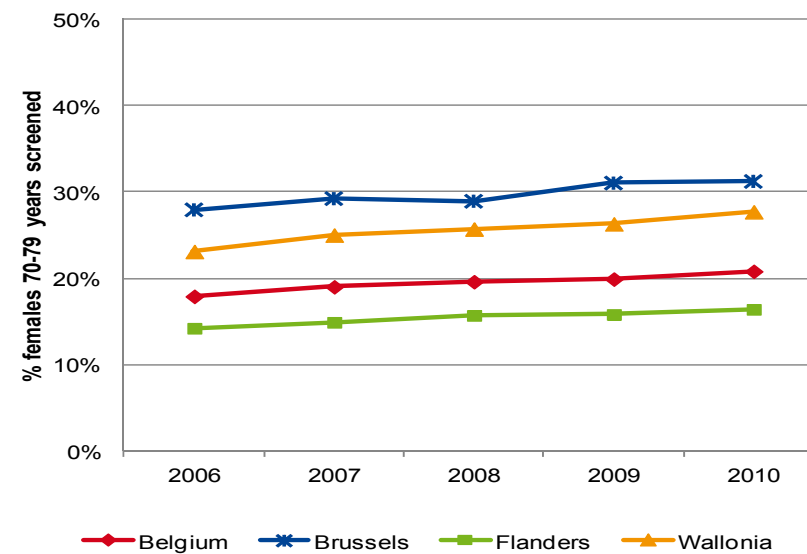
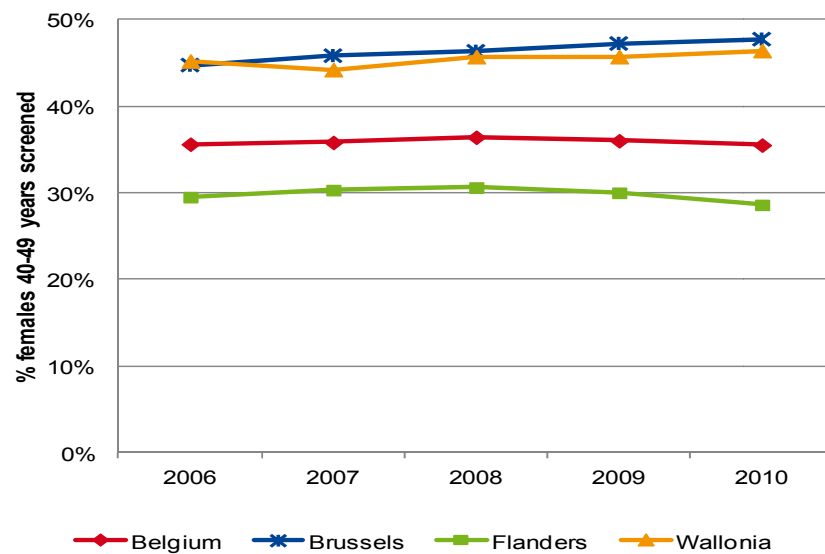
The national breast cancer screening programme set up since 2001-2002 targets women aged 50-69. Two recent guidelines have not recommended the extension of this target group to younger (40-49) or older age categories (70-79) in Belgium.<sup>48, 49</sup> Those two indicators reflect the extent to which the screening is performed outside of the target group.

The percentage of women aged 40-49 who received a mammogram<sup>r</sup> in the last 2 years was stable around 35% between 2006 and 2010, with large differences across regions. For women 71-79 years old, the rates are lower (21% in 2010), but increasing, and also with higher rates in Brussels and Wallonia (Figure 15). It should be noted that a small proportion of those mammograms are performed for diagnostic reasons<sup>47</sup> (it is not possible to distinguish between opportunistic screening and diagnostic mammograms, based on the reimbursement codes).

<sup>r</sup> This includes all mammograms, for opportunistic screening and for diagnosis



Figure 15 – Mammogram coverage of women aged 40-49 years and of women aged 70-79 years, by year and region



Source: IMA-EPS, KCE calculation

**Application of guidelines: follow up of diabetic patients (chronic care) and prescription of antibiotics (acute care)**

Several situations permit evaluation of the quality of the monitoring of chronic patients, in particular the integrated and multidisciplinary management of diabetic patients. For diabetic patients, the guidelines recommend that glycated haemoglobin, albumin and creatinine are monitored preferably once a year, and never less often than every 15 months. It is also recommended that an ophthalmologist performs a dilated fundus examination every year in order to early detect ocular complications. Over a 15-month period, 95% of insulin-dependent patients received a blood sugar check, 93% a creatinine check and 56% an albumin check. In the last 12 months 57% had undergone a check and, over a period of three years, 20% of patients had no ophthalmologic consultation. The recommendations are relatively well observed with regard to glycated haemoglobin. The situation is less satisfactory among diabetic patients who are not treated with insulin. The ophthalmologic consultation appears to be an issue for one third of diabetics. Subgroup analyses showed that guidelines are less well followed for patients older than 75 years and for patients in residential care.<sup>26</sup>

The appropriateness of therapeutic prescription is evaluated on the basis of the prescription of antibiotics according to guidelines. Since the early 2000s, the authorities have been raising awareness among the public and physicians concerning the issue of antibiotic resistance. Antibiotics should be prescribed only where they are really necessary and the choice should preferably tend towards first-line antibiotics. For most indications, amoxicillin should be prescribed in first intention without clavulanic acid.

43% of patients who consult a GP receive at least one prescription for antibiotics during the year. This – high – figure has been stable since 2006. The number of days of treatment is increasing (23.9 in 2008 compared with 21.2 in 2006). Furthermore, the antibiotics prescribed are not always first-line. For example, a combination of amoxicillin and clavulanic acid is very often prescribed even though a prescription for amoxicillin alone would suffice (the 45% has been stable since 2006). In addition, a much higher rate of prescriptions to patients over the age of 75 in residential care is observed in comparison with the over-75s in general.<sup>26</sup>

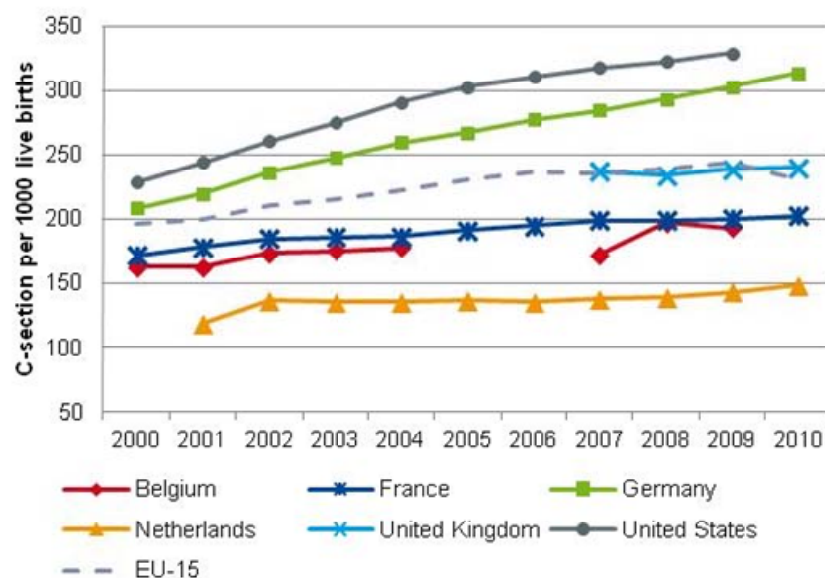
There are no international data for this specific indicator, but comparison of antibiotics prescribed per capita reveals that Belgium is in the top 5, and more than twice as much as the Netherlands (Belgium, 27.5 DDD/1000 pop/day versus the Netherlands, 11.4 DDD/1000 pop/day).<sup>5</sup>

**Geographic variation in surgical interventions as evidence of inappropriate care: the case of caesarian section**

Results from international comparison show that C-sections are increasing in the majority of European countries, with EU-15 average at 251/1000 live births in 2009. Belgium has a C-section rate similar to France, and lower than the EU-15 average. In 2009, the C-section rate in Belgium was 193/1000 live births. Despite this somehow reassuring result, the rate is continuously increasing. Moreover, an analysis of the FPS Public Health revealed a very high variability between hospitals; in the period 2004-2007, the national rate was 13.7% (based on a selection of low-risk pregnancies from 2004-2007) and relative differences ranged from 61% to 70% around this average.<sup>50</sup> Geographic variability for elective surgical procedures has also been shown in Belgium for hip replacement and knee replacement, two procedures for which Belgium ranks in the top of EU-15 countries.<sup>5, 51</sup>



**Figure 16 – C-sections per 1000 live births: international comparison**

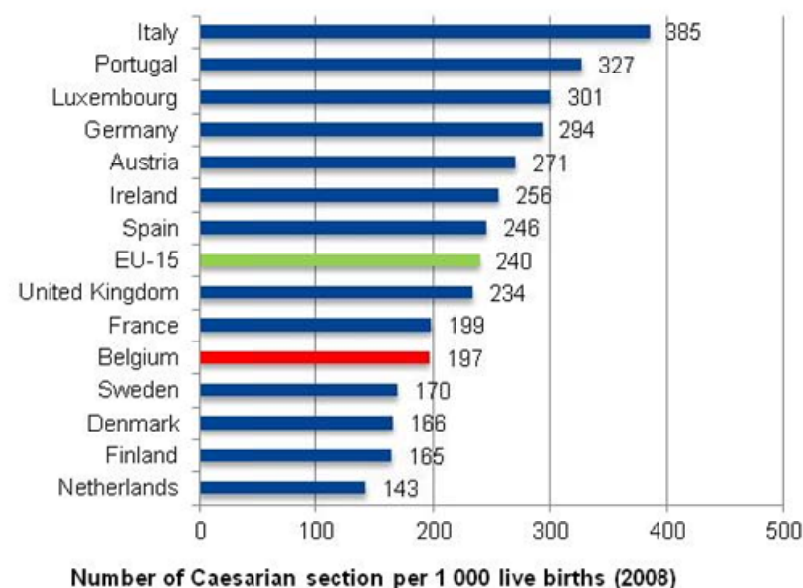


Source: OECD Health data 2012, except for Belgium 2009 (FPS Public Health)

### Appropriateness of prescriptions in mental healthcare: antidepressants

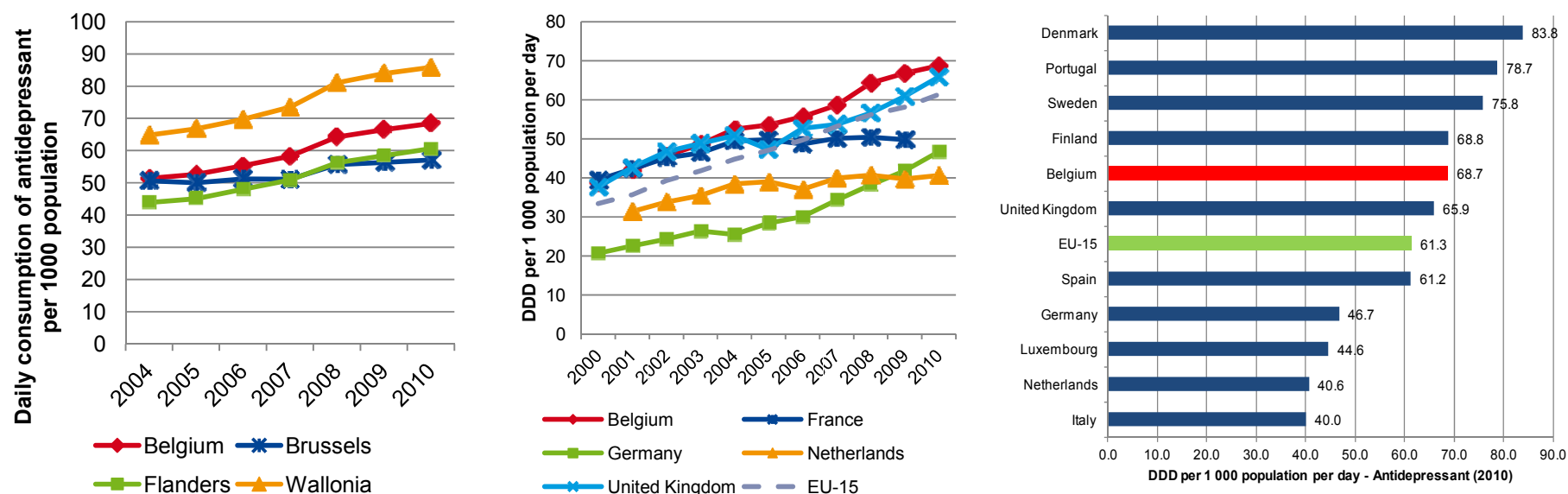
*Average daily quantity of antidepressants prescribed (Defined Daily Dose (DDD) per 1000 population)*

The prescription of the average daily quantity antidepressants prescribed per 1000 population increased from 51.4 (2004) to 68.4 (2010). Prescription of antidepressant drugs are highest in Wallonia (85.9,



compared to 57.1 in Brussels and 60.7 in Flanders). It is considerably higher for females (92.8) compared to males (43.1).

International comparison shows that Belgium ranks high in terms of antidepressant consumption (see documentations sheet). We cannot conclude from these figures if Belgium is performing better or worse. Nevertheless, the large differences (between sexes; between regions; international context) pinpoint that the appropriateness of antidepressant drugs (e.g. over- and underconsumption) needs to be studied and monitored.

**Figure 17 – Defined daily dosage of antidepressants per 1000 population per day: by region (2004-2010) and international comparison (2000-2010)**

Source: Pharmanet (RIZIV – INAMI, for Belgium) and OECD Health Data 2012 for international comparison

*Average daily quantity of antipsychotics prescribed (per 1000 population per day)*

The prescription of antipsychotic medication increased from 2004 (8.0 per 1000 population) to 2010 (10.5 per 1000 population), with differences between regions (higher in Brussels and Wallonia than in Flanders).

*Aggressiveness of care at the end-of-life: chemotherapy for cancer patients*

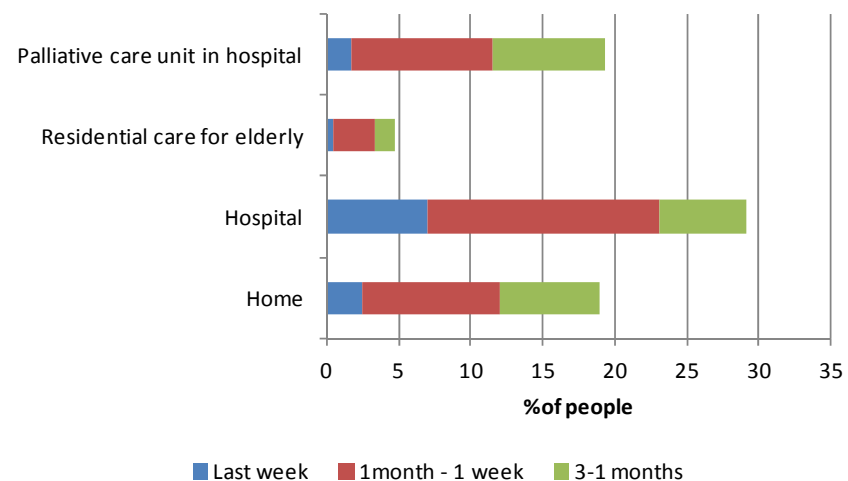
Receiving (or initiating) a session of chemotherapy near the end-of-life for cancer patients is considered inappropriate aggressiveness of treatment.

The percentage of people receiving chemotherapy near the end of their life is an internationally used indicator. A study of the Christian Sickness Funds on end-of-life care for cancer patients (data 2005)<sup>43,42</sup> showed that the highest use of chemotherapy during last month of life was observed for cancer patients who died in hospital (23.1%). The use of chemotherapy was 12.1% for patients dying at home and 11.5% for those dying in palliative care units. The lowest use of chemotherapy was seen in cancer patients who died in residential care for elderly (3.4%).





**Figure 18 – Chemotherapy near end-of-life for patients with cancer, by place of death**



Source: Results from study "De CM neemt het levenseinde onder de loep: de cijfers" <sup>43</sup>



### 4.2.3 Key findings

- **Breast cancer screening is recommended for women aged 50-69 years. However, there is a large group of women who are screened before that age (36% in Belgium overall, 48% in Brussels, 46% in Wallonia and 39% in Flanders). Evolution over time shows no real declining trend. Older women undergo less often a mammography: 21% of 71-79 years old women had a mammography in the last two years (Brussels 31%, Wallonia 28% and Flanders 16%). Evolution over time shows rising trends (from 18% in 2006).**
- **Over a 15-month period, 95% of insulin-dependent patients received a blood sugar check, 93% a creatinine check and 56% an albumin check. In the last 12 months 57% had undergone a test and, over a period of three years, 20% of patients had no ophthalmological consultation.**
- **The percentage of prescription with amoxicillin alone (compared to amoxicillin and clavulanic acid) is stable, around 45% (Brussels: 43%, Flanders: 46%, Wallonia: 41%). Belgium ranks very high internationally in terms of antibiotic prescription but there are concerns about comparability of results in total of Defined Daily Doses (DDD), especially if differences in package size exist between countries.**
- **Caesarean rates in Belgium are lower than the EU-15 average (in Belgium 193/1000 live births in 2009, EU-15 average 251/1000 live births), but increasing, as in the majority of European countries. Several studies on Belgian data have shown a large variability in caesarean rates between hospitals.**
- **The prescription of antidepressants also increased from 2004 to 2010, with large differences between regions (higher in Wallonia than in Brussels and Flanders). International comparison shows that Belgium ranks high in terms of antidepressant consumption.**

- **The use of chemotherapy during the last days of life for patients dying from cancer is an indicator of the aggressiveness of care. There are currently no national data on this indicator. In a study from the Christian Sickness Funds, the highest use was observed for cancer patients who died in hospital (23.1%) and the lowest for patients who died in residential care (3.4%). To interpret this indicator correctly, more data are needed on trends over time, regional differences and international comparability.**

## 4.3 Safety of care

### 4.3.1 How did we evaluate the safety of care?

Safety can be defined as “the degree to which the system has the right structures, renders services, and attains results in ways that prevent harm to the user, provider, or environment”.<sup>4</sup> Including the provider and environment in this definition extends the dimension beyond quality.

Six indicators to evaluate the safety of healthcare have been studied:

A generic indicator

1. Medical radiation exposure of the Belgian population

Healthcare Acquired Infections

2. Incidence of MRSA in hospital
3. Incidence of post-operative sepsis (Patient Safety Indicator, PSI, calculated on hospital discharge databases)

Other safety indicators in hospital

4. Incidence of pressure ulcer in hospitals (Patient Safety Indicator, PSI, calculated on hospital discharge databases)

5. In-hospital mortality after hip fracture

Prescription of antidepressants to elderly

6. Percentage of persons aged 65 years and older prescribed antidepressants using an anticholinergic antidepressant

Four other indicators related to safety of long-term care for elderly patients are not yet measurable, but data from the BelRAI will probably be available for the next performance report (details on those indicators in Appendix C).



### 4.3.2 Facts and figures

This section is a short summary of the detailed results which are presented for each indicator in the Supplement S1 of this report (available on the website).

#### Medical radiation

Medical ionising radiation is particularly high in Belgium, in particular due to a large use of scanner and medical imaging in general. The irradiation level is measured in millisieverts (mSv). The average level of medical radiation by inhabitant increased from 2004 to 2009, stabilized in 2010 (2.29 mSv/pop) and decreased in 2011 (2.22 mSv/pop). The patients more exposed are chronic patients, patients in residential care, and persons above 45 years old. Children are less exposed. Prescription of medical imaging is more frequent and more intense in Wallonia.<sup>26</sup> Results from international comparisons show that average doses of medical irradiation are particularly high in Belgium (Figure 19).

**Table 18 – Exposition to medical radiation per inhabitant (expressed in nb mSv): Belgium (2004-2011)**

	2004	2005	2006	2007	2008	2009	2010	2011
<b>nb mSv/inhab.</b>	2.00	2.01	2.11	2.18	2.25	2.29	2.29	2.22
<b>Evolution year (X+1)/X</b>		0.4%	4.6%	3.6%	3.4%	1.6%	0.1%	-2.9%

Source: RIZIV – INAMI

**Figure 19 – Exposition to medical radiation per inhabitant (most 20 exams, expressed in mSv): international comparison**

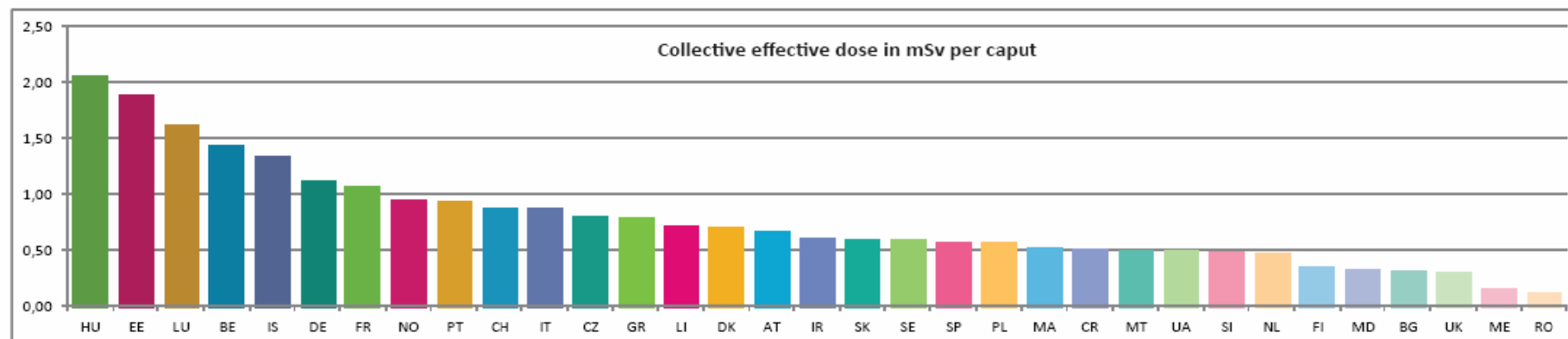


Figure 1. Collective effective dose [mSv] per caput in 33 European countries was estimated using Top 20 method. The data is preliminary data available on 12th March 2012 and will be verified by countries before the Workshop in Athens on 24-26 2012. Some countries have expressed their willingness to submit their data later during the project.

Source: European Population Dose from Radiodiagnostic Procedures – Results of Dose Datamed 2 ([http://ddmed.eu/\\_media/results/ddm2\\_results\\_irpa13v2.pdf](http://ddmed.eu/_media/results/ddm2_results_irpa13v2.pdf))



### Healthcare-acquired infections (HAI)

Healthcare-acquired infections occur after exposure to healthcare. According to the European Centre for Disease Control and Prevention (ECDC, [www.ecdc.europa.eu](http://www.ecdc.europa.eu)) each year 4 million patients acquire a HAI in the EU and about 37 000 of them die as the direct consequence of the infection. The most frequent types of HAIs are surgical site infections, urinary tract infections, pneumonia, bloodstream infections and gastrointestinal infections. In Belgium, the last prevalence survey in half of the acute hospitals occurred in 2007, and showed that 6.2% of the patients were infected by a HAI.<sup>52</sup> New results of prevalence are expected to be available at the end of 2012, based on a common protocol developed by the ECDC.

In Belgium, surveillance of HAIs is under the responsibility of the WIV – ISP, and is organized by the NSIH group (National Surveillance of Infections in Hospitals). For MRSA, the surveillance is mandatory in all acute care hospitals (since 2007). The third indicator, post-operative sepsis, belongs to the set of safety indicators from the OECD.

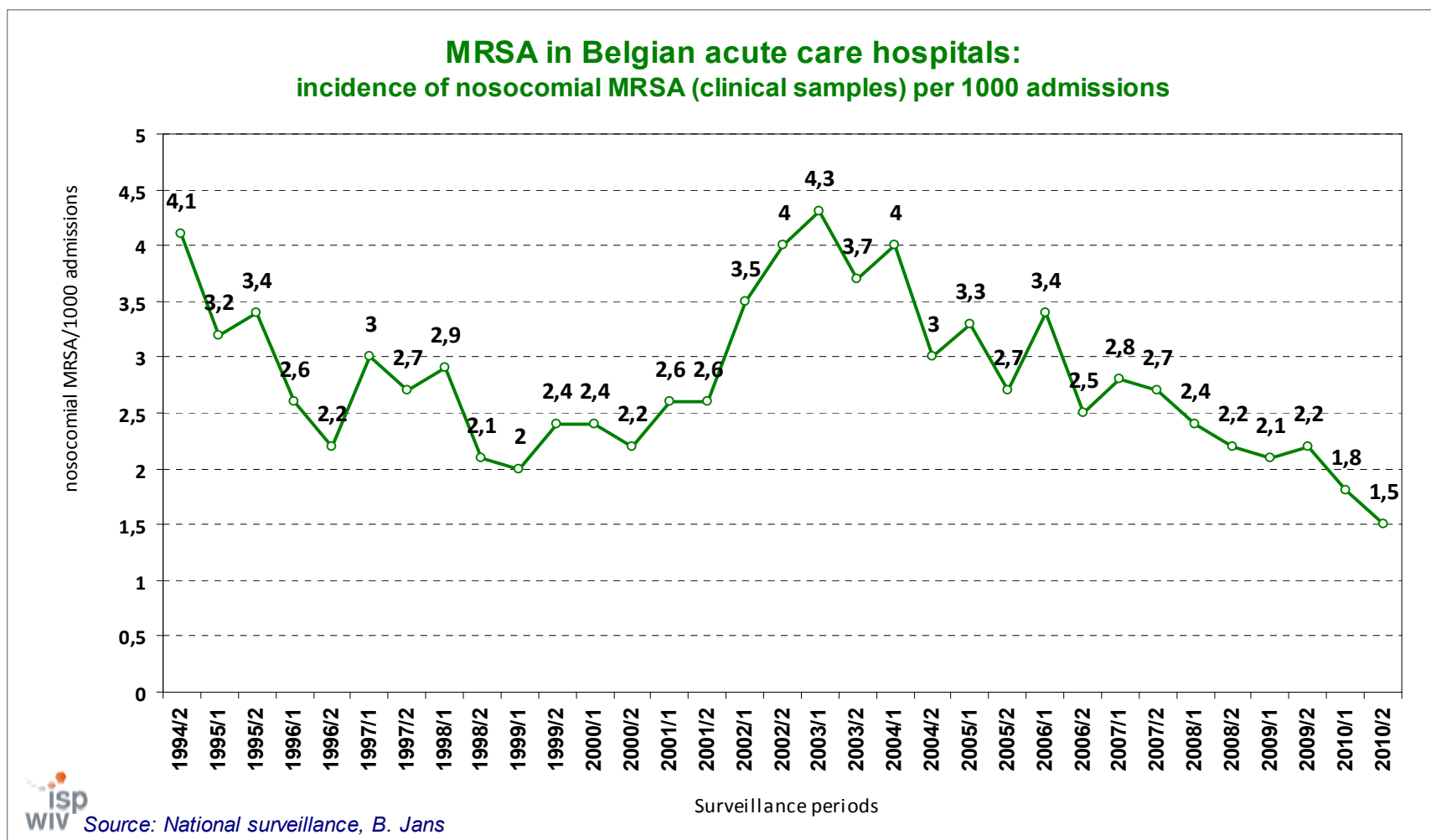
#### *Incidence of MRSA*

A decreasing incidence was found between 1994 and 1999 (from 4.1 to 2 cases/1000 admissions), after which the incidence again increased reaching 4.3 in 2003. Since 2003, we measure a slow, constant and statistically significant decrease of the incidence of nosocomial MRSA in acute care hospitals, finally reaching 1.5 new cases/1000 admissions during the second semester of 2010 (test for linear trend for a cohort of hospitals participating at least at 5 surveillance periods since 2003: annual decrease of -0.29 new cases/1000 admissions,  $p < 0.001$ ) (Figure 20). This decrease was most impressive in the Brussels hospitals. Probably, the application of the recommendations for the control of MRSA (since 2003, actually in revision), the national hand hygiene campaigns, and the rationalization of the use of antibiotics influenced positively this evolution. Nevertheless, the interpretation of the indicator remains influenced by the screening practices which vary in coverage rate and intensity between hospitals.<sup>53</sup>

No international organisations include data on MRSA, making comparison difficult. An exception is the European Antimicrobial Resistance Surveillance System (EARSS), but this European program does not focus on nosocomial acquisition.



Figure 20 – Mean incidence of Healthcare Acquired MRSA, per 1000 admissions (1994-2010)



Source: National Surveillance of Infections in Hospitals (NSIH), WIV – ISP



## Patient Safety Indicators (PSI)

### *Incidence of post-operative sepsis*

Incidence of post-operative sepsis is an international indicator of patient safety in hospital (Patient Safety Indicator, PSI)<sup>54, 55</sup>, which is monitored on the basis of hospital discharge data. This indicator has also been studied on Belgian data, although with a slightly different methodology.<sup>56</sup>

Between 2000 and 2007, the incidence of post-operative sepsis was stable around 8 cases per 1000 admissions. However, when compared to the few other European countries which provided data, Belgium ranks rather high, but it is unclear whether this is due to higher incidence rates or differences in coding of secondary diagnoses.

### *Incidence of pressure ulcer*

The occurrence of a pressure ulcer in a hospitalised patient has a serious negative impact on the individual's health<sup>57</sup> and often leads to a longer hospital stay. Pressure ulcers can be prevented with appropriate nursing care.<sup>58, 59</sup> This indicator also belongs to the set of safety indicators that can be calculated based on discharge data, but its accuracy largely depends on the accuracy of the coding practices in hospitals.

The global rate of pressure ulcers in acute hospitals was 12/1000 stays in 2000 and reached 17/1000 stays in 2007, with increasing trends over time for both surgical and medical hospitalisations. No more recent data are available on the OECD Health Data for Belgium.

Other data than administrative discharge databases are available to estimate prevalence of pressure ulcers. In 2008 a prevalence study was organised for the first time, following the last European Pressure Ulcer Advisory Panel guidelines (specific for registration and classification of pressure ulcers). This study was organized in 84 hospitals in 2008, and included 19 964 patients. A pressure ulcer prevalence of 12.1% was observed. Contrary to previous Belgian pressure ulcer prevalence measurements, no distinction was made between a pressure ulcer and incontinence associated dermatitis. The prevalence of grade 2 to 4 pressure ulcers was 7%.<sup>60</sup>

## In-hospital mortality after hip fracture

Hip fractures are frequent causes of disability in elderly and are associated with an important mortality risk. Because in-hospital mortality after hip fracture gives direct information about outcomes and indirectly about the technical quality of care, it is first considered as an indicator of in-hospital safety, and secondly as an indicator of quality-effectiveness of care. The in-hospital mortality rate after a hip fracture was 6.3% in Belgium between 2004 and 2007. There was also a high variability in mortality rates between hospitals.<sup>50</sup>

### **Patients aged 65 years and older prescribed antidepressants using an anticholinergic antidepressant drug (%)**

While elderly individuals can be treated effectively with antidepressant medications, they are at greater risk of adverse drug reactions due to the physiological changes associated with the aging process. In particular, antidepressants with strong anticholinergic effects (e.g., imipramine, amitriptyline and doxepin) are not recommended for ongoing use in the elderly as they can cause orthostatic hypotension, sedation and confusion. Use of these agents has been associated with high rates of adverse effects, including falls, among elderly patients. The health system has considerable influence over this indicator, as it is treatment-based. The appropriateness of prescribing behaviours by clinicians within the health system can be increased through education and training and the use of guidelines.<sup>61, 62</sup>

During the last 5 years the prescription of antidepressants known for their anticholinergic side-effects for elderly ( $\geq 65$  years) is stable (14%). The percentages are consistently higher in Flanders (17%) compared to Wallonia (11%) and Brussels (10%). It should be noted that international comparisons are hampered by absence of available data but also by lack of consensus about what is an antidepressant with anticholinergic side-effects.<sup>63, 64, 65</sup> Nevertheless, the relatively high prescription rates of antidepressants with (potential) anticholinergic side effects warrant further investigation. Problems with the appropriateness of the prescription of psychopharmacological drugs in the elderly population have been documented before<sup>66</sup> and should be a continuous area of attention.



### 4.3.3 Key findings

- The average level of medical irradiation increased from 2004 to 2009, stabilized in 2010 (2.29 mSv/pop) and decreased in 2011 (2.22 mSv/pop). The patients more at risk are chronic patients, patients in residential care, and persons above 45 years old. Children are less exposed. Prescription of medical imaging is more frequent and more intense in Wallonia. Results from international comparisons show that average doses of medical radiation are particularly high in Belgium.
- A decreasing incidence in healthcare-acquired MRSA was observed between 1994 and 1999, after which the incidence again increased in 2003. Since 2003, we measure a slow and constant decrease of the incidence of MRSA in acute care hospitals. This decrease was most impressive in the Brussels hospitals.
- Incidence of post-operative sepsis is an international indicator of patient safety (PSI) which is monitored on the basis of hospital discharge data. Between 2000 and 2007, the incidence of post-operative sepsis was stable around 8 cases per 1000 admissions. Belgium ranks high in comparison with other European countries, but this might be due to large differences in coding practices between countries.
- Incidence of pressure ulcer is another PSI. The incidence rate of pressure ulcers in acute hospitals was 12/1000 stays in 2000 and reached 17/1000 stays in 2007, with increasing trends over time for both surgical and medical hospitalisations.
- The in-hospital mortality rate after a hip fracture was 6.3% in Belgium between 2004 and 2007, with large variability between hospitals. More data are needed on trends over time, and few data are available for benchmarking at international level.
- During the last 5 years the prescription of antidepressants known for their anticholinergic side-effects for elderly ( $\geq 65$  years) is stable (13-14%). The percentages are higher in Flanders (16-17%) compared to Wallonia (13-14%) and Brussels (10%).

## 4.4 Continuity of care

### 4.4.1 How did we evaluate the continuity of care?

Continuity addresses “the extent to which healthcare for specified users, over time, is smoothly organised within and across providers, institutions and regions”<sup>4</sup>, and to which the entire disease trajectory is covered.<sup>1</sup>

Several aspects of continuity have been distinguished, based on the fact that continuity is the result of good information flow, good interpersonal skills, and good coordination of care.<sup>67-72</sup>

Informational continuity: availability and use of data from prior events during current patient encounters; information links care from one provider to another and from one health event to another<sup>70</sup>;

Management continuity: coherent delivery of care from different providers, most commonly whether follow-up visits are made when care crosses organisational boundaries (often focus on care plan for specific, chronic health problem)<sup>69</sup>;

Relational continuity: an ongoing relationship between patients and one or more providers that connects care over time and bridges discontinuous events<sup>68</sup>;

Coordination: the integration, coordination and shared information between professionals or between provider organisations.<sup>70</sup>

Six indicators that assess the four above-mentioned aspects of continuity are presented:

Informational continuity

1. Percentage of persons who have a global medical record (GMD – DMG)

Management continuity

2. Percentage of hospital discharge followed with a GP's encounter within a 6-weeks period for senior patients (65+)

Relational Continuity

3. Proportion of encounters that were conducted by the GP consulted most frequently: Usual Provider Continuity (UPC) index.





#### Coordination

4. Proportion of cancer patients discussed at the multidisciplinary meeting
5. Number of re-admissions per 100 patients with a diagnosis of (a ) schizophrenia or (b) bipolar disorder
6. Number of contacts between the GP and the palliative patient during the 3 last months of his/her life

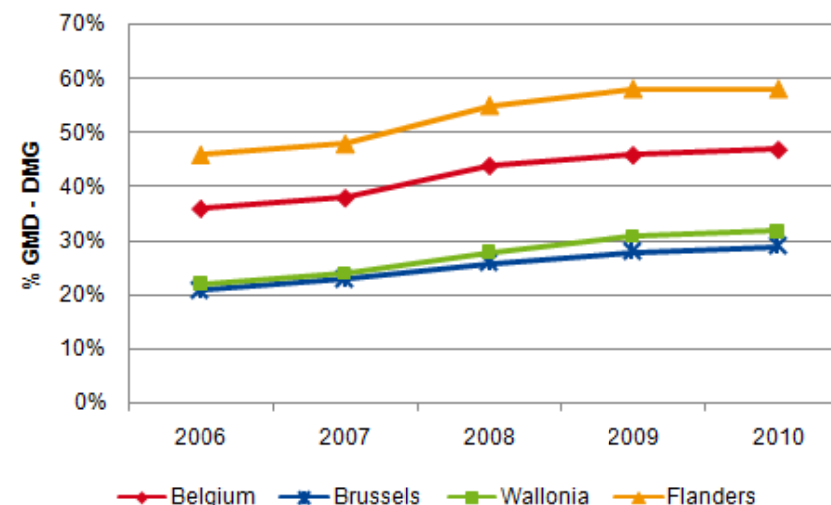
#### 4.4.2 Facts and figures

This section is a short summary of the detailed results which are presented for each indicator in the Supplement S1 of this report (available on the website).

#### Informational continuity

Since 2001, the global medical record (GMD – DMG) allows patients to entrust a GP with the task of managing their medical data. The use of a GMD – DMG increases progressively and reached 46% in 2009 but with large differences between regions (Flanders 58%, Wallonia 31%, and Brussels 28%). The coverage by the GMD – DMG is higher for the elderly (78% coverage for the 75+), and persons entitled to increased reimbursement (entitled 54% versus not entitled 44%).

**Figure 21 – Percentage of population with a global medical record (GMD – DMG), by region (2006-2009)**



Source: RIZIV – INAMI

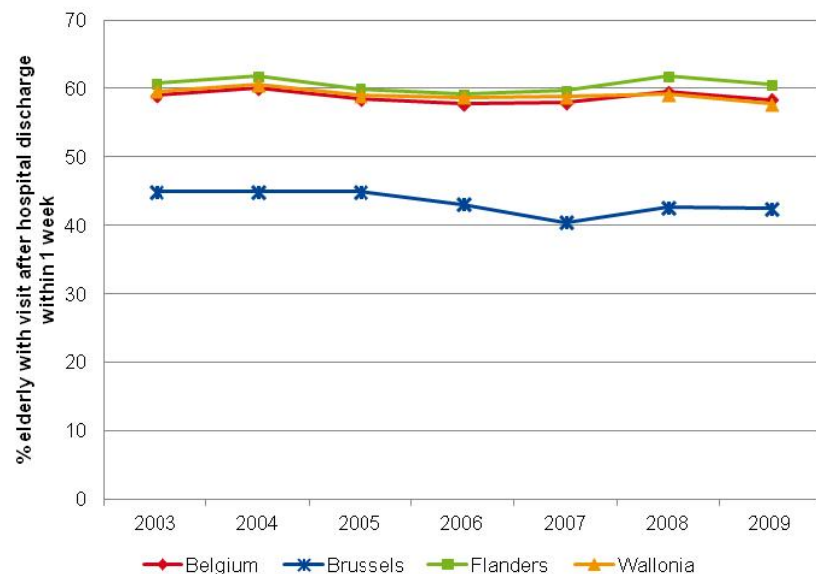
#### Management continuity

##### Link Hospital-GPs

As hospitalisation discharge is a pivotal moment in the care of an older person, a GP's encounter in the 6 weeks following discharge is advised in the U.K.<sup>73</sup> We have adapted the definition to one week, which is more relevant in Belgium. A majority of elderly (58%) have at least one contact with a GP in the week after a discharge from the hospital. In the Brussels region, this percentage is lower (42.5%). This result is an indication of continuity of care between the hospitals and the first line, even if we do not know if the GP's encounter followed a discharge plan from the hospital or from the patient's own initiative.



**Figure 22 – Percentage of hospitalisations for the elderly (aged 65 and over) followed by a contact with a GP within 1 week after discharge, by region (2003-2009)**



Source: IMA – EPS, KCE calculation

#### Link GPs-specialists

Since 2007, patients with a GMD – DMG are entitled to a larger reimbursement of health expenditures for a specialist consultation if they are referred by a GP. The measure is limited in scope: it applies only to certain specialists and to one consultation per year per specialist. This measure aims to improve the specialist-general practitioner's collaboration and to stimulate a first encounter with a GP because in Belgium, patients are free to go directly to the second line. However, the percentage of specialist consultations identified as prescribed by a GP and leading to increased reimbursement is very small (around 2% of all consultations at specialists). This result does not allow drawing any conclusion on the real proportion of referrals between GPs and specialists. However, it draws the

attention to a reimbursement measure aimed at facilitating the coordination between GPs and specialists. Possible explanations for the low percentage found in the data are a lack of knowledge by GPs or a too heavy administrative burden.

#### Relational continuity

A longitudinal relationship between physician and patient is acknowledged to encourage communication, improve satisfaction, medication compliance, and behavioural problems, and stimulate receipt of preventive services and decrease hospitalisations and emergency department visits for patients with chronic disease.<sup>74</sup> There are several measures of longitudinal continuity with the Usual Provider of Care (UPC) index as one of the most common index used. The advantage of this indicator is its easy interpretation.

In the population of patients who had at least 3 contacts with a GP during two years, around 44% have seen the same GP (not taking into account out-of-hours contacts). This percentage was stable in the period 2003-2009. It reaches 55% for patients aged 65-84 years. 72% of the patients meet the less stringent criteria of having seen the same GP at least 75% of the time ( $UPC \geq 0.75$ ). Some differences are observed between the three regions, with a greater proportion of patients having encounters with the same GP at least in 75% of the cases ( $UPC \geq 0.75$ ) in Wallonia (74%), Flanders (71%) and a smaller proportion in Brussels (66%).

These results also show that the relational continuity with the main provider of care is good and stable over time. It also shows that the lower coverage rates of the GMD – DMG in Wallonia do not implicate a worse relational continuity with the GP.

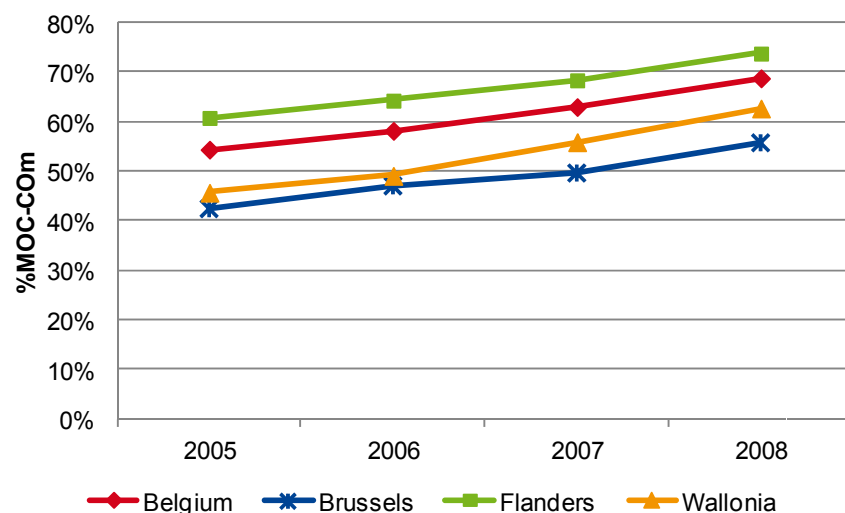
#### Coordination: Multidisciplinary team for cancer patients

Multidisciplinary team meetings (MOC – COM) have been implemented in many countries as the predominant model of cancer care to ensure that all patients receive timely diagnosis and treatment, that patient management is evidence-based, and that there is continuity of care.<sup>75</sup> In all cancer guidelines developed by the KCE and the College of Oncology, multidisciplinary discussion is recommended to decide on the diagnostic, staging and treatment plan of cancer patients. Since its introduction in



2003, a clear increase of its use is noticed for all cancer types and discussions about how to better involve GPs are currently conducted. Overall, about 69% of cancer patients were discussed at the MOC – COM in 2008, with large variations between types of cancer (in 2008: 84% of breast cancer patients, 74% lung cancer, 59% prostate cancer).<sup>46</sup> Although an increasing use is noticed for all three regions, cancer patients are more frequently discussed at the MOC – COM in Flanders (74% in 2008), followed by Wallonia (63% in 2008) and Brussels (56% in 2008).

**Table 19 – Percentage of cancer patients who had a MOC – COM, per region, (2005-2008)**



Source: Belgian Cancer Registry and evaluation of Cancer Plan<sup>46</sup>

Note: all tumours excl. non-melanoma

### Coordination: Mental health care

Although unforeseen and unavoidable emergencies do arise in mental health, mental health related emergency room (ER) admission is used as an indicator of poor coordination of care and service failures. Due to delays in receiving data, results on the ER use for mental health problems are not available for this report. They will be analysed for the next update.

Hospital readmission rates are also widely used as proxies for relapse or complications following an inpatient stay for psychiatric and substance use disorders since they indicate premature discharge (sub-optimal discharge planning: follow-up care and support have not been appropriately coordinated before discharge) or lack of continuity of services (e.g. follow-up visits after discharge).

The re-admission rates for patients with schizophrenia and bipolar disorders within the 30-days of the initial hospitalisation are situated around the OECD-average of EU-15 countries (20.2% for schizophrenia and 15.6% for bipolar disorders). For both conditions these readmission rates are the highest in Flanders (schizophrenia 25.2%; bipolar disorders 19.7%) and lowest in Brussels (schizophrenia 10.2%; bipolar disorders 7.1%). For schizophrenia, there is an overall increasing trend in Belgium (especially in Flanders and Wallonia). For bipolar disorders, there is only an increasing trend in Flanders. The re-admission rates for patients with bipolar disorders are decreasing in Wallonia.

### Coordination: End-of-life of palliative patients

With the regulation of palliative care services in the residence of the patient (at home or in a residential setting) a more prominent role of the GP is needed for the coordination of services. This is thus an indicator of continuity of care. There are currently no national data on the contacts with GPs during end-of-life of palliative patients but some results can be given from different studies. A study on Christian Sickness Funds members shows that 72% of the palliative patients who died at home in 2005-2006 had a contact with a GP during the last week of their life.<sup>42, 43</sup> The number of contacts between palliative patients and their GP appeared however higher in the Netherlands than in Belgium.<sup>76</sup>



#### 4.4.3 Key findings

- The continuity of medical information managed by GPs is stimulated since 2001 by the global medical record (GMD – DMG) in Belgium. Since its introduction, the use of the GMD – DMG shows an increasing trend. Moreover, the GMD – DMG particularly reaches the vulnerable population (elderly and persons entitled to increased reimbursement) but it could be improved, especially in Brussels and in Wallonia.
- The management continuity between hospital and GPs is a interesting indicator, overall for elderly. Within one week after a hospitalisation discharge, a majority of elderly patients (58%) have at least one contact with a GP. Results are however lower in Brussels compared to the two other regions.
- The relational continuity with the same GP is good in Belgium, particularly in the age group 65-84 years and in Wallonia.
- The coordination of care for cancer patients is organised by multidisciplinary oncology meetings for about 69% of cancer patients, with large variations between types of cancer (89% breast cancer), and between regions.
- The coordination of mental health care requires a broad array of services (e.g. assertive community care; follow-up by GPs) in the community. The re-admission rate within the same hospital for patients with schizophrenia and bipolar disorders are situated around the OECD-average, with higher and increasing rates in Flanders.
- The coordination of palliative care at home or in nursing homes should be at the level of the GP. However, national data are lacking and some studies showed less contacts between palliative patients and their GP when they compared the Belgian situation to the Netherlands.

## 4.5 Patient Centeredness

### 4.5.1 How did we evaluate patient centeredness?

Patient-centeredness is defined as “providing care that is respectful of and responsive to individual patient preferences, needs, and values, and ensuring that patient values guide all clinical decisions”.<sup>6</sup>

According to this definition, several categories are used to classify the indicators:

- Acknowledgement of patients needs, wants, preference: patients' right; patients' needs; preference of care; pain management; privacy; spiritual support; cultural needs; patients' strengths; psycho-social aspects; comfort; social support.
- Providers skill of communication: providers ability to listen to their patients carefully; providers ability to explain things clearly; courtesy/respect; spent enough time to their patient; emotional support to relieve fear and anxiety; language; global communication skills; poor communication.
- Patients and carers involvement (enabling patients to manage their care and to make informed decisions about their treatment options): patients/carers information; informed consent; self-management support; patients/carers involvement in services and delivery planning; patients involvement in quality improvement; patients' participation in decision or shared decision-making.

Three indicators related to centeredness are available:

1. Percentage of population above 15 years old who report to be satisfied with healthcare services
2. Percentage of adult inpatients who reported how often their pain was controlled
3. Percentage of patients dying in their usual place of residence (home or institution)



### 4.5.2 Facts and figures

This section is a short summary of the detailed results which are presented for each indicator in the Supplement S1 of this report (available on the website).

#### Patients' satisfaction

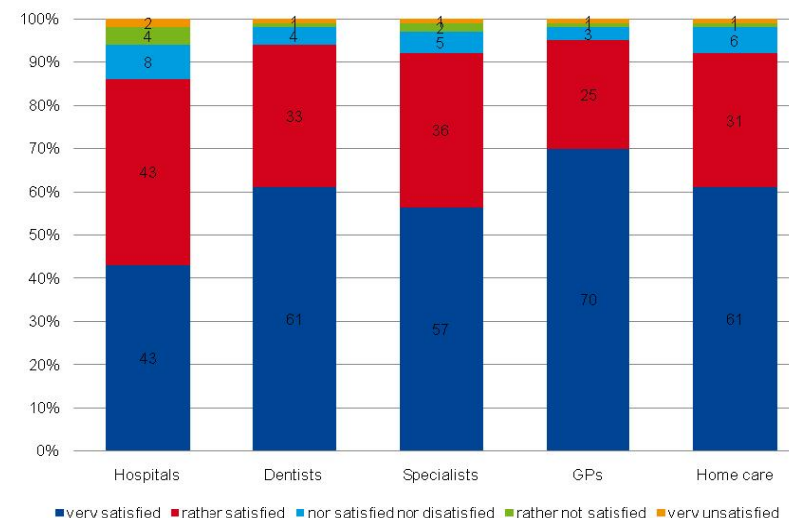
Patients have often other expectations, wishes and priorities than healthcare providers and their satisfaction depends of the answers to these issues. Although patients' satisfaction is only one limited aspect of a patient's experience with the healthcare system, it is still a very widely used measure in evaluating patients' care experience.<sup>77, 78</sup>

Belgian citizens reported in the HIS that they are in general satisfied with their contact with the healthcare system: the satisfaction level is above 90% for contacts with GP, dentists, specialists and home care services. Only for hospitals the satisfaction level is lower (87%).

Differences between men and women are negligible. Differences with respect to age are limited. The satisfaction level also hardly differs between socioeconomic groups.

Large differences are however observed with regard to the geographical location of the patient: satisfaction is systematically lower in cities than in rural areas. Also, large differences exist between regions, as satisfaction is always higher in Flanders than in Wallonia. Lowest satisfaction rates are observed in Brussels.

**Figure 23 – Degree of satisfaction with healthcare services, by type of service (2008)**



Source: Results from Health Interview Survey, Scientific Institute of Public Health (WIV – ISP)

#### Pain control

Pain control or pain assessment is paramount in a patients' perspective. The RN4CAST-project included a one-off international survey (European countries) of nurses and patients. Sixty Belgian hospitals participated in the patient survey, with 2 623 patients surveyed and a response rate of 68%.<sup>79</sup> Results showed that 69% of patients needed medicine for pain during their hospital stay and among them 41% declared that their pain was always well controlled. This places Belgium very low compared to the average of 54% for the 8 countries who participated. Other data from the study show that 47% of the patients said that their pain was usually well controlled. Less than 2% said their pain was never controlled. The vast majority of patients considered that the hospital staff did everything they could to help them with their pain (always 71% of patients; usually 23% of patients).



### Place of death

Place of death is considered an important indicator of quality of palliative care. A survey showed that in Flanders, 71.6% of persons interviewed expressed a preference for dying at home.<sup>80</sup> There are currently no national data published on the place of death of patients eligible for palliative care in Belgium. Data are however available from death certificates (palliative or not) in Flanders and in Brussels. A recent study (2007) on these death certificates showed a shift from dying in hospital (55.1% of all deaths in 1998 to 51.7% in 2007) to dying in a nursing home (18.3% in 1998 to 22.6% in 2007). The percentage of deaths at home remained stable.<sup>81</sup> The decline in hospital beds and the increased number of deaths in nursing homes can be explained by the substitution of residential beds by skilled nursing beds in care homes.

**Table 20 – Evolution of place of death over time in Flanders and Brussels (1998-2007)**

Period	Home	Hospital	Nursing Home	Other
1998	23.0%	55.1%	18.3%	3.6%
2007	22.5%	51.7%	22.6%	3.1%

Source: A study on death certificates in Flanders and Brussels<sup>81</sup>

There are large differences between countries with regard to the place of death of patients with cancer. The percentage of cancer patients dying at home is very low in Norway (13%), higher in Flanders (28%) and much higher in the Netherlands (45%).

### 4.5.3 Key findings

- **There is currently a real lack of data on patients' centeredness. The few measurable indicators only provided fragmented information of a complex subject.**
- **Belgian patients are in general satisfied with their contact with the healthcare system. Data of the patients' experience will be available in the new wave of the Health Interview Survey.**
- **One survey in hospitals showed a relatively good management of pain. The vast majority of patients considered that the hospital staff does everything they can to help them with their pain (always 71% of patients; usually 23% of patients).**
- **A recent study on death certificates in Flanders and Brussels showed a shift from dying in hospital to dying in a nursing home. The percentage of deaths at home remained stable. There are large differences between countries with regard to the place of death for patients with cancer. The percentage of cancer patients dying at home is very low in Norway (13%), higher in Flanders (28%) and much higher in the Netherlands (45%).**



## 5 EFFICIENCY IN HEALTHCARE

### 5.1 How did we evaluate the efficiency in healthcare?

Efficiency is defined as “the degree to which the right level of resources (i.e. money, time and personnel, called input) is found for the system (macro-level) and ensuring that these resources are used to yield maximum benefits or results (called output)”<sup>4, 8</sup>

Three indicators measure specifically the efficiency of the healthcare system:

1. Percentage of prescription of low-cost drugs in ambulatory setting
2. Rates of one-day hospitalisations for surgery
3. Length of hospitalisation for a normal delivery

Other indicators already mentioned above can also help to illustrate the efficiency of the health system (for instance the coverage of mammograms outside target groups for breast cancer screening).

### 5.2 Facts and figures

This section is a short summary of the detailed results which are presented for each indicator in the Supplement S1 of this report (available on the website).

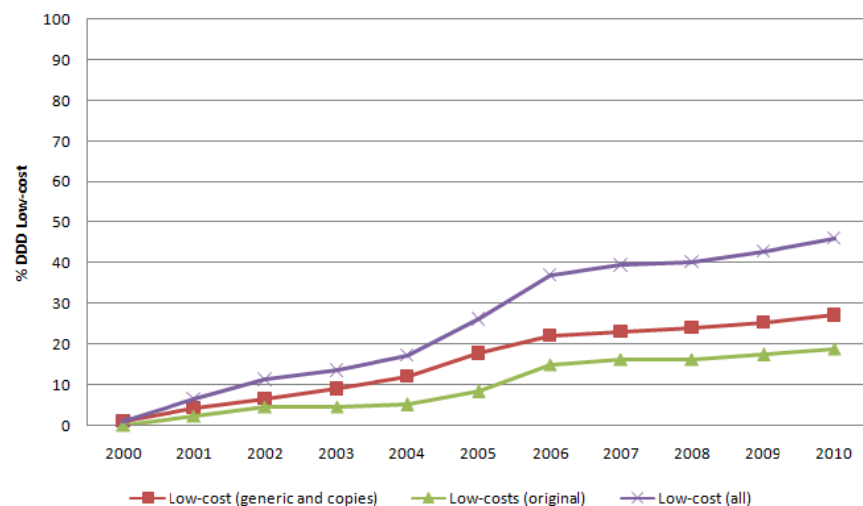
#### Utilisation of less costly drugs in ambulatory care

The price of generic drugs is minimally 31% less expensive than the price of the original drug. Low-cost drugs are defined as (1) original drugs for which a generic alternative exists and which have lowered their public retail price to the reimbursement basis so that there is no supplement to be paid by the patient; (2) generic drugs and copies. Promoting the prescription of low-costs drugs is thus a good way to limit health expenditures, both for the third-party payer and for the patient. Depending on their specialty, physicians and dentists are required to prescribe a certain minimum percentage of low-cost drugs, the so-called “quotas”, introduced in 2006 and revised (higher) in December 2010.

Between 2000 and 2010, the total number of DDD prescribed in ambulatory setting increased from 2.76 billion to 4.7 billion. On the same period, the proportion of low-cost DDD continuously increased to reach 46.0% in 2010 (27.1% from generic drugs and 18.9% as original drugs which lowered their price).



**Figure 24 – Percentage of low-cost medication delivered in ambulatory setting (DDDs) (2000-2010)**



*Note: DDD Defined Daily Doses*

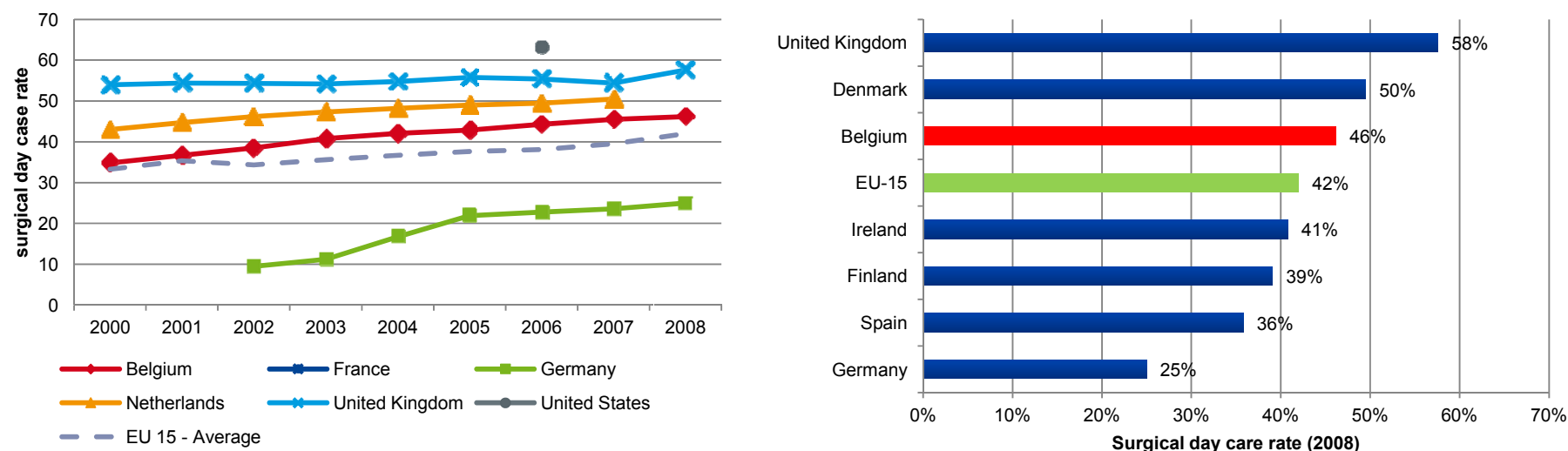
*Source: RIZIV – INAMI, Pharmanet*

### **Utilisation of less costly infrastructures (one day versus classic hospitalisation)**

Carrying out elective procedures as day cases when allowed by clinical circumstances (e.g. inguinal hernia repair, circumcision, cataract surgery, etc.) saves money on bed occupancy and nursing care. It is therefore considered as an indicator of efficiency.

The Belgian surgical day-case rate grew from 42.1% in 2004 to 46.2% in 2008. The comparison with other European countries shows similar increasing trends, with Belgium higher than the European average (Figure 25).



**Figure 25 – Percentage of surgical one-day hospitalisations on all surgical hospitalisations: international comparison**

Source: OECD Health data 2010<sup>82</sup>, except KCE calculation for Belgium 2008

### Utilisation of less costly infrastructures (shortening classic hospitalisations)

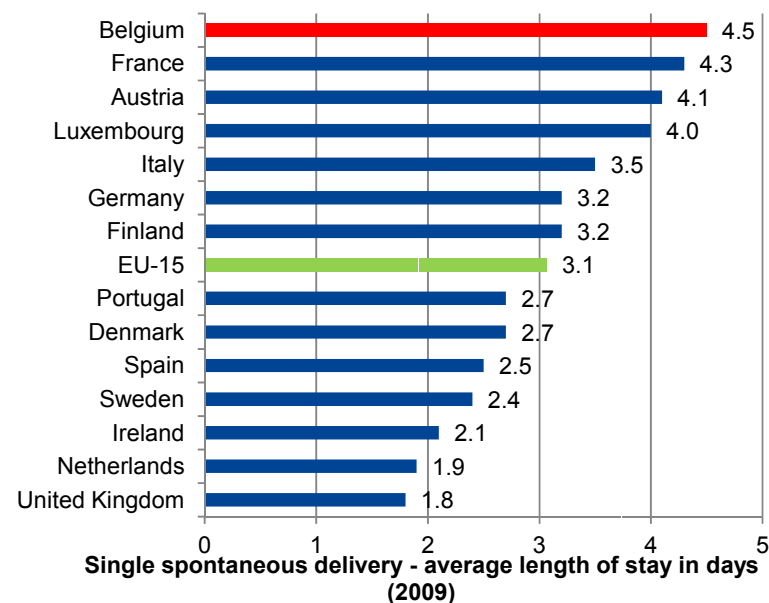
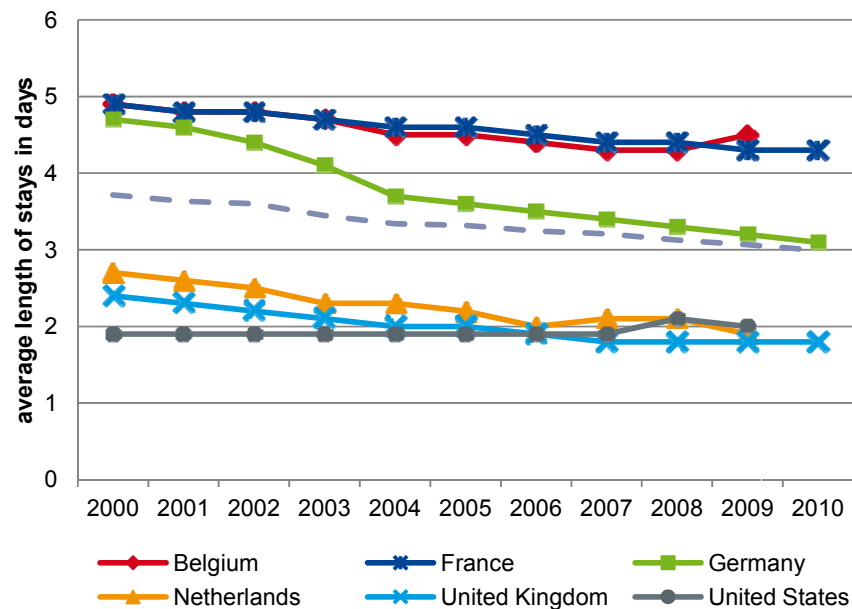
The length of stay after a normal delivery is determined more by factors of organisation and care provider characteristics than clinical patient characteristics only (e.g. severity of illness). It is therefore a good indicator to benchmark the efficiency of the healthcare system.

In Belgium, the duration of hospitalization for a normal delivery slightly decreased from 5 days in 2000 to 4.3 days in 2008. This is approximately 1.5 day above the EU-15 average of 2.9 days (Figure 26).





Figure 26 – Average length of stay for a normal delivery: international comparison



Source: OECD Health Data 2012

### 5.3 Key findings

- The percentage of low-cost drugs in ambulatory setting increased from 7% in 2001 to 46% in 2010.
- The percentage of surgical hospitalisations that were performed in one-day hospital grew from 42.1% in 2004 to 46.2% in 2008. These increasing trends are observed overall in Europe. Belgium is situated above the EU-15 average.
- The duration of hospitalization for a normal delivery slightly decreased from 5 days in 2000 to 4.3 days in 2008. This is approximately 1.5 day above the EU-15 average of 2.9 days.



## 6 SUSTAINABILITY OF THE HEALTH SYSTEM

### 6.1 How did we evaluate the sustainability of the health system?

Sustainability is defined as the system's capacity:

- To provide and maintain infrastructure such as workforce (e.g. through education and training, facilities and equipment);
- To be innovative;
- To stay durably financed by collective receipts;
- To be responsive to emerging needs.

For all four elements of the definition, specific indicators were selected. The last indicator, total health expenditures, is a generic indicator of financial sustainability.

Maintenance of workforce

1. Evolution over time of the mean age of practising GPs
2. Medical graduates becoming GPs
3. Nursing graduates

Maintenance of facilities

4. Acute care bed days (number per capita)

Innovation

5. Number of GPs using an electronic medical file

Financial Sustainability

6. Health expenditures according to the System of Health Accounts (Total, repartition, % gross domestic product (GDP), per capita)

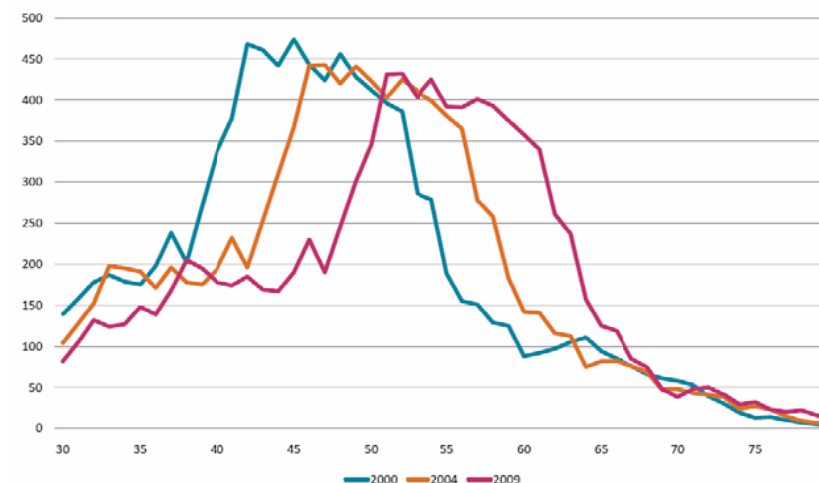
### 6.2 Facts and figures

This section is a short summary of the detailed results which are presented for each indicator in the Supplement S1 of this report (available on the website).

#### Maintenance of workforce: GPs

The cohort of active GPs is changing: it is very fast approaching retirement age, as shown by the lines superimposed for the years 2000, 2004 and 2009 of physicians with over 1 250 contacts (Figure 27). Another way of measuring this change is to calculate the average age of GPs currently practising. The average age of full time equivalents (FTE) was 51.4 years in 2009, while it was 47.3 years in 2000.

Figure 27 – Age distribution of GPs (2000-2004-2009)



Note: only GPs with more than 1 250 contacts /year

Source: Performance of general medicine in Belgium, a check up (RIZIV – INAMI)<sup>26</sup>

**Table 21 – Mean age of practising GPs (2000-2009)**

	2000	2004	2008	2009
<b>Number of GP smoothed FTE</b>	8 515	8 472	8 336	8 283
<b>Mean age</b>	47.3	49.2	51.3	51.4

Source: Performance of general medicine in Belgium, a check up (RIZIV – INAMI)<sup>26</sup>

One of the reasons for this ageing of GPs is the problematic recruitment of new GPs. As a matter of fact, the non-replacement of older GPs is directly related to the numbers of new physicians entering the medical profession and, of these, the percentage entering general medicine. The percentage of newly-graduated generalists is calculated by comparing the number of graduates entering general medicine to all graduates entering a specialist area in the two years following graduation (upon completion of the seven-year study cycle). This percentage currently stands at 30%, while it was 34% in 1996.<sup>26</sup>

**Table 22 – Progression between 1996 and 2008 of graduates in medicine in the two years following graduation according to type of specialisation**

Graduates after 2 years	1996	1998	2000	2002	2004	2006	2008
<b>number of physicians (after 7 years)</b>	<b>1 105</b>	<b>1 235</b>	<b>1 172</b>	<b>1 180</b>	<b>1 142</b>	<b>814</b>	<b>941</b>
<b>physicians without specialisation</b>	193	247	202	211	118	110	160
<b>% physicians without specialisation</b>	17%	20%	17%	18%	10%	14%	17%
<b>physicians with a specialisation (GP+SP)</b>	<b>912</b>	<b>988</b>	<b>970</b>	<b>969</b>	<b>1 024</b>	<b>704</b>	<b>781</b>
<b>specialists (SP)</b>	600	628	632	684	756	493	554
<b>generalists (GP)</b>	312	360	338	285	268	211	227
<b>%GP compared to GP +SP</b>	<b>34%</b>	<b>36%</b>	<b>35%</b>	<b>29%</b>	<b>26%</b>	<b>30%</b>	<b>29%</b>

Source: RIZIV – INAMI

Compared to other European countries, Belgium has a number of medical graduates (all) of 9 medical graduates per 100 000 pop, slightly lower than the 11.5/100 000 pop EU-15 average (Figure 28).

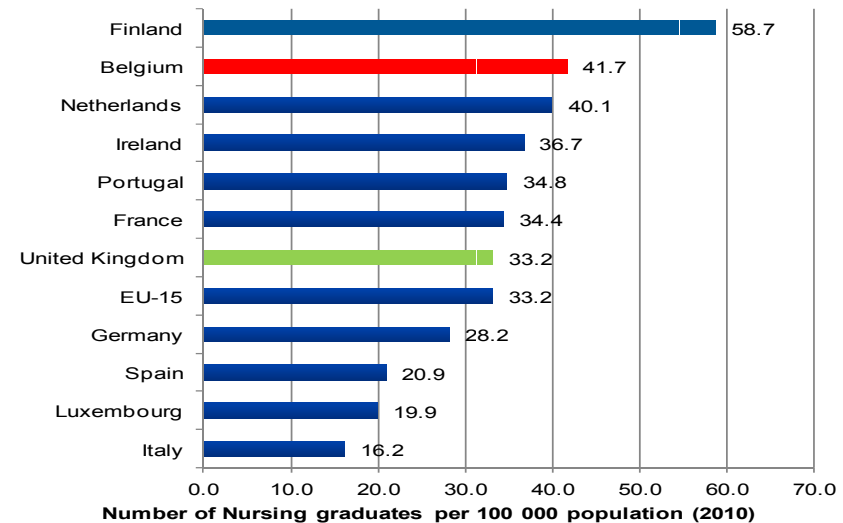
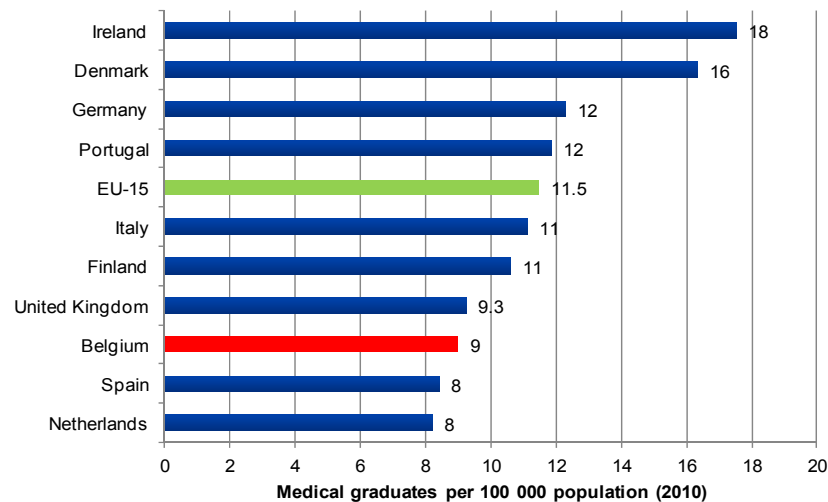


### Workforce: nursing

There is currently no indicator at the macro level to document the question on workforce in nursing. However, macro-level data should be complemented with data that reflect the situation at the micro level. An example of micro-level data is the recent large-scale European nursing workforce study based on survey data. It was illustrated that in Belgian hospitals nurses have, on average, to take care for more patients compared to other EU countries.<sup>79</sup>

Contrary to the GPs, the source of this problem does not seem to be from the education side, as Belgium forms a very high number of nursing students every year, where the number for 100 000 is 41.7, high above the EU-15 average of 31.3. A word of caution is necessary when interpreting this figure, as also foreign students are counted, and those will probably not work in Belgium.

**Figure 28 – Medical and nursing graduates (per 100 000 pop): international comparison (2010)**



Source: OECD Health data 2012

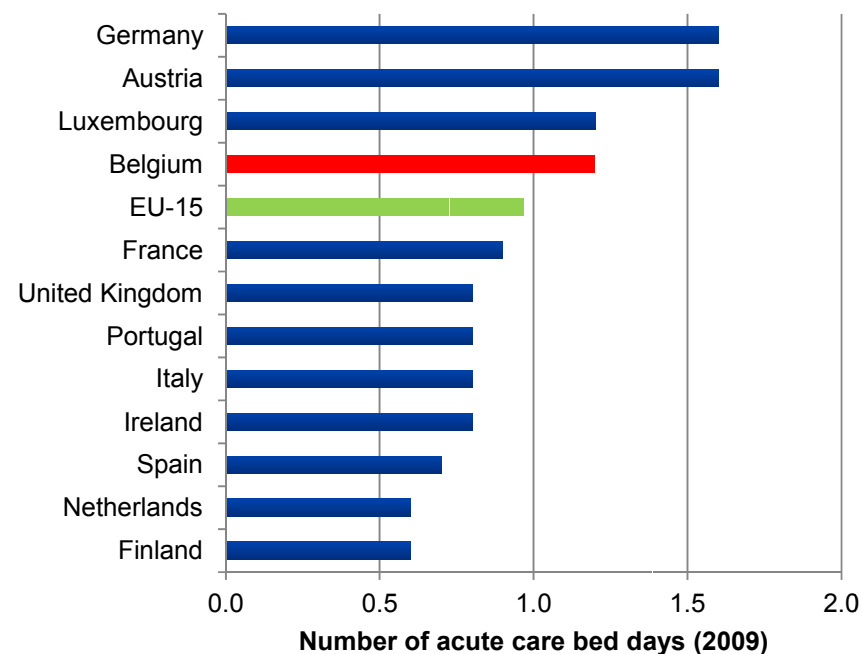
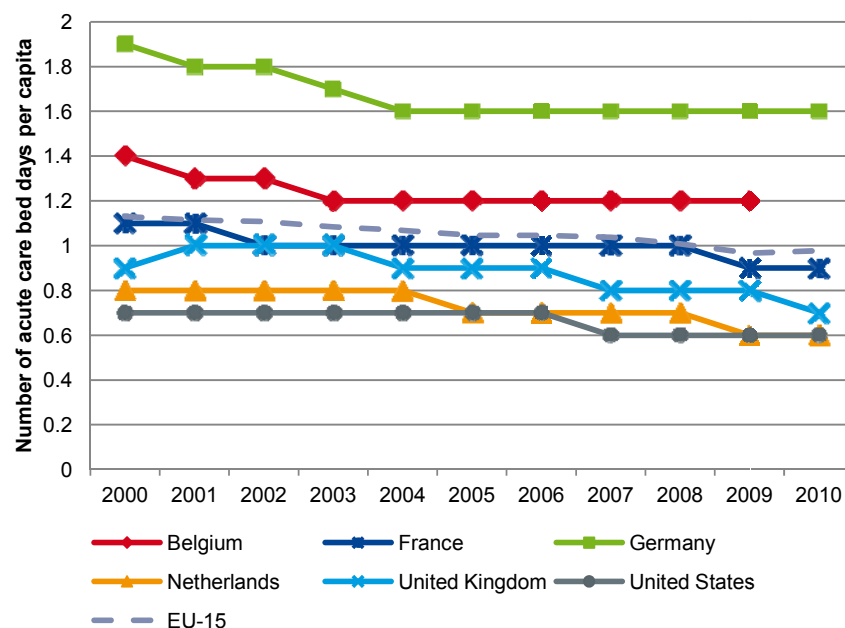


### Maintenance of facilities: number of acute bed days

The number of acute care bed days per capita is indicative of the population's need for acute care beds, and thus about the needed infrastructure. This indicator indicates how this need is met.

In 2009, there were 13 million days spent in acute care hospitals (classic hospitalisation only, excluding one day). Per capita, this represents 1.2 acute care bed days. This figure is decreasing between 2000 and 2003, and stable since 2003. The EU-15 average is a bit lower, around 1 day/inhabitant. Of the neighbouring countries, only Germany has a higher utilisation of acute care hospitals per inhabitant.

**Figure 29 – Acute care bed days per capita, international comparison**



Source: OECD Health data 2012

**Innovation: the percentage of GPs using an electronic file to maintain their patients' medical records**

The percentage of GPs using an electronic file with recommended software to maintain their patient's medical record increased from 61% in 2004 to 74% in 2010.

**Table 23 – Percentage of GPs using recommended software to maintain their patients' medical records**

	2004	2008	2009	2010
% of GPs who received a lump sum for using an electronic medical records.	61%	72%	75%	74%

*Source: RIZIV – INAMI*

**Total healthcare expenditures as an indicator of financial sustainability**

Trends in health expenditure are an important indicator of affordability, and thus sustainability. For international comparisons, the standard international definitions for healthcare and healthcare expenditure of the OECD's System of Health Accounts (SHA) are classically used. SHA aims at measuring consumption of health and long-term care services.

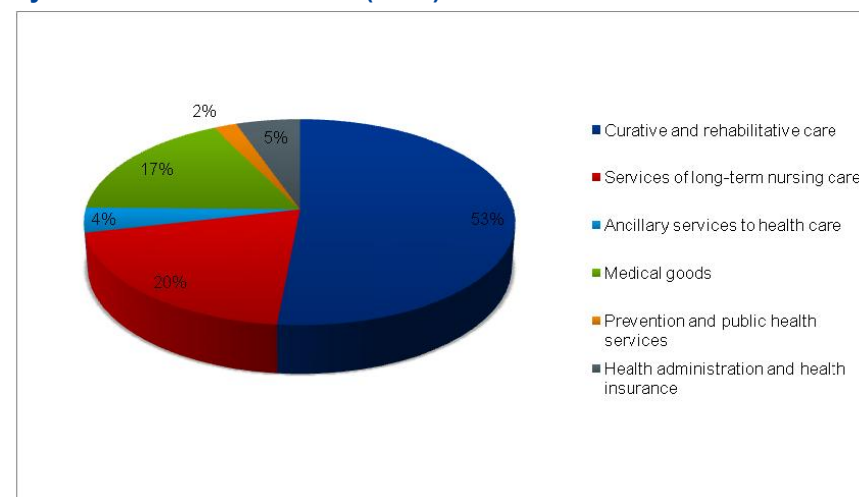
Health Accounts are only comparable since 2003. The total health expenditures increased from €27.6 billion in 2003 to €37.3 billion in 2010. Per capita, this represents an increase from €2660/inhabitant in 2003 to €3430/inhabitant in 2010. To allow comparisons between countries, these data are also expressed in 2005 US\$ Purchasing Power Parities (PPP). Finally, the share of Total Health Expenditures (THE) in Belgian gross domestic product (GDP) accounts for 10.5% of GDP, compared to 10.0% in 2003.

**Table 24 – Total health expenditures according to the System of Health Accounts (2003-2010)**

	2003	2004	2005	2006	2007	2008	2009	2010
Absolute amounts (in billions €)	27.6023	29.4811	30.6064	30.5214	32.2427	34.5992	36.303	37.3737
Per capita	2660.18	2828.97	2920.84	2893.59	3034.41	3230.56	3362.48	3430.17
Per capita (US\$ PPP)	3026.8	3155.5	3246.8	3277.6	3423.3	3698.4	3911.4	3968.8
% GDP	10.0	10.1	10.1	9.6	9.6	10	10.7	10.5

Source: OECD Health Data 2012

More than half of the total health expenditures (53%) is spent for curative care (HC.1) or rehabilitation care (HC.2). The following two most important contributors are services for long-term care (LTC) (specifically the health component, not the social component, HC.3, 20%)<sup>s</sup> and medical goods (mainly pharmaceuticals products, HC.5, 17%).

**Figure 30 – Health expenditures in Belgium by main function in the System of Health Accounts (2010)**

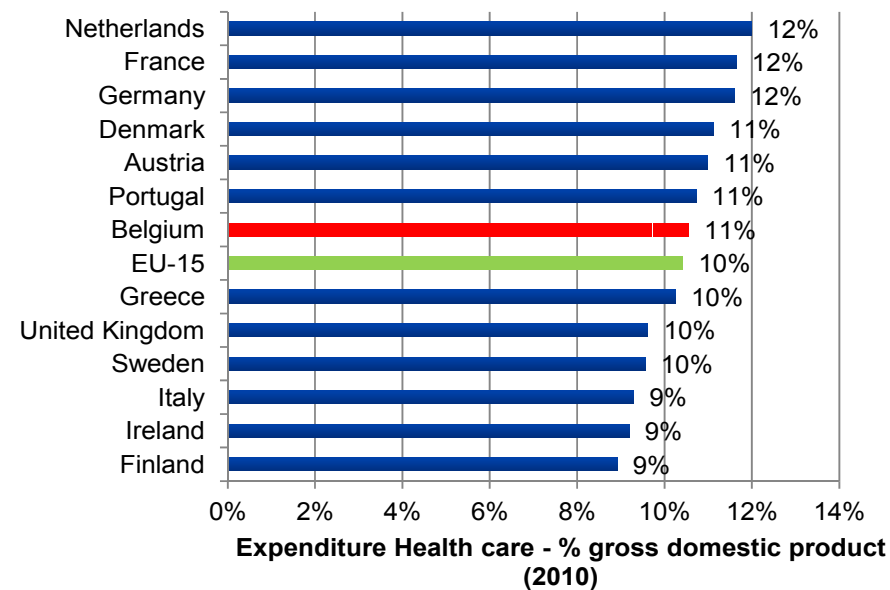
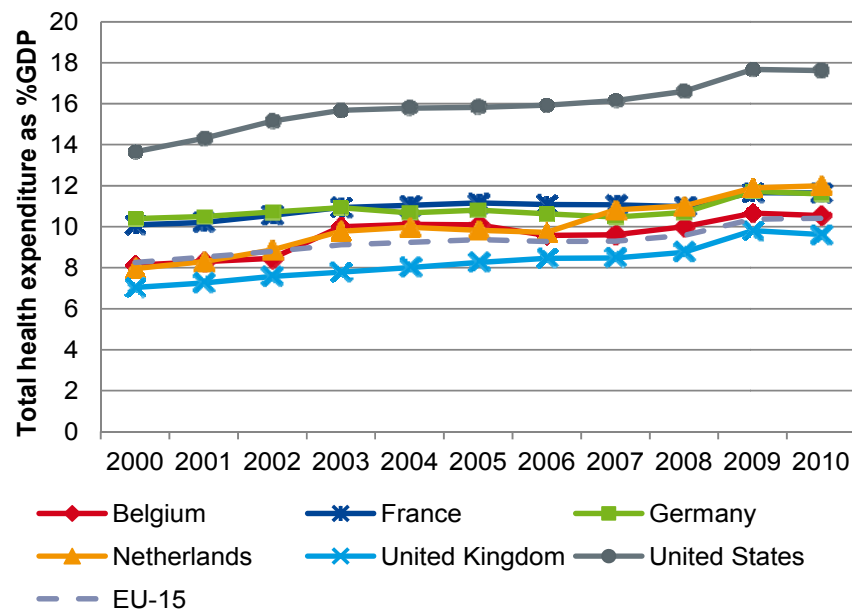
Source: OECD Health Data 2012

<sup>s</sup> Roughly speaking, one could define healthcare as care helping individuals performing activities of daily living (ADLs) (e.g. dressing, eating...), and social care as care helping individuals performing instrumental activities of daily living (IADLs) (e.g. shopping, laundry, ...). In practice, the division of LTC into its health and social components is challenging as many services provided to LTC recipients have both a health and social component. To ensure comparability of the System of Health Accounts (SHA) for long-term care, the OECD issued specific guidelines.<sup>24</sup>

Expressed as a percentage of the GDP, Belgium is very close to the EU-15 average. But caution is needed when comparing total healthcare expenditures, as the better and the more exhaustive the registration of healthcare expenditures, the higher the level of these expenditures.



Figure 31 – Total health expenditures as a % of GDP: international comparison



Source: OECD Health data 2012





### 6.3 Key findings

- Concerning the Belgian healthcare workforce, some results are challenging since GPs are aging. The average age of FTEs of GPs is currently 51.4 years. This average age has risen very rapidly since 2000, when it was 47.3 years. One of the reasons of this ageing of GPs is the problematic recruitment of new GPs. The number of graduates who specialize either in general medicine or in another specialty was 781 in 2008. Among these graduates, the percentage of graduates in general medicine was 34% in 1996 and is actually (2008) 29%.
- The number of nursing graduates per 100 000 population is very high in Belgium compared to other EU-15 countries: 41.7/100 000 population compared to the average EU-15 of 31.3 /100 000 population but the foreign students are counted although they will probably not work in Belgium.
- The analysis of the maintenance of the facilities shows a relative high utilisation of acute care hospitals per inhabitant. In 2009, there were 13 million days spent in acute care hospitals (classic hospitalisation only, excluding one day). Per capita, this represents 1.2 acute care bed days in 2009, a bit higher than the EU-15 average (1 bed day/inhabitant).
- The innovative perspective of the health system is measured by the percentage of GPs using an electronic file to maintain their patient's medical record. This percentage increased from 61% in 2004 to 74% in 2010.
- Concerning the financial sustainability, the total health expenditures increased from €27.6 billion in 2003 to €37.3 billion in 2010. Per capita, this represents an increase from €2 660/inhabitant to €3 430/inhabitant in 2010. The share of total health expenditures in Belgian gross domestic product (GDP) accounts for 10.5%, compared to 10.0% in 2003, which is very close to the EU-15 average.

## 7 PERFORMANCE OF HEALTH PROMOTION

### 7.1 How did we evaluate the performance of health promotion?

According to the Ottawa charter<sup>23</sup>, "health promotion is the process of enabling people to increase control over, and to improve their health". The process of health promotion is complex and can be understood as all the efforts that a society does to promote the health of the citizens. It covers a whole range of interventions (e.g., policies, law, environmental interventions), situated for a considerable part outside the health system. It is also largely situated outside the so-called "health promotion sector"<sup>t</sup>.

The guiding principles of health promotion are the following:

- Participation
- Empowerment
- Sustainability
- Multistrategic
- Equity
- Multisectorial

<sup>t</sup> In Belgium, the "health promotion sector" is represented by the structures depending on the Health Administrations and Ministries of the Regions and Communities.



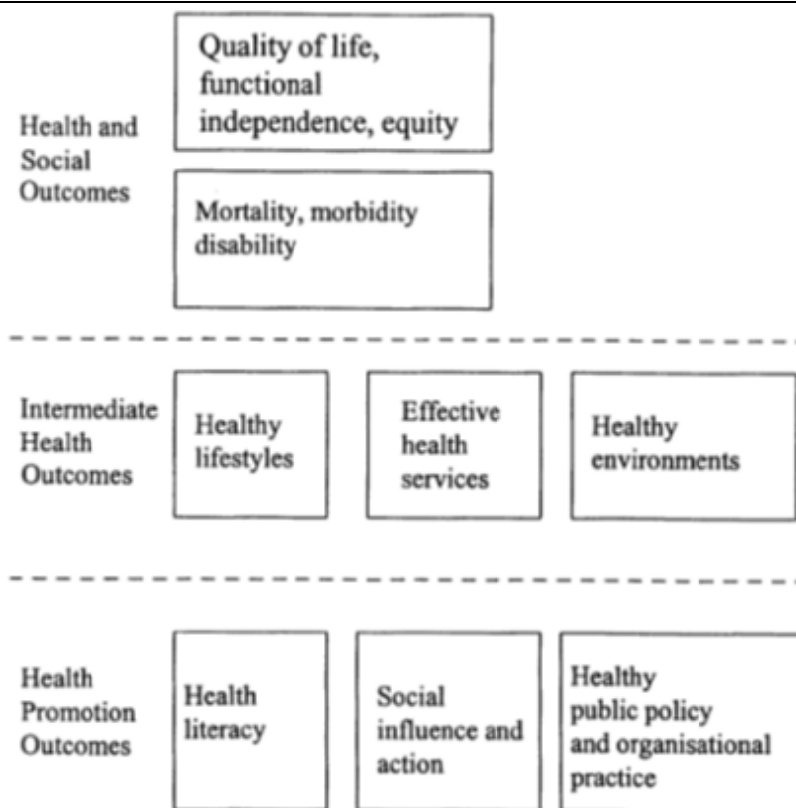
Several frameworks have been proposed to classify health promotion indicators. Nutbeam<sup>83</sup> has proposed a framework that classifies health promotion indicators in 4 broad classes ranking from most proximal indicators (health promotion actions), through health promotion outcomes (health literacy, social influence and policies), intermediate health outcomes (healthy lifestyle, effective health services and healthy settings), to final health and social outcomes (physical health like morbidity and mortality, and social health like well-being and equity). In this work, we adopted the Nutbeam's framework to classify the indicators, because it corresponds largely to the broad axes and principles of the Ottawa Charter.<sup>23</sup>

In the context of this project, it has not been possible to perform a full evaluation of health promotion in Belgium since this would necessitate a complete study in itself. With regard to the limitations we faced (constraint of a limited set of indicators and unavailability of data for many indicators), we illustrated some categories of the Nutbeam's framework. Although the most distal from action outcomes like health outcomes and healthy lifestyles are easier to document, we also tried to define indicators and present results for more proximal indicators (as healthy environment, health promotion outcomes).

**Figure 32 – The Nutbeam's framework and selected indicators to measure performance of health promotion**

The Nutbeam's framework

Indicators selected and classified within the Nutbeam framework

**Health and Social outcomes**

- Overweight and obesity
- Dental health: decayed, missing, filled teeth at age 12
- Incidence of HIV

**Intermediate Health outcomes**

## Healthy Lifestyles

- Daily smokers
- Alcohol consumption
- Physical activity
- Nutrition (fruits and vegetables)

## Healthy Environment

- Composite index of health promotion policies in the municipalities
- Percentage of schools with a participative health promotion team
- Offer of physical activity at secondary school

**Health Promotion outcomes**

- Health Literacy: health literacy level (not measured)
- Social influence and action: poor social support
- Healthy public policy and organisation practice: Tobacco Control Policies Scale

Source: adapted from the Nutbeam framework<sup>83</sup>

"Health promotion actions", the last category in the Nutbeam's framework, is not represented here



## 7.2 Facts and figures

This section is a short summary of the detailed results which are presented for each indicator in the Supplement S1 of this report (available on the website).

### 7.2.1 Health outcomes

Four important indicators of general health outcome have already been described above in the chapter on the health status of the population: life expectancy, health expectancy, self-perceived health and infant mortality, as they are less specific to health promotion.

#### **Overweight and obesity**

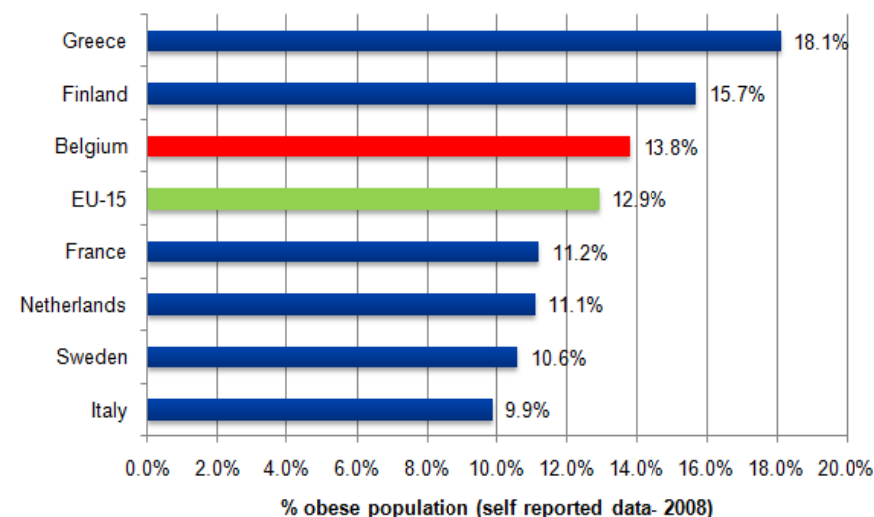
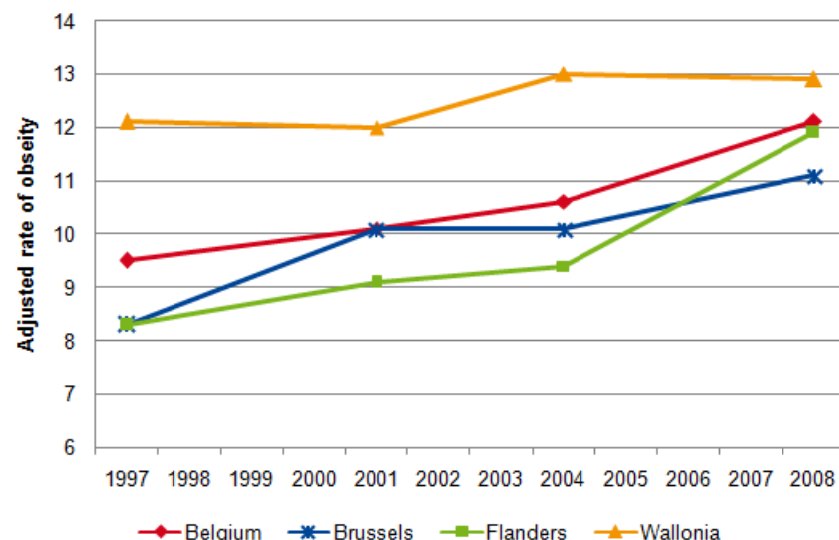
##### *Adult population (aged 18 years or older)*

In 2008, 47% of the Belgian population (aged 18 years or older) was considered as being overweight or obese (Body Mass Index (BMI)  $\geq 25$ ), and almost 14% was considered as obese (BMI  $\geq 30$ ). Results are based on the reported weight and height. Overweight is more frequent in men than in women. For obesity, no differences were found between men and women.

Although the obesity and overweight rates are slightly lower than the average EU-rate, they gradually increased over time. After standardization for age, the rate of obese people is higher in Wallonia than in the two other regions, but the difference tends to have decreased over time (Figure 33). As for other indicators related to overweight, like poor nutritional habits or lack of physical activity, a strong social gradient is observed.



**Figure 33 – Percentage of the adult population (aged 18 years or older) with obesity (BMI  $\geq 30$ ), by region (1997-2008), and international comparison (2000-2008)**



Source: Health Interview Survey, Scientific Institute of Public Health (WIV – ISP), and OECD Health Data for international comparison

#### Overweight and obesity in children and adolescents

The HIS survey provides information about the overall prevalence of overweight and obesity in young people (2-17 years) (<https://www.wiv-isp.be/epidemiologie/epifr/CROSPFR/HISFR/his08fr/9.etat%20nutritionnel.pdf>): overall 18% of the young people (aged 2-17 years) are found to be overweight and 5% was found to be obese. There was no difference between genders.

#### Dental health: decayed, missing, filled teeth (DMFT) at age 12

DMFT is an international index describing the amount – the prevalence – of dental caries in an individual. DMFT numerically expresses the caries prevalence and is obtained by calculating the number of Decayed (D),

Missing (M), Filled (F) teeth (T). WHO goals set for the year 2010 a maximum mean DMFT score below 1.0 for 12-year-olds.

In a national survey performed in 2009-2010<sup>84</sup>, the mean DMFT score in a sample of 30 children aged 12 was 0.9 ( $\pm 1.37$ ). This confirms the result (1.0) from a previous study based on a large sample performed in Flanders in 2001. Nevertheless, 43% of these children had sign(s) of dental caries in permanent teeth. The mean DMFT score was 1.3 ( $\pm 1.82$ ) for the 12-14 year-olds (n=95). The very small sample does not allow any stratified analysis by sex, region or by socioeconomic status.

The number of studies performed in Belgium to date still remains limited. Moreover, the scope is often limited to small selected areas.<sup>85</sup>



### Incidence of HIV

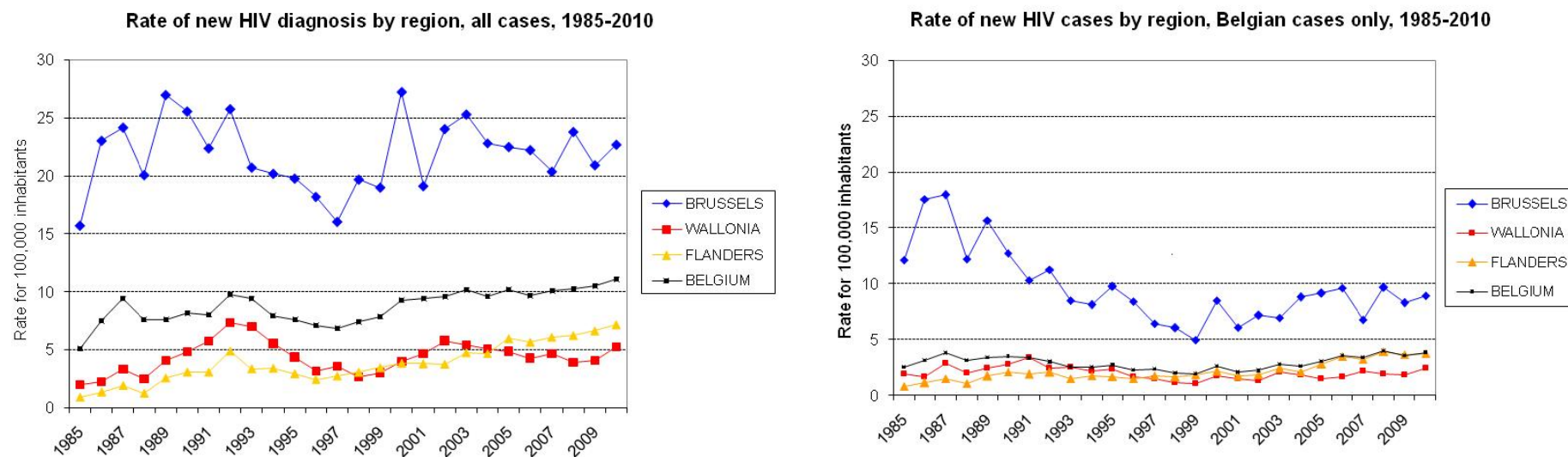
HIV is an important communicable disease in Europe. It is associated with serious morbidity, high costs of treatment and care, significant mortality and shortened life expectancy. It is also a perfectly avoidable infection, since the transmission is largely avoidable by behavioural measures (safe sex, safe injection). Therefore, its incidence in a defined population is an indicator of the success/failure of health promotion.

In Belgium, the true incidence rate is not known, and is approached by the diagnostic rate. This is an approximation since the diagnostic can occur long after the infection (the HIV-infection remaining long asymptomatic).

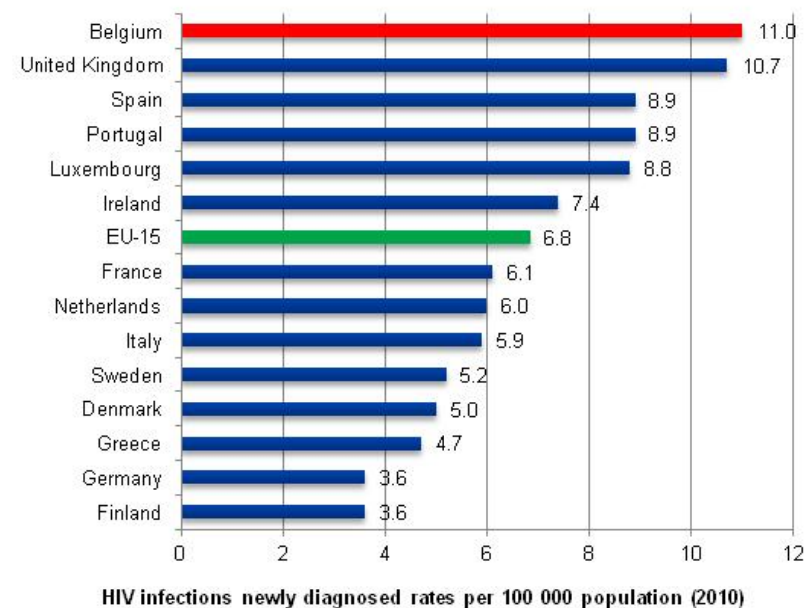
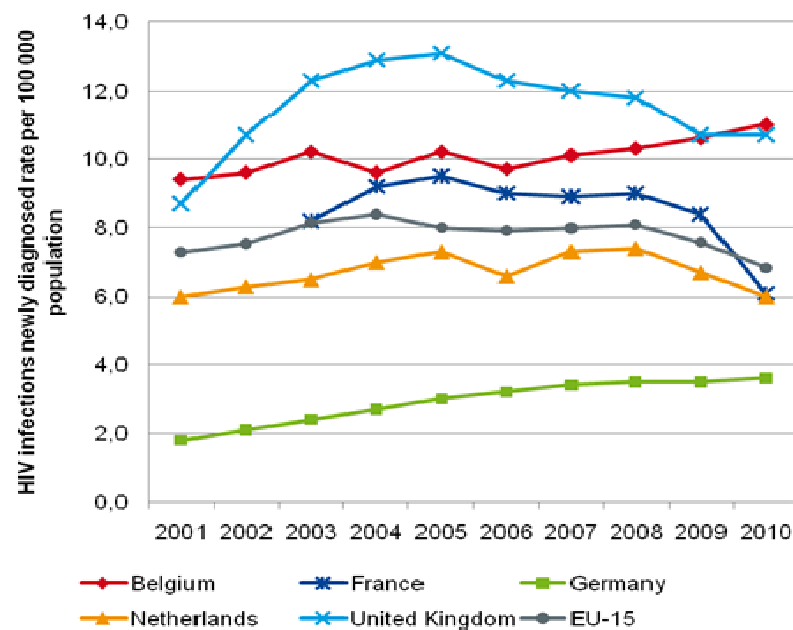
The diagnostic rate in Belgium for all cases is around 10 per 100 000 inhabitants. Belgium has the particularity to have a large proportion of non-Belgian cases (60% of cases with a known nationality), being a mix of resident and non-resident people. A large proportion of the non-Belgian cases originate from countries with a high prevalence of HIV (such as Sub-Saharan African countries). Parts of this large number of non-Belgian cases are imported cases, and as such cannot be interpreted as a failure of health promotion in Belgium. There is no clear-cut explanation for the large number of imported cases in Belgium. Further analysis is needed. For Belgian cases only, the rate is fluctuating around 3-4 per 100 000 inhabitants.

Figure 34 (a and b) show the evolution of the diagnostic rate of HIV by region from 1985 to 2010, for all cases and for Belgian cases only. The rates in Flanders and Wallonia are quite comparable. However, a steady increase is observed in Flanders since 1997. The rates in Brussels are much higher than in the other regions. The Brussels region mainly consists of a large city, with the socio-cultural characteristics of an urban context. A high HIV-rate is a usual phenomenon observed in large towns. The HIV-rates in the two other regions represent an average of rates from rural, semi-urban and urban contexts.

For Belgian patients, the most frequent way of infection was male homosexual contact (see Supplement S1).<sup>86</sup>

**Figure 34 – Diagnostic rate of HIV by region, for all cases (a) and for Belgian cases only (b) (1985-2010)**

Source: Scientific Institute of Public Health (WIV – ISP) <sup>86</sup>

**Figure 35 – Rate of the new HIV diagnosis per 100 000 inhabitants: International comparison**

Source: OECD Health Data 2012





## 7.2.2 Intermediate health outcomes

### 7.2.2.1 Healthy Lifestyle

#### Daily smokers

The percentage of daily smokers was around 20% in Belgium in 2008, which is slightly lower than the EU average. It has significantly decreased since 10 years, mostly in men, in whom the rate of daily smoking passed from 31% in 1997 to 23.7% in 2008. The rate in women is lower, but it remained stable until 2004. The decrease in the rate of smoking is mainly found in highly-educated people. The rate of smoking in young people is as high as for the rest of the population. However, a closer examination of the data in this age group reveals that smoking prevalence peaks between 21 and 24 years, a priority target for prevention.

The comparison between regions shows that the rate of smoking is lower in Flanders than in the other regions.

#### Alcohol consumption

The consumption of alcohol is assessed on the basis of three indicators:

- Percentage of men and women aged 15 years and over reporting an excessive alcohol consumption (more than 21 glasses/210g a week in men and 14 glasses/140g a week in women);
- Percentage of the non-abstinent population (aged 15 years and over) reporting a problematic alcohol consumption (defined as a tendency to addiction based on CAGE scale, 2+ cut off);<sup>87</sup>
- Percentage of the population (aged 15 years and over) reporting a risky single-occasion drinking ( $\geq 6$  drinks) at least once a week.

The percentage of excessive alcohol consumption has remained stable around 8%. However, the rate of people with problematic drinking behaviour (tendency to addiction) is increasing, mostly in Brussels. Alcohol consumption behaviour is more typically masculine. Risky single-occasion drinking is highest in the 15-24 age group.

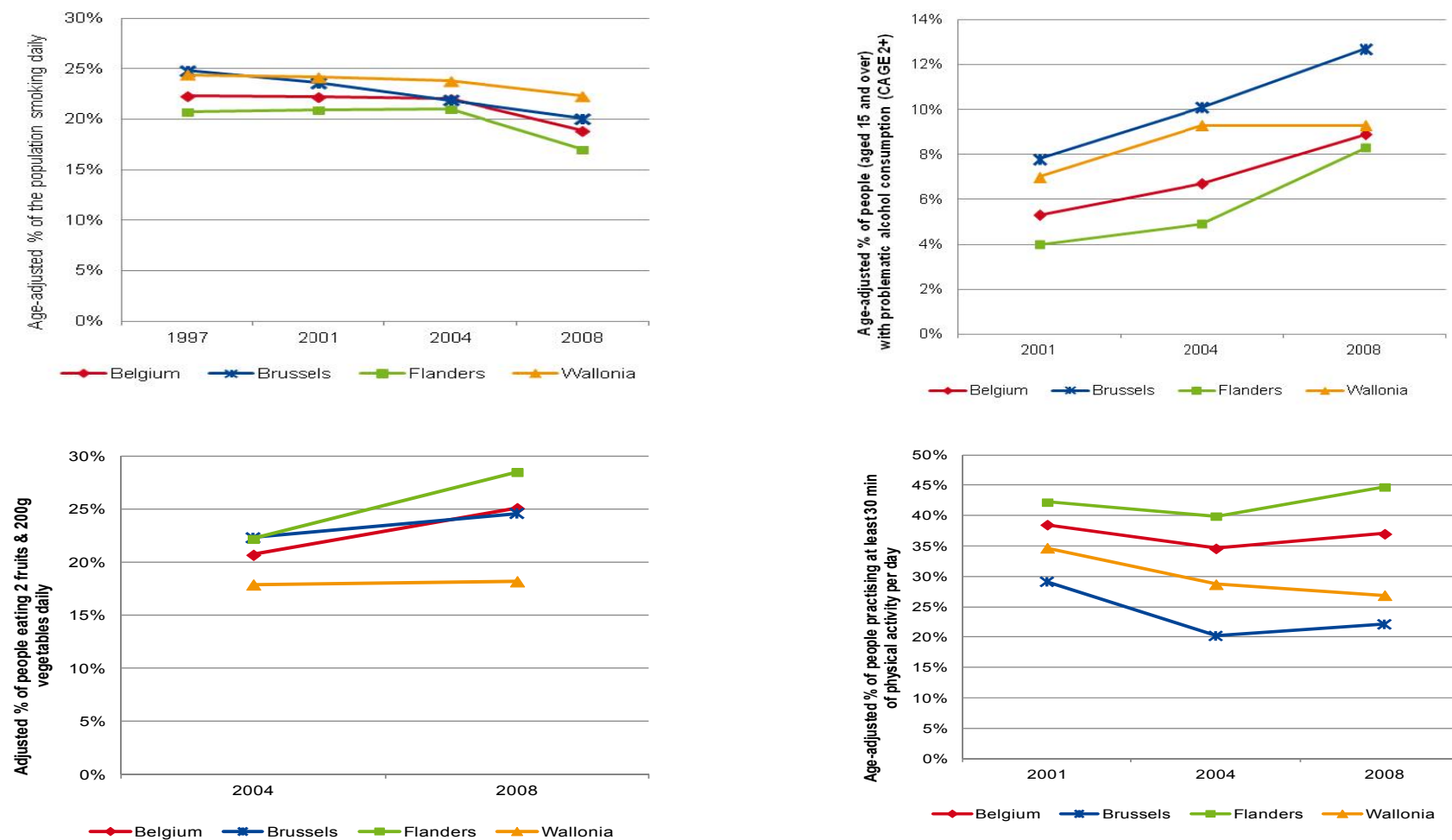
**Table 25 – Alcohol consumption habits for the population (aged 15 or older) (1997-2008)**

	1997	2001	2004	2008
<b>Drinks alcohol in excess</b>	7%	9%	9%	8%
<b>Exhibits problematic drinking behaviour (CAGE questionnaire)</b>		7%	8%	10%
<b>Drinks 6 or more drinks in a single occasion at least weakly</b>				8%

*Source: Health Interview Survey, Scientific Institute of Public Health (WIV – ISP)*



Figure 36 – Percentage of the population (a) smoking daily, (b) with problematic alcohol consumption, (c) consuming at least 2 fruits and 200 vegetables daily, (d) performing at least 30 min of physical activity per day, by region (1997/2001-2008)



Source: Health Interview Survey 2008, Scientific Institute of Public Health (WIV – ISP)



### Consumption of fruits and vegetables

The consumption of fruits and vegetables is expressed by three complementary indicators:

- Percentage of the population reporting to eat fruits daily;
- Percentage of the population reporting to eat vegetables daily;
- Percentage of the population reporting to eat at least 200g vegetables and 2 fruits per day.

The daily consumption of fruits and vegetables (in the whole population) has progressed over time, and reaches 65% for fruits and 84% for vegetables. Although this is an encouraging progression, the quantity consumed is far too low. Only 25% of the people reports to eat at least 200g vegetables and 2 fruits daily, which is a proxy of the nutritional recommendations (which are “300g vegetables and 2 fruits per day” according to the “Actieve Voedingsdriehoek”,<sup>88</sup> or five portions of either fruits or vegetables, according to the WHO<sup>89</sup> and the Belgian Nutritional Plan<sup>90</sup>).

### Physical activity

Strong evidence demonstrates that compared to less active individuals, more active people have lower rates of all-cause mortality, coronary heart disease, high blood pressure, stroke, type 2 diabetes, metabolic syndrome, colon and breast cancers, and depression.<sup>91, 92</sup> But the quantity of physical activity is difficult to measure. The questionnaires and the development of indicators raised many questions and criticism. The questionnaire will be changed in the next (E)-HIS. Moreover, very few international data are currently available. This being said, we present the currently available data on physical activity in Belgium.

The global percentage of people (15 years or more) practising at least 30 minutes of any type of (at least moderate) physical activity per day is 38%. There is a lot of room for improving this global level. The (at least moderate) physical activity rate is almost twice as higher in men than in women. There are important regional differences with a higher rate of practising (at least moderate) physical activity in Flanders (45%) than in Wallonia (27%) or Brussels (22%).

### 7.2.2.2 Healthy Environment

In Flanders, the Vlaams Instituut voor Gezondheidspromotie (VIGeZ) has developed a set of global indices aiming to measure the level of intensity of “health promotion” in several settings (schools, work, and municipalities). Such indicators focus on public health authorities responsibilities (as opposed to the usual measures of health behaviour).

It is in line with two axes of the Ottawa charter.<sup>23</sup>

- Developing healthy public policies
- Developing healthy environment

Three specific themes were analysed: smoking, healthy eating and physical activity. Those indicators of health promotion in settings can be seen globally as a summary result, or can be decomposed into specific dimensions. They can be used as an (auto)-evaluation indicator for the municipalities, which can compare themselves to the others. The trends over time can also be followed (with caution). For the indicators on schools, results can also be obtained from the Health Behaviour in School-aged Children (HBSC) studies in Wallonia and Brussels.

### Index of health promotion policies in the municipalities

The municipalities represent the most close-to-the-citizen level of public authority.

Results are only available for Flanders. The scores, that represent the weighted sum of “good” answers to questions related to the health promotion policies at municipality-level (in the field of tobacco, healthy eating and physical activity), range between 0 and 100%. The municipalities score low for tobacco prevention (global score=37%) and healthy eating (global score=36%), a bit better for physical activity (global score=50%). The average scores hide a large dispersion of scores with some municipalities doing nothing, and others performing very well. It is important to further analyse the reason for those low rates and for the variability, in order to intervene efficiently.



### Percentage of schools with a health promotion working group

The percentages of schools with activities in health promotion are calculated separately for 3 themes: smoking prevention, healthy eating and physical activity. The existence of a working group working on health promotion as a whole cannot directly be deduced from those results. However, the separate indicators are a good proxy of the situation.

For Flanders, the following results are extracted from the VIGeZ 2009 report:<sup>93</sup>

- The existence of such a working group is rather good implemented in the secondary schools (42% for smoking prevention, 64% for healthy eating and 54% for physical activity; the main roles of the working group are “to give advice to the Direction” or “taking part in setting up the health promotion policies of the schools”.
- Whatever the theme, in the majority of schools, the working group is composed mostly of teachers; parents and students are not part of the team as such.
- However, other participation mechanisms exist for the students: a feedback of the discussions of the working group is given to students and parents. In almost half of the schools, the students can take part in the decisions. In 38% they only can give their opinion or make suggestions.

From the VIGeZ report we can conclude that a working group for health promotion is implemented in a majority of schools. While students and parents are seldom part of those groups, other participation mechanisms exist. The authors conclude that the participation culture is quite largely implemented.

In Wallonia and Brussels, the Health Behaviour in School-aged Children (HBSC) study is a cross-national research survey conducted in collaboration with WHO-Europe. The HBSC aims to gain new insight into young people's health, well-being, health behaviours, and their social context. A part of the survey is devoted to the health strategies and environmental context of the school, and is answered by the school directors.

In the French speaking part of Belgium (Wallonia and Brussels) survey 2010, 44 secondary schools directors were interviewed regarding the health related projects conducted in the school. Some indicators that we retained as performance indicators could be extracted from the report.

Almost half of the schools report they have a permanent health cell (40%). However, it seems that the participation of students is quite poor, since students are only implied in 7.7% of the cases. Other mechanisms of participation are maybe present, but were not part of this questionnaire. This point could be explored more profoundly in the future. As participation is an essential dimension in the success of health promotion, this dimension should be further improved.

### Offer of physical activity at secondary school

Physical activity in young people is an important health-enhancing activity. Schools can offer many opportunities to young people to engage in physical activities. For Flanders, the following results are extracted from the VIGeZ 2009 report<sup>93</sup>.

**Table 26 – Offer of physical activity in secondary schools in Flanders**

	N	Minimum	Maximum	Mean	Std. Deviation
<b>Education</b>	416	.00	10.00	6.0643	2.08702
<b>Supply</b>	416	.00	8.59	5.4758	1.29252
<b>Reglementation</b>	416	1.21	10.00	6.9500	1.74638
<b>Participation</b>	416	.00	10.00	5.3100	2.31019
<b>Networking</b>	416	.00	10.00	4.7332	3.41978
<b>Total</b>	416	8.74	84.27	56.3475	14.46473

*Note: The table provides an overview of the partial scores for several health promotion dimensions. Those partial scores are calculated as a 0-10 index resulting from the weighted sum of “good” answers to a long questionnaire. The score of “supply” is one of those partial scores. The global score, called “Total score of the physical activity policy in the secondary schools” (calculated as a percent), represents a global intensity of the health promotion policies on the theme of physical activity, in all respondent schools. The global score ranges between 0 and 100, and should be interpreted as a “percentage” of a perfect score (in terms of health promotion policy).*

*Source: VIGeZ report<sup>93</sup>*

In summary, we can conclude that health promotion policies related to physical activity in Flemish schools are in progress, score quite good and are generally integrated in a global school policy. A separate analysis of the dimension “supply” reveals that infrastructure scores quite good. Nearly 100% of schools have (access to) a gym but with sometimes insufficient space available. However, the availability of a swimming pool is more problematic. Although the range of activities has increased since 2006, the accessibility of facilities could improve.

Data for Brussels and Wallonia are extracted from the HBSC survey.<sup>94</sup> This report shows that 20% of the responding schools had no adequate sport facilities, and that another 10% had no sport facilities. In those schools, the children are going to another place to have the sport lessons.

Data on the availability of (extra) physical activity and on the integration of the physical activity in the global school-policy should be collected in Wallonia and Brussels in order to conclude and eventually make recommendations.

### 7.2.3 Health Promotion outcomes

#### 7.2.3.1 Health Literacy

Health literacy is one of the most important indicators for health promotion. It can be defined as “the individual skills to understand and manage the information related to health, health determinants, and health care”. It is related to the “empowerment” dimension, which is one of the most representative aspects of health promotion.<sup>95</sup>

Unfortunately, no data exist in Belgium yet. At international level, the tools to adequately measure health literacy are still under validation.<sup>96, 97</sup>

#### 7.2.3.2 Social influence and action

##### Social support

Social support is a protective factor in times of stress. It is a resource that helps individuals to deal with the difficulties of life (according to different modalities, like emotional support, material aid, information...). Low levels of social support have been linked to increased rates of depression, somatic illnesses and mortality.

Fifteen percent of the population aged 15 years or older reported poor social support in 2008. There is no significant gender difference. The lack of social support is gradually increasing with age. There is also a strong association with educational level (age-adjusted rate equals 22% on the lowest educational level versus 10% in the highest). The rate is much lower in Flanders than in the other regions, especially in Brussels.



### 7.2.3.3 *Healthy Public Policy*

#### **The Tobacco Control Policies Scale**

The concept of multi-pronged and “comprehensive” tobacco control policies arose from governments’ and non-governmental organisations’ policy initiatives during the 90s. The interest of the composite index “Tobacco Control Policies Scale” is to provide a global and internationally comparable level of the Tobacco Control Policies in a country. It is composed of the following elements<sup>98</sup>:

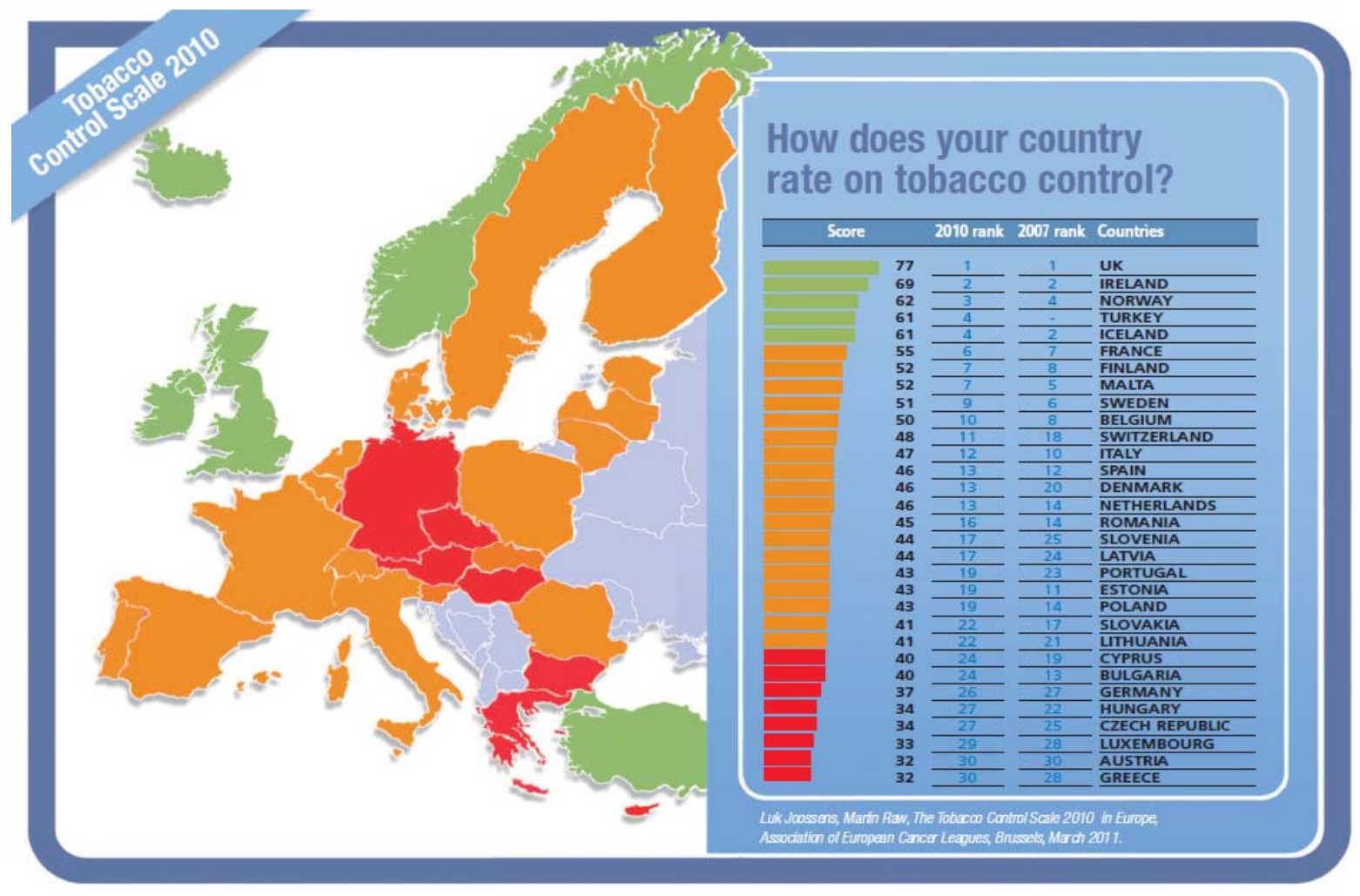
- Price increases through higher taxes on cigarettes and other tobacco products;
- Bans/restrictions on smoking in public and work places;
- Better consumer information, including public information campaigns, media coverage, and publicising research findings;
- Comprehensive bans on the advertising and promotion of all tobacco products, logos and brand names;
- Large, direct health warning labels on cigarette boxes and other tobacco products;
- Treatment to help dependent-smokers stopping, including increased access to medications.

Belgium is situated on the 10th place out of 32, with a global score of 50/100. The scores of the more extreme countries were respectively 32 (Greece) and 77 (UK). The authors conclude that “Belgium missed a golden opportunity to adopt comprehensive smoke-free legislation when the parliament modified legislation in December 2009 (articles 4 and 5). The new law still permits smoking in bars, discotheques and casinos. Also smoking is still allowed in some public places in smoking-rooms under strict rules. Data from the Ministry of Health show that half of the bars in 2010 do not respect the weak restrictions which applied to them. On the other side, Belgium was the first EU country to introduce pictorial health warnings in 2006 and to print the number of the quit line on all cigarette packs in 2011”.





Figure 37 – International comparisons on the Tobacco Control Scale in Europe (2010)



Source: A survey of tobacco control activity in 31 European countries in 2010<sup>98</sup>



### 7.3 Key findings

- In 2008, 47% of the population was in overweight, and 14% was obese. These percentages are increasing over time. Both overweight and obesity increase sharply with age until the age of 65, and are strongly associated with educational level. The obesity rate in the lowest educational level is twice as high as in the higher educational levels. Differences between regions are small.
  - The number of studies performed in Belgium on oral health of the population is scarce and are often limited to small selected areas. In a 2009-2010 study, the mean DMFT (dental health: decayed, missing, filled teeth) score was 0.9. This score meets the WHO goals set for the year 2010 (maximum mean DMFT score below 1.0 for 12-year-olds). However, more data are needed on larger samples.
  - The rate of new HIV diagnosis in Belgium is a bit higher than the European (EU-15) mean. A large proportion of those new diagnosis are made in non-Belgian people. Those are probably imported cases, with different patterns of transmission than those of the Belgian cases. The rate in Brussels is higher than in the other regions, representing an urban phenomenon. The male homosexual transmission is the main way of transmission for the Belgian cases. The number of cases resulting from this transmission way is increasing; the number of cases transmitted by other ways is not diminishing either.
  - The percentage of daily smokers was around 20% in Belgium in 2008. It has significantly decreased since 10 years. It is higher in men than in women, in all age groups. However, the rate is more decreasing in men than in women. The Belgian rate is slightly below the EU-15 average rate.
- In 2008, 8% of the population was considered to have a weekly alcohol over-consumption. Over-consumption is already common in young people (aged 15-24 years). Regional differences are observed in this age group, with more young people reporting over-consumption in Flanders than in the other regions. The problematic alcohol consumption (trends to dependency) seems to increase in all regions and mostly in Brussels. The regular risky single-occasion drinking (more than 5 glasses) among young people is of concern.
  - In 2008, almost two-third of the population ate fruit every day, which is an improvement compared to 2004. The daily vegetables consumption was still higher than that of fruits (84%). However, only 26% of the people ate 2 fruits and 200g vegetables daily, with even lower rates in Wallonia (F: 28.5%, B: 24.6%, W: 18.2%).
  - The global percentage of people practising at least 30 minutes of any type of physical activity per day is low, at 38%. It is lower in women. It is much higher in Flanders (45%) than in the two other regions, and is especially low in Brussels. The rate is also surprisingly declining in Wallonia.
  - When assessing the global public policy on tobacco control with the Global Tobacco Scale, Belgium is ranking at an intermediate position.





## 8 EQUITY AND EQUALITY

### 8.1 Introduction

Equity is a key feature in the evaluation of the performance of a health system.<sup>1</sup> It is also a controversial normative issue, referring to judgement and political position. A broad range of perspectives and definitions have been proposed, and are discussed in the Supplement S2 of this report: “The place of equity in assessments of the performance of health systems.”

Being aware of this feature, we have approached the dimension of equity with two complementary ways:

1. In a first subchapter, called “Socio-economic inequalities”, we document the inequalities in health, health determinants and healthcare utilization in Belgium across the socioeconomic position. Indeed, for the purpose of operationalisation and measurements, Braveman<sup>99, 100</sup> suggests defining equity in health as “the absence of systematic inequalities in health/health determinants between social groups who have different social positions in a social hierarchy”.
2. In a second subchapter, we have proposed contextual indicators that can highlight issues of equity in healthcare at a global level. This is the purpose of the second part of the chapter, called “Equity of the health system at a global level”.

### 8.2 Socio-economic inequalities

#### 8.2.1 How did we evaluate socio-economic inequalities?

Socio-economic health inequalities refer to disparities in health status/health determinants/utilization of health services, most often in disfavour of the social groups that are already disadvantaged by their position on the social scale. The presence of socio-economic inequalities is consistent and has long been recognized.<sup>101, 102</sup> Tackling health inequalities has long been a priority for the WHO.<sup>103</sup> It has become a high level priority target at European level, with the DG Sanco 2d Health Programme<sup>104</sup> and in the USA.<sup>105</sup> To assess the progress towards reducing social inequalities in health, it is important to measure them<sup>100</sup>,

and to monitor if they change over time (by repeating those measurements).

The measurement of health inequalities requires choosing:

- a characteristic defining the social groups
- one or more synthetic inequality measures in the health-related indicator(s).

#### Characteristics used to define the social groups

The social groups can be defined by different characteristics at household, individual or even geographical levels: the household income, the educational level, the occupation, a deprivation index, or a combination of some of those variables.

Social groups’ definition varies according to the availability of the socio-economic variables in the different data sources we used.

For the indicators issued from the Health Interview Survey, different socio-economic (SE) variables are available. For most indicators of this report, the highest educational level attained by the reference person and his/her partner was chosen to define the social position. Indeed, this information is considered to be the most comparable and robust choice, because it is largely available, less sensitive and prone to bias than the income level. It was coded according to the International Standard Classification of Education (ISCED) summarized as lower education (no diploma or primary school diploma), lower secondary education, higher secondary education and higher education. For the indicator “delayed contacts with health services for financial reasons”, the income level of the household was chosen as proxy for the SE level. Indeed, this choice is more pertinent when explaining purely financial barriers.

For the indicators of Life and Health Expectancy, the educational level was grouped into 5 groups (no education and primary level were split).

For the indicators calculated from the Permanent Sample or from the RIZIV – INAMI, the status of increased reimbursement was chosen as proxy for the SE level. Two social categories were defined with this



variable, the BIM<sup>u</sup> (increased reimbursement, mostly corresponding to people with a low income level) and BO (normal reimbursement).

### Measurement of inequalities

In a first step, we showed the disparities across the socio-economic groups for all the indicators for which data were available (this detailed information can be found in the documentation sheets in the Supplement S1).

In a second step, we summarized the detailed information by computing indices, allowing quantifying the size of the inequalities. A wide variety of summary indices can be used.<sup>106</sup> They differ by several properties: their nature (absolute versus relative), their scope and complexity: simple pairwise measures (like the rate difference, or the relative risk) comparing only two groups are easy to compute and to understand. However, from a public health perspective, more complex measures involving all social groups are more useful since they measure the total impact of the inequality on the population health.<sup>107</sup>

The following inequality indices are described in this chapter:

- For the Life/Health Expectancy:
  - The absolute difference in years between the lowest and the highest educational groups
  - The Relative Concentration Inequality Indices (CII rel): the relative concentration index is the sum of the difference in life expectancy between each group and the highest educational level, weighted by the size of each group, and divided by the life expectancy
- For the indicators issued from the Health Interview Survey
  - The age-adjusted rate ratio (between the extreme educational levels)
  - The absolute difference in age-adjusted rates (idem)
- The Population Attributable Fraction (PAF): this is the relative gain in health (or health determinant) rate that would be expected at population level if all the groups experienced the rate of the more advantaged social

group. It is computed as the difference between the overall rate in the population and the rate in the more advantaged group, divided by the overall rate in the population.

In this chapter, we highlighted the indicators for which we observed a relative risk (RR) as large as 1.2 (or 0.83 when the gradient was reverse).

### Limitations

The inequalities could not be measured for all the indicators due to lack of data on social position. This is the case for many of the quality indicators. Therefore, our conclusions for this dimension are largely incomplete.

Some issues known to be related to social inequalities were not studied in this work (like the waiting time for some interventions). A deeper focus of the topics specifically linked to the inequalities should be performed in the next report.

For the indicators from the Permanent Sample (EPS), only two statutes are available. It is difficult to measure the impact of inequalities at population level with the BIM status. Indeed, people with a preferential reimbursement status for financial reasons are people with a very low income, representing less than 5% of the population. On the other hand, the preferential reimbursement status also comprises people with a physical handicap but no financial disadvantage. The definition could be refined in the next survey.

We did not perform an analysis of the small scale geographical disparities in the indicators. Such a representation is a way to highlight health inequalities related to ecological poverty indices. This was beyond the scope of this work. Moreover, the data originating from the HIS cannot be analysed on a small scale, because of the size of the sample.

<sup>u</sup> BIM: Bénéficiaire à Intervention Majorée (beneficiary of increased reimbursement); BO: Bénéficiaire Ordinaire



### 8.2.2 Facts and figures

This section is a short summary of the detailed results which are presented for each indicator in the Supplement S1 of this report (available on the website).

#### 8.2.2.1 Inequalities in indicators of General Health Status

##### Life and Health Expectancies

To assess inequalities in life and health expectancies, complex processing of data on mortality, social position and disability are needed.<sup>108</sup> Currently, the most recent and robust data in Belgium concern the year 2001 for the inequalities in life expectancy<sup>109, 110</sup> and the year 2004 for the inequalities in health expectancy.<sup>111</sup> As mentioned, in both studies, the educational levels are reported in 5 categories (no diploma, primary, secondary lower, secondary higher, and higher education). With this way of grouping, more extreme groups are compared with the pairwise indices than for the other indicators, making the differences between the compared appearing very large. Concentration inequality indices are more appropriate measures because they take into account the share of the social levels.

Table 27 shows the life expectancy at 25 years by educational level, in 2001. Large inequalities in life expectancy between the educational levels are observed in both sexes, defined as the difference in life expectancy between a particular educational level to the highest level. A gradient of inequalities is observed. The difference between the extreme levels is 7.5 years in men. The Relative Concentration Index in men was 3.7%. In women, the same tendencies were observed as for men, but the gaps between each educational level and the highest were smaller than in men. The gap between the extreme educational levels was 5.9 years in women and the Relative Concentration Index in men was 3.7 %.

**Table 27 – Life expectancy at 25 years by sex and educational level, absolute difference to highest educational level and concentration inequality indices (CII) (Belgium 2001)**

	Men		Women	
Diploma	Total	Diff to the highest level	Total	Diff to the highest level
Higher	55.0		59.9	
Secondary higher	52.5	-2.5	58.5	-1.4
Secondary lower	51.3	-3.7	58.0	-1.9
Primary	49.3	-5.7	56.2	-3.7
No diploma	47.6	-7.5	54.0	-5.9
Total	51.4	-3.7	57.1	-2.8
CII absolute		1.9		0.8
CII relative		3.7		1.4

Source: Deboosere et al.<sup>112</sup>

Table 28 shows the health expectancy at 25 years by educational level, in 2001. Inequalities between the educational levels in health expectancy are much larger than for life expectancy. Again, a gradient of increasing inequalities when the educational level decreases is observed. The difference between the extreme levels is 18.6 years in men. The Relative Concentration Index in men is 15.3%, which is much larger than for life expectancy. In women, the same tendencies were observed as for men. The gap between the extreme educational levels was 18.2 years in women. The Relative Concentration Index in women was 16.6%. This means that people with low educational level not only live shorter than those with a high educational level, but also that they spend much less time in good health.



**Table 28 – Health expectancy at 25 years by sex and educational level, absolute difference to highest educational level and concentration inequality indices (Belgium 2004)**

	Men		Women	
Diploma	Total	Diff to the highest level	Total	Diff to the highest level
Higher	46.33	0.0	47.1	
Secondary higher	41.54	-4.8	41.27	-5.8
Secondary lower	39.71	-6.6	42.01	-5.1
Primary	36.65	-9.7	36.27	-10.8
No diploma	27.75	-18.6	28.92	-18.2
Total	40.5	5.9	40.4	6.7
CII absolute		6.2		6.7
CII relative		15.3		16.6

Source : Van Oyen et al.<sup>113</sup>

### The self-perceived health

Important inequalities are observed in self-perceived health. An absolute difference of 29% is observed between the lowest and the highest educational levels (Table 29); the relative risk is 67%. The Population Attributable Fraction is 11%, meaning that the global increase of the rate in the whole population would be 11.2% if all educational levels experienced the rate of subjective health of the people of the highest educational level.

Infant mortality is also known to be linked with socio-economic status. In Belgium, only partial data exist and confirm this fact. For instance, a clear

association was found in Brussels between the number of household incomes and infant mortality.<sup>114</sup> These data are not presented in detail in this report.

### 8.2.2.2 Inequalities in the indicators of accessibility

The percentage of households reporting to have delayed contacts with the health system for financial reasons was strongly related to the income level, with 27% of delay in the households of the lowest quintile versus 4% in the households of the highest quintile (Table 29). This represents a relative risk of 6.2. The population attributable fraction was as large as 71%.

Inequalities of smaller size are observed for the screening of breast and cervix cancer. Lower coverage rates are observed for patients with lower socio-economic status (identified by their entitlement to increased reimbursement). The absolute difference of coverage between lowest and highest educational levels were respectively 14.3% and 15.3% for breast and cervix cancer screening. The relative risks were respectively 0.77 and 0.76.

For the indicators on vaccination (vaccination of children and vaccination of the elderly), a reverse phenomenon was observed. The vaccination against influenza in the elderly, measured with the EPS data, showed a better coverage in the patients with BIM. It could be due to the fact that they reside more often in institutions for elderly, where vaccination is more systematic. For the vaccination rate in children, in the last vaccination survey in children in Wallonia (2009), children with lower socio-economic status (measured with the educational level of the mother) had slightly better coverage than children from higher socio-economic level. This association was not found in Flanders.



### 8.2.2.3 Inequalities in the indicators of quality of care

Data by social status were only available for some indicators of quality of care.

#### **Socio-economic inequalities could be observed in:**

- The follow-up of diabetic patients: the absolute difference in the percentage of patients with a correct follow-up was 10%, the relative risk was 0.83, and the PAF was 7.4%.

No important inequality was observed for the following indicators:

- Prescription antibiotics according to guidelines
- Physician encounter after hospital discharge for elderly patients (65+)
- % of people with at least a contact with a GP in the year
- Percentage of people with a high fidelity to their GP (Index of Usual Provider of Care > 0.75)

#### **Reverse Inequalities**

Some interventions are not appropriate. Hence, a high rate for those interventions signs a lack of appropriateness. This is the case for breast cancer screening outside the target groups (< 50 or ≥ 70 years). Since the coverage is higher in the advantaged social groups, the appropriateness is also worse in this group.

#### **Missing data**

Unfortunately, for a large number of interesting indicators of quality, the socio-economic inequality could not be measured. Conclusions must be considered as largely incomplete. The missing data concern 14 indicators.<sup>v</sup>

<sup>v</sup> Cancer 5-year relative survival rate after breast cancer; Cancer 5-year relative survival rate after cervix cancer; Cancer 5-year relative survival rate after colon cancer; Deaths due to suicide (/100 000 pop); Patients who died within one week after start of palliative care service (%); Hospital admissions for asthma in adult patients (/100 000 pop); Caesarean sections (per 1000 live births); Incidence of hospital acquired MRSA infections (/1000 admissions); Incidence of post-operative sepsis (/100 000 discharges); Incidence of pressure ulcers in hospitals (%); In-hospital mortality after hip fracture (%); Patients with cancer discussed at the multidisciplinary team (MDT) meeting (%); Number of contacts between the patient and the GP

### 8.2.2.4 Indicators of the Health promotion domain

Daily smoking and obesity present a high relative risk (respectively 1.68 and 2.11) between the lowest and highest educational groups. For daily smoking, the absolute difference in rates is as high as 8.9%. Moreover, for daily smoking and obesity, a high Population Attributable Fraction (PAF) is observed (-36.1 % for smoking and -34.8% for obesity). This means that for those 2 factors, the inequalities have a large global impact on the population health, and that a large gain could be obtained in the population health if all social classes experienced the level of smoking/obesity prevailing in the more educated group.

The rate of overweight people (defined as the people with a BMI ≥ 25) presents more moderate inequalities, with a relative risk of 1.45 and a PAF of 14.7%.

For the determinants having a positive impact on health, a higher rate is generally observed in the more educated classes, meaning that the relative risk will now be lower than 1. We observe important inequalities for the consumption of at least 200g of vegetables and 2 fruits daily (RR= 0.74, and PAF=13.1%). For physical activity, the inequalities are rather important, with a RR of 0.56 and a PAF 12.3%.

**Strong inequalities** are observed in the level of social support, with 24.4% of the people from the lowest educational level reporting a poor social support, versus only 10.1% for the people of the highest level. This represents a RR of 2.4, and a PAF of -34.8%.

during the 3 last months of life; Pain control during hospitalisation (% of patients with pain always controlled).

**No or weak inequalities**

The daily consumption of fruits or vegetables once a day showed no important link with the social status.

The link between the consumption of alcohol and social status was not clear.

Data by socio-economic status were not available for: Decayed/ missing/ filled teeth at age 12 (mean score at age 12) and Incidence of HIV (/100 000 pop).

**Table 29 – Inequalities expressed with absolute difference, relative difference, and summary measures**

	Overall value (f)	Value in lowest social group (f)	Value in higher social group (f)	Absolute difference (lowest vs highest)	Relative Risk (lowest vs highest)	Summary measure (CII or PAF)
<b>General Health Status</b>						
Life Expectancy at 25 in men, 2001 <sup>i; ii</sup>	51.38	47.56	55.03	-7.47	n.a.	3.73%
Life Expectancy at 25 in women, 2001 <sup>i; ii</sup>	57.09	53.98	59.9	-5.92	n.a.	1.43%
Healthy Life Years at 25 in men, 2001 <sup>i; ii</sup>	40.47	27.75	46.33	-18.58	n.a.	15.30%
Healthy Life Years at 25 in women, 2001 <sup>i; ii</sup>	40.42	28.92	47.1	-18.18	n.a.	16.56%
% of the population (aged 15+) that assess their health as good or very good <sup>iii</sup>	76.8%	57.4%	85.7%	-28.3%	0.67	11.6%
<b>Accessibility of care</b>						
Delayed contacts with health services because of financial reasons (% of households) <sup>iv</sup>	14.0%	27.0%	4.0%	23.0%	6.75	-71.4%
Breast cancer screening (% women aged 50-69) <sup>v</sup>	60.1%	48.6%	62.9%	-14.3%	0.77	4.7%
Cervix cancer screening (% women aged 25-64) <sup>v</sup>	61.8%	48.9%	64.2%	-15.3%	0.76	3.9%
<b>Appropriateness</b>						
% of adult diabetes patients receiving appropriate care, in terms of regular retinal exams and blood tests <sup>v</sup>	54.0%	48.0%	58.0%	-10.0%	0.83	7.4%
<b>Health promotion</b>						
% of the population (aged 15+) that reports to smoke daily <sup>iii</sup>	20.5%	22.0%	13.1%	8.9%	1.68	-36.1%
% of the population (aged 15+) reporting a poor social support <sup>iii</sup>	15.5%	24.4%	10.1%	14.3%	2.42	-34.8%



% of the adult population considered as being obese (BMI $\geq$ 30) <sup>iii</sup>	13.8%	19.2%	9.1%	10.1%	2.11	-34.1%
% of the adult population considered as being overweight or obese (BMI $\geq$ 25) <sup>iii</sup>	46.9%	57.8%	40.0%	17.8%	1.45	-14.7%
% of the population reporting to eat at least 200g vegetables and 2 fruits per day <sup>iii</sup>	26.0%	21.7%	29.4%	-7.7%	0.74	13.1%
% of the population reporting to practice at least 30 minutes of PA per day <sup>iii</sup>	38.1%	24.0%	42.8%	-18.8%	0.56	12.3%

<sup>i</sup> in years; <sup>ii</sup> 5 educational levels; <sup>iii</sup> 4 educational levels; <sup>iv</sup> 5 income levels; <sup>v</sup> 2 reimbursement categories;

rates are not adjusted for age; summary measures= CII (Concentration Index of Inequalities) relative for life and health expectancy, PAF (Population Attributable Fraction) for all the other indicators

Source: Health Interview Survey and EPS (WIV – ISP and KCE calculations)

PA: physical activity





### 8.2.3 Key findings

#### With regard to general health status:

- Life expectancy presents a strong increasing gradient with the social position. This gradient is still much more important with health expectancy. Inequalities are observed in self-perceived health.
- Inequalities in those global and “end of course” indicators reflect inequalities in factors influencing them: social and living conditions, health determinants, health system. Those should be identified and tackled.

#### With regard to accessibility:

- Very large inequality is observed in the delay of health care for financial reasons.
- Moderate inequality is observed in breast and cervix cancer screening.
- On the contrary, for vaccination, it seems that the coverage in the disfavoured group is at least as good as in the favoured group (with some partial data showing even a better coverage). This is a good point for the action of preventive health services.
- Also the coverage of the global medical record is better in the less advantaged groups.

#### With regard to the quality of care:

- For most of the indicators, socio-economic inequalities could not be measured. The conclusions are incomplete.
- Moderate inequality was observed for the surveillance of diabetic people.

#### With regard to health promotion indicators:

- Very important inequalities are observed for daily smoking and obesity (with a Population Attributable Fraction of more than 30%). As obesity and smoking are strongly associated with a higher morbidity, tackling the inequality in those factors represents a top priority.

- Inequalities are also observed for overweight, eating enough fruits and vegetables, and in a lesser extent for practising physical activity.
- Very important inequalities are observed for the social support.

## 8.3 Equity of the health system at a global level

### 8.3.1 How did we evaluate the equity of the health system at a global level?

Equity is a controversial dimension. Generally, equity refers to “equality of something”. However, there is a large heterogeneity in the different approaches. Indeed, vertical equity is defined as the unequal treatment of the unequals and horizontal equity is defined as equal treatment of the equals. An example of vertical equity are tax systems which are organized so that everyone pays taxes based on ability to pay. An example of horizontal equity is the attempt to provide the same care to patients who have the same needs. Equity implies therefore some degree of solidarity between the richest and the poorest, between the healthy and the sick. In an attempt to reconcile solidarity and personal responsibility<sup>115</sup>, approaches have been proposed to define what should be equalized among individuals. Some propose to equalize resources<sup>116-118</sup>, while others prefer to equalize outcomes<sup>119-121</sup>. These theories offer interesting lines of thought and show how the definition of fairness and how to achieve it, are essentially normative issues and therefore philosophical issues.

To establish equity indicators in the context of a report on the performance of a healthcare system requires an approach as neutral as possible and must reflect societal choices. In this chapter, we have evaluated the global equity of the healthcare system in an indirect (or contextual) way.





**Belgium background:** In Belgium, some specific measures such as entitlement to increased reimbursement and the Omnio status have been taken to promote the financial accessibility. The maximum billing aims to avoid “catastrophic” health expenditures and other measures are targeting categories of patients, such as patients with chronic illness or children. Several Belgian studies, and their results, are discussed in detail in Supplement S2 of this report: “The place of equity in assessments of the performance of health systems.”

### 8.3.1.1 *Global or contextual indicators*

Two contextual indicators are described below:

- the progressivity of the financing of the healthcare system
- the Gini coefficient of inequality in income

The progressivity of financing the healthcare system translates the equity before using the system. By progressivity, we do not mean the “cost sharing” at the point of care (i.e. supplement, co-payment, coinsurance, non-reimbursable drugs, premiums to private insurance ...) but the way to finance the public system. A financing is defined as progressive (regressive) when the average rate of “taxation” (considered in a broad sense) is increasing (decreasing) with the income. And the financing is defined as proportional when the average rate of taxation is constant. We characterize the relative progressivity of the most important sources of financing of the Belgian healthcare system: the direct taxes are more progressive than the social contributions which are more progressive than the indirect taxes. Simple ratios are computed to describe the progressivity of the financing for the period 2005-2011. We do not evaluate the global redistribution effect of the financing and use of the healthcare system because such an evaluation implies the knowledge of individual data about consumption of care, all financing sources and about the available income. These data are not totally available for Belgium and a robust comparison with other countries is not possible due to lack of data. Wagstaff and van Doorslaer have contributed in a substantive way to the evaluation of the equity in financing and delivering of healthcare but, unfortunately, they do not mention Belgium in their work.<sup>122-128</sup>

We contextualize also the equity issue by means of the income inequality measured by the Gini coefficient. Some authors have showed the association between the income inequality and some indications of poor objective or subjective health.<sup>100, 129-131</sup> The Gini coefficient is simple to interpret and to compute for Belgium and international organizations use it to characterize the income inequality in an international perspective. It has been recently recommended by a WHO workgroup which was working on indicators for the “Health 2020 targets”.<sup>132</sup>

### 8.3.2 *Facts and figures*

This section is a short summary of the detailed results which are presented for each indicator in the Supplement S1 of this report (available on the website).

The disparities of health status and health consumption are presented with the indicators of the other dimensions. The computation of the two contextual equity indicators (progressivity of the financing and income inequality) shows that the public financing of the healthcare system becomes less progressive and that our redistribution system (tax and transfers) makes our country one of the most egalitarian in the world.

The public financing of the healthcare system becomes less progressive essentially for two reasons: (1) the part of the regressive receipts (indirect taxes) is increasing and (2) the part of the progressive receipts (direct taxes and special contribution for social security) is decreasing. Globally, these two evolutions make the financing less progressive.

Nevertheless, the Belgian society is one of the most egalitarian if we compare the Gini coefficient pre and after taxation and transfers (social allowances).

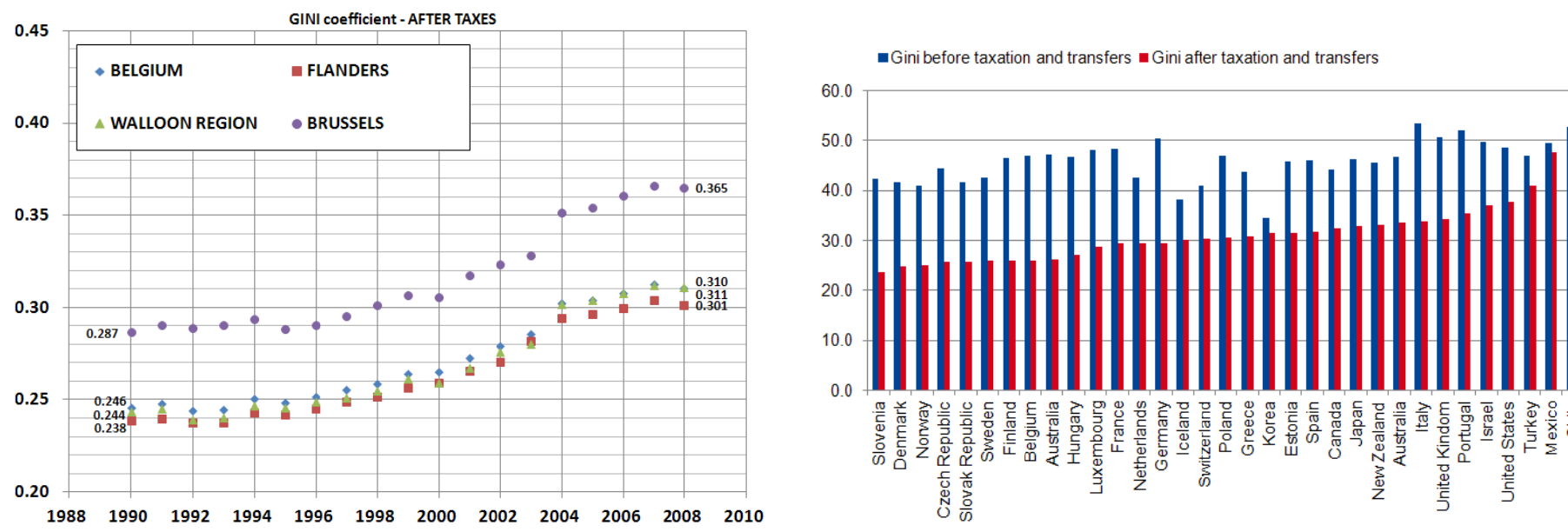
These two results are not contradictory because the society can organize a substantial income redistribution using a large system of transfers and taxes and finance a specific collective sector (i.e. the public healthcare system) using resources (taxation and contributions) which are little progressive.

Table 30 – Progressivity indicators of the financing of the public healthcare system (2005-2011)

Indicators of progressivity	2005 (final accounts)	2006 (final accounts)	2007 (final accounts)	2008 (provisional accounts)	2009 (provisional accounts)	2010 (budget)	2011 (budget)
Ratio proportional receipts/total receipts	71.1%	71.0%	72.0%	70.6%	69.4%	64.8%	61.4%
Ratio progressive receipts/total receipts	18.9%	19.0%	18.0%	17.3%	17.2%	19.4%	18.4%
Ratio regressive receipts/total receipts	10.0%	10.0%	10.0%	12.1%	13.4%	15.8%	20.2%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Source: *Vade mecum de la sécurité sociale*, RIZIV – INAMI, KCE calculation

Figure 38 – Gini coefficient before and after taxation and transfers (1998-2010): Belgium and international comparison



Source: DGSIE (Belgium) and OECD Health Data 2012 (international comparison)

Note: the Gini coefficient is a coefficient for inequality of income in a population. When there is perfect equality (everybody has the same income, the coefficient is 0). When there is perfect inequality, the coefficient is 1 (one person has all the revenues). A lower coefficient indicates a more equal distribution of the incomes.



### 8.3.3 Key findings

#### Equity in financing

- Public financing of the Belgian healthcare system becomes less progressive, certainly since 2005.
- The international comparison of the progressivity is not relevant because of the great diversity of systems.

#### Income inequality

- Income inequality in Belgium is relatively high before the redistributive impact of taxes and transfers.
- Thanks to the system of taxation and transfers, Belgium is one of the most egalitarian countries.
- The high level of income redistribution and the more egalitarian distribution of disposable incomes should have a positive impact on Belgian population health.

## 9 TOWARDS A MORE COMPREHENSIVE HEALTH SYSTEM PERFORMANCE ASSESSMENT: ADDRESSING CURRENT SHORTCOMINGS

In this section, we identified 10 limitations that should be addressed to improve the evaluation of the health system performance. Those issues relate to the lack of suitable indicators, the lack of data, the need for a better indicator or for more details. Some of the following conclusions result from the many indicators for which we could not find any data (see section “Indicators under development” in Supplement S1 of this report, available on the KCE website), and from the discussions with Belgian experts.

### **An indicator of global health status with potential for action: avoidable/amenable mortality**

The previous report included one indicator of health status which was premature mortality, expressed as potential years of life lost (PYLL) before the age of 70 years. This indicator was too general, limiting the potential of action and was not retained in this report. Instead, the avoidable/amenable mortality expressed by group of causes could be more informative for the measurement of the effectiveness of health services. A recent EU funded project established the list of conditions for which variations in mortality between countries are likely to reflect variations in performance of healthcare systems.<sup>133</sup> This indicator could replace premature mortality in a future set of performance indicators.

### **Financial accessibility: need for a more comprehensive picture**

While the coverage of the compulsory health insurance is quasi exhaustive in terms of the proportion of the population covered, part of covered services is paid directly by patients. Out-of-pocket payments remain high, and 14% of the people report to delay healthcare because of financial reasons (with a strong gradient with household income). Several protection mechanisms were introduced to maintain a financially accessible healthcare system. Examples are lump sums for the chronically ill and the



maximum billing system (MAB).<sup>134</sup> In addition to these publicly-funded mechanisms, individual private insurances reimburse several healthcare services. A prerequisite to guide policy within this domain is an improved transparency in ambulatory supplements as well as in private hospital insurances (the percentage of people with private hospital insurance, and what is specifically covered by these private insurances).<sup>135, 136</sup>

**Workforce counts: better data on the supply side available, but data on the need side still lacking**

An effective healthcare workforce planning should be considered within a global policy taking into account supply and patient needs.

*Data on the supply side*

Current head counts of practising physicians undoubtedly represent an improvement of the information compared with the former situation when the medical workforce was estimated by the total number of licensed medical doctors (regardless of whether they worked in the healthcare sector or not). However, the real activity level of physicians was not taken into account. Since 2009, this count is conducted by the RIZIV – INAMI, which evaluates the number of full-time equivalents (FTE) of active physicians. For the first time, preliminary counts of the number of practising nurses by sector of activity are now available.

However, the density of practising healthcare workers is difficult to interpret, as no optimal density to meet population needs has been defined. International comparisons are of little help here since they are not interpretable without taking into account the organisation of care, which varies across countries.

*Data on the need side*

Workforce planning also requires information on the need/demand side, information that is currently scarce.

Indeed, several informal sources point out that the needs are insufficiently met, at least as far as the nurse workforce is concerned. It is widely known that there is general lack of nurses in the Belgian hospitals. Moreover, the continuously rising and changing demand for health services, due to ageing populations, technological advances and higher patient expectations, require a larger and more skilled nursing workforce.<sup>137</sup>

Macro-level data on the needs should be complemented with data that reflect the situation at the micro level. An example of micro data is a recent large-scale European nursing workforce study based on survey data. It illustrated that in Belgian hospitals nurses have, on average, to take care for more patients compared to other EU countries.<sup>79</sup> More nurses reported to be dissatisfied with their job and have the intention to leave their job.<sup>79,138</sup>

No indicators of the needs have been defined yet in this report, but the reflection should continue on this topic.

**Mental healthcare: current indicators do not reflect the recent changes in the sector**

In the field of mental health, the currently available indicators do not reflect the recent major changes in the sector. Indeed, since the end of the 20th century, a strong de-institutionalization movement in the mental healthcare sector has led to the development of new models of organization. One model, the “balanced care” model is gaining influence in most industrialized countries.<sup>139</sup> It implies that community services should be offered whenever possible, while hospital services should be available when ambulatory care cannot provide a good answer to the patient's needs.

In Belgium, the most recent reform efforts to attain a balanced integrated care model focus on the development of “care networks” (the so-called “Art. 107 project”) oriented to 5 functional modules:

1. Prevention and promotion of mental health;
2. Intensive, community based, treatment teams for acute as well as for chronic physical conditions;
3. Rehabilitation teams focusing on social integration;
4. Intensive residential teams for acute and chronic mental health problems that require inpatient treatment;
5. Specific residential facilities in which care can be provided in a home or home-replacing environment.<sup>140</sup>



Some indicators can be proposed to monitor these evolutions (e.g. the percentage of patients with case management; the percentage of expenditures spent on community care compared to total expenditures on mental health care). They could not yet be measured because of limitations in the current data. Instead, we had to rely on general indicators (e.g. suicide rates) or indicators focusing on the psychiatric hospitalization episode (e.g. re-admission rates; involuntary committals).

At international level, despite several performance measurement initiatives, a recent survey of twenty-five EU countries noted that data on suicide rates and the number of psychiatric beds were readily available but other data were scarce.<sup>141</sup> Efforts are undertaken by international organizations such as the OECD<sup>62</sup> to propose indicators specific for mental healthcare. However, the operational development and data availability are often limited. For instance, despite the inclusion of “Persons aged 65+ years prescribed antidepressants using an anticholinergic anti-depressant drug (%)” in the OECD shortlist for mental healthcare indicators, there is no operational development of this indicator. What’s more, the few published studies disagree about what is an antidepressant with anticholinergic side effects.<sup>63, 64</sup> As a consequence, international comparison of mental healthcare system performance is seriously hampered.

#### **Continuity and coordination of care: new data soon available with the new pathways in ambulatory care, but still many gaps remain**

The fact that new pathways in ambulatory care for type 2 diabetic or chronic renal failure patients were recently started and are currently being evaluated, shows the importance of the coordination of care for the policy makers.<sup>142</sup> We plan to include the results of those projects in the next edition of this report.

Some other relevant indicators have been identified, for instance:

- The experience of the patient with regard to the coordination of his/her care. Some countries such as the Netherlands, France, U.K., Germany, Canada, U.S. or Australia<sup>20, 143</sup> have performed specific surveys to answer that question. This indicator, although being central, is currently still not measured in Belgium.

- The availability of the whole health information of a patient at any time by all care providers is a central question, linked to the one of the patient electronic medical record, and to the access to it. Two indicators under development reflect this issue: the % of general practices with access to the hospital data of their patient, and the % of patients for which information on medication prescribed at any setting is accessible at any setting. Some initiatives are already in place, such as the “Réseau Santé Wallon” (<https://www.reseausantewallon.be/>) and pilot projects are being run, such as Vitalink in Flanders (<http://www.vitalink.be/>), but without many connections between them, and currently without much data to evaluate them. In this matter, the e-Health platform should have an important role to play.

#### **Patient centeredness: many initiatives but few data**

Patient centeredness is intrinsically difficult to measure with quantitative data, because it is related to the health system’s ability to successfully answer to the particular needs of the patient or to encourage the patient’s involvement. To effectively measure this, there are two main methodological approaches used:<sup>144</sup>

- Self-report measures of doctors’ patient-centeredness;<sup>145</sup>
- External observation of consultation process: rating scales or verbal behaviour coding system.

In Belgium, the Health Interview Survey (HIS) is a major source of data self-reported by the population. It provides a measure of the patient’s satisfaction with the health system, an indicator that has been discussed above, but which is subject to many critiques, both on the validity of the concepts and on the measures of satisfaction.<sup>77, 78</sup> To improve our understanding on patient experiences, in the next wave of the HIS the item on satisfaction will be replaced by a question on the patient’s experience with ambulatory healthcare services (GP or specialists), based on the OECD questionnaire.<sup>15</sup> Patient experience with ambulatory care will thus be included in the following update of this report.

Patient centeredness is nevertheless a matter of concern for the Belgian healthcare system: several initiatives have been launched in Belgium. Three of them are described below. These 3 initiatives emphasize the commitment of the healthcare system to the patient centeredness





approach. More detailed analysis should be performed to evaluate their quality.

First, since 2003, an ombudsman service exists for managing patients' complaints in public hospitals. This service records the number and the motive of complaints each year but does not assess the justification and the follow-up of the complaints. In 2010, 16 907 records were registered versus 9 026 in 2006. However, these numbers should be interpreted carefully: more registered complaints can refer to declining services but also to more effective ombudsman services in terms of visibility, availability, comprehensiveness of the recording... or a change in the patients' culture of complaints. There is also an international trend to develop a similar indicator for assessing the existence of a complaint resolution process in general practice<sup>146-148</sup>. In Belgium, this is not yet operational.

Second, since 1999, general and psychiatric Belgian hospitals can ask for financial support to create a post of intercultural mediator or intercultural mediation coordinator. Linguistic and cultural barriers have indeed a negative impact on access and quality of care. In 2009, intercultural mediators have done more than 80 000 interventions in 17 languages. The mode of organization is hospital dependent: one or several mediator(s); availability during office hours only or also very exceptionally during out-of-hours in case of an emergency. The coordination cell of the FPS Public Health ensures the follow-up and the assessment of the requests. The assessment encompasses patients encounters, care providers training, booklet editing... However, an assessment of real patients' (or physicians') needs and responses quality is lacking. Moreover, it remains difficult to comply to all language translations (no less than 170 different nationalities are taken care of in some hospitals). In this context, a pilot project has started recently (2012) to allow mediation support by internet (video conferences). In this pilot project, a network is set up between hospitals with intercultural support and also local medical home or health centres. This project will be evaluated each year.

Third, some pilot projects are recently launched in Flanders to stimulate the patients' involvement in decision concerning their disease in hospital quality management systems. In 2013, several public hospitals will allow

the participation of patients' representatives in their board of governors. Measurement of quality indicators is soon expected in this domain.

#### **Long-term care: no data currently, waiting for first results using the BelRAI assessment**

Long-term care in this report refers to long-term care for the elderly needing assistance (mainly in residential care or receiving home care) and long-term care related to mental health problems. Indicators from the latter topic have been discussed above.

Some indicators have been chosen to assess the long-term care for disabled elderly patients, as the prevalence of malnutrition in elderly being in residential care or receiving home care (BMI <19), the percentage of elderly physically restrained, the prevalence of falls, the incidence of pressure ulcers and the problem of polymedication. Those indicators could not be measured, which highlights the current lack of data in this domain. However, the BelRAI<sup>w</sup> will soon provide data on some selected indicators.

At the international level, a working group from the OECD is currently developing a project specifically for long-term care<sup>45</sup>, focusing on quality. The proposed framework for monitoring and improving quality in long-term care services will be based on the national framework of six OECD-countries (Australia, Canada, England, Finland, the Netherlands and the United States). This framework prioritised care effectiveness and user safety as key quality dimensions, followed by patient centeredness (including responsiveness, empowerment and communication) and care coordination and integration. The final phase in the report is the development of policies to achieve quality in long-term care and to address the shortcomings. The release of the report is planned for the end of 2012.

<sup>w</sup> The Resident Assessment Instrument (RAI)<sup>44</sup> is originally developed to assess the care needs of the elderly in institutions, and has later been extended with instruments for different care settings and subgroups. In Belgium a national pilot project (the BelRAI) is ongoing, but is not yet implemented in all care settings. The assessment instruments for home care, for long-term care facilities and acute care have already been adapted to the Belgian situation. Data are expected before the edition of the next performance report.

**Efficiency deserves more attention in future report**

Obviously, efficiency in healthcare cannot be sufficiently assessed with the few indicators selected in this work. International literature proposes efficiency measures which explicitly identify inputs and outputs.<sup>8, 16</sup> This could certainly be an interesting area of research.

**End-of-life care: many local studies in Belgium, but few national data**

The few indicators measured in this report are based on the population of patients dying from cancer, or on the population of patients receiving palliative care at home. This does not cover the whole population of patients eligible for palliative care, which highlights a real gap in data availability. Moreover, so far no data at national level have been published on accessibility nor on quality of end-of-life care in Belgium. Results from local studies (especially from Flanders) are well available, but are based on restricted number of patients, do not allow studying evolution of trends over time, and hence cannot be included in a performance report whose aim is to be reproduced every few years. Compared to the other domains of care, end-of-life care is little or not at all represented in databases from international organisations.

**Health promotion: data on health literacy are lacking, while they are already available in other European countries**

Health literacy is a relatively new concept considered as a crucial resource in health management. It can be defined as the individual skills necessary to understand and manage factors interacting with one's health. This gives individuals the opportunity to make healthier choices. It has been defined as a priority of action for the 2008-2013 European Union strategy. Different tools have been used in the world to measure it. The European project on health literacy has developed a comprehensive questionnaire aiming to build and validate 12 indicators. Those intend to measure various aspects of health literacy. A first survey occurred in Europe in 2010-2011, but Belgium did not participate.<sup>97</sup>

## 10 GENERAL CONCLUSION

This report presents the results of a first global evaluation of the performance of the Belgian health system, building on a former feasibility study. By means of seventy-four indicators with numerical values, this report intends to provide an overall overview of the health system performance, pointing to some directions for policy actions and generating questions for further follow-up or research.

It represents a substantial improvement over the previous report, by being more comprehensive and by updating the former set with more relevant indicators. Moreover, it allows in some cases the measurement of evolution. Also, important previous gaps in basic data have been filled since the last edition, like the cause-specific mortality rates or the cancer survival.

Belgium is not the first country having exercised this challenge. With the signing of the 2008 Tallinn Charter on health systems, the Member States formally committed themselves to the monitoring and evaluation of health system performance. Several neighbouring countries, having years of experience with health system performance measurement served as example for this report. This is certainly true for the Dutch Performance Report. One of the weaknesses hampering successful performance measurement (also identified in former Dutch performance reports) is the availability of up to date data. Regular updating of administrative data and dynamic publishing of results on a website could partially solve this problem. Yet, this is only one of the options that can be considered if policy makers commit themselves to a systematic measurement and monitoring of the performance of the Belgian health care system.



## ■ APPENDICES

### APPENDIX 1. LIST OF INDICATORS MEASURED IN THE 2012 REPORT, CLASSIFIED BY TIER OF THE HEALTH SYSTEM, DOMAIN OF CARE AND DIMENSION

Health Status					
<ul style="list-style-type: none"><li>• Life expectancy</li><li>• Health expectancy</li><li>• Self-perceived health</li><li>• Infant mortality rate</li></ul>					
Healthcare					
Dimension	Domain of care Generic	Preventive Care	Curative Care	Long-term care (elderly/mental health)	End-of-Life Care
Accessibility	<ul style="list-style-type: none"><li>• Number of practising physicians (per 1000 population)</li><li>• Number of practising nurses (per 1000 population)</li><li>• Coverage health insurance status of the population</li><li>• Amount of co-payments and out-of-pocket payments</li><li>• % of people who delay contacts</li></ul>	<ul style="list-style-type: none"><li>• Coverage breast cancer screening</li><li>• Coverage cervical cancer screening</li><li>• Coverage vaccination coverage children</li><li>• Coverage influenza vaccination for elderly</li></ul>		<ul style="list-style-type: none"><li>• Number of beds in residential care facilities per population 65 years and older</li><li>• % of population over 50 years old reporting to be an informal carer</li></ul>	<ul style="list-style-type: none"><li>• % of patients who died within one week after start of palliative care service</li></ul>





because of financial reasons

#### Quality - Effectiveness

- 5-year relative survival rate after breast cancer, by stage
- 5-year relative survival rate after cervix cancer, by stage
- 5-year relative survival rate after colon cancer, by stage
- Hospital admissions for asthma
- Suicide rate
- Rate of involuntary committals as a percentage of all hospitalizations per year
- Participation rates by people with mental illness of working age in employment

#### Quality - Appropriateness

- % of women aged 40-49 years old who had a mammogram within the last two years
- % of women aged 70-79 years old who had a mammogram within the last two years
- Prescription of antibiotics according to guidelines
- % of adult diabetics receiving appropriate care, in terms of regular retinal exams and blood tests
- Geographic variability in caesarean sections (per 1000 live births)
- Average daily quantity of medication (antidepressants, antipsychotics, hypnotics and anxiolytics) prescribed
- % of cancer patients receiving chemotherapy in the last 14 days of life



<b>Quality - Safety</b>	<ul style="list-style-type: none"> <li>Medical radiation exposure of the population</li> </ul>	<ul style="list-style-type: none"> <li>Incidence of hospital acquired MRSA infections</li> <li>Incidence of post-operative sepsis</li> <li>Incidence of pressure ulcers in hospitals</li> <li>In-hospital mortality after hip fracture</li> <li>% of persons aged 65 years or older prescribed antidepressants using an anticholinergic antidepressant drug</li> </ul>		
<b>Quality - Continuity of Care</b>	<ul style="list-style-type: none"> <li>Coverage of global medical record</li> <li>Usual provider of care index</li> </ul>	<ul style="list-style-type: none"> <li>% of cancer patients discussed at the multidisciplinary team meeting</li> <li>% of physician encounter after hospital discharge for elderly patients (65+)</li> </ul>	<ul style="list-style-type: none"> <li>% of discharges from psychiatric in-patient care readmitted to psychiatric in-patient care that occurred within 30 days (schizophrenia, bipolar disorder)</li> </ul>	<ul style="list-style-type: none"> <li>Number of contacts between the patient and the GP in the last 3 months of life</li> </ul>
<b>Quality - Patient centeredness</b>	<ul style="list-style-type: none"> <li>Satisfaction with health care services</li> </ul>	<ul style="list-style-type: none"> <li>Assessment of pain level during hospitalization</li> </ul>		<ul style="list-style-type: none"> <li>Patients dying in their usual place of residence</li> </ul>
<b>Equity</b>	<ul style="list-style-type: none"> <li>Indicators of the progressivity of public healthcare financing</li> <li>Gini coefficient before and after taxation and</li> </ul>			



	transfers	
<b>Efficiency</b>	<ul style="list-style-type: none"> <li>% prescription of low-cost drugs</li> </ul>	<ul style="list-style-type: none"> <li>% surgical day-case</li> <li>Average length of stay for normal delivery</li> </ul>
<b>Sustainability</b>	<ul style="list-style-type: none"> <li>Medical graduates becoming GP</li> <li>Mean age of GP</li> <li>Nursing graduates</li> <li>% of GPs using an electronic medical file</li> <li>Health expenditures (total, distribution, % of gross domestic product, per capita)</li> </ul>	<ul style="list-style-type: none"> <li>Acute care bed days (number per capita)</li> </ul>

## Health Promotion

Type of indicator	Indicator
<b>Health outcomes</b>	<ul style="list-style-type: none"> <li>% of overweight or obese adults</li> <li>Average number of decayed, missing, filled teeth in children at age 12</li> <li>Incidence of HIV</li> </ul>
<b>Intermediate health outcomes: healthy lifestyles and healthy environments</b>	<ul style="list-style-type: none"> <li>% of daily smokers</li> <li>% of problematic alcohol drinkers (3 indicators)</li> <li>% of daily consumption of fruits and vegetables</li> <li>% of daily physical activity</li> <li>% offer of physical activity at primary and secondary level in schools</li> <li>% health promotion policies in the municipalities</li> <li>% of schools with health promotion dimension in their school project</li> </ul>
<b>Health promotion outcomes</b>	<ul style="list-style-type: none"> <li>% of persons with poor social support</li> <li>Tobacco Control Scale</li> </ul>



## APPENDIX 2. LIST OF CHANGES TO INDICATORS COMPARED TO THE 2010 REPORT

This section lists the modifications that were done to indicators since the 2010 report. Indicators for which no data were available in 2010 are in red.

Indicator in 2010 report	Status in 2012 Report
<b>Accessibility</b>	
<b>A1: Number of physicians and nurses</b> No data available for the number of nurses in 2010	Some data available in 2012
<b>A4: Coverage of preventive child health care</b>	Removed in 2012 Rationale: this indicator was defined as an indicator of accessibility, as its initial aim was to focus on infants from underprivileged families (defined according to six criteria) or infants from migrants. The previous report showed that only results at national level were available, which makes it less interesting as an indicator of accessibility.
<b>A5: Additional illness-related costs for chronically ill people</b> No data available in 2010	Removed in 2012 Rationale: The calculation of additional illness-related costs for chronically ill people would require a good definition of chronic diseases and a cost-of-illness study of each identified chronic disease. This is a project in itself, and is not feasible within the time-frame of the present project.
<b>Quality</b>	
<b>QA1: Prescription according to guidelines (Urinary tract infection, acute otitis media, uncomplicated hypertension)</b> No data available in 2010	Modified in 2012
<b>QA3A: Utilisation of minimal and non-invasive surgical techniques (laparoscopic cholecystectomies, PCIs)</b>	Removed in 2012 Rationale: the use of minimal-invasive techniques is a means for reducing post-operative complications, length of stay and costs. It is therefore an indicator of efficiency. However, these techniques are not considered appropriate for all patients and careful patient selection is necessary. The use of these newer minimal-invasive techniques is also considered to be an indication of innovation (sustainability). In 2012, laparoscopic cholecystectomies and PCIs are standard interventions.



<b>QA4: Percentage of institutions that use special protocols or guidelines outlining procedures for high-risk or complex processes</b>	<p>Removed in 2012</p> <p>Rationale: this indicator, originally from the Dutch healthcare performance set of indicators, could only be estimated via the diffusion and use of clinical pathways in Belgian hospitals, and was furthermore based on non-validated results. No better data will be available in the near future.</p>
<b>QA6: Hysterectomy by social class</b>	<p>Removed in 2012</p> <p>Rationale: the results for 2010 showed no differences in hysterectomies rates by social class, and hysterectomies rates have been declining steadily since the publications on which this indicator was originally based.</p>
<b>QC1: Number of people who are not registered with a GP</b>	<p>Modified in 2012</p> <p>Rationale: as the concept of “registered with a GP” in Belgium refers to the GMD – DMG, this indicator was redefined more specifically as “percentage of population with a GMD – DMG”. It was also changed into a positive indicator (higher percentage indicates better coverage).</p>
<b>QC2: Average length of stay (LOS) in acute care hospitals</b>	<p>Modified in 2012</p> <p>Changed to more specific LOS for normal delivery</p> <p>Rationale: this indicator was previously seen as an indicator of the good continuity of care. However, experts were convinced that it was more indicative of how efficient the healthcare system is. Instead of all hospitalizations in acute care, a specific diagnosis was chosen: LOS for normal delivery, which is also an indicator used by the OECD.</p>
<b>QE03: Colorectal cancer screening</b> <b>No data available in 2010</b>	<b>Some data available in 2012, but data still too premature to perform evaluation</b>
<b>QE06: Acute care hospitalization rates for pneumonia and influenza</b>	<p>Modified in 2012</p> <p>Rationale: this indicator is a measure of effectiveness of preventive care. Since the most effective prevention measure against influenza and pneumonia is vaccination, which is already an indicator for influenza, makes the indicator redundant. It was modified into “Acute care hospitalization rates for asthma”, which is also an indicator used by the OECD.</p>
<b>QE07.3: Salt consumption</b>	<p>Removed in 2012</p> <p>Rationale for exclusion: the results for this indicator were based on a Belgian study published in 2008, which will not be repeated.</p>



<b>QE08: Breast feeding at 6 months of age</b>	<p>Removed in 2012</p> <p>Rationale: a new set of indicators to assess performance of health promotion was proposed, and experts did not retain this indicator, mainly because six months of exclusive breast feeding is hardly compatible with the length of the maternity leave in Belgium. Moreover, the previous report showed that data from Kind and Gezin and ONE were not comparable, due to different time frames used (KG: 3 months, ONE: 24 weeks).</p>
<b>QE09: Annual check-up at the dentist for children</b>	<p>Removed in 2012</p> <p>After a thorough examination of the nomenclature codes, it appears that it is not possible to isolate preventive care at the dentist for children.</p>
<b>QE10: Decayed, missing, filled teeth at age 12</b> <b>No data available in 2010</b>	<p>Some data available in 2012</p>
<b>QE11: Cardiovascular screening in individuals aged 45-75</b> <b>No data available in 2010</b>	<p>This indicator was removed.</p> <p>Rationale: this indicator was not measurable in the 2010 report because of lack of specific nomenclature codes. Since 2011 cardiovascular prevention is part of the new GMD – DMG+, which will be monitored.</p>
<b>QE12: Colon Cancer 5-year survival rate</b> <b>No data available in 2010.</b>	<p>Data available in 2012</p> <p>Source: Belgian Cancer Registry</p>
<b>QE13.1: Premature mortality.</b> <b>No data available in 2010</b>	<p>Removed in 2012</p> <p>Premature mortality, expressed as Potential Years of Life Lost (PYLL) is correlated with indicators already in the set (infant mortality, life expectancy) and has no potential for action, as it does not highlight the potential problems. Avoidable mortality would be a better indicator.</p>
<b>QE14: Breast Cancer 5-year survival rate</b> <b>No data available in 2010</b>	<p>Data available in 2012</p> <p>Source: Belgian Cancer Registry</p>
<b>QE15: Cervical Cancer 5-year survival rate</b> <b>No data available in 2010</b>	<p>Data available in 2012</p> <p>Source: Belgian Cancer Registry</p>
<b>QE16b: In-hospital mortality after community-acquired pneumonia (CAP)</b>	<p>Removed in 2012</p> <p>Rationale: this indicator was linked to the indicator “QE16a: In-hospital mortality after hip fracture”, both being indicators included in feedback on quality of care</p>



	sent by the FPS Public Health to Belgian hospitals. During the review process, the team decided that the latter indicator, mortality after hip fracture, was a better indicator than mortality after CAP, to assess safety of care (and not efficacy, as in the 2010 report).
<b>QS1: Incidence of serious adverse effects of blood transfusion</b>	Removed in 2012 Extremely rare events, so difficult to interpret evolution over time.
<b>QS2: Incidence of healthcare related infections</b>	Removed in 2012 Changed to prevalence of HAI, currently no data. Rationale: this indicator is not measurable (no surveillance system can monitor the incidence of all healthcare related infections). This indicator has thus been redefined more specifically as “the incidence of hospital-acquired bloodstream infection”, which is measurable.
<b>QS4: Incidence of post-operative surgical site infections</b>	Changed to post-operative sepsis Rationale: this indicator has low coverage, in terms of number of hospitals and of type of operations covered. It has been changed into “incidence of post-operative sepsis”, which can be measured by administrative data, and hence includes national coverage and a wider range of interventions. It is also included in OECD indicators.
<b>QS5: Incidence of pressure ulcers in long-term care facilities and individuals at risk</b> <b>No data available in 2010</b>	Data not yet available in 2012 (but soon). Source: BelRAI
<b>Sustainability</b>	
<b>S1.1: Amount reimbursed by the maximum billing system</b>	Removed in 2012
<b>S2: Qualification levels of healthcare providers</b>	Modified in 2012.
<b>S4: Yearly amount of the Special Solidarity Fund (SSF)</b>	Removed in 2012 Rationale: the SSF acts as a safety net, besides the compulsory health insurance, and decisions to reimburse treatment are based on a case per case basis. It was included in the previous set as a sustainability indicator, showing the system's



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capacity to be responsive to emerging needs. However, treatments reimbursed by the SSF are usually those waiting for approval by European Medical Agency (EMA), and are reimbursed by compulsory health insurance after this approval. This is thus not a very relevant indicator of the sustainability of the healthcare system.

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**S6.1: Number of acute care beds (per 1000 population)**

Removed in 2012

Rationale: this is a secondary indicator linked to the indicator “S6 acute care bed days, number per capita”. The latter was preferred because it also accounts for occupancy rate and length of stay.

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## APPENDIX 3. LIST OF INDICATORS MEASURABLE IN A NEAR FUTURE

This appendix lists the indicators that were selected as pertinent to evaluate the performance of the Belgian health system, and for which data will be available in a near future (i.e. in a 3-years time frame). The idea is to present those results in the next issue of this report.

For each indicator, a short rationale is provided, and (future) source of data are indicated.

### Health Promotion

- **% of people (aged 45-75) with a global medical record+ (GMD – DMG+) (specific consultation on health promotion and preventive care)**

The global medical record is a medical file centrally managed by the GP. The GMD – DMG+, introduced in April 2011, contains an additional component of prevention and health promotion. The GP can play a major role in health promotion. It is the right person to make a state of play of risk factors, organize preventive interventions (vaccination and screening), and counsel for healthy behaviours. The GMD – DMG+ is a tool to help the GP in this task. Monitoring the coverage of the GMD – DMG+ is thus an indicator of health promotion.

Source of data: RIZIV – INAMI

### Continuity of care

- **Percentage of patients registered in an ambulatory pathway for chronic care (diabetes/renal failure) and frequency of physician encounter for patients registered in an ambulatory pathway for chronic care (diabetes/renal failure)**

Pathways for chronic care are set up in Belgium since 2009. The aim of these pathways is to improve follow-up and collaboration between patients with chronic disease, general practitioner, specialist physicians and other healthcare professionals. Because the registration in a pathway is voluntary, the percentage of patients registered in the pathways of care is a indicator of the patients' participation in this public investment. According to the RIZIV – INAMI,

there were 20 176 registered pathways for diabetes and 15 428 for renal failure on 31 October 2011.<sup>142</sup> But the exact denominator is currently unknown. This item will be estimated by the ACHIL project which aims to evaluate the pathways for chronic care. Evaluation will be presented in May 2013.

Source of data: ACHIL project

- **% of visits to the Emergency Rooms in general hospitals for mental health and/or substance-related problems**

Although unforeseen and unavoidable emergencies do arise in mental health, mental health related emergency room use is used as an indicator of poor coordination of care and service failures.<sup>149</sup> The community treatment system to support services for people with mental health related problems is regarded as ineffective when utilization rates of emergency departments of general hospitals are high.<sup>150</sup> Highly accessible outpatient care is considered to help people to enter treatment before reaching the crisis stage and minimize the need for emergency room visits.<sup>149</sup> In addition, it is assumed that effective liaison between emergency rooms and mental health crisis resources reduces the use of emergency rooms for mental health services/clients. High rates of mental health related emergency room visits are not only a concern for members of the mental health community. It is also a concern that emergency department overcrowding results in decreased quality of care and increased likelihood of medical error.<sup>150</sup>

In the US, it has been illustrated that mental health related emergency room visits are on the rise for more than one decade.<sup>151</sup> This stresses the importance of the availability of expertise in the field of mental health in emergency rooms to manage these crises. Depending on the number of visits for psychiatric problems, availability of a mental health specialist in every emergency room may not be practical. Still, there should be a minimum protocol by which mental health expertise is accessible for immediate care for every citizen.<sup>152</sup>

Source of data: RHM – MZG since 2008 (information not available in RCM – MKG). Due to delays in accessing the data, this indicator could not be measured in this report.



### Patient-centeredness

- **Patient experiences with ambulatory services**

Patient-centered care is supported by good provider-patient communication so that patients' needs and wants are understood and addressed and patients understand and participate in their own care. A good communication is not easy as it requires several competencies (listening, explaining, courtesy...) In 2011 the OECD has edited a questionnaire on patient experiences with some questions related to the quality of the consultation.<sup>15</sup> The WIV – ISP decided to include in the Health Interview Survey (2013) the module of the OECD instrument dedicated to the patient experiences with ambulatory care.

Source of data: next Health Interview Survey, WIV – ISP

### Long-term Care

The majority of indicators will be based on the BelRAI project<sup>x</sup>

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<sup>x</sup> The Resident Assessment Instrument (RAI)<sup>44</sup> was originally developed to assess the care needs of the elderly in institutions, but is later extended with instruments for different care settings and subgroups (post-acute care, institutional mental healthcare, ambulatory mental healthcare, palliative care, acute hospital care and persons with mental disabilities). The structured and standardized assessment aims to realize a high-quality care planning and quality monitoring. Different care providers can assess the different items, resulting in a multidisciplinary approach of the care needs of the elderly.

In Belgium a pilot project (the BelRAI) is ongoing and is not yet nationally implemented in all care settings. The assessment instruments for home care and for long-term care facilities, for acute care and for palliative care are adapted to the Belgian situation.

The interRAI for **long-term care facilities** (interRAI-LTCF)<sup>153</sup> is a standardized instrument to evaluate the needs, the competences and the preferences of the residents in a long-term care setting (care home or other institutional setting) and aims to stimulate the continuity of care via a consistent assessment system and a patient-focused approach. The assessment instrument gives a description of the most important aspects of the functional capacity, the mental and physical health, the needs and the use of care of the individual resident, whereby most items function as specific triggers for care planning. Next to the assessment instrument,

- **Evolution over time in utilization of BelRAI (home care and in institution)**

Source: BelRAI

- **Prevalence of malnutrition by elderly (BMI <19)**

Older persons are particularly vulnerable to malnutrition due to complications such as changes in appetite and energy level, chewing and swallowing problems, change in nutritional requirements, loss of cognitive function and deteriorating vision.<sup>155</sup> The data for this indicator will be available in the BelRAI database. This indicator belongs to the set of indicators in the OECD long-term care quality project.<sup>45</sup>

Source of data: BelRAI

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analysis protocols are developed as guidance for the care planning. The interRAI-LTFC has been adapted to the Belgian situation and translated into Dutch and French (BelRAI-LTFCF).

The InterRAI for **home care** (interRAI-HC)<sup>154</sup> is a person-centered assessment system to guide the home care planning for chronic care patients but also for patients with post-acute care needs (for example after hospitalisation). The evaluation of the needs, the strengths and the preferences of the client indicate the functioning and the quality of life of the client. The interRAI-HC consists of the assessment instrument (standardised scoring scheme) and the CAPs (clinical analysis protocols). Some items of the instrument function as triggers for specific problems or risks for functional deterioration and link the interRAI-HC to a series of CAPs. These CAPs contain general guidelines for the further assessment and for individualized care and services. The 30 CAPs cover different domains and each triggered CAP needs to be discussed during multidisciplinary consultation to determine the necessary care services and the priority of each CAP. The interRAI-HC has been adapted to the Belgian situation and translated into Dutch and French (BelRAI-HC).



- **Percentage of residents who were physically restrained during the last 7 days**

Restraint-free care should be the aim of high quality nursing care. However, in reality, physical restraints are commonly used in geriatric long-term care.<sup>156</sup> This indicator belongs to the set of indicators in the OECD long-term care quality project.<sup>45</sup>

Source of data: BelRAI

- **Percentage of residents who had a fall during the last 30 days**

Fall incidents are a common cause of morbidity and mortality in elderly. Persons who fell once, have an increased risk on future fall incidents. The most recent Health Survey Interview reports that in the 12 months preceding the interview 7% of the Belgian population had an accident resulting in a medical consultation.<sup>157</sup> The most common cause of the accidents were falls (54%) and were common in children and in persons of 65 years and older. In more than 40% of the elderly, the fall caused a fracture. Within the domain of state of health of the BelRAI-LTCF and the BelRAI-HC, a subdomain on fall incidents determines the risk on future fall incidents. In the OECD long-term care quality project the indicator on the incidence of falls and fall-related fractures is proposed as example of a quality outcome on user safety.<sup>45</sup>

Source of data: BelRAI

- **Incidence of pressure ulcers: a. in long-term care facilities b. in individuals at risk (home care)**

The occurrence of a pressure ulcer in a hospitalised patient has a serious negative impact on the individual's health<sup>57</sup> and often leads to a much prolonged hospital stay. Pressure ulcers can be prevented with good quality nursing care.<sup>58, 59</sup> Currently no data are available, but it will be possible to evaluate this indicator using BelRAI data. This indicator is also included in the set of OECD indicators in quality of

long-term care.<sup>45</sup>

Source of data: BelRAI

- **Prevalence of MRSA's in nursing homes**

The WIV – ISP is currently finalizing a study, of which the results will be available at the end of 2012 ([http://www.nsih.be/nursing\\_homes/inleiding\\_fr.asp](http://www.nsih.be/nursing_homes/inleiding_fr.asp)).

Source: WIV – ISP

#### Efficiency

- **Chronic care: patients with home dialysis as a percentage of all patients with dialysis**

There are different treatment options for patients whose kidneys fail. The patients can be dialysed, either with haemodialysis or with peritoneal dialysis. In both cases patients can also receive a kidney transplant, either from a deceased or a living donor. Ultimately, kidney transplantation is considered to be the most preferable option, whenever possible.

Substitution of the more expensive haemodialysis in hospital by the less expensive alternatives such as low-care haemodialysis in satellite centres and peritoneal dialysis has been slower in Belgium than in many other countries. This is thought to be partly due to the financing mechanisms for dialysis. Since 1995 the Belgian government has modified the financing system a couple of times, with the explicit goal of introducing incentives for substitution. For this reason, the indicator is categorised in the performance dimension efficiency. Since home dialysis is not indicated for all patients with end-stage renal disease, it is also considered an indicator of appropriateness.

Source of data: IMA. Preliminary analyses for this report were run on the EPS, but the sample of patients under dialysis was too small to draw any conclusion. Analyses will have to be done on the total IMA database.



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