

PERFORMANCE OF THE BELGIAN HEALTH SYSTEM – REPORT 2019



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- **The external experts were consulted about a (preliminary) version of the scientific report. Their comments were discussed during meetings. They did not co-author the scientific report and did not necessarily agree with its content.**
- **Subsequently, a (final) version was submitted to the validators. The validation of the report results from a consensus or a voting process between the validators. The validators did not co-author the scientific report and did not necessarily all three agree with its content.**
- **Finally, this report has been approved by common assent by the Executive Board.**
- **Only the KCE is responsible for errors or omissions that could persist. The policy recommendations are also under the full responsibility of the KCE.**

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■ FOREWORD

We are presenting over a hundred indicators that are supposed to evaluate the "performance" of our health system. What does that mean? An assessment, a school report? No, this report does not allow for the distribution of good or bad marks, nor is it intended to fuel criticism of policy makers, service providers or healthcare institutions. It does, however, offer, through the great diversity of the selected indicators, a global vision of our health system, in fields as different as the quality of care, its efficiency, its accessibility or even the accessibility of the system. It is a huge task, for which a dozen researchers have analysed the literature, compiled data and consulted many experts and stakeholders.

We have reason to be pleased. Of course, we use red lights to alert the various officials, but we have also set quite some green lights. In road traffic, we pay little attention to them because they indicate that the road is clear. Here, we invite the reader to slow down and take a close look at them in order to become aware of the positive aspects of our system. And even when the situation seems more critical, you will find that it often evolves favourably. Does this mean that everything is going well, that we can rest on our laurels? Of course not: mental health, flu vaccination, breast cancer screening or antibiotic use, among other examples, must be carefully analysed to identify ways for addressing their obvious deficiencies.

But let us stay lucid: what these indicators do not say is perhaps more important than the data at their source. Are we consuming too many antidepressants? Admittedly, but why? Can we just blame the prescribers, remind them of the rules of good practice? That would be a quick way to absolve ourselves of our responsibilities. Because behind the stigmas of depression or burn-out there may be a lack of social cohesion, inequalities of all kinds, a society that leaves no room for losers, a pressure to achieve a performance which is measured with numbers and euros. Perhaps also our own lack of kindness, attention and recognition. The indicators have hidden sides that underline how cautious we must be when reading this report.

Finally, it should be remembered that it takes time until the effects of some of the implemented measures will be visible. Indicators often have a certain inertia, especially when they are based on numerous and uncontrollable variables. It takes just as long before they reflect a lack of action.

This time should be taken to analyse every aspect of the 'performance' of our health care system, because they each deserve the same special attention that patients benefit from.

Marijke EYSEN
Deputy general director a.i.

Christian LÉONARD
General director a.i.



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LIST OF ABBREVIATIONS

ABBREVIATION	DEFINITION
ADL	Activities of daily living
AMI	Acute myocardial infarction
BAPCOC	Belgian Antibiotic Policy Coordination Committee
BCR	Belgian Cancer Registry
CT	Computed Tomography
DDD	Defined Daily Dose
DTP	Diphtheria - Tetanus - Pertussis
EBP	Evidence-based practice
EC	European Commission
ECHI	European Community Health Indicators
ECHIM	European Community Health Indicators Monitoring
EFPIA	European Federation of Pharmaceutical Industries and Associations
EPS	Permanent Sample
ER	Emergency Room
EU	European Union
EU – SILC	European Union Statistics on Income and Living Conditions
FOBT	Faecal Occult Blood Test
FOD – SPF	Federal Public Service
FRKVA – CFQAI	Federal council for quality of nursing activities
FTE	Full Time Equivalent
GDP	Gross Domestic Product
GMR	Global Medical Record
GP	General Practitioner



HAH	Hospital at home
HAI	Hospital-acquired infections
HBSC	Health Behaviour in School-aged Children
HCQI	Health Care Quality Indicators
HFA	Health for All Database
HIS	Health Interview Survey
HiT	Health Systems in Transition
HIV	Human Immunodeficiency Virus
HSPA	Health System Performance Assessment
IGN – NGI	National geographic institute
IMA – AIM	Intermutualistic Agency
IMC	Inter-ministerial conference
KCE	Belgian Health Care Knowledge Centre
LTC	Long-term care
MDT	Multidisciplinary team
MPG – RPM	Psychiatric hospital data
MRI	Magnetic resonance imaging
MRSA	Methicillin-resistant <i>Staphylococcus Aureus</i>
MZG – RHM	Hospital discharge data
NICU	Neonatal intensive care unit
OECD	Organisation for Economic Co-operation and Development
OOP	Out-of-pocket
P4P	Pay for performance
PPP	Purchasing Power Parity
PREM	Patient-reported experience measure



PROM	Patient-reported outcome measure
PSI	Patient Safety Indicators
QALY	Quality-Adjusted Life Year
RAI	Resident Assessment Instrument
RIZIV – INAMI	National Institute for Health and Disability Insurance
ROB – MRPA	Home for the elderly
RVT – MRS	Nursing home
SES	Socioeconomic status
SHA	System of Health Accounts
SHARE	Survey of Health, Ageing and Retirement in Europe
SP	Specialist Physician
UMA	Urgent Medical Aid
UPC	Usual Provider Continuity
UPI	Unique patient identifier
US	United States
VAZG	Agency for Care and Health of the Flemish Community
VBAC	Vaginal birth after caesarean section
VDAB	Work and Employment Office (Flanders Region)
WGC	Woonzorgcentra (previously ROB – RVT)
WHO	World Health Organization
WIV – ISP	Scientific Institute of Public Health (integrated in Sciensano since 01/04/2018)



PART 1 – CONTEXT AND METHODS

1 CONTEXT AND OBJECTIVES

1.1 Introduction

Health System Performance Assessment (HSPA) is a process aiming to assess the health system holistically, a 'health check' based on measurable indicators. HSPA is specifically mentioned in the Tallinn Charter¹ signed by all countries from the European region of the World Health Organization (WHO). Each HSPA is developed along the lines of a conceptual framework that is specific to the country (see 1.3).

HSPA is an ongoing process, with a repeated monitoring feeding the information needs of health policy. In Belgium, this process started in 2007 and this report is the result of its fourth iteration (see Box 1).

The strategic objectives of the Belgian HSPA process are:

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

The "Report 2019" continues on the path set out by the three previous reports, and aims to monitor the accessibility, quality, efficiency, sustainability and equity of the Belgian health system.

Box 1 – Health System Performance Assessment (HSPA) in Belgium

HSPA is a country-owned process to assess holistically the health system ('health check'). It is based on indicators, which provide 'signals', aiming to contribute to the strategic planning of the health system by policymakers.

In Belgium, the following reports were published so far:

- **Report 2009:** conceptual framework and feasibility study for 54 indicators²
- **Report 2012:** 74 indicators and first full evaluation³
- **Report 2015 :** 106 indicators⁴
- **Report 2019 (this report):** 121 indicators (most of the health status indicators have been moved to a distinct publication by Sciensano: the **Health Status report^a**)

These reports are the result of a collaboration between the KCE, Sciensano, RIZIV – INAMI, and FOD – SPF Public Health for the current report

1.2 International initiatives

The conceptual framework of an HSPA falls with national perspectives and priorities, but is also used at the supranational level. The role of international agencies resides in promoting the principles of HSPA, in acting as a forum for sharing experience, and mostly in gathering data from national sources. Reliable and comparable data are a key factor for successful HSPA.⁵

HSPA initiatives at the European level are mainly conducted by WHO, European Observatory on Health Systems and Policies, Organisation for Economic Co-operation and Development (OECD) and European Commission (EC). Details on these international initiatives are presented in Box 2.

^a Available at <https://www.healthybelgium.be/>



Box 2 – European organisations involved in HSPA

World Health Organization (WHO)

WHO was the first international organisation to initiate the debate on health system performance assessment in 2000, with the publication of the “World Health Report”.⁶ The year 2008 marked the signature of the “Tallinn Charter on Health Systems for Health and Wealth”, in which the member states committed to “promote transparency and be accountable for health systems performance to achieve measurable results”.¹ Over the years, WHO developed several methodological publications on HSPA.^{7, 8}

WHO also maintains the Health for All Database (HFA), which provides a selection of core health statistics covering basic demographics, health status, health determinants, and healthcare resources, utilization and expenditure in the 53 countries in WHO European Region. The HFA is an important source for, for instance, the European Community Health Indicators Monitoring (ECHIM) system (see below).

Finally, WHO is the promotor of the European health policy framework, Health 2020, in which health objectives are defined.⁹

European Observatory on Health Systems and Policies

The European Observatory on Health Systems and Policies supports and promotes evidence-based health policymaking through comprehensive and rigorous analysis of the dynamics of healthcare systems in Europe. The Observatory is a partnership that includes (among others) the national governments of nine European countries (including Belgium), WHO and EC.

The Observatory developed the Health Systems and Policy Monitor, a platform that provides a detailed description of health systems as well as up to date information on policy relevant reforms and changes. The Observatory also produces country-based reports, Health Systems in Transition (HiT), that provide a detailed description of the healthcare system and of reforms and policy initiatives.

The last HiT for Belgium was published in 2010,¹⁰ and a new one is currently under preparation. The Observatory also publishes methodological research on HSPA.^{11, 12}

Organisation for Economic Co-operation and Development (OECD)

The OECD carries out work on health data and indicators to produce international comparisons and economic analyses of health systems. Key statistical publications include among others OECD Health Statistics 2018¹³ (a database containing more than 1200 indicators covering all aspects of health systems for the 36 OECD member countries). This database includes *OECD Health Care Quality Indicators* (HCQI),¹⁴ which compares the quality of health services in different countries and the *System of Health Accounts* (SHA) database, which contains comparative tables on health expenditures.

The OECD also publishes *Health at a Glance* reports.¹⁵ They provide the latest comparable data on different aspects of the performance of health systems in OECD countries.

European Commission (EC)

The EC has developed European Core Health Indicators (ECHI), a set of indicators to monitor the health status of the European population, as well as determinants of health and certain aspects of European health systems. They are presented in an interactive web application (the ECHI data tool), which makes use of data from Eurostat, WHO, OECD and specialised databases.¹⁶

In 2014, the Social Protection Committee and Belgium also took the initiative to organise a peer review on HSPA in Brussels to facilitate the exchange of best practices between countries.¹⁷ Finally, in 2014, the European Council Working Party⁵ on Public Health decided to create an Expert Group on HSPA, and further urged improvement in the coordination of HSPA by member states and the Commission¹⁸; a list of reports published by the Expert Group is available online^b.

^b https://ec.europa.eu/health/systems_performance_assessment/overview_en



1.3 Conceptual framework

Based on a review of the literature and a broad consultation of Belgian experts and stakeholders, the Dutch and Canadian frameworks^{19, 20} were used as a starting point to develop the Belgian performance assessment framework.² These frameworks were selected because they are complementary and when combined cover the range of *dimensions* deemed as important by the consulted experts and stakeholders for assessing the performance of the Belgian health system. In addition, the combined framework was tailored to the Belgian health system context, by defining the scope of the framework as broad as possible (health system instead of healthcare system) and by adding a new dimension relevant to policymakers (the sustainability of the health system).

The resulting framework (Figure 1) is subdivided in three interconnected tiers, i.e. (1) health status^c, (2) non-medical determinants of health and (3) a tier representing the health system, evaluated along four dimensions: **quality**, **accessibility**, **efficiency**, and **sustainability**. Quality of care is further subdivided into five sub-dimensions (effectiveness, appropriateness, safety, patient-centeredness, continuity). **Equity**, a fifth dimension, is a transversal dimension which is presented across all tiers. The first part of the report focuses on the analysis of these five dimensions. Five *domains* are then analysed separately: preventive care, mother and newborn care, mental health care, care for the elderly, and end of life care. Health promotion is a domain which extends far beyond the boundaries of the health system; rather than to give a partial view, we chose not to address it in this report.

1.4 Objectives of the 2019 report

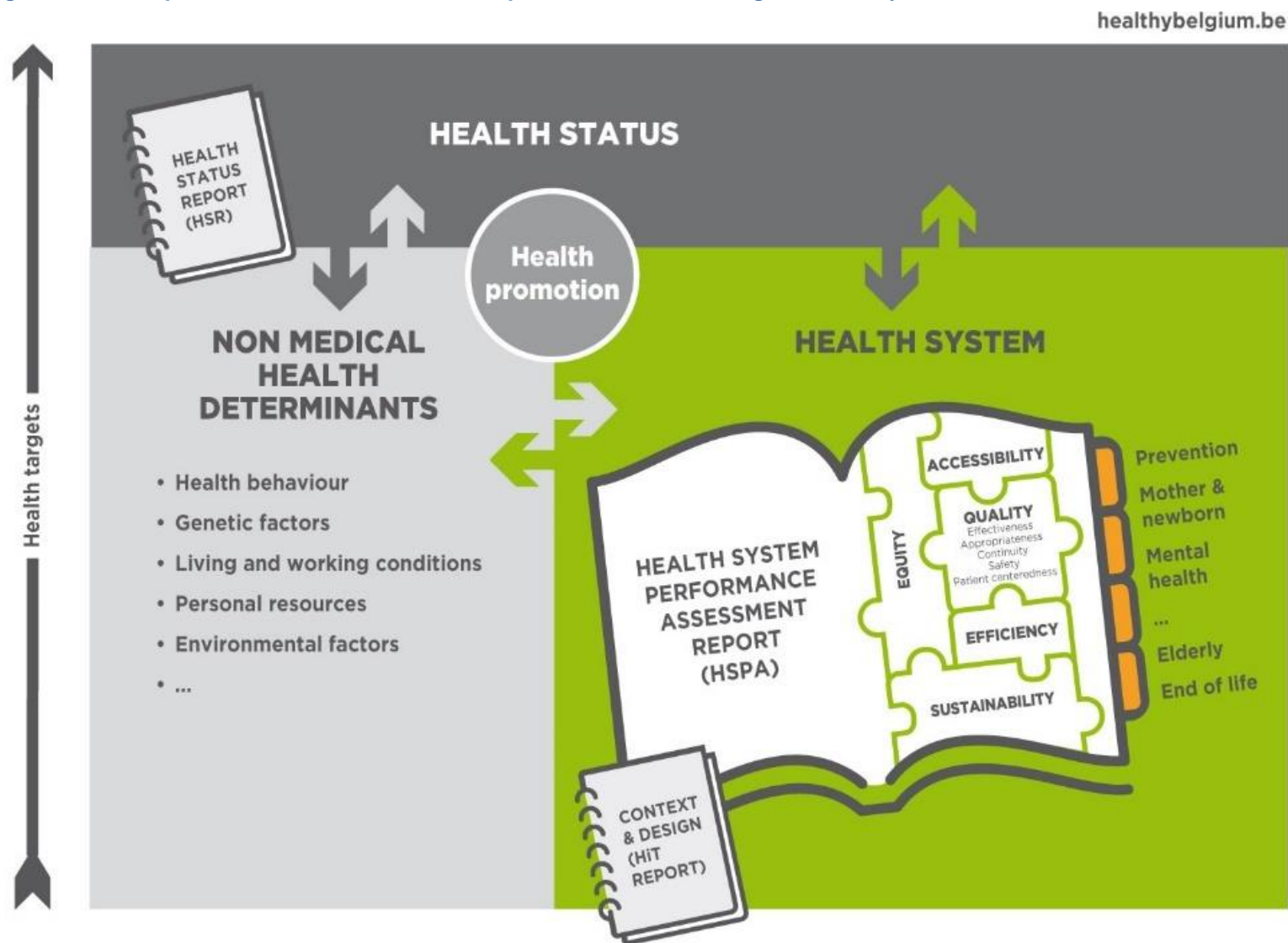
The objectives of the 2019 report are:

- to propose and measure a set of indicators, covering domains and dimensions of the Belgian health system, while keeping the number of indicators manageable (in this report, 121 indicators);
- to interpret the results in order to provide a global evaluation of the performance of the Belgian health system on the basis of several criteria, including comparison with targets and international benchmarking when appropriate.

^c The status of the Belgian population is now treated in a dedicated report by Sciensano, available at <http://healthybelgium.be/>.



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





2 METHODS AND DATA

2.1 Selection of indicators and sources of data

The HSPA project aims to compose the conceptual framework with the most useful indicators. The starting point of the selection of indicators was to identify, after a research in the indexed and grey literature, the most relevant indicators for each domain/dimension, in collaboration with external experts (conceptual relevance). In a second stage, these indicators were confronted with data availability making maximal use of routine data. No new data collection was undertaken, meaning that all data exploited in this report were extracted from existing data sources (see Box 3). The final selection of indicators was a compromise between the conceptual relevance (what would be ideal to measure) and the feasibility (availability of data and manageable number of indicators).

A total of 121 indicators have thus been selected and measured in this report, covering domains and dimensions from the conceptual framework. The list of indicators is presented in Appendix 1. Note that some indicators could not be updated because of lack of recent data (e.g. the latest Health Interview Survey (HIS) data have been collected in 2018 and results will be available no sooner than the end of 2019): rather than being withdrawn from the report, they are described with the latest available data; when recent data will become available for these indicators, the website (<https://healthybelgium.be/>) will be updated (see Box 5). These indicators are marked with a * in the synoptic tables.

Box 3 – Sources of data in the Performance Report 2019

- **Statistics Belgium** is the main statistical authority in Belgium. It collects and disseminates all population and mortality data.
- **MZG – RHM and MPG – RPM** (Minimale Ziekenhuis Gegevens – Résumé Hospitalier Minimum and Minimale Psychiatrische Gegevens – Résumé Psychiatrique Minimal) are administrative hospital discharge data. They are collected and disseminated by the FOD – SPF Public Health.
- **IMA – AIM** (InterMutualistisch Agentschap – Agence InterMutualiste) data are billing data collected by all sickness funds. Data sources include the whole IMA – AIM database or a sample of it (EPS: échantillon permanent – permanente steekproef), and the IMA – AIM Atlas (an interactive web application).
- The **HIS** (Health Interview Survey) is organised every 4-5 years by Sciensano (formerly the WIV – ISP) and collects data from about 10 000 persons in Belgium.
- **Farmanet – Pharmanet** is a database from RIZIV – INAMI which contains information (use, volume, etc.) on all reimbursed medicines in public pharmacies.
- The **SHA** (System of Health Accounts) database is maintained by the OECD. It contains details on health expenditure and financing at the country level.
- The **Workforce Register** is the national register on healthcare professionals maintained by the FOD – SPF Public Health. It contains information on new graduates and professionals licensed to practise.
- The **Belgian Cancer Registry** is an exhaustive national register of cancer cases. These data are linked to the IMA – AIM database to follow the care pathway of patients with cancer.
- Other national **registers** contain data on surveillance of hospital-acquired infections, surveillance of HIV, etc.
- Other **RIZIV – INAMI** databases (Doc N, Doc P) also provide information on providers of care and use of health services



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

Major changes include:

- A new domain (mother and newborn care) is included with 8 new indicators, covering prenatal, childbirth and postpartum care.
- The domain on long-term care for the elderly has been elaborated with 6 new indicators and now covers acute care for the elderly as well (e.g. medication prescription in and outside residential facilities for the elderly).
- Most of the health status indicators have been moved to a dedicated report, the Health Status Report, published by Sciensano; the health promotion and lifestyles section has been removed.
- A companion website is available in addition to this report, geared towards the general population, with downloadable data sets from selected indicators.

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

Some indicators in the 2015 report have been removed or modified for different reasons: because international organisations decided to stop monitoring the indicator, because results were based on a single outdated study which could not be repeated or because information from the indicator was considered redundant with other indicators.

2.3 How did we perform the evaluation?

The results of the 121 indicators are summarised in synoptic tables presented in the results section (Part 2). These tables present the most recent reliable results, at a national level and by region, as well as the data sources and the mean of EU-15^d (or another relevant comparator, e.g. EU-26 for indicators included in the Europeristat report²¹).

Evaluation based on level and trend

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

The value at the national level is compared to **targets** (national if they exist, international otherwise), to results from EU-15 countries (**benchmarking**), to **standards of care** (mainly for indicators derived from clinical guidelines), in that order. In the absence of targets, benchmarking or standards of care, the evaluation is based on a **consensus** among the authors of this report (expert opinion).

Regional differences (Flanders, Wallonia and Brussels)

Regions are always compared to the region with the best results, and regions having results that are at least 20% worse (in terms of relative risks) are highlighted in bold.

With respect to the regional comparisons, the specific context of Brussels has to be kept in mind: 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.

^d 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, the Netherlands, Portugal, Spain, Sweden, and the United Kingdom. Depending on the availability of data, the number of countries included in the benchmark can vary (e.g. EU-13 means that data from 13 of the 15 countries could be gathered for the comparison).



Box 4 – How to interpret the results?

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

- The aim of the HSPA report is to provide a global evaluation of the health system, not to monitor the effect of specific programmes; indicators are chosen to illustrate a dimension or domain, not to analyse a topic in depth nor to assess a specific objective. Trends can be drawn from time series: a same indicator in several reports or monitored over a long time can give information on the trend.
- Comparison with other (European) countries have to be taken with caution, as there might be differences in methodology, data collection (survey vs. administrative data, sampling scheme, etc.), coding of information, etc.
- Indicator results are influenced by several factors: it is not the aim of this report to identify these factors; many indicators are affected by factors outside the healthcare system, e.g. determinants of health (social and economic environment, physical environment, individual characteristics and behaviours); when an indicator trend changes, it could be due to a new policy, but it could also be due to any other factor: even if a correlation could be established, it could absolutely not be a proof of causality.

Table 1 – Pictograms for the evaluation of indicators

	Good results, and improving
	Good results, and trend not evaluated
	Good results, and globally stable
	Good results, but deteriorating
	Average results, but improving
	Average results, trend not evaluated
	Average results, and globally stable
	Average results, but deteriorating
	Poor results, but improving (warning signals)
	Poor results, and trend not evaluated (warning signals)
	Poor results, and globally stable (warning signals)
	Poor results, and deteriorating (warning signals)
	Contextual indicator: no trend (no evaluation is given)
	Contextual indicator: upwards trend (no evaluation is given)
	Contextual indicator: stable trend (no evaluation is given)
	Contextual indicator: downwards trend (no evaluation is given)



Box 5 – More data on our websites

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

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

PART 2 – RESULTS PER DIMENSIONS OF PERFORMANCE

3 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”.²² In this report, the concept has been further subdivided into 5 sub-dimensions: effectiveness, appropriateness, safety, continuity of care and patient centeredness.

3.1.1 Effectiveness of care

Effectiveness is defined as the “degree of achieving desirable outcomes, given the correct provision of evidence-based healthcare services to all who could benefit but not those who would not benefit”.²³ Effectiveness indicators are typically outcome (results) indicators: patient-reported outcomes (PROMs), adverse events (such as mortality, avoidable admission, and incidence of bacterial resistance) and sentinel events (e.g. wrong-site surgery). Seven indicators were chosen among internationally published indicators to assess effectiveness (Table 2). Even though it is not a specific outcome, avoidable mortality has also been added (preventable mortality and amenable mortality) as a “starting point” to assess the effectiveness of public health and health care systems in reducing premature deaths from various diseases and injuries.¹⁵

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



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

- Safety indicators: incidence of hospital-acquired MRSA infections (QS-2), incidence of post-operative sepsis after abdominal surgery (QS-4), prevalence of hospital-acquired cat II-IV pressure ulcers (QS-5);
- Mental health indicators: deaths due to suicide (MH-1), rate of involuntary committals in psychiatric hospital wards (MH-4);
- Preventive care indicators: incidence of measles (P-5);
- Mother and newborn care indicators: Neonatal mortality (MN-1), Apgar score at 5 minutes (MN-2).

Avoidable mortality (amenable/preventable)

A death is said amenable if, in the light of medical knowledge at the time of death, all or most deaths from that cause could have been avoided through good quality health care (e.g. deaths from appendicitis, pneumonia, peptic ulcer). A death is said preventable if, in the light of understanding the determinants of health at the time of death, it could have been avoided by public health policies focusing on wider determinants of public health, such as lifestyles, socioeconomic status and environmental factors (e.g. deaths from road accident, lung cancer, alcohol-related diseases).

Concerning mortality regarded as potentially amenable through the health care system, Belgium ranks rather well within EU-15 countries for men and average for women. This mortality is decreasing over time, and is higher in Brussels and Wallonia than in Flanders.

Belgium ranks poorly within EU-15 countries concerning mortality regarded as potentially preventable through health policies for both genders. It is 40% higher in Wallonia and 20% higher in Brussels than in Flanders in both genders; it is slightly decreasing in men.

Avoidable hospital admissions

High hospital admission rates for asthma and complication of diabetes can be interpreted as pointing to poor effectiveness of first-line care, as well as to poor coordination or continuity of care.²⁴

Belgium is situated around the EU-15 average for both indicators, but this is not very informative, as differences between countries can be due to many other factors than to effectiveness of care, such as difference in prevalence of the disease, in accessibility of care or in methodology for measuring the indicator.

Asthma-related admissions show a decreasing trend in the early 2000, which was also the case in other EU-15 countries, but stabilized since 2008. Rates are similar in Wallonia and Flanders, but higher in Brussels.

Admissions for complications of diabetes are slowly decreasing since 2008; the same trend is observed in other EU-15 countries.

Cancer survival

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

In a study comparing European countries published in 2014,²⁵ Belgium has outstanding 5-year survival rates for colon and rectal cancer, but lower than average results for breast cancer; recent OECD data corroborate these results. Still, comparison of survival results between European countries is complicated by methodological limitations, and should thus be interpreted with caution.

The 5-year relative survival rate after the diagnosis of breast cancer and colorectal cancer is 89.9% and 67.5% respectively, in a cohort of patients diagnosed in 2012. Compared to patients diagnosed in 2004, the survival rate is stable for breast cancer patients and a moderate increase is observed for colorectal cancer patients. Notable increases in survival are specifically observed for stage III patients with colorectal cancer.



Mortality after acute myocardial infarction (AMI) or ischaemic stroke

The 30-day AMI case-fatality rate reflects the processes of care, such as timely transport of patients and effective medical interventions. Case-fatality after AMI decreased in Belgium between 2000 and 2014, mirroring the trend observed in other European countries.²⁴ Part of this reduction can probably be attributed to better treatment, particularly in the acute phase of myocardial infarction. Mortality results are lower in Flanders than in the two other regions, but the gap is closing.

The management of ischaemic stroke has evolved over the last decade, with clear advances in thrombolytic treatments and the emergence of stroke units.²⁴ As in other European countries, case-fatality after ischemic stroke decreased slightly in Belgium between 2000 and 2016, but stabilized in recent years. Results are similar across the three regions, with Wallonia (10% of case-fatality rate within 30 days) having a rate a bit higher than Brussels and Flanders (both at 9%).

Case-fatality rates for AMI and for ischemic stroke are slightly above the EU-15 average.

In-hospital mortality after colorectal surgery

Case fatality rates within 30 days and 90 days after a surgery to treat the colorectal cancer are indicators of the quality of acute care delivered to patients. Advances in diagnosis and treatment, including improved surgical techniques, have contributed to increase the survival over the last decade.¹⁵ The evolution of the postoperative mortality rate over the period 2011-2015 is favourable (mortality decrease) for colon cancer and stable for rectum cancer. The rates are similar in Brussels and Wallonia, with Flanders managing lower rates; this should require further analysis (taking into account possible differences in patient populations) before drawing conclusions on differences in quality of care.

Conclusion

The measurement of effectiveness of care is limited in Belgium mainly because of lack of patient-reported outcomes measurement (PROMs), although some initiatives are in development. PROMs measure how patients function in relation to a health condition and its therapy (e.g. hip or knee replacement, pain control at end of life).²⁶ This kind of measure is routinely reported in the Dutch performance report.²⁷ In Belgium, PROMs are often not collected in a centralised way (but at the local level), a recent publication identified the barriers and facilitators to help developing PROMs initiatives at the Belgian level.²⁸

The subset of indicators was chosen among internationally published indicators. Belgium is situated around the EU-15 average for all effectiveness indicators, except for colon and rectal cancer, where results are better than in other countries. However, international comparisons should be interpreted with caution because of methodological issues. Trends over time are more reliable and are therefore equally informative for policymaking:

- Both indicators on avoidable hospital admissions (asthma and diabetes) show a decreasing trend which might be due to an improvement in the quality of primary care.
- Five-year relative survival after colorectal cancer shows a notable increase for stage III patients.
- Case-fatality rates after AMI have decreased in recent years, as in other European countries.
- Postoperative mortality rate after surgery for colon cancer is improving.

The results of the indicators in other dimensions show a positive evolution.



Table 2 – Indicators on effectiveness of care

(ID) Indicator			Belgium	Year	Flanders	Wallonia	Brussels	Source	EU-15 (mean) [BELGIUM]
Effectiveness primary care – avoidable hospital admissions									
QE-1	Asthma hospital admissions in adults (/100 000 pop)	ST	30	2014	29	29	39	MZG – RHM	39 ⁽¹⁾ [BE: 37]
QE-2	Complication of diabetes hospital admissions in adults (/100 000 pop)	+	130	2014	130	132	128	MZG – RHM	122 ⁽¹⁾ [BE: 143]
Effectiveness hospital care – health outcomes									
QE-3	Breast cancer 5-year relative survival rate (%)	ST	89.9	2012	89.8	90.2	89.6	Belgian Cancer Registry	86.2 ^(1, 2) [BE: 86.4]
QE-4	Colorectal cancer 5-year relative survival rate (%)	+	67.5	2012	69.0	64.3	67.7	Belgian Cancer Registry	63.3/62.9 ^(1, 2, 3) [BE: 67.8/66.6]
QE-5	Case fatality within 30 days after admission for AMI (pop. aged 45+, admission-based, %)	+	7.0	2016	6.7	7.7	7.7	MZG – RHM	6.3 ⁽¹⁾ [BE: 7.0]
QE-6	Case fatality within 30 days after admission for ischaemic stroke (pop aged 45+, admission-based, %)	ST	9.0	2016	8.6	9.9	8.9	MZG – RHM	7.1 ⁽¹⁾ [BE: 8.4]
QE-7 NEW	Case fatality within 30 days after surgery for colon (c) or rectal (r) cancer	+	3.9 (c)	2011- 2015	3.3 (c)	4.9 (c)	5.4 (c)	Belgian Cancer Registry	-
		ST	2.1 (r)		1.7 (r)	3.0 (r)	3.2 (r)		
QE-7 NEW	Case fatality within 90 days after surgery for colon (c) or rectal (r) cancer	+	6.7 (c)	2011- 2015	5.7 (c)	8.3 (c)	9.5 (c)	Belgian Cancer Registry	-
		ST	4.2 (r)		3.6 (r)	5.3 (r)	4.8(r)		
QE-8	Amenable mortality, men	+	110.6	2013- 2015	95.7	118.7	137.6	Statbel cause of deaths database	127.8 ⁽⁴⁾ [BE: 113.8]
	Amenable mortality, women	+	81.0	2013- 2015	75.4	84.3	90.7	Stabel cause of deaths database	81.5 ⁽⁴⁾ [BE: 82.7]
QE-9	Preventable mortality, men	+	281.4	2013- 2015	246.3	288.5	349.6	Stabel cause of deaths database	263.3 ⁽⁴⁾ [BE: 288.8]
	Preventable mortality women	●	152.4	2013- 2015	132.7	161.3	186.7	Stabel cause of deaths database	133.4 ⁽⁴⁾ [BE: 157.2]

Good (●), average (●) or poor (●) results, globally stable (ST), improving (+), deteriorating (-) or trend not evaluated (empty). ⁽¹⁾ OECD Health Statistics 2018; ⁽²⁾ 2009-2014 data; ⁽³⁾ Results for colon/rectum cancer are presented separately in OECD Health Statistic; ⁽⁴⁾ Eurostats.



3.1.2 Appropriateness of care

Appropriateness of care can be defined as “the degree to which provided healthcare is relevant to the clinical needs, given the current best evidence”.

²³ Appropriateness can be assessed through several methods. The strongest method is to measure to what extent medical practice follows **recommendations from clinical guidelines**. Another method often used is the analysis of **geographical variation**.

Seven indicators related to acute and chronic care have been selected (Table 3). They refer to the application of guidelines (in follow-up of diabetic patients, in prescribing patterns of antibiotics or antidepressants, in use of inappropriate medical imaging techniques) or to the variability of caesarean section rates.

Other additional indicators are presented in the tables on preventive care (Table 15) for vaccination and screening, mental health (Table 16) for drug prescription and consumption) and end of life care (Table 20) for aggressiveness of care at the end of life). Finally, variations in practice are presented in Box 6.

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

The appropriateness of care for patients with a chronic disease is evaluated by measuring the follow-up of diabetic patients.^e The composite endpoint of all five tests being evaluated as a quality indicator for follow-up of diabetes was only 30% for insulin-dependent patients and 11% for non-insulin-dependent patients, which is lower than the quality indicator used in the previous report. However in the previous evaluation, the primary quality indicator was only based on a composite three tests (HbA1c, creatinine, and annual follow-up by ophthalmologist). Moreover in the current composite quality indicator (consisting of the following parameters: HbA1c, glycaemia, micro-albuminuria testing, lipids and ophthalmology evaluation), the previously used parameter of creatinine was removed and replaced by microalbuminuria testing. Reality in clinical practice probably is that annual micro-albuminuria testing is much less frequently performed than the annual check of creatinine. This, together with the fact that the current composite indicator contains 5 tests, instead of the previously used composite indicator of only 3 tests, is very likely the reason for the lower overall performance observed in this report. There are regional differences for both subgroup populations: for diabetics needing insulin, differences between Flanders and Wallonia reach 6.5%. For non-insulin-dependent patients, Brussels shows the highest coverage rates, but the two other regions are close.

For insulin-dependent patients, the bottleneck seems to be the 4 glycaemia tests per year, while for the non-insulin-dependent, it is the microalbuminuria testing, followed by glycaemia measurement.

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



Appropriateness of care in prescribing patterns

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

Belgium ranks poorly internationally for antibiotics consumption (similar to France for instance, but about 2.5 times more than the Netherlands). In 2016 a high percentage (39.6%, small decrease from 41.5% in 2011) of total population received at least one antibiotic prescription, with higher figures in Wallonia (43.7%) than in Flanders (38.5%) and Brussels (35.3%). Numbers are especially high in the elderly residential sector (62.2% for residents 75 years old or more) compared to elderly who do not live in a nursing home (44.4%). Furthermore, 51.8% of the antibiotics prescribed are second-line antibiotics in 2016 (versus 16% in the Netherlands²⁹). Poor scores on this indicator are also observed among children (35%). The Belgian Antibiotic Policy Coordination Committee (BAPCOC) has defined two indicators with targets for second-line antibiotics:

- the ratio amoxicillin/amoxicillin-clavulanate should reach 4 to 1 (80/20), it is still just over 50/50 at 1.02 in 2016; for children (under 15), it reaches 3.16; for 65+ years old patients, it is 0.63.
- the total DDDs (Defined Daily Doses) of quinolones compared to the total antibiotics prescribed should decrease from about 10% in 2014 to 5% by 2018: in 2016, it is still at 10.7%.

Use of inappropriate techniques in medical imaging

Inappropriate techniques were responsible for 50% of medical radiation in 2013, mainly due to lumbar spine CT scans. Medical imaging is not recommended in most cases of aspecific low back pain.^{30, 31} Therefore, in this report, we made a focus on spine imaging: computed tomography (CT) scans and X rays, two imaging techniques which emit ionising radiations that can cause cancer, as well as magnetic resonance imaging (MRI), which is a safe imaging technique. Global imaging of the spine decreased by 2% per year from 2007 to 2016, with X-rays declining much faster in recent years: the consumption in 2017 is less than half that of 2007 (7.35% annual decrease). CT scan consumption has stabilised since 2014 and has recently been declining in Flanders; MRI consumption growth is slowly declining and there has been a decrease in Brussels since 2016 (which is compensated by an increase of CT scans in 2017).

Geographic variability in surgical procedures

Geographic variability for elective surgical procedures can be an indication of inappropriate care. Caesarean section (MN-3) has been chosen in this report as an illustration, but there are many others (such as hip or knee replacement, two procedures for which Belgium ranks in the top of EU-15 countries).³²

While WHO stated from 1985 to 2015 that there is no reason to have caesarean section rates higher than 10-15%,^{f, 33} rates are still high and increasing in the EU-15 region (25.9% of live births for EU-13). The rate in Belgium is lower (21.6%) and has been growing very slowly over the last years (a decrease has been observed in Brussels since 2014 and in Wallonia in 2016); a large variability between hospitals is still observed, indicating that lower rates could be attained in some hospitals. A more detailed analysis is presented in the [mother and newborn care section](#).

^f Latest WHO recommendations state that "every effort should be made to provide caesarean sections to women in need, rather than striving to achieve a specific rate."³³



Indicators of appropriateness in other sections of this report

Indicators described in other domains can also be linked to appropriateness. In the **preventive domain** (Table 15), breast cancer screening does not seem appropriately performed: the participation rate in the organised screening programme is low (especially in Wallonia and Brussels), and screening outside the target age group is substantial: a third of women aged 41-49 years get a mammogram while the screening population in women aged 50-69 years; there are regional disparities: Flanders has a lower proportion of women aged 41-49 years getting a mammogram (26.3% in 2016) than Brussels (46.7% in 2016) and Wallonia (49.0% in 2016). In the **mental health** domain, there are indications of inappropriate prescription of medication, as the recommended duration for major depression treatment (at least three months) is not met in a substantial proportion of patients using antidepressants. In the **mother and newborn care** domain, other than caesarean section, there are several indicators which can be analysed as appropriateness indicators: episiotomy rate, induction rate, proportion of vaginal births following a previous C-section, very preterm births in hospital without NICU and repeated toxoplasmosis screening during pregnancy. The latest is the only indicator giving concerning results (the guidelines are not well followed) and not improving.

Conclusion

Several indicators illustrate that appropriateness is not optimal in many domains (preventive, acute, long-term and elderly care). For many indicators Belgium performs poorly compared to international benchmarks, and only a small improvement can be observed in recent years.

The results for antibiotics and antidepressants prescription indicators are poor, as well in volume as in quality. Caesarean section rates have recently stabilised but still show a high variability between hospitals.

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

Box 6 – Variations in practice

Variations in practice cover any unjustified variation in health care that is a non-random variation related to insufficient or excessive use of care. Using N documents 2007-2017 data (with medical expenses of insured persons), standardised per year on the basis of age, gender and increased reimbursement status for districts, provinces and regions, INAMI – RIZIV has analysed several kinds of variation of practice (international variations, variations by gender, variations by age, geographical variations, variations by social status, variations by type of care, variations in the evolution trends, variations in the techniques used). The detailed analysis can be found on <https://www.healthibelgium.be/>. Here are some examples:

Variation by gender

While some variations in practice by gender are intrinsically linked to the treatment itself (hysterectomy, ultrasound of the prostate, etc.) this is not necessarily the case for other types of interventions. In the case of percutaneous coronary intervention, for example, in 2017 the rate of use was significantly higher for men than for women, which raises the question of possible underuse for women.

Variation by age groups

As with gender-related variations, age-related variations can also be explained by the epidemiology or by particular policies such as screening. Age-related variations may therefore be qualified as unjustified if they are not consistent with these parameters. They may also be considered unjustified if a high coefficient of variation for one or more age groups is observed despite high rate of use for these same age groups. In the example of mammography, the current recommendations call for breast cancer screening from 50 to 69 years of age. If the coefficient of variation is relatively stable in these age groups, it is found to be significantly higher in the age group of 41 to 50 years. The increase in the coefficient of variation in this age group probably reflects prescribers' uncertainty about the indication of mammography at these ages.

**Variation by type of care**

Variations can also be observed between day care and hospital inpatient stay. For instance, for inguinal hernia repair, there is few geographical variations in terms of rates of use but significant differences in terms of choice of type of care (day care vs inpatient). When comparing the proportion of day care for this intervention, the ratio between the district with the highest proportion of day care and the one with the lowest is approximately 7.

Variation by social status

Social status is approximated by the increased reimbursement scheme of which some insured persons are beneficiaries. For example, in the case of interventions involving varicose veins of the lower limbs, it is fairly generalised for all the provinces that rates of use are significantly higher for insured persons who do not benefit from a preferential reimbursement scheme (ratio of 1.46).

Socioeconomic inequalities by reimbursement status or education level in various indicators have been studied in [chapter 9](#). It is for example found that the participation rate in cancer screening by the target population (breast cancer, cervix cancer) is about 30% lower for individuals entitled to increased reimbursement.

Geographical variation

As the data are standardised by age, sex and social status (reimbursement scheme), geographical variations reflect different practice behaviours in different areas of the country and can therefore a priori be considered as unjustified. In the case, for example, of carotid ultrasound, the data show a ratio between the extreme values of approximately 4 (max / min ratio).

In the same way, despite no standardisation in the data, variability among Belgian hospitals has been studied for several indicators presented in this report. In 2016, C-section rates per hospital ranged from 16% to 35%, the proportion of vaginal deliveries after a previous C-section varies from 12% to 61% (data 2015), induction rate from 10% to 49% (data 2015) and episiotomy rate from 8% to 84% (data 2015) (see also [chapter 15](#)). (Source: RIZIV – INAMI³⁴)



Table 3 – Indicators on appropriateness of care

(ID) Indicator			Belgium	Year	Target	Flanders	Wallonia	Brussels	Source	EU-15 (mean)
Primary care – patients with chronic disease (guidelines)										
QA-1	Proportion of adult diabetics with appropriate follow-up ^a (% of diabetic patients under insulin)	+	30.2	2016	-	32.5	26.0	31.1	EPS (IMA – AIM)	-
QA-2	Proportion of adult diabetics with appropriate follow-up ^a (% of diabetic patients not under insulin, aged 50+)	+	11.0	2016	-	11.3	10.2	13.1	EPS (IMA – AIM)	-
Primary care – prescribing patterns (guidelines)										
QA-3	Use of antibiotics (total DDD/1000 pop/day)	+	27.7	2016		26.4	30.3	23.4	Farmanet – Pharmanet	20.2 ⁽¹⁾
QA-4	Use of antibiotics at least once in the year (% of population)	+	39.6	2016		38.5	43.7	35.3	IMA – AIM	-
QA-5	Use of antibiotics of second intention ^b (% total DDD antibiotics)	+	51.8	2016		49.3	56.8	47.9	IMA – AIM	-
Inappropriate medical imaging										
QA-6	Spine imaging (X-ray, CT scan, MRI per 100 000 population)	+	10 620	2017		9944	12 314	9436	RIZIV – INAMI	-
Cancer overscreening										
QA-7	Breast cancer screening outside age target group (% women aged 41-49)	ST	35.4	2016	-	26.3	49.0	46.7	EPS (IMA – AIM)	-

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

^a Appropriate follow-up is defined as patients receiving regular retinal exams and blood tests (glycohemoglobin, glycaemia, lipid profile and microalbuminuria)

^b Antibiotics of second intention are: amoxycilline with clavulanic acid, macrolides, cephalosporins and quinolones

Source of results for international comparison: ⁽¹⁾ OECD Health Statistics 2018.



3.1.3 Safety of care

Safety can be defined as “the degree to which the system does not harm the patient”.²³ Four types of indicators evaluate safety of care in this report: healthcare-associated infections, complications after surgery, complications related to nursing care and polymedication in the elderly (Table 4).

Healthcare-associated (or nosocomial) infections

The prevalence of hospital-acquired infections (HAIs) in hospitalised patients is 7.3% in 2017 (similar to the 2011 results, 7.1%). This is higher than what would be expected based on the case mix of Belgian patients (compared to the case mix and results of European patients included in the European Centre for Disease and Control survey) and it is also above the EU average (6.4%). Progress remains thus to be made in HAI prevention.

The second indicator is the incidence of nosocomial MRSA, a major nosocomial infection for which surveillance is mandatory in all Belgian hospitals since 2007. The follow-up of this indicator shows positive results, with a constant decrease of infections since 2005. The incidence of nosocomial MRSA remains higher in Wallonia compared to the other regions. The national recommendations to control MRSA, which were published in 2003, may be one of the factors contributing to this positive result.

The third indicator, proportion of MRSA and proportion of *E. coli* with reduced susceptibility to 3rd and 4th generation cephalosporins in acute-care hospitals, informs about the effectiveness of infection prevention and control measures (MRSA), and antibiotic consumption (*E. coli*). The median resistance proportion of *S. aureus* has been constantly decreasing in Belgium since 2005 and reaches 15% in 2016; Wallonia has as median proportion of resistant strains significantly higher than the other regions. The proportion of nosocomial MRSA is 26%, there are no significant differences between regions. The median proportion of resistant *E. coli* is 9% in 2016; differences between regions are not significant and there has been an

increase compared to 2014 and 2015 results. When comparing with EU-15 countries, Belgium occupies an intermediate position.⁹

Complications after surgery

Complications after surgery, recorded in the hospital discharge database, are compiled into the so-called Patient Safety Indicators of the OECD Health Quality of Care Indicators (HCQI) framework. Results show a small decreasing trend for pulmonary embolism (PE) or deep vein thrombosis (DVT) after knee and hip replacement (with better results for Flanders than the other two regions), and a steep decrease in the last available year for postoperative sepsis after abdominal surgery (with better results for Brussels, intermediate for Wallonia, and a higher complication rate for Flanders). Both indicators show a lower rate of complication than EU-15 countries (quite recent for postoperative sepsis after abdominal surgery); methodologies are slightly different between countries.

Complications potentially sensitive to nursing care

Pressure ulcers have serious negative impacts on patient health and can be prevented by appropriate nursing care. Results from a survey organised in 2012 by the Federal Council on the Quality of the Nursing activities showed a prevalence of 5.1% of pressure ulcer (cat II-IV). Prevalence of pressure ulcer is highest in Wallonia. At this moment it is difficult to benchmark these results against results from other countries, but they offer a baseline for future measures.

⁹ Comparisons between countries should be interpreted with caution: participation on voluntary basis, only invasive isolates are included, different in frequency of sampling and quality of the laboratory results.



Polymedication by elderly

The last type of indicators relates to the issue of polymedication in elderly patients (65 years or more), which may have an adverse impact on their health, a.o. by increasing the risk of drug interactions. Several sources were used to measure polymedication with different indicators. Chronic patients taking 5 medicines or more over a year with > 80 DDD delivered are frequent (39%), the trend is stable over the 2014-2016 period and polymedication is more frequent in Wallonia (44% in 2016) than Brussels (35%) and Flanders (37%). Survey analyses were performed at the Belgian level with the Health Interview Survey in 2004, 2008, 2013 and 2018 (results from the latter are not yet available) of the proportion of elderly patients taking at least 5 medicines in the past 24 hours: 27% in 2013, which shows a decreasing trend (2004 and 2008 reached 32% each) with no significant regional variations. The SILC-EU survey has collected polymedication data in its 2015 wave at the European level, the prevalence of polymedication reached 34% in Belgium, the 4th highest over 18 European countries.

Conclusion

The majority of the selected indicators of safety show intermediate results, except for the prevalence of HAIs in hospitalised patients which has not improved, and remains a point of attention. Most of the other safety indicators are improving over time, as they were already in the previous report.



Table 4 – Indicators on safety of care

(ID) Indicator			Belgium	Year	Flanders	Wallonia	Brussels	Source	EU-15 (mean)
Healthcare-associated infections									
QS-1	Prevalence of healthcare-associated infections (% of hospitalised patients)	ST	7.3	2017	-	-	-	Sciensano	6.4% ⁽¹⁾
QS-2	Incidence of hospital-acquired MRSA (per 1000 hospital admissions, median)	+	0.7	2016	0.5	1.2	0.5	Sciensano	-
QS-7 NEW	Proportion of methicillin-resistant <i>Staphylococcus aureus</i> (MRSA) in acute care hospitals (% , median)	+	15.0	2016	10.9	21.2	10.3	Sciensano	⁽³⁾
QS-8 NEW	Proportion of <i>Escherichia coli</i> with reduced susceptibility to 3rd or 4th generation cephalosporins (3GC/4GC I/R <i>E. coli</i>) in acute care hospitals (% , median)	-	9.1	2016	8.1	9.3	10.9	Sciensano	⁽³⁾
Complications after surgery^a									
QS-3	Incidence of post-operative pulmonary embolism or deep vein thrombosis, after hip or knee replacement (/100 000 hip or knee surgery discharges)	+	352	2014	247	498	576	MZG – RHM	401 ⁽²⁾ [BE: 354]
QS-4	Incidence of post-operative sepsis after abdominal surgery (/100 000 abdominal surgery discharges)	+	1717	2014	2230	1443	715	MZG – RHM	2122 ⁽²⁾ [BE: 1717]
Complications during hospitalisation – quality of nursing care									
QS-5*	Prevalence of hospital-acquired cat II-IV pressure ulcers (% of patients hospitalised)	●	5.1	2012	4.0	7.7	5.9	FRKVA-CFQAI	-
Polymedication									
QS-6	Polypharmacy among the elderly (5 or more drugs of >80 DDD per year) (% of insured population 65+)	+	39%	2016	37%	44%	35%	Pharmanet Sciensano	—

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

^a Patient Safety Indicators based on hospital discharge data

(1) Excluding Denmark and Sweden (2) OECD Health at a Glance 2017 ⁽³⁾ Belgium has an intermediate position across EU-15 countries for a similar indicator (see the technical sheet in appendix for details), * this indicator will be updated on the website (<https://www.healthibelgium.be/>) when recent results become available.



3.1.4 Continuity of care

Continuity of care addresses “the extent to which healthcare for specified users, over time, is smoothly organised within and across providers, institutions and regions, and to which extent the entire disease trajectory is covered”.²³

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

Six indicators have been selected that encompass these different aspects (see Table 5). Initiatives on integrated, person-focused care across various settings are also related to the continuity and coordination of care but are described in the section on patient centeredness care. Moreover, Initiatives on hospital at home are described in Box 7.

Box 7 – Hospital at home

Although there is no consensus on the definition of hospital at home (HAH), one may define it as “providing care in the patient’s place of residence that would otherwise need to be delivered in an acute hospital”.³⁵ An important element is the level of complexity of care, that is such that, without the possibility of HAH, the patient should necessarily be treated at the hospital.

This approach may fulfill a variety of needs and motives: address the lack of available hospital beds, an attempt to reduce health care costs, length of stay and/or the number of hospital admissions, or, from a demand perspective, a way to allow patients to remain within their own environment and respect their preferences - based on the assumption that patients generally prefer to stay at home.³⁵ Nevertheless, Belgium is in a situation of overall overcapacity of acute-care hospital beds, except for geriatric care beds.³⁶ Thus, the major challenges lie rather in ensuring continuity of care, bridging the current gap between primary and secondary care, and keep people in the least complex environment that is clinically appropriate.³⁵

Up to now, no specific status of HAH exists in Belgium. However, in March 2017, the Minister of Social Affairs and Public Health launched twelve HAH pilot projects (five in Flanders, five in Wallonia and two in Brussels). They focus on home antibiotic therapy (eight projects) and other types of care, such as anti-tumour treatments (five projects, including two focussing on breast cancer) or haemato-oncological treatments (one project). The projects will involve 1300 patients and 35 hospitals, as well as home nursing services and GPs.³⁷

Evaluation of these pilot projects should allow to assess outcomes and the quality of care (effectiveness, efficiency) as well as patients’ satisfaction and quality of life, so that they could be compared with the existing alternatives (inpatient and day hospital). However, these evaluations are not yet available.



Informational continuity in general practice

The global medical record (GMR) allows the general practitioner to gather information over time and centralise the medical data of his/her patients. This coverage has been growing over the years from 32.1% in 2003 to 67.5% in 2016. Differences can be observed by age group. Older insured persons had a better coverage than young people, i.e. 84.9% for people aged 75 years and older versus less than 62% for people aged below 45 years. Differences can be observed between regions: in the Flemish region, three quarters of the insured persons have a GMR while the coverage was less than 60% in Wallonia and less than 50% in Brussels.

Relational continuity with a general practitioner

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

Over the period 2015-2016, nearly 68% of patients encountered their usual GP minimum three times out of four ($UPC \geq 0.75$). This percentage is slightly higher in Wallonia and for the most vulnerable patients (elderly 65+ and lower socioeconomic groups). A decreasing trend can be observed between 2010 and 2014, followed by a stabilization.

Management continuity between hospital and general practice

Despite the supposed advantage of having a contact with a GP within the week after hospital discharge, this was the case for only 56.6% of hospitalisations in elderly patients (65+) in 2016. This proportion decreased slightly between 2008 and 2015 but started to increase in 2016. A lower proportion can be observed in Brussels (45.7%; compared to 58.1% in Flanders and 55.7% in Wallonia), in patients that do not receive long term care (i.e. 50.2% in patients that neither live in an institution nor receive nursing care at home), and in elderly patients below 75 years old (<50%) (QC-3, Table 5). The lower proportion in Brussels can nevertheless be explained by the fact that people in medical houses were not excluded from

the denominator but considered as having no contact with their GP in the numerator (underestimation, see the technical sheet).

A limitation of this indicator is that neither the reason for hospitalisation nor the length of the stay have been taken into account, although these factors influence the need of a GP contact after hospitalisation. It is also not possible to determine whether the contact with the general practitioner results from a discharge plan proposed by the hospital or from an initiative of the patient himself.

Coordination in ambulatory care for diabetic patients

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

After an increase from 2006 to 2013, the proportion of patients under insulin registered in a diabetes care model is now stabilising at around 90% (mainly via conventions), while for patients using oral antidiabetics or non-insulin injectable solutions, the proportion of patients under a diabetes care model remains low (20%, half diabetes passport, half care trajectory) but has been increasing over the years. For both patient groups, the proportion is higher in Flanders and lower for patients in the residential sector.

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



Coordination in hospital care for cancer patients

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

Since the introduction of specific nomenclature codes for the multidisciplinary team meeting (MDT) in 2003, a rapid increase of its use has been noticed for all cancer types. Overall, about 87.5% of cancer patients were discussed at the MDT in 2015 (compared to 51% in 2004 and 84% in 2012). Some variations in use of the MDT between types of cancer can be observed (highest 95.7% breast cancer, lowest 70.5% malignant melanoma), but differences are lower than in 2004.

An increasing use of the MDT is noticed for all three regions throughout the period 2004-2015. Moreover, initial (i.e. in 2004) marked regional variability in use of the MDT, with the highest results in Flanders, has clearly been reduced in the more recent years. In 2015, cancer patients are only slightly more frequently discussed at the MDT in Flanders (88.7%), followed by Brussels (87.8%) and Wallonia (85.1%).

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

Conclusion

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

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



Table 5 – Indicators on continuity of care

(ID)	Indicator	Score	Belgium	Year	Flanders	Wallonia	Brussels	Source	EU-15 (mean)
Informational continuity in general practice									
QC-1	Coverage of global medical record (% of persons who have a global medical record (GMR) with a general practitioner)	+	67.5	2016	76.4	57.1	49.3	IMA – AIM	-
Relational continuity in general practice									
QC-2	Usual Provider Continuity index ≥ 0.75 (%)	ST	67.6	2015-2016	65.8	71.9	64.7	IMA – AIM	-
Management continuity between hospital and GP									
QC-3	GP encounter within 7 days after hospital discharge (% patients 65+)	ST	56.6	2016	58.1	55.7	45.7*	IMA – AIM	-
Coordination in ambulatory care									
QC-4	Proportion of adult diabetics (under insulin) with a convention, a pass/pre-care trajectory or a care trajectory (% of patients, 18+)	ST	89.9	2016	91.3	88.6	86.1	IMA – AIM	-
QC-5	Proportion of adult diabetics (receiving only glucose-lowering drugs, excluding insulin) with a convention, a pass/pre-care trajectory or a care trajectory (% of patients, 50+)	+	20.2	2016	26.0	12.3	17.5	IMA – AIM	-
Coordination in hospital care									
QC-6	Patients with cancer discussed at the multidisciplinary team meeting (%)	+	87.5	2015	88.7	85.1	87.8	Cancer registry; IMA – AIM	-

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

*Underestimated (see the technical sheet)



3.1.5 Patient centeredness

Patient-centeredness is an approach in health care that consciously works around patients' needs, responding to individual preferences of patients and trying to ensure that patient values guide clinical decisions.³⁸ The assessment of patient-centeredness typically concerns the acknowledgment of patient's needs, wants, preferences, the quality of the provider-patient communication and the patients' and carers' involvement. Patient-centeredness increases patient satisfaction and counters the problems associated with fragmented care, such as contradictory medical advice, overprescribing, overhospitalisation and unresponsiveness.³⁹ However, patient-centeredness requires a coordinated approach to the organisation and delivery of care and works well with integrated care initiatives (see Box 8). In addition, evaluation of patient-centered care can be challenging because it is influenced by the health status and/or the socio-demographic characteristics of the patient. However, capturing the patients' perspective of health care is becoming increasingly important as health systems try to be more responsive to the needs of the people using their services. Early 2000's, the Organisation for Economic Cooperation and Development (OECD) developed a standardized instrument (through the Health Care Quality Indicators (HCQI) project) to estimate patients' experience in the ambulatory care. This tool, updated in 2015, and used in the Belgian health interview survey (HIS) 2013, allows to report common indicators for international comparisons of health care quality.^{40, 41}

Four indicators of patient-satisfaction in ambulatory care were extracted from the HIS 2013 and included in this report, i.e. physicians spending enough time with patients during the consultation, physician providing easy-to-understand explanation, physician giving opportunity to ask questions or raise concerns and physicians involving patients in decisions about care and/or treatments. Note that those four indicators could not be updated because of lack of recent data, they are described with the latest available data; when recent data will become available, they will be updated on the

website (see Box 5). Two extra indicators related to the patient experience in ambulatory care were added in this new version of the report, i.e. the proportion of patients with a localised prostate cancer receiving no active treatment around diagnosis date and the proportion of patients with localised testicular cancer receiving adjuvant treatment after surgery. These two new indicators are measuring the patient-centeredness of care because practitioners are advised to actively involve patients in the choice of treatment in case of prostate cancer. For a stage I prostate cancer (localised tumour), good clinical practices advise practitioners to discuss with the patient the choice whether to treat the cancer (i.e. active treatment by means of surgery, radiotherapy or hormonotherapy) or not (i.e. active surveillance or watchful waiting).⁴² For patients in a low risk category (localised tumour) and with a life-expectancy higher than 10 years, active surveillance is recommended while for patients with a life-expectancy under 10 years, watchful waiting is recommended.⁴³ In addition, good clinical practices recommend surveillance after surgery (orchiectomy of seminomas and non-seminomas) in case of localised testicular cancer and in absence of risk factors rather than adjuvant treatment (i.e. chemotherapy, radiotherapy or retroperitoneal lymph-node dissection).⁴⁴

A new indicator related to the patient experience in inpatient setting was also added in this report, i.e. the proportion of general hospitals using PREMs (i.e. experiences reported by the patient) questionnaires to evaluate the patients experiences after a stay in C or D bed. Indeed, patient experience measurements are needed to assess the patient-oriented approach in hospitals and therefore estimate the quality of care in hospitals.³⁹ This indicator was extracted from the Pay for Performance (P4P) programme for general hospitals initiated in 2018 by the national authorities^h, following KCE's recommendations on P4P.⁴⁵ The P4P was developed by the Pay for Quality (P4Q) working group as part of the reform of hospital financing. Out of 80 points (maximum score) included in the program, 10 points concern the measurement of patient experiences.

^h Programme Pay for Performance (P4P) 2018. Available at: <https://www.health.belgium.be/fr/programme-pay-performance-p4p-pour-les-hopitaux-generaux> (last access 23 Jan. 19)



Patient experiences with ambulatory care

Overall, patient satisfaction was high with respect to the four indicators extracted from the HIS 2013, both for contacts with the general practitioners (min: 95.8% - max: 98.1%) and with the specialists (min 92.1% - max 96.3%). Belgium performed better than the EU-15 mean for those four indicators of satisfaction in ambulatory care. Although no difference of satisfaction was noticed by age and sex of the patient, level of education seemed to have an impact on the satisfaction of the patients. Indeed, patients with a lower educational level appeared to be slightly less satisfied of their contacts with specialists than patients with a higher educational level. It was not observed for contacts with general practitioners (Table 6). For the time spent during the consultation by the specialists (Brussels 93.9%, Flanders 97.1% and Wallonia 96.1%) and the opportunity to ask questions to the specialists (Brussels 91.9%, Flanders 95.4%, Wallonia 96.4%), the regional differences were the most pronounced. Indeed, for those two indicators, patients from Brussels were globally less satisfied than patients from other regions (Table 6).

Regarding the indicators related to prostate cancer, we noted that the proportion of prostate cancer patients with an early low risk tumour (cT1-cT2 CN0/x CM0/x and Gleason <7) who received a treatment around the diagnosis date is declining in the more recent years (i.e. 2012-2015): 58% of the patients diagnosed in 2015 received no treatment (all ages) compared to 21% in 2004. Few regional variations were observed but elderly (75 years or older) were more frequently without treatment around the diagnosis date than the younger patients. In 2015, elderly (75 years or older) in an intermediate risk category (cT1-cT2 CN0/x CM0/x and Gleason 7) also received less extensive primary treatment (i.e. external radiotherapy) than in 2010 (2015: ~30%, 2010: ~15%).

For testicular cancer, in case of seminoma, a clear decrease in proportion of adjuvant treatments has been observed for the 2013-2015 period compared to the period preceding the publication of new guidelines (2004-2012).⁴⁴

This decrease has been observed in all regions (before guidelines in Belgium: 66.8%; after guidelines in Belgium: 59.9%). From 2013 to 2015, Brussels had the highest rate of adjuvant treatments for stage I testicular seminoma (69.2%), followed by Flanders (57.2%) and Wallonia (36.5%) (Table 6). These figures are of course only an indirect measure of the importance given to patient choice, hopefully these decisions were indeed made after careful consultation with the patient.

Patient experience in inpatient setting

For the P4P program in 2018, 94% of the hospitals who participated (96 out of 102) to the program organised measurement of PREMs in 2017-2018. In the future, more PREMs as well as PROMs (patient-related outcome measures) will be included in the P4P programme. No international comparison is currently available (Table 6).

Conclusion

In 2013, Belgian physicians in ambulatory care appeared to meet patient expectations in terms of time spent with them, explanation, openness to questions and shared decision making. These indicators are suffering from all the limitations of the HIS-2013, e.g. lack of representativeness of the Belgian population, limitations of self-reported information (influence of the educational and income level, disease experience status...) and were already largely discussed elsewhere.⁴⁶ Overall, treatment of prostate and testicular cancer seems to follow the new guidelines. However these indicators come from administrative and clinical data, not from patient interview; active participation of the patient's was not measured. Most general hospitals who participated to the P4P programme, reported PREMs. This indicator only covers general hospitals and in the future it would be interesting to evaluate PREMs in specific wards, e.g. maternity or day care. Despite the implementation of the Integrated Care Plan (see Box 8) and the P4P programme in 2018, initiatives to improve patient-centeredness are still too fragmented. Large scale data measuring the performance on patient-centeredness are still lacking in most settings.


Table 6 – Indicators on patient centeredness of care

(ID) Indicator			Belgium	Year	Flanders	Wallonia	Brussels	Source	EU-15 (mean)
Patient experiences with ambulatory care									
QP-1*	Physician spending enough time with patients during the consultation (% of respondents, contact with GP/SP)	●	GP: 97.7 SP: 96.3	2013	GP: 98.0 SP: 97.1	GP: 97.5 SP: 96.1	GP: 96.6 SP: 93.9	HIS	87.1 ⁽¹⁾
QP-2*	Physician providing easy-to-understand explanation (% of respondents, contact with GP/SP)	●	GP: 98.1 SP: 95.5	2013	GP: 98.3 SP: 96.0	GP: 98.2 SP: 95.7	GP: 97.4 SP: 93.2	HIS	91.1 ⁽¹⁾
QP-3*	Physician giving opportunity to ask questions or raise concerns (% of respondents, contact with GP/SP)	●	GP: 98.1 SP: 95.3	2013	GP: 96.6 SP: 95.4	GP: 97.4 SP: 96.4	GP: 96.9 SP: 91.9	HIS	89.3 ⁽¹⁾
QP-4*	Physician involving patients in decisions about care and/or treatments (% of respondents, contact with GP/SP)	●	GP: 95.8 SP: 92.1	2013	GP: 96.0 SP: 91.8	GP: 95.8 SP: 92.5	GP: 95.0 SP: 92.0	HIS	86.1 ⁽¹⁾
QP-5 NEW	Patients with a localised prostate cancer receiving no treatment around diagnosis date (%)	+	58.2	2015	58.3	56.8	65.7	BCR	-
QP-6 NEW	Patients with localised testicular cancer (seminoma) receiving adjuvant treatment after surgery (%)	+	52.3	2013-2015	57.2	36.5	69.2	BCR	-
Patient experience in inpatient setting									
QP-7 NEW	Proportion of general hospitals measuring PREMs after a stay in C or D bed (%)	●	94%	2018	-	-	-	SPF SPSCAE – FOD VVVL	-

Good (●), average (●) or poor (●) results, globally stable (ST), improving (+), deteriorating (-) or trend not evaluated (empty). GP = general practitioner; SP = specialist;

Source of results for international comparison: (1) OECD Health Statistics 2015.

* this indicator will be updated on the website (<https://www.healthybelgium.be/>) when the HIS 2018 results become available.



Box 8 – Integrated care

Over the past decade, integrated care became an indispensable element of health policy reforms across Europe because integrated care is considered as a key component to address challenges due to demographic changes of population (e.g. aging population, increasing life expectancy or decreasing fertility rate). To support the increasing burden of chronic diseases and the scarcity of the public resources, current approaches of delivery of care are reviewed and revised. A step towards more integrated care, i.e. a better integration and coordination of health care services, could provide an answer to these demographic challenges. International and European organisations published several reports on this topic to promote integrated care.⁴⁷⁻⁴⁹ In 2016, the World Health Organization also highlighted the benefits of a people-centred and integrated approach to avoid fragmented, inefficient and unsustainable health care.⁴⁷ Integrated health care services represent a fundamental paradigm shift in a way that they allow patients to receive a continuity of health care at the different levels and sites of care and according to their lifelong needs.⁵⁰ Since 2008, several initiatives have been taken in Belgium to improve the quality of life of patients suffering from chronic diseases. In 2011, the KCE developed a position paper on the organisation of care for patients with chronic diseases and concluded that the Belgian health care system is characterised by fragmented care delivery, both between and within lines of care.⁵¹ After the publication of the KCE report, the chronic diseases inter-cabinets workgroup developed an orientation note entitled “*an integrated vision on care for chronically ill in Belgium*”⁵² and, as a result, a joint plan called “Integrated Care for a better health” was developed and approved in 2015 by the Federal and Federated Ministers of Public Health. The aim of this plan was to promote and develop an integrated and person-centred care system with a focus on people with a chronic disease.⁵³

The mission of the integrated care plan is to strive to improve the quality of life of the population, and prioritising people suffering from chronic diseases, so they can live in the best possible way in their personal environment (family, school, work) and their own community through a proactive management of care process. This approach focuses on the patient and his/her family (ability, health status, healthcare satisfaction and wellbeing) while taking into account the perception of the health care professionals.⁵³ In order to accomplish the mission of the integrated care plan, the ‘Triple Aim’ principle and two additional objectives are pursued⁵³:

- Improve the health of the population and specifically people suffering from chronic diseases (Triple Aim 1);
- Improve the experienced quality of care of patients and informal caregivers (Triple Aim 2);
- Use the available resources more efficiently to ensure sustainability of the healthcare financing system (Triple Aim 3);
- Improve equity and reduce health inequalities; and
- Improve job satisfaction for care providers.

The Integrated Care Plan is implemented through the development pilot projects for integrated care. In early 2018, twelve pilot projects started (six in Flanders, five in Wallonia and one in Brussels) for a period of four years. These projects cover about one quarter of the Belgian population (2.52 million inhabitants) and a description of each pilot project is available on the Integreo websiteⁱ. Patients’ needs are at the heart of the pilot projects for integrated care that are supervised by an integration team.

ⁱ “Des soins intégrés pour une meilleure santé”, available at: <https://www.integreo.be/fr> (last access: 21 Jan. 19).



The projects are continually supported by a team from the Belgian federal government and a scientific team (called FAITH.be or “Federated consortium for appraisal of integrated care teams in health in Belgium”) that aims to evaluate the pilot projects.⁵⁴

Two evaluations will be conducted, one to measure the global effectiveness of the integrated care intervention programme^j and an auto-evaluation, performed by the pilot projects themselves, to assess progress compared to the initial action plan. Best practices will be identified from each evaluation and the aim is to structurally anchor successful changes or innovations.

4 ACCESSIBILITY OF CARE

Accessibility can be defined as the ease with which health services are reached in terms of physical access (geographical distribution), costs, time, and availability of qualified personnel.²³ Accessibility is a prerequisite for a high-quality and efficient health system.

In this report, we have defined 14 indicators to evaluate the accessibility of the healthcare system (Table 7). A first group of indicators is related to financial access, a second group is related to the workforce, addressing the availability of healthcare personnel, and a last indicator measures whether the system provides patients with timely access to healthcare.

Three additional indicators, a first on “catastrophic expenditure” and two others on geographical accessibility (i.e. a first on accessibility within a specific time frame to an emergency service and a second on accessibility within a specific time frame to a maternity service) are not yet available and will be published on the website at the end of 2019.

Financial access to healthcare

Financial access to healthcare can be described along three dimensions: the breadth of the coverage (who is covered?), the scope of the coverage (what is covered?), and the depth of the coverage (how much of the healthcare costs is covered?). Unmet needs for health care for financial reasons, the access to agreed tariffs, and the share of fee supplements are also an indicator of financial accessibility.

^j A set of indicators was built by FAITH.be to evaluate the five objectives and the assessment will compare changes in population health, patient experience, costs, indications of efficiency and equity and providers' satisfaction between pilot projects.



Who is covered?

Nearly the entire population is covered by the **compulsory public health insurance system**. The approximate one percent that is not covered concerns persons whose administrative and/or financial requirements are not fulfilled. The percentage is slightly higher in the Brussels region (around 2%). It should be kept in mind that persons not affiliated with a sickness fund (e.g. undocumented migrants, see also Box 9) are not included in the definition of 'population' in this indicator. Moreover, reliable and exhaustive data on the number of persons with private health insurance are currently not available.

Box 9 – Vulnerable people

In 2014, the RIZIV – INAMI White Paper on access to care in Belgium identified series of particularly vulnerable groups, for who access to care is not always readily available, especially since some find themselves obliged to turn down or postpone care.⁵⁵ For these groups, data on health care consumption and access are generally difficult to collect and not readily available in administrative data. Due to that, specific HSPA indicators for these groups cannot easily be calculated. Hereafter, we detail the issues for some of these vulnerable groups. The reader must be aware that the description hereunder does not aim to exhaustively cover all vulnerable groups situations.

Migrants

The notion of "migrant" encompass different types of populations that could, in most cases, be qualified as "vulnerable".

Undocumented migrants are individuals without a residence permit authorising them to regularly stay in Belgium. They include individuals who have entered the country irregularly, people whose residence status has expired or become invalidated, those who have been unsuccessful in obtaining asylum, and those born to undocumented parents.⁵⁶

In 2013, it was estimated that the undocumented migrant population in Belgium represents between 85 000 and 160 000 persons, including migrants from the EU-28, but the estimation is very unprecise.⁵⁷

This corresponds to 0.8%-1.4% of the general population in Belgium. Given the political crises in Syria, Iraq, Eritrea and Afghanistan, it is likely that this number has increased since then. Undocumented migrants cannot be affiliated to a Belgian Sickness fund. However, they are entitled to receive Urgent Medical Aid (UMA). In 2013, 17 602 individuals benefited from UMA.

Therefore, it can be estimated that between 10% (17 602/85 000) and 20% (17 602/160 000) of the undocumented migrants had at least one contact with the medical services during year 2013. As a comparison, this proportion approximates 90% for persons affiliated with a Belgian Sickness fund.⁵⁷ The interested reader is referred to Roberfroid et al. (2015).⁵⁷

Applicants for international protection (asylum seekers and people applying for subsidiary protection): In 2017, 19 688 persons applied for asylum in Belgium (including first-time and subsequent applicants).⁵⁸ For those living in reception centres (federal centre Fedasil or partner structure e.g. Red Cross), primary care is provided through the centre. However, each partner organises its system independently and information is not centralised. For asylum seekers living in a 'Local Reception Initiative' (reception facility organised at the municipal level in partnership with Fedasil), healthcare is reimbursed by the OCMW-CPAS. Finally, for asylum seekers living outside the reception centres and Local Reception Initiative ("no show"), they are reimbursed by the 'Fedasil medical costs' unit, using a specific form that must be given to the provider at each episode of care. The interested reader is referred Dauvrin et al. (Forthcoming 2019).⁵⁹

Refugees and Belgian residents born with a foreign nationality: In 2015, among residents in Belgium, 19.68% (2 206 259/11 209 044) were born with a foreign nationality (11.20% (1 255 270) kept the foreign nationality while 8.48% (950 989) became Belgians). Most of the people with a foreign nationality come from an EU-28 country (68.17%), whereas among foreigners who have become Belgian, the opposite is true: most come from a non EU-28 country (69.00%).⁶⁰

As these residents should be affiliated with a Belgian Sickness fund, their health care consumption could be measured using IMA – AIM database.



However, in the IMA – AIM database, the nationality is not recorded, so that persons with a foreign nationality cannot be distinguished from Belgians. In addition, the group of Belgian residents with foreign nationality encompasses very different groups of populations and not all of them can be qualified as “vulnerable”.

Prisoners

During the period April 2015-April 2016, 26 511 prisoners spent at least one night in prison.⁶¹ A GP consultation within the first 24 hours after entry in prison is mandatory by law in Belgium. Excluding this mandatory consultation, the rate of GP consultation was 16.3 per prisoner-year, which is, far above the rate in the general population, but the lack of data impedes further investigation. The overall rate of medical consultation (including other professionals as well as the mandatory consultation with GP) was 23.7 per prisoner-year. Nevertheless, for almost 7% of prisoners no medical consultation was registered.⁶¹ The interested reader is referred to Mistiaen et al. (2017).⁶¹

Drug users

Health consequences of drug use can be assessed through the use of several indicators such as the treatment demand indicator, morbidity indicators (HIV, hepatitis B and C and tuberculosis) and mortality indicators. At the Belgian level, some data on prevalence and consequences are collected by Sciensano^{62, 63}, while others can be gathered using local projects such as the European School Survey Project on Alcohol and Other Drugs (ESPAD)⁶⁴ implemented in 2015 in the Flemish Community or the Health Behaviour in School-aged Children (HBSC)⁶⁵ in Wallonia-Brussels Federation. The interested reader is invited to refer to the Belgium country report of the European Monitoring Centre for Drugs and Drug Addictions (EMCDDA)⁶⁶, to the ISP-WIV (Sciensano) National Report on drugs⁶² and to the Eurotox Report.⁶⁷

Sex workers

No centralised administrative data are available for sex workers in Belgium. A study from Ghapro, Pasop, Alias and Espace P for RIZIV-INAM in 2011-2012 brings information on 3 817 sex workers, mostly

female, who attend these associations. With this respect, the interested reader is referred to the RIZIV – INAMI Green Paper on access to care in Belgium.⁶⁸ Additional information can be found in the research on effects of prevention in sex workers that interviewed 273 sex workers in Flanders.⁶⁹

Homeless persons

Regarding homeless persons, no centralised administrative data are available in Belgium. However, the support centre for homeless care in Brussels (la Strada) estimates the number of Homeless persons in Brussels using the European Typology of Homelessness and housing exclusion (ETHOS⁷⁰). During the night of 7 November 2016, they counted 3 386 persons (1 081 rooflessness, 854 houselessness, 1 339 living in inadequate housing and 12 in an hospital emergency service), while during the night of 3 March 2017, they counted 4 094 persons (1 963 rooflessness, 864 houselessness, 1 256 living in inadequate housing and 11 in an hospital emergency service).⁷¹ The NGO Doctors of the World collects information on subjective health and use of care each year during the Winter Plan.⁶⁸ Among the 377 respondents during the Winter Plan 2016-2017, 62% consider themselves in medium or poor health and only 37.4% in good or very good health. Regarding the actual use of care, 8% say they never use health care even if they need it.⁷²



What is covered?

For the scope of the coverage (the range of covered services) no performance indicators have been defined. The services that are covered by compulsory health insurance are described in the national fee schedule (called the nomenclature) and can be found on the RIZIV – INAMI website (<https://www.riziv.fgov.be/fr/nomenclature/Pages/default.aspx> in French; <https://www.riziv.fgov.be/nl/nomenclatuur/Paginas/default.aspx> in Dutch).

Looking at the extent to which different health services are financed through out-of-pocket payments gives an indication of the main gaps in health coverage. In Belgium, out-of-pocket payments account for 57.6% of spending on dental care, 29.8% of spending on pharmaceutical goods, 13.1% of spending on inpatient care, 7.5% for ancillary services and 5.6% for long-term care.

How much of the healthcare costs is covered?

If we look at the share of out-of-pocket payments on current expenditure on health care, slight improvements can be observed since the last performance report (based on 2013 data). The share of out-of-pocket payments in total healthcare expenditure slightly decreased since to reach 15.9% in 2016 (compared to 17.5% in 2013) and is now below the EU-15 average (17.7% in 2016). Measured in per capita terms, out-of-pocket payments increased from US \$ 525 (PPP) in 2005 to US \$ 791 (PPP) in 2014 and then slightly decreased to reach US \$ 739 (PPP) in 2016 (close to the European average of US \$ 732 (PPP)). It should also be noted that the share of out-of-pocket payments on dental care expenditure is high but is similar to the European average (57.6% in 2016, compared to a European average of 59.2% based on 10 countries). This share increased from 50% to 58% in the 2004-2016 period in Belgium. The high European average is nevertheless mainly due to the fact that dental care in Greece and Spain are almost not covered, but the coverage is much better in bordering countries such as Germany (25.5%) and the Netherlands (21.7%) than in Belgium.

However, it is important to note that in Belgium, precise data on out-of-pocket payments in the ambulatory sector are not available and that there are some doubts on the reliability of these estimations.⁷³

Since out-of-pocket payments displace resources available for other goods and services, they should also be related to **household consumption patterns** to measure 'financial protection' in health. The Household Budget Survey 2016 showed that, on average, the share of out-of-pocket payments on health in total household consumption is 4.6% (stable between 2012, 2014, and 2016).⁷⁴ In 2016, the average expenditure per household were more than twice higher for the higher income quartile households (€ 2154) than for the lower income quartile households (€ 954). Based on OECD data, the share of household consumption allocated to medical spending (excluding long-term care expenditure to make results more comparable between countries) amounted to 3.0% in 2016 in Belgium (compared to a European average of 2.6%).⁷⁵

Unmet needs for financial reasons

Based on the Belgian health interview survey, on average 8% of Belgian households declared in 2013 that they had to **postpone healthcare for financial reasons** (medical care, surgery, dental care, prescribed medicines, mental healthcare, eyeglasses or contact lenses). This percentage is in line with results of previous surveys (1997, 2001 and 2004) and is lower than the 14% found in 2008. There is a large difference between the three regions, with the Brussels region having more than 20% of households delaying healthcare for financial reasons.

The EU-SILC survey (individuals aged 16 and over) also contains a question on unmet needs for medical and dental care. The share of individuals postponing medical or dental examination because of cost in the EU-SILC is 3.5% for dental examination and 2.0% for medical examination. A direct comparison between both surveys is difficult because the HIS includes more items (e.g. eyeglasses or contact lenses) and measures unmet needs at the household level (whereas EU-SILC at the individual level). The EU-SILC results show a deteriorating trend between 2011 and 2014 and an improvement in 2017. The share of individuals postponing medical examination because of cost in 2017 is nevertheless higher than the European average, especially for the lower income quintile individuals (amongst the highest in Europe). These data should nevertheless be used with caution and further analysis is needed to fully understand differences in



the magnitude and fluctuation of this indicator between years and between surveys.

Access to agreed tariffs: density of practitioners acceding to the agreement

The **density of** practitioners acceding to the agreement between INAMI – RIZIV and sickness funds (“**conventionnés / geconventioneerde**” **practitioners**) can also be used as proxy for geographical and financial access to healthcare, as no additional fees (beyond the standard user fees) can be charged with these practitioners in ambulatory care. Measured in full time equivalent (FTE), the density of practising GPs acceding to the agreement was 6.97 per 10 000 insured people in Belgium in 2016 (7.40 in Flanders, 6.81 in Wallonia, and 4.95 in Brussels). While in many European countries there is a high concentration of GPs in capital cities, the distribution is more balanced in Belgium, with only few gaps in some districts (see the technical fiche). The same observation was done for dentists. Concerning gynaecologists, it should be noted that the density of “conventioned” gynaecologists (in FTE) is usually low in the different districts of Belgium compared to other specialties.

Share of fee supplements

Finally, the proportion of the billed fee supplements in relation to the billed official health insurance fees was also analysed to measure the financial accessibility of the health system. Fee supplements have continued to grow since 2015. In 2017, they accounted for 18.1% of the official billed fees, amounting in total to € 563 million. The growth especially took place in classic stays (+8% in the period 2015-2017). In day hospitalisation, fee supplements shrank over the same period with 5%. This can be explained by the abolition of fee supplements in double and multi-bed rooms in one day-settings since 28th of August 2015 (for classic stays fee supplements were already forbidden in these room types since 2013). Following the abolition of fee supplements in double and multi-bed rooms in one-day hospitalisations mid-2015, a shift took place. Fee supplements are billed in fewer hospital stays, but the height of supplements has increased. The debate on further abolition of supplements is inseparable from the larger

debate on the reform of hospital and physician payments. Steps should be taken to guarantee equal access for patients to high-quality healthcare whilst ensuring sustainable payments for hospitals and physicians. A free choice of physician should be guaranteed, regardless of room type.

Availability of qualified personnel

Access to healthcare also depends on the availability of medical workforce. Current workforce availability was evaluated for physicians and nurses. Availability of specific groups (e.g. psychiatrists, indicator MH-2) or future workforce (indicators S-4 to S-10) can be found in other sections of this report.

The **density of practising physicians** is very stable since 2000, with 3.07 practising physicians per 1000 population in 2016. The density is slightly lower in Flanders than in Wallonia or in Brussels (2.8, 3.2 and 3.8 per 1000 population respectively). It should nevertheless be noted that this analysis is based on the address of the physician's home and not based on the place of practice. A recent study on practising GPs⁷⁶ based on the place of the GP practice obtained 1.23 practising GP per 1000 population in Brussels in 2017 (while with 2016^k RIZIV – INAMI data based on the place of the GP's home, it was 1.17 per 1000 population).

Belgium is below the European average (3.54 per 1000 population). It is nevertheless important to note that the definition of practising physicians varies across countries (e.g. use of different minimal activity thresholds). Comparisons between countries are therefore potentially inadequate.

This indicator nevertheless poorly reflects the real workforce of practising physicians, as all physicians performing more than 1 clinical act are included in the head counts. To overcome this problem, the RIZIV – INAMI also estimated the number of **practising physicians in full time equivalent (FTE)** and the number of **practising physicians acceding to the agreement** (conventionnés / geconventioneerde) **in full time equivalent (FTE)**. In 2016, the number of practising GPs was 12 929 (1.14 per 1000 population), while their estimated FTE was 8 988 (0.79 per 1000 population) and their estimated FTE acceding to the agreement was 7 719 (0.68 per

^k 2017 not yet available.



1000 population). Expressed in FTE according to the agreement, low values can be noticed for some specialties (especially for gynaecologists).

A new report of the PlanCAD for physicians, that will allow us to have details about all professionally active physicians, including physicians working outside the health system covered by the compulsory health insurance such as in occupational medicine, in insurance companies, in child services (ONE-kind and gezin), etc., also in FTE, is only planned for 2019-2020. An update of this indicator will therefore be done on the website when the PlanCAD report for physicians will be available.

For nurses, the PlanCAD report was already available, allowing precise estimations of both the number of nurses active on the Belgian labour market (**professionally active**) and on the health sector (**practising nurses**). In 2016, there were 202 402 nurses licensed to practise, 143 470 nurses professionally active on the Belgian labour market, and 124 196 practising nurses, i.e. working in the healthcare sector. Most of professionally active nurses work as employees in hospitals (65.5%) followed by the residential sector for elderly (homes for the elderly and nursing homes; 13.7%) and nursing care provided at home (7.9%). The number of practising nurses per 1 000 inhabitants increased between 2004 and 2015 in Belgium (from 8.8 in 2004 to 10.9 per 1000 inhabitants in 2016). This increasing trend is also observed in other European countries. The density of practising nurses (10.9 per 1 000 inhabitants) is slightly above the European average (9.4 per 1000 inhabitants).

A large number of **nurse vacancies** in hospitals can also point in the direction of access problems. The number of hospital nurse vacancies amounted to 1274 (1159 in FTE) in 2016. To put this number into perspective, it can be noticed that in 2016, 74 619 nurses (in FTE) were professionally active in the hospital sector. More detailed information is available for Flanders from the Public Employment Service of Flanders (VDAB), with data not limited to hospital nurses. Their data show that the number of nurse vacancies steadily increased between 2006 and 2011, slightly decreased up to 2014, and then increased again in the past 3 years to reach 1844 nursing vacancies reported in Flanders in September 2017.

Although a vacancy in itself is not necessarily an indicator of shortage, vacancies for nurses are hard to fill and thus can be interpreted as referring to possible access problems.

Finally, a European study (RN4CAST, 2009-2010) with data from about 500 hospitals from 12 countries showed that Belgian hospitals have a comparatively high mean patient-to-nurse ratio (10.7 patients per nurse per 24h, versus 9 on average for all countries).⁷⁷ Another study based on the same data¹ also demonstrated that the patient-to-nurse ratio is correlated with in-hospital mortality rates.⁷⁸ This indicator can thus also provide indirect information on the quality of care in hospitals. The robustness of the found association between patient-to-nurse ratios and adverse outcomes (in-hospital mortality) was confirmed by sensitivity analysis including non-nursing staff (e.g. care assistants). Moreover, in Belgium the reported patient-to-nurse ratio ranges from 7.5 to 15.9 between hospitals. The KCE is currently performing a study on nursing staff in hospitals that will update the patient-to-nurse ratio. Results will be available early 2020. An update of this indicator on the website is therefore foreseen.

Waiting times

When patients face long waiting times to get an appointment with a specialist, this can be a barrier to timely access to healthcare services. In 2013, more than 38% of the patients had to wait for two or more weeks to get an appointment with a specialist. This self-reported percentage is more or less the same in the three regions. About 10% of the patients considered this waiting time as problematic.

Waiting times for a first face-to-face contact with an ambulatory mental health centre are provided in Chapter 5 (indicator MH-3). In 2013, 37% of patients had to wait one month or more for a first contact with such a centre. More recent data on this indicator will be available mid-2019. An update of this indicator on the website is therefore foreseen.

¹ But only on 300 hospitals and 9 countries, including Belgium.



Conclusion

Even if improvements in out-of-pocket payments per capita were observed since our previous analysis, the percentage of individuals postponing medical examinations for financial reasons remains higher than the European average, especially in the lowest income group. It should also be noted that service coverage remains low for dental care.

Concerning the workforce, the number of practising physicians (especially for GPs and gynaecologists) and practising dentists, measured in FTE, acceding to the agreement should be a point of attention in some district. A monitoring of the patient-to-nurse ratio and of the waiting time to get an appointment with a specialist is also important to determine if the situation of 2010 (2013 for waiting time) has improved (more recent data will be available soon, around 2020).

Table 7 – Indicators on accessibility of healthcare

(ID) indicator		SCORE	Belgium	Year	Flanders	Wallonia	Brussels	Source	EU-15 (mean)
Financial accessibility									
A-1	Coverage by the compulsory health insurance (% of the population)	ST	99.0	2017	99.5	99.3	98.1	RIZIV – INAMI	---
A-2	Out-of-pocket payments (% of current expenditures on health)	+	15.9	2016	---	---	---	SHA; OECD	17.7
A-10 NEW	Out-of-pocket medical spending (% of final household consumption)	ST	3.0	2016	---	---	---	SHA; OECD	2.6
A-3	Out-of-pocket payments per capita (in US \$ PPP)	+	738.9	2016	---	---	---	SHA; OECD	732.2
A-11 NEW	Out-of-pocket payments for dental care (% of current expenditure on dental care)	-	57.6	2016	---	---	---	SHA; OECD	59.2 (EU-10)
A-4**	Self-reported unmet needs for medical examination due to financial reasons in Belgium (% of individuals included in the survey)	+	2.0	2017	---	---	---	Eurostat (EU-SILC)	1.2



A-12 NEW	Access to agreed tariffs: Conventioned practising GPs in FTEs (per 10 000 population)*****	C	6.97	2016	7.40*	6.81*	4.95*	RIZIV – INAMI	---
A-13 NEW	Access to agreed tariffs: Conventioned practising dentists in FTEs (per 10 000 population)*****	C	3.17	2016	2.85*	3.40*	4.29*	RIZIV – INAMI	---
A-14 NEW	Percentage of the billed fee supplements to the billed official health insurance fees	↗	18.5	2017	14.02	20.19	31.51	IMA – AIM	---
Health workforce									
A-5	Practising physicians (/1000 population)	↗	3.1	2016	2.8*	3.2*	3.8*	RIZIV – INAMI, OECD 2018	3.5 (EU-10)
A-6	Practising nurses (/1000 population)	↗	10.9	2016	11.7	9.8	10.7	SPF; OECD 2018	9.4 (EU-11)
A-7	Number of nurse vacancies	→	1274	2016	---	---	---	SPF-FOD	---
A-8***	Patient-to-nurse ratio	●	10.7	2010	---	---	---	RN4CAST	9.0
Waiting time									
A-9****	Waiting time of more than two weeks to get an appointment with a specialist (% of population asking an appointment)	●	38.4	2013	38.6	38.9	36.0	HIS	---

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

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

* Based on the place of the physician's home and not the place of the physician's practice (potential differences between regions are therefore not highlighted). A recent study⁷⁶ based on the place of the GP practice obtained 1.23 practising GP per 1000 population in Brussels in 2017 (while with 2016 RIZIV – INAMI data based on the place of the physician's home, it was 1.17 per 1000 population).

The principal indicator should be based on the health interview (HIS) survey but only results from 2013 were available. This indicator is therefore currently based on results from the EU-SILC and will be updated on the website (<https://www.healthybelgium.be/>) when the HIS 2018 results become available. *This indicator will be updated on the website when results of the ongoing KCE study on nursing staff in hospitals become available **** This indicator will be updated on the website (<https://www.healthybelgium.be/>) when the HIS 2018 results become available; ***** Conventioned physicians in Belgium are physicians that acceded to the agreed tariffs negotiated by RIZIV – INAMI and sickness funds, meaning that they will not charge supplements to the patients in ambulatory care.

**Table 8 – Indicators reported in other domains or dimension**

(ID) Indicator	
In the chapter on preventive care	
P-6	Breast cancer screening (% women aged 50-69)
P-7	Breast cancer screening - organised programme (% women aged 50-69)
P-11	Regular contacts with dentist (% pop aged 3+)
In the chapter on mental care	
MH-2	Practising psychiatrists (/1000 pop)
MH-3	Waiting time longer than 1 month for first contact in ambulatory mental health centre
In the chapter on care for the elderly	
ELD-1	Long-term care in residential facility (% pop aged 65+)
ELD-2	Long-term home nursing care
ELD-3	Informal carers (% of pop aged 50+)
ELD-4 NEW	Number of long-term care beds in institutions
ELD-5 NEW	Low care-dependent persons in residential/nursing facility for elderly
ELD-6 NEW	Number of practicing geriatricians per 1 000 population
In the chapter on end of life care	
EOL-1	Patients who received palliative care (% of terminal cancer patients who died in the year)
EOL-2	Patients who died within one week after start of palliative care (% of terminal cancer patients who received palliative care and died in the year)

Table 9 – Future publication on the website

(ID) Indicator		Source
NEW	Catastrophic health expenditure	EU-SILC, IMA – AIM, Household budget
NEW	Accessibility within a specific time frame to an emergency service	IGN – NGI
NEW	Accessibility within a specific time frame to a maternity service	IGN – NGI



5 EFFICIENCY OF THE HEALTHCARE SYSTEM

Defining efficiency

Efficiency in healthcare is concerned with the relation between inputs (e.g. money, time, labour, capital) and intermediate outputs (e.g. numbers treated, waiting times) or ultimate health outcomes (e.g. life years gained, quality-adjusted life years gained (QALYs)). Ideally, these final health outcomes and not the intermediate outputs should be the focus of economic evaluations.⁷⁹ However, the relation between inputs and outcomes is complex and is driven by factors outside the control of health system managers.⁸⁰ Numerous definitions of efficiency in healthcare can be found in literature. The main difference between these definitions is the way in which quality is captured.⁸¹

A related concept is *value for money* which is also determined by the relationship between inputs (money) and outputs (valued outputs or outcomes). Valued outputs can be either health gains, positive patient experience, reduced inequalities or broader social and economic benefits of health services.⁸²

Measuring efficiency

Efficiency in healthcare is usually measured at three levels: ⁸³ healthcare system level, subsector level and disease-based level.

Each viewpoint has its advantages and disadvantages. A frequently used indicator of efficiency at the system level is life expectancy related to health expenditure per capita. The major disadvantage of this indicator lies in the fact that health expenditure is only one of the many determinants of life expectancy. This is the reason why this analysis was not performed in this report. Indicators at the subsector level have the advantage that they more easily lead to sector-specific (e.g. hospital sector) recommendations and actions. However, outcome measures at hospital level are not widely available yet. Outcome measures related to specific diseases are available, but relating disease-specific outcomes to inputs remains a challenge.

Selected efficiency indicators

Four indicators have been selected to evaluate the efficiency of the healthcare system (Table 10).

All four are measured at the subsector level. As in other European countries, the trend in Belgium is towards a more efficient use of care services. Indicators show a positive trend over time: an increase in the use of low-cost medication (drugs and biosimilars), and a decrease in the length of stay for a normal delivery (which is a more comparable indicator between countries than the overall average length of stay because of differences in patient case mix): the Belgian postpartum length of stay is now very close to the EU-15 average (see chapter 1 for a more detailed analysis).


Table 10 – Indicators of efficiency of healthcare

(ID) Indicator			Belgium	Year	Flanders	Wallonia	Brussels	Source	EU-15 (mean)
E-1	One-day surgical admissions (% of surgical admissions)	●	47.2	2016	49.5	42.9	45.3	MZG – RHM	-
MN-9	Length of stay normal delivery (mean, days)	⊕	3.1	2016	3.2	3.1	2.9	MZG – RHM	2.8 ⁽¹⁾
E-3	Use of low-cost medication (% of total ambulatory DDDs)	⊕	53.8	2017	54.9	51.8	52.8	Pharmanet	-
E-4	Biosimilar treatments (%)*	⊕	5.71	2017	-	-	-	INAMI – RIZIV	-
NEW	Biosimilar treatments in ambulatory care (%)		1.71		1.87	1.11	2.86		

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

⁽¹⁾ Source: OECD Health Statistics. * This indicator represents the volume of this type of product but gives no information on the level of their price compared to other biological drugs.

Other indications of (in)efficiency

In this section, we present some indicators from other dimensions or domains that show inefficiencies of the healthcare system.

Guidelines on breast cancer screening recommend that women younger than 50 years should not be screened, except in specific medical situations. Poor adherence to these guidelines indicates problems with the appropriateness of current preventive practices: a high proportion of women below 50 years old (35% in 2016) are screened. However, a decreasing trend of this inappropriate screening is observed in Flanders (from 31% in 2008 to 26% in 2016).

Guidelines for aspecific low back pain do not recommend medical imaging in most cases. Still, medical imaging in that case is common while it can be harmful in case of X-rays or CT scans (ionising radiations that can cause cancer).

According to guidelines, patient with major depression should have an antidepressants treatment for at least 3 months. More than 4 out of ten treatment episodes are shorter than 3 months.

Table 11 – Illustrative indications of inefficiency

Source of inefficiency	Indicator	Indicator ID		Result for Belgium
Screening outside target group	Breast cancer screening outside age target group: women aged 41-49, within last two years (%)	QA-7	ST	34.5
Over-use of investigations/equipment	Spine imaging (X-ray, CT scan, MRI per 100 000 population)	QA-6	●+	10 620
Inappropriate treatment	Percentage of patients with short duration (< 3 months) of antidepressants treatment (% of population under antidepressants)	MH-8	●+	42.6

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



6 SUSTAINABILITY OF THE HEALTHCARE SYSTEM

Sustainability can be defined as the system's capacity:⁸⁴

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

For the four elements of the definition, 16 specific indicators were selected in total (see Table 12).

Sustainability as presented in this report is a broad and heterogeneous concept. The combination of sub-dimension (expenditures, workforce, place of hospitals and innovation) reflects this variety and proposes a large panel of indications of a sustainable healthcare system.

Financial sustainability

One specific aspect of this dimension is the financial sustainability which comprises economic and fiscal sustainability.

Economic sustainability refers to the growth in health expenditures as a proportion of GDP. Current expenditures are sustainable up to the point where the social cost of these expenditures exceeds the value produced. Additionally, **current expenditures as a proportion of GDP (S-1)** allow to determine the importance of the health sector in the global economy of countries. In Belgium, current health expenditures have increased from 8.9% of GDP in 2006 to 10.0% in 2016. Since 2009, the trend is stabilised around 10% of GDP. The EU-15 average follows the same trend but is slightly below, with a range between 9.5% and 9.8% since 2009. In absolute terms, current health expenditures in Belgium increased from € 28 952 million (€ 2 745 per capita) in 2006 to € 42 430 million (€ 3 745 per capita) in 2016. **Current health expenditures per capita, expressed in Purchasing Power Parity (PPP) US\$ (S-2)**, allow to make international

comparisons. Current expenditure on health expressed per capita in PPP US dollars in Belgium also follows the same trend as the EU average.

Fiscal sustainability refers to the capacity to collect public revenues (taxes and social contributions) to meet the public expenditures.⁸⁵ Current health expenditures (S-1) and **public (S-3) health expenditures** are thus complementary to reflect the financial sustainability of the system.⁸⁵ In 2016, 78.8% of the health expenditure is financed by the public sector. This percentage increased from 76.3% in 2006 to 78.8% in 2016 and is slightly above the EU-15 average (76.6% in 2016). A reform in the funding mechanisms of social security programmes in Belgium was also performed in 2017, among other things to better control the growth in public spending on health (see Box 10). The evolution of the healthcare financing sources can also be found in section 1.1.

Box 10 – The reform in the funding mechanisms of social security programmes in Belgium

- *"In March 2017, the Belgian Parliament adopted parts of a new reform regarding the funding of social security programmes, including health care. This reform is designed among other things to better control the growth in public spending on health by promoting greater accountability among the social partners and to transfer some of the tax burden from social security contributions to other forms of taxation such as value-added taxes. The main elements of this reform include that:"⁸⁶*
- Own alternative financing for health care will exclusively include revenues from value-added taxes
- *"General government revenues [...] might be increased by an ageing coefficient under certain conditions (including that the real growth of GDP exceeds 1.5% and that people leave the labour market at an older age on average)*
- *The so-called 'financial equilibrium contribution' (provided by the federal government to offset any deficits) will depend on a set of macro-level accountability factors."⁸⁶*



In 2016, social security revenues were distributed as followed:⁸⁷

- Social security contributions (62%),
- Government subsidies (22%)
- Alternative financing (11%)
- Other (5%)

Workforce

Another sub-dimension of sustainability is the system's capacity to provide and maintain a sufficient health workforce. Specific indicators to measure workforce sustainability are the number of new graduates (S-4, S-8), the share of foreign workers (S-14, S-16), the share of the workforce who will retire in the near future (S-7, S-10), and the degree of specialisation (S-5, S-9).

Accessibility, measured by the density of practising physicians and nurses (A-5, A-6 in the chapter on accessibility), could become a problem if there is a shortage of graduates.

Physicians

The number of **medical graduates per 100 000 population** increased from 6.5 to 14.2 between 2006 and 2016 (S-4). The system of quotas showed its first effects in 2004, 835 graduates (8.0 per 100 000 population) in 2004 versus 1193 (11.5 per 100 000 population) in 2003. A system of 'smoothing numbers' was also put in place, allowing the universities to dip into the pile of future quotas to provide agreements for current students. This could partly explain why the numbers of medical graduates has gradually increased to surpass since 2014 the density numbers of 2003. Compared to other European countries, the density of 12 medical graduates per 100 000 population is below the European average of 14 per 100 000 population (based on 13 countries and 2015 data, i.e. the latest year with sufficient data available) but will probably surpass this number in the future (14.8 in 2017 in Belgium). The percentage of foreign medical graduates with a Belgian

diploma (12.8% in Belgium) highly differs by community: a stable 7% for the Flemish Community, and an increasing 18% for the French Community.

The recruitment of foreign-trained doctors also allows to maintain a sufficient number of physicians in a country. In a "Global Code of Practice on the International Recruitment of Health Personnel", the World Health Organization (WHO), however, encourages countries to achieve greater "self-reliance" in the training of health personnel. The proportion of **foreign-trained physicians** in relation to the total number of physicians licensed to practice (S-14) varies from less than 5% in Italy and the Netherlands to over 35% in Ireland. The Belgian average of 11.5% is slightly below the European average (13.9%, based on 10 countries and 2015 data). The comparison between countries should nevertheless be taken with caution because definitions vary between countries. This percentage of foreign trained physicians (i.e. with a foreign diploma) increased with time in Belgium, from 4% in 2000 to 12.0% in 2017. Half of them came from France, the Netherlands and Romania.

It should also be highlighted that orienting new graduates as GPs remains a problem. Although the **share of medical graduates becoming GPs** two years after the diploma (as a percentage of all medical specialties) increased from 25% in 2010 to 31% in 2016 (S-5), the progression remains low given all the efforts made to improve the attractiveness of the GP profession. According to the Planning Commission, the share should be around 40%.⁸⁸ A consequence is that GPs have among the oldest **mean age** in 2016 (52.7, in FTE, S-6), while in 2000 it was similar to the one of the other specialties. This mean age is also slightly higher for French-speaking (54 years old) than for Dutch-speaking GPs (52 years old, distinction based on the linguistic role of the physician). The proportion of practising physicians **aged 55 years old and over** (S-7 and S-15) also increased, and is especially high for GPs (54.5% of practising GPs in 2015). This percentage is also higher for French-speaking GPs than for Dutch-speaking GPs (59% versus 51% respectively).



Nurses

In 2017, a total of 6357 students were graduated from nursing schools in Belgium. The density of 50 nursing graduates per 100 000 population (S-8) is above the EU-13 average of 42 per 100 000 population (based on 2015 data), but this comparison is biased by the substantial proportion of foreign students in the French Community who usually leave Belgium after the end of their study. The proportion of foreign students in the French Community is substantial (32% based on nationality and 15.5% based on the place of residence). A small proportion of students are foreigners in the Flemish Community (<5%). Moreover, 454 nurses with a foreign diploma obtained a visa in Belgium in 2017.

A higher percentage of new nursing graduates have a bachelor degree (S-9) in the French community (64.8%) than in the Flemish community (48.8%). The proportion of nursing students with a bachelor degree increased sharply from 20.1% in 2007 to 59.6% in 2011 at the national level but then, tends to stabilise around 55%. This needs to be monitored to ensure a well-educated nursing workforce for the forthcoming years.

In 2016, 33.4% of the professionally active nurses in Belgium were aged over 50 years old (S-10; 34.1% in Flanders, 31.3% in Wallonia, 35.2% in Brussels), while 18% was aged over 55 years old (18.3% in Flanders, 17.9% in Wallonia, 20.5% in Brussels).

Among all nurses licensed to practice in Belgium, the share of foreign-trained nurses (S-16) is increasing over the time (from 0.5% in 2000 to 3.5% in 2017) and is now similar to the EU average (based on 2015 data and 8 EU countries).

Maintenance of facilities: utilisation of acute care bed days

The number of **acute care bed days per capita** (S-11) is indicative of the population's need for acute care beds, and thus of the needed infrastructure. In 2016, 12.4 million days were spent in acute care hospitals (classic hospitalisation only, excluding one day). Per capita, this represents 1.1 acute care bed days, which is close to the European average of 1.0. Nevertheless, this number is quite high compared to neighbouring countries such as in the Netherlands (with 0.5 acute care bed day per capita in 2016). This figure has been quite stable in Belgium since 2003, while in the same

period the average length of stay decreased for most APR-DRG and the number of classic admissions increased.³⁶ If the increase in the number of classic admissions is due to e.g. an ageing population, and the shorter length of stay does not result in adverse effects on health outcomes, the combined effect can be interpreted as an improved efficiency of the hospital sector at a macro level.

Innovation

One indicator of an innovative system is the use of new technologies. In 2016, 65% of the global medical records (GMR) were electronic. Since the introduction of MyCareNet, a continuous increase in the proportion of GPs using an eGMR through MyCareNet can be observed (from 16% in the first trimester of 2016 to 58% in the third trimester of 2018) (S-13).

Maintaining a patient electronic file is probably not the most up-to-date indicator when referring to new technology, but new data on the use of the eHealth platform should be soon available, which will allow more appropriate measure of the use of new technologies. More details about the e-health initiatives are described in Box 11. It should also be noted that the percentage of prescriptions performed electronically cannot be calculated in Belgium because we do not have the information of the total number of prescriptions performed per year (made electronically and on paper). Electronic prescription is not yet mandatory for ambulatory care in Belgium but this procedure is ongoing and will be mandatory in 2020. In October 2018, around 13 648 physicians and 3 733 dentists were using electronic prescription, representing approximately 3.5 million of prescriptions.^{89, 90}

Another indicator of innovation is the rapid access to innovative medicine. It also reflects general sustainability of the health system, in its capacity to integrate innovation. A study performed by a European federation of pharmaceutical industries and associations (EFPIA) was used in the previous performance report to measure this aspect. Details of the last results (based on the 2014-2016 period) are nevertheless not anymore public and we decided to exclude this indicator from this report (see also the appendix on excluding indicators, given more details about the reasons of such an exclusion). This point should nevertheless be investigated in the future. It should also be noted that measures have been taken in recent years to improve the access to innovative pharmaceuticals such as the



possibility of conducting a convention for innovative medicines with clinical or economic uncertainties since 2010 (see the KCE report 288 on art. 81 conventions) or the pact for the future in 2015 that aimed to improve a.o. the access to innovative pharmaceuticals.⁹¹

Box 11 – E-health in Belgium

E-health or electronic health is defined as the use of all means and services using new information and communication technologies (ICT) to support and improve healthcare^m. E-health includes electronic health records, e-prescriptions etc. and tele-health: tele-medicine and mobile health (or m-health). A well-designed e-health strategy improves quality of health information, strengthens national health systems, ensures accessible, high-quality health care for all and improves effectiveness of the healthcare systemⁿ.

In 2012, after the organisation of a panel discussion about the development of computerisation of the healthcare system, an e-health plan (“plan d’actions e-santé” or “actieplan e-Gezondheidszorg”) was established in Belgium for 5 years (2013-2018). This plan was adopted by the different healthcare authorities (9 ministries, members of federal and federated entities) and 20 actions points with concrete objectives were developed in order to implement it^o.

The objectives were to develop data exchanges between care providers, increase patient involvement and their knowledge about e-health, develop a common terminology, simplify administrative procedures, improve effectiveness and create a transparent governance structure with all involved actors. In 2018, around 75% of these objectives were reached^p. In 2018, the interministerial conference on public health decided to create a new plan 2019-2021^q to reinforce ongoing projects and strengthen coordination in e-health initiatives. This future e-health plan (2019-2021) is still in progress and will probably incorporate indicators.

Currently, only process indicators are available in Belgium and are difficult to interpret in the framework of the global performance assessment of the healthcare system.

Conclusion

The interpretation of sustainability indicators is hampered by the lack of defined thresholds which could be considered as sufficient. It is why some indicators are labelled as context indicators. However, some indicators deserve an improvement or a careful follow-up: the proportion of (new) GPs among all specialities, the proportion of GPs aged 55 years old and over (and the mean age of practising GP), the proportion of nursing students with a bachelor degree, and, to a lesser extent, the number of curative care bed days per capita and the use of the electronic medical file.

^m <https://www.riziv.fgov.be/fr/themes/qualite-soins/e-sante/Pages/default.aspx>

ⁿ <http://www.euro.who.int/en/health-topics/Health-systems/e-health/e-health-readmore>

^o <http://www.plan-esante.be/>

^p <https://www.lespecialiste.be/fr/actualites/e-health/nouveau-plan-e-sante-2019-2021-les-details.html>

^q <https://www.health.belgium.be/fr/news/conference-interministerielle-sante-publique-du-26-03-2018>



Table 12 – Indicators on sustainability of the health system

(ID) Indicator			Belgium	Year	Flanders	Wallonia	Brussels	Source	EU-15 (mean)
Healthcare expenditures and financing									
S-1	Current expenditure on health (% GDP)	→	10.0	2016	---	---	---	SHA-OECD	9.5
S-2	Current expenditure on health per capita (in PPP US\$)	↗	4 659.5	2016	---	---	---	SHA-OECD	4538.7
S-3	Current expenditure on health (% financed by public sector)	→	78.8	2016	---	---	---	SHA-OECD	76.6
Health workforce in the future (inflow, outflow)									
S-4	Medical graduates (/100 000 population)	↗	12.1 (14.8)	2015 (2017)	---	---	---	SPF-FOD cadastre; OECD 2018	14.2 (EU-13)
S-14 NEW	Foreign-trained physicians (% of those licensed to practice)	↗	11.5	2015	---	---	---	SPF; OECD 2018	13.9 (EU-10)
S-5	Medical graduates becoming GP (% of those with medical specialisation)	+	31.1	2016	34.9*	27.3*	---	RIZIV – INAMI	---
S-6	Mean age of practising GPs (in FTE, years)	-	52.7	2016	52.0*	53.8*	---	RIZIV – INAMI	---
S-7	Physicians aged 55+ (% of those practising)	-	44.4	2015	41.3*	47.8*	---	RIZIV – INAMI; OECD 2018	34.5
S-15 NEW	GP aged 55+ (% of those practising)	-	54.5	2015	51.1*	58.6*	---	RIZIV – INAMI	---
S-8	Nursing graduates (/100 000 population)	↗	49.7	2015	---	---	---	SPF-FOD cadastre; OECD 2018	42.3 (EU-13)
S-9	Nursing students following the bachelor route (% of new graduates)	→	55.7	2017	48.8*	64.8*	---	SPF-FOD Cadastre	---
S-10	Nurses aged 50+ (% of those professionally active)	C	33.4	2016	34.1	31.3	35.2	SPF-FOD	---
S-16 NEW	Foreign-trained nurse (% of those licensed to practice)	↗	3.2	2015	---	---	---	SPF-FOD cadastre; OECD 2018	3.2 (EU-8)



Maintenance of facilities									
S-11	Curative care bed-days (number/capita)	ST	1.1	2016	1.06	1.17	1.04	MZG –RHM; OECD	1.0
Innovation									
S-13	Percentage of GPs using electronic global medical record (eGMR) through MyCareNet	+	58	2018 (q3)	---	---	---	eHealth	---
S-17 NEW	Electronic global medical record (% of all global medical record)		65	2016	67	59	62	IMA – AIM; RIZIV – INAMI	---

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

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

* Based on the linguistic role of the physician (and not regional level)



7 EQUITY AND INEQUALITIES

7.1 Socioeconomic inequalities in use of health services

Research has repeatedly shown that health and healthcare use are unevenly distributed across society.⁹²⁻⁹⁵ **Socioeconomic inequalities** in the use of health services are defined as differences, variations, and disparities in healthcare observed between socioeconomic groups.

Inequalities deemed to be unfair are referred to as inequities. The initial objective of this chapter was to measure inequities. However, to distinguish between the various underlying sources of inequalities (see below), rich individual and household level information on amongst others health status, income, education, activity status, and healthcare use (as measured by various indicators throughout this report) is required. As no single database contains all the necessary information, a data authorization was requested to link various data sources. Despite the introduction of the data authorization demand more than 1 year ago, the data were not available at the time of publication of this report.

A follow-up report will be published later this year that provides a thorough analysis of inequities in healthcare use and healthcare payments.

Nevertheless, there is sufficient information at this stage to quantify socioeconomic inequalities. As socioeconomic inequalities are present throughout the entire health system, their analysis is relevant in multiple domains. In this chapter we bring together results for indicators of the different dimensions and domains when a distinction could be made by socioeconomic group (see Table 13 below).

Socioeconomic inequalities in healthcare use have various underlying causes.^{96, 97} These inequalities do not only reflect the differences in health status and healthcare needs. They are also caused by different individual choices and preferences with respect to using certain services, differences in socioeconomic status (education, income, activity status), differences in availability of services, differences in lifestyle, different coverage by (supplementary) healthcare insurance, etc. Some inequalities that are observed can be considered unfair (e.g. differences based on income or education level), while others are not (e.g. differences based on healthcare needs).⁹⁶⁻⁹⁸ Inequalities that are considered to be unfair are referred to as inequities. In order to analyse inequities, inequalities need to be adjusted to account for the differential nature – fair or unfair – of the underlying causes of the inequalities.

More information on the methodology in this chapter as well as some information with respect to the follow-up report can be found in Box 12 **Error! Reference source not found..**



Box 12 – How did we measure socioeconomic inequalities?

How did we define socioeconomic status in this chapter?

Socioeconomic status is defined in three ways. Social groups are discerned based on income quintiles for indicators calculated with data from EU-SILC, based on the education level for indicators calculated with data from EU-SILC and HIS^r, and based on the reimbursement status of medical expenses for indicators with data from administrative databases^s

How did we measure inequalities in this chapter?

In order to quantify the size of the inequalities, two disparity measures were used:^{100, 101}

- The **absolute difference**, which is defined as the difference between the average value observed in the least advantaged social subgroup and the most advantaged social subgroup.
- The **relative difference**, which is calculated by dividing the average value observed in the least advantaged social subgroup by the average value of the most advantaged social subgroup.

From measuring inequality to inequity in a follow-up report

Certain inequalities in healthcare use can be justified and should not be considered problematic. Differences in use based on healthcare needs are one example. As health status, and hence healthcare needs, are systematically associated with socioeconomic status, differences in use related to needs will show up in socioeconomic inequalities and complicate the interpretation of the results.

In a follow-up report, we aim to measure **inequities in healthcare use**, i.e. those inequalities that are deemed to be unfair.^{96, 98} We propose a methodology that adjust inequalities for healthcare needs and more generally, that distinguishes between fair and unfair sources inequalities. The analysis will use individual and household level information on amongst others health status, income, education, activity status, family background, insurance status, the use and availability of healthcare services.

In addition, **equity in healthcare financing** will be assessed. There is a near consensus that the financial burden of healthcare use should not disproportionately rest on those who suffer from illness. This premise will be assessed by analysing on the one hand the redistributive impact of healthcare financing and on the other hand the risk of catastrophic and impoverishing out-of-pocket healthcare expenditures. These indicators quantify the relation between healthcare payments and ability to pay.¹⁰²⁻¹⁰⁶

^r In the HIS, educational attainment is grouped into 4 levels: low education (no diploma or primary school diploma), lower secondary education, higher secondary education and tertiary education. In the SILC, educational attainment is grouped into 3 levels: low education (no diploma, primary school diploma, and lower secondary education), upper secondary education, and tertiary education.

^s Reimbursement status has two categories: entitled to increased reimbursement of medical expenses or not. Eligibility to increased

reimbursement is based on the use of specific welfare benefits (e.g. subsistence income), having a particular status (e.g. orphan) or living in a reference household with low income.⁹⁹ The diversity of eligibility criteria makes it difficult to characterize this social group. Another problem of using increased reimbursement as indicator of socioeconomic status is the important non-take-up of the right.⁹⁹



Overview of results

Table 13 presents the socioeconomic inequalities observed in a range of indicators. They are arranged by the dimensions and domains used throughout the report. The presented inequalities indicate that more disadvantaged groups (low educational attainment, low income or benefitting from increased reimbursement):

- report more unmet needs for medical and dental examinations due to financial reasons. Despite the measures taken to improve the financial accessibility of healthcare, important – and growing – socioeconomic inequalities are observed. Unmet needs are over 4 times more frequent in the population with low educational attainment compared to high educational attainment and the differences by income quintile are even more pronounced. The share of individuals reporting unmet needs in the lowest and highest income quintile equals, respectively, 6.7% and 0.0% for medical examinations and 10.5% and 0.3% for dental examinations.
- are less prone to use preventive care. An important lower participation rate in breast cancer screening is observed (for women aged 50-69: 48.1% versus 65.1%). Also regular visits to the dentist occur less frequently (40.7% versus 57.4%). Individuals with increased reimbursement, however, have a slightly higher take up rate for influenza vaccination (57.6% versus 53.6%). Hence, the financial barrier to healthcare consumption (see above) is not the only one. Even if the health goods or services are free, they can be characterized by an under-consumption.
- have a higher share of low risk pregnant women with fewer than the recommended 7 antenatal visits (7.4% versus 3.3%).
- have a higher propensity of using medication. Not only does a larger share use antibiotics (37.9% versus 23.2%) and antidepressants (22.0% versus 8.8%), also the consumed doses are more important. Moreover, there is a higher risk of using 5 or more different medicines (48% versus 35%).
- benefit from a good continuity of care. They have a higher coverage of the global medical record (73.7% versus 66.5%), they are followed up more frequently by the same GP (UPC ≥ 0.75 : 73.1% versus 66.2%) and have a higher probability of having an encounter with a GP within 7 days after hospitalisation (63.4% versus 52.4%). The follow up of diabetic patients is very similar in more advantaged and disadvantaged groups. The appropriate follow-up of adult diabetics under insulin is even somewhat better for individuals having increased reimbursement of medical expenditures (32.3% versus 24.8%).
- evaluate the interaction with their GP – in terms of timing, understandable explanation, ability to raise questions, involvement in treatment decision – similarly as more advantaged groups. However, specialist are considered less understandable and open to interaction by more disadvantaged groups. Nonetheless patient centeredness in the interaction with doctors in general is evaluated positively (approval rate of 85% or more on the different aspects of the patient-doctor interaction).

Limitations

First, for many indicators, results could not be subdivided by social position, so the presence of inequalities could not be measured.

Second, socioeconomic inequalities in healthcare use have diverse causes, some of which can be justified. Differences in use based on healthcare needs are an example of the latter. Important socioeconomic inequalities in health (e.g. differences in life expectancy or prevalence of chronic disorders) are observed in Belgium and are a major source of injustice in our society.¹⁰⁷ However, this difference in health status may explain and justify a differential use of healthcare services. Remark, however, that even if the more disadvantaged social group consumes more healthcare than the more advantaged social group that does not imply that there is no under-consumption by the more disadvantaged group. Only a detailed analysis of the differences in healthcare needs can shed light on this issue.



Therefore, the conclusions for the dimension equity are as yet incomplete.

People in more disadvantaged social groups (measured by level of education, income or by eligibility for increased reimbursement of medical expenses) have, in comparison with the more advantaged social group: higher financial barriers to use healthcare services, a lower participation rate in cancer screening, fewer regular dental visits, a higher medication use (antibiotics, antidepressants, polymedication), a higher probability of having fewer than the recommended number antenatal visits during low risk pregnancies, and a higher continuity of care especially by the GP.

[illegible]



	Overall value	Year	Classification of SES	Value in lowest social group	Value in highest social group	Absolute difference (lowest minus highest SES)	Relative difference (lowest divided by highest SES)
Coverage of global medical record (% of persons who have a global medical record (GMR) with a general practitioner)	67.5	2016	Increased reimbursement	73.7	66.5	7.2	1.14
Usual Provider Continuity index ≥ 0.75 (%)	67.6	2015-2016	Increased reimbursement	73.1	66.2	6.9	1.10
GP encounter within 7 days after hospital discharge (% patients 65+)	56.6	2016	Increased reimbursement	63.4	52.4	11.0	1.21
Proportion of adult diabetics (under insulin) with a convention, a pass/pre-care trajectory or a care trajectory (% of patients, 18+)	89.9	2016	Increased reimbursement	88.8	90.5	-1.7	0.98
Proportion of adult diabetics (receiving only glucose-lowering drugs, excluding insulin) with a convention, a pass/pre-care trajectory or a care trajectory (% of patients, 50+)	20.2	2016	Increased reimbursement	21.1	19.8	1.3	1.07
Patient centeredness							
Doctor spending enough time with patients during the consultation (% of respondents, contact with GP/SP)	GP: 97.7 SP: 96.3	2013	Education: primary or no degree, lower secondary, upper secondary, tertiary	GP: 97.2 SP: 96.5	GP: 97.9 SP: 97.6	GP: -0.7 SP: -1.1	GP: 0.99 SP: 0.99
Doctor providing easy-to-understand explanation (% of respondents, contact with GP/SP)	GP: 98.1 SP: 95.5	2013	Education: primary or no degree, lower secondary, upper secondary, tertiary	GP: 95.3 SP: 85.5	GP: 98.9 SP: 98.2	GP: -3.6 SP: -12.7	GP: 0.96 SP: 0.87
Doctor giving opportunity to ask questions or raise concerns (% of respondents, contact with GP/SP)	GP: 98.1 SP: 95.3	2013	Education: primary or no degree, lower secondary, upper secondary, tertiary	GP: 97.6 SP: 88.7	GP: 98.5 SP: 96.7	GP: -0.9 SP: -8.0	GP: 0.99 SP: 0.92
Doctor involving patients in decisions about care and/or treatments (% of respondents, contact with GP/SP)	GP: 95.8 SP: 92.1	2013	Education: primary or no degree, lower secondary, upper secondary, tertiary	GP: 95.7 SP: 87.1	GP: 97.1 SP: 93.5	GP: -1.4 SP: -6.4	GP: 0.99 SP: 0.93
Accessibility of care							
Self-reported unmet needs for medical examination due to financial reasons in Belgium	2.0	2017	Income quintiles	6.7	0.0	6.7	NA



	Overall value	Year	Classification of SES	Value in lowest social group	Value in highest social group	Absolute difference (lowest minus highest SES)	Relative difference (lowest divided by highest SES)
	2.0	2017	Education: lower secondary or less, upper secondary, tertiary	3.2	0.7	2.5	4.57
Self-reported unmet needs for dental examination due to financial reasons in Belgium	3.5	2017	Income quintiles	10.5	0.3	10.2	35.00
	3.5	2017	Education: lower secondary or less, upper secondary, tertiary	5.2	1.3	3.9	4.00
Preventive care							
Influenza vaccination (% pop aged 65+)	54.7	2016	Increased reimbursement	57.6	53.6	4.0	1.07
Breast cancer screening (% women aged 50-69)	61.8	2016	Increased reimbursement	48.1	65.1	-17.0	0.74
Breast cancer screening - organized programme (% women aged 50-69)	33.2	2016	Increased reimbursement	24.9	34.3	-9.4	0.73
Breast cancer screening outside age target group (% women aged 41-49)	35.4	2016	Increased reimbursement	31.7	36.1	-4.4	0.88
Regular contacts with dentist (% pop aged 3+)	54.1	2016	Increased reimbursement	40.7	57.4	-16.7	0.71
Mental health							
Use of antidepressants (total DDD/1000 pop/day)	79.0	2016	Increased reimbursement	173.7	42.4	131.3	4.10
Use of antidepressants (% of adult population, at least once in the year)	13.1	2016	Increased reimbursement	22.0	8.8	13.2	2.50
Percentage of patients with short duration (< 3 months) of antidepressants treatment (% of pop under antidepressant)	42.6	2016	Increased reimbursement	43.0	42.4	0.6	1.01
Mother and newborn care							
Proportion of women with less than 7 consultations (gynaecologist, midwife or GP) during pregnancy	3.7	2016	Increased reimbursement	7.4	3.3	4.1	2.24



7.2 Contextual indicators of equity

In this section, contextual indicators of equity are presented. On the one hand they provide context in which the healthcare system functions, on the other hand they give indirect information on redistribution through the financing of the healthcare. No evaluation is given on the contextual information.

Universal health coverage aims to ensure that everyone can use the health services they need without experiencing financial hardship or deepening poverty. Financial barriers should not negatively impact on the uptake of necessary services and undermine one's health. Hence, the financial burden should not disproportionately rest on those who suffer from illness, i.e. it should be largely independent of health risks.

Equity in healthcare financing can be described using two principles. *Horizontal equity* in healthcare finance means equal payments for healthcare by households having an equal ability to pay. *Vertical equity* on the other hand implies higher payments by households with a higher ability to pay. Both principles are brought together in the analysis of the **redistributive impact of healthcare financing**.

In order to evaluate the global redistributive effect of financing, individual and household data are needed on the payments made for each of the different financing sources (social contribution, direct and indirect taxes, out-of-pocket payments) as well as the disposable income.¹⁰³⁻¹⁰⁵ These data were requested as part of the data demand (see above) and were not yet received at the time of publication. Hence, the analysis of the redistributive effect will be presented in the follow-up report. In addition, the follow-up

report will include information on catastrophic and impoverishing out-of-pocket payments (see Box 12).^t

In what follows, contextual indicators on income inequality and progressivity of the financing of the healthcare system are presented.

Progressivity and regressivity of healthcare financing sources

The first contextual indicator concerns the progressivity of the healthcare financing sources. By progressivity we do not refer to patient cost sharing at the point of care (i.e. supplement, co-payment, coinsurance, non-reimbursable drugs, premiums to private insurance, etc.) but the way average tax rate evolves in function of income:

- **progressive (regressive)** when the average tax rate is increasing (decreasing) with income;
- **proportional** when the average tax rate is invariant to the income level.

The progressivity or regressivity of a financing source is one element to determine its redistributive impact – in addition to the amount of tax revenue raised by the source, and the extent to which households with a similar ability to pay are treated unequally.

We characterize the progressivity/regressivity of the most important sources of financing of the Belgian healthcare system. Direct taxes (e.g. personal income tax) are considered progressive. Government subsidies partly consists of direct taxes. Social contributions are considered proportional receipts. Indirect taxes (e.g. value added tax) are in general regressive. The alternative financing as well as government subsidies are partly financed by indirect taxes. Simple ratios are computed to describe the share of

^t Out-of-pocket payments are considered catastrophic as they surpass a predefined threshold of ability to pay. Different thresholds and definitions for ability to pay are used in the literature. Out-of-pocket payments are impoverishing when the disposable income is above the poverty threshold, but when deducting the out-of-pocket costs from the disposable income, the corrected income falls below the poverty threshold.^{102, 108-111}



progressive and regressive receipts in healthcare financing in the years 2007, 2011, 2015 and 2017 (EQ-2 and EQ-3, Table 14).

The data show that the proportion of progressive financing resources has doubled between 2011 and 2017. Nonetheless, both the share of proportional receipts (52.6% in 2017, down from 61.5% in 2007) and regressive receipts (26.7% in 2017, similar to the 25.2% in 2007) exceed the share of progressive receipts (14.1% in 2017, up from 7.3% in 2007). The important shift in the composition of the public healthcare budget is the result of three effects. First, the 6th state reform transferred certain competences to the communities and resulted in a shift from alternative financing (mainly value added tax, a regressive source of financing) to government subsidies, which consists partly of progressive receipts. Second, the 2016 tax reform (referred to as tax shift) lowered the social contributions of the employers, reducing the importance of that financing source. Third, the alternative financing was reformed in 2017 and receipts from excises (a regressive source of financing) were replaced by receipts from the withholding tax on capital income (a progressive source of financing).¹¹²

The Gini coefficient, a measure of income inequality

A second contextual indicator of equity is the Gini coefficient which measures **income inequality** (EQ-1, Table 14). The Gini coefficient is equal to 0 when the distribution of incomes among individuals or households is perfectly equal and equal to 100 when the distribution is completely unequal – one person owns the whole national income.

Research has revealed an association between the way income is redistributed in a country (income inequality) and some forms of objective health problems and the perceived health situation or status.¹¹³⁻¹¹⁹ There is clear evidence that health differences contribute to income inequalities; the causality of the reverse association is debated.^{119, 120}

The Gini coefficient is easy to interpret and to compute for Belgium and international organisations use it to characterize income inequality in an

international perspective. It is a core indicator to monitor the targets for the Health 2020 policy framework by the WHO regional office for Europe.¹²¹

The Belgian society is one of the most egalitarian European countries if we compare the Gini coefficient of disposable income – the income that households can use for consumption and saving. This is the result of an important redistribution through taxes and social transfers (income inequality almost halves after taxes and transfers). The high level of income redistribution and the more egalitarian distribution of disposable incomes might be associated with a better health of the Belgian population.

In spite of the limited income inequality, there is a relatively high poverty risk. Especially low educated individuals are at risk of being without employment and at risk of poverty.

Conclusion

The two contextual equity indicators (share of progressive/regressive receipts in healthcare financing and income inequality) show that public financing of the healthcare system contains more regressive receipts than progressive receipts (the amount of regressive receipts is 1.89 times higher than the amount of progressive receipts). However, between 2011 and 2017 important shifts in the composition of the healthcare budget have occurred with an important increase of progressive receipts and a reduction in proportional receipts. Second, redistribution through the global system of taxes and transfers, makes Belgium one of the most egalitarian countries in the EU-15.

These two results are not contradictory because society can organise 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 that are to a larger extent regressive.

**Table 14 – Contextual indicators of equity**

(ID) Indicator			Belgium	Year	Flanders	Wallonia	Brussels	Source	EU-15 (mean)
EQ-1	Income distribution in population (GINI coefficient)	→	26.0	2017				Eurostat	29.7
EQ-2	Share of progressive receipts in healthcare financing (Ratio progressive receipts / total receipts, expressed as a %)	↗	14.1	2017	-	-	-	FOD – SPF Social Security, RIZIV – INAMI, National Bank of Belgium	-
EQ-3	Share of regressive receipts in healthcare financing (Ratio regressive receipts / total receipts expressed as a %)	→	26.7	2017	-	-	-	FOD – SPF Social Security, RIZIV – INAMI, National Bank of Belgium	-

Future publication on the website

(ID) Indicator	
NEW	Catastrophic healthcare payments
NEW	Redistributive impact of healthcare financing



PART 3 – RESULTS PER DOMAIN OF PERFORMANCE

8 PREVENTIVE CARE

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

For this report, we selected as primary prevention intervention, some vaccination against childhood vaccine preventable diseases and in elderly. We selected as secondary prevention interventions the screening of some cancers and the preventive dental care. All but one indicators in Table 15 are process indicators evaluating the coverage of preventive care. One indicator, the incidence of measles, represents an outcome indicator of the prevention.

It is noteworthy that the organisation of preventive interventions are mainly in the hand of the federated entities, with some involvement of the federal authorities for some of the reimbursements. Depending on the topics, the regional programmes can be quite similar in the different regions (like vaccinations in children, breast cancer screening) or present more or less important differences (for instance, there is no organised cervix cancer screening in Wallonia and Brussels). For this reason, the evaluation of the performance should also be made at regional level, even if a national level has been computed.

Vaccination against infantile diseases

Belgium performs rather well for infant vaccination: the coverage of the full schedule vaccination for DTP / polio (4 doses) reaches 93%, which is slightly lower than the health target for polio (95%) and pertussis. Many small outbreaks are still observed for pertussis.

The coverage of the pneumococcus vaccination is satisfying.

WHO has defined quantified targets for the elimination of measles,¹²² namely reaching a 95% coverage rate for both doses of vaccination, and reducing the measles incidence to less than 1 case per million inhabitants. *With respect to the measles vaccination coverage*, the 95% coverage target is reached since 2012 in average, and since 2015, also in Wallonia. However, for the second dose (given in early adolescence), the coverage only reaches 85% in average, which is far too low. Regional differences seem important, as in Flanders it almost reaches the threshold, but in Wallonia and Brussels the coverage is around 75%. However, those figures have to be interpreted with caution, as the methodology differs between the regions, and the coverage in Brussels and Wallonia may be underestimated. *With respect to the measles incidence*, after the outbreak of 2011, the incidence fluctuated between 3.5 and 9 per million inhabitants until 2016. A recent outbreak occurred in 2017 (mainly in Wallonia and to a lesser extent in Brussels). This intermittent resurgence of measles outbreaks in Belgium¹²³ and in other European countries is probably due to some clusters of unvaccinated or incompletely vaccinated people. Those clusters are among children whose parents refuse the vaccination, but also among adults who were never vaccinated. This highlights the need to improve the vaccination coverage: continuous and targeted efforts are needed, not only to reach a 95% coverage for both doses of measles vaccination, but also to detect and vaccinate clusters of unvaccinated adults.



Vaccination against influenza

Vaccination of elderly (65+) against influenza has declined steadily during the past eight years, and, with 54.7% coverage in 2016, is far below the 75% WHO target. In contrast, the vaccination coverage of elderly in the residential sector (nursing homes or homes for the elderly), is much higher (82%). The coverage in non-institutionalised people is higher in Flanders than in the 2 other regions. Also the decline of the coverage is more pronounced in Wallonia and Brussels, as observed in several other European countries. Belgium ranks however rather well among EU-15 countries.

Screening of breast, cervix and colon cancers

For the breast cancer screening, the overall coverage (including both the participation to the organised screening and the opportunistic screening) reaches 62%, when a participation rate of 75% is recommended. This too low coverage is stable over time. The overall coverage in Flanders is 14 percent-point (absolute difference) higher than the ones of the other regions, which is a relative difference of 27%. With regards to the organised screening, an even wider gap is observed, with women in Flanders being mostly screened through the organised programme (50%), while this is rarely the case in Wallonia and Brussels (7 and 11% respectively), where women undergo breast cancer screening outside the organised programme. This raises questions about the overall efficiency of the programme.

On the other hand, guidelines on breast cancer screening recommend that women younger than 50 years should not be screened, except in specific medical situations. Poor adherence to these guidelines indicates problems with the appropriateness of current preventive practices: a high proportion of women below 50 years old (35% in 2016) are screened. However, a decreasing trend of this inappropriate screening is observed in Flanders (from 31% in 2008 to 26% in 2016).

A proxy of the cervical cancer screening coverage has been calculated from the IMA database as the proportion of women aged 25-64 for which a cytologic test of the cervix was reimbursed within the last 3 years; with this proxy, the proportion of women of the target group having a reimbursement of the cytological test was 48% in 2016, with few regional differences. It seems having decreased over time (from 60% in 2011), but this change could be an artefactual effect of change in the reimbursement policy. Those results however should be further explored, as they might underestimate the actual coverage. Indeed, to evaluate the Flemish programme of cervix cancer screening, the *Centrum voor Kankeropsporing* (CvKO) has also taken into account the cytological exams from the pathological records (registered in the Belgian cancer registry), and obtained a 56% coverage for the cervix cancer screening in 2016. It is needed to define a methodology to calculate the cervix cancer screening coverage at Belgian level, using available data. The best way would probably be that the IKW (interministerial workgroup on public health) mandates a technical group to solve this technical issue. This indicator has thus been temporarily removed from the report.

Programmes of colorectal cancer screening through FOBT (faecal occult blood test) run in Wallonia and Brussels since 2009, since 2013 in Flanders. Different indicators of coverage can be calculated, as the strategy is either to perform a FOBT if there is no risk factor, or to perform a colonoscopy if risk factors exist. The total coverage should ideally include in the numerator both tests if realised with screening intention, and at the denominator the population at risk. Depending on the chosen indicator, the CvKO calculates coverage ranging from 39 to 68% for the colorectal cancer screening in Flanders. The report for Wallonia and Brussels will be available soon, but it seems the calculation method is quite different. As for the cervix cancer screening, it is needed that a technical group, designated by the IKW, defines a method to calculate the colorectal cancer screening coverage at the Belgian level, from available data. For the same reason, this indicator has also been removed from this report.



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

This indicator, having regular contacts with a dentist^u, is the only one in this section which does not fall within the competences of the federated entities. The results are poor since only 54% of the population has regular contacts with a dentist with lower rates in Wallonia and Brussels (48%) than in Flanders (58%). Rates have improved over time in all regions.






The higher contact rate in teenagers (66-71%) can probably be partly attributed to orthodontic treatment in that age span.

The low attendance rates despite of the fact that most of preventive and restorative care are fully reimbursed for children up to 18 years, raises questions on the factors precluding access to (preventive) oral care.

Conclusion

The performance of preventive care in Belgium is rather poor. Only the vaccination coverage in infant children reaches an acceptable level, even if it should still improve to reach the defined targets. However, measles vaccination in adolescents is too low in Wallonia and Brussels. The vaccination against influenza in elderly is too low in all three regions. Breast cancer screening is too low, even when looking at the global coverage (organised + opportunistic screening), and especially in Brussels and Wallonia.

Table 15 – Indicators on preventive care

(ID) Indicator			Belgium	Year	Target	Flanders	Wallonia	Brussels	Source	EU-15 (mean)
Vaccination coverage										
P-1	Polio (%,4 th dose)		93.0	2016	95	93.6	92.9	91.1 ^e	Sciensano	nr
P-12	Diphtheria, tetanus and pertussis vaccination in children (%, 4 th dose)		92.7	2016	90-95	93.0	92.9	91.1 ^e	Sciensano	nr
P-2	Measles vaccination in children (%, 1 st dose)		95.7	2016	95	96.2	95.6	94.1 ^e	Sciensano	
P-2	Measles vaccination in adolescents (%,2 ^d dose)		85.1	2016	95	93.4	75.0	75.0	Sciensano	na
P-3	Pneumococcus vaccination in children (%, 3 th dose)		93.6	2016	na	94.9	92.9	90.1 ^e	Sciensano	nr

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



P-4	Influenza vaccination (% pop aged 65+) ^a	⊖	54.7	2016	75	59.5	49.8	48.5	IMA – AIM	49.1 ⁽¹⁾
Incidence infectious diseases preventable by vaccination										
P-5	Incidence of measles (new cases/million pop) ^b	⊖	31.6	2017 (epidemic year)	< 1	6.3	80.8	20.1	Sciensano	18.1
Cancer screening^c										
P-6	Breast cancer screening (% women aged 50-69)	ST	61.8	2016	75	67.4	53.9	52.9	IMA – AIM	69.1 ⁽¹⁾
P-7	Breast cancer screening - organised programme (% women aged 50-69)	+	33.2	2016	75	50.7	6.8	10.9	IMA – AIM	-
Over-screening cancer										
QA-7	Breast cancer screening outside age target group (% women aged 41-49)	●	35.4	2016	-	26.3	49.0	46.7	EPS (IMA – AIM)	-
Oral health – contacts with dentist										
P-11	Regular contacts with dentist ^d (% pop aged 3+)	+	54.1	2016	-	58.4	48.1	47.7	IMA – AIM	-

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

^a Excluding population residing in homes for the elderly and nursing homes;

^b Incidence of measles has a large variability depending of the occurrence of epidemics. 2017 was an epidemic year in Wallonia and Brussels.

^c Within the last two years for breast cancer screening; ^d Regular contacts with dentist is defined as patients having had at least at 2 contacts on 2 different years over a three year period; ^e data from 2012.

Source of results for international comparison: ⁽¹⁾ OECD Health Statistics 2018

na : not available, nr: not relevant.



9 MENTAL HEALTHCARE

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

During the last decennia of the 20th century, the mental healthcare sector in Belgium, as in most industrialised countries¹²⁴, underwent several reforms characterised by a strong de-institutionalisation movement. This movement emphasised the need to reintegrate mentally disordered persons into the society by shifting from large psychiatric hospitals towards alternative services in the community.¹²⁵ Yet, important data limitations hamper adequate performance measurement within the mental healthcare sector; in particular, the lack of a unique patient identifier does not allow the follow-up of the patient after discharge, and few adequate data are available concerning outpatient care. The indicators relevant to monitor these evolutions (e.g. case management) could not be developed because of limitations in the current data structures. Instead, we relied on general indicators (e.g. suicide rates) and indicators focusing on the psychiatric hospitalisation episodes (e.g. number of hospitalisation days in psychiatric hospitals, involuntary committals).

This report includes 11 indicators that yield specific information on mental health and healthcare. The results have several limitations and give only a partial picture of the performance of the mental healthcare sector. Nevertheless, some important conclusions can be drawn.

Suicide rates remain high

Firstly, suicide rates in Belgium (15.8 per 100 000 population) appear to be considerably higher than in other European countries (10.2 for EU-15 countries in 2015). No firm conclusions can be drawn from these results. Suicide, after all, is only a proxy indicator of the mental health status of a population and should be viewed in combination with other mental health-related indicators. Yet, it should be noted that there are indications that there is room for improvement. A report from the socialist sickness funds, for instance, showed that among its members who were hospitalised for a suicide attempt (about 4000 persons between 2011-2013), 27% of them had

no follow-up encounter with their GP or psychiatrist in the 3 months after their hospitalisation.¹²⁶ Despite the decrease in the suicide rate (it was above 20 per 100 000 population in 2000), the results indicate that the concerted action on this topic¹²⁷ requires further continuous support to increase the pace of these improvements. Secondly, there are substantial regional differences. Suicide rates are considerably higher in Wallonia (19.8 per 100 000 population) compared to Brussels (10.2) and Flanders (16.0). The apparently low suicide rate in Brussels might be due to data artefacts (e.g. delays in submitting the reasons for violent deaths by the public prosecutor).

Antidepressants: frequently prescribed but poor guideline adherence

Although an increase in the prescription rates of antidepressant drugs can be observed throughout Europe, Belgian rates (79 DDD per 1000 population/day) remain higher than in other European countries (70 DDD). Figures are considerably higher in Wallonia (99 DDD) compared to Flanders (72 DDD) and Brussels (62 DDD). It should be investigated whether this can be explained by socioeconomic and demographical differences or whether this is due to other reasons (e.g. professional culture, dissemination of evidence-based guidelines).

After a rise until 2008, the number of adults with antidepressant medication (MH-7) has stabilised in recent years (e.g. from 13.3% in 2008 to 13.1% in 2016). Furthermore, the highest prescription rates are observed among the elderly (75+ years old) receiving long-term care (49% in nursing homes or homes for the elderly and 18.6% for the others).

A third indicator is a proxy measure of **guideline adherence**. Major depression requires at least three months of antidepressant use. A high percentage of adults receive antidepressant therapy for a shorter period (<3 months, MH-8): 42.6% in 2016. These high short-term prescription rates have been slightly decreasing in recent years. The prescription of antidepressants known for their anticholinergic side-effects among the elderly (potentially causing falls) has remained stable 12%. The (in)appropriateness of antidepressant medication is an important point of attention in the Belgian healthcare system.



Number of psychiatric hospitalisation days remain high despite reforms

Despite recent reforms aiming at a shift from inpatient mental healthcare towards ambulatory alternatives, results of these reforms are not yet visible. The number of psychiatric hospitalisation days even increased from 305 per 1000 population in 2000 to 351 per 1000 population in 2016. Against expectations, two contextual variables did not decrease (on the long-term) in spite of these reform efforts: the emergency room visits for social, mental or psychic reasons (1.6% of emergency room admissions in general hospitals in 2014; 1.5% over the period 2009-2012) and the number of involuntary committals in psychiatric hospitals (6.8 per 10 000 population in 2008; 7.3 per 10 000 in 2016).

In addition, it is shown that in Flanders the number of hospitalisation days in psychiatric hospital wards is higher than in other regions. It should be investigated if these admissions are appropriate or if they are due to shortcomings in the service offer (e.g. insufficient community-based alternatives, insufficient case management). Data from Flanders, after all, show that a substantial percentage of patients have to wait one month or more for a first contact with an ambulatory mental health centre (44% in 2017), a percentage that has increased regularly over time (30% in 2009).

Patient experience

The Vlaams Patiëntenplatform developed a survey to measure the patient experience in the mental healthcare sector. Measurements have been done in 2016 and 2017 (facility can participate on a voluntary basis)^v. The following patient-related experience measurements (PREMs) were included in the survey:

- The mean patient satisfaction for treatment or stay was 7.9 in 2016 and 7.8 in 2017 out of a maximum of 10.
- Half of the patients would certainly recommend the facility to family and friends (52% in 2016, 49% in 2017).

Such initiatives should be generalised in Belgium, cf. the P4P programme in general hospitals (see patient centeredness section, QP-7).

Conclusion

While some indicators show an improvement, the results on the mental health and healthcare indicators remain alarming. Past reforms are not (yet) sufficiently visible and suicide rates remain high. In addition, performance monitoring in this domain remains challenging since data systems ideally should allow to monitor the patients' entire care path (including outpatient care), which is to date insufficiently the case (Table 16).

^v <https://www.zorg-en-gezondheid.be/resultaten-kwaliteitsmeting-in-de-geestelijke-gezondheidszorg> (last access: 7 February 2019)



Table 16 – Indicators on mental health and mental healthcare

(ID) Indicator			Belgium	Year	Flanders	Wallonia	Brussels	Source	EU-15 (mean)
Health Status									
MH-1	Deaths due to suicide (/100 000 pop)	●	16.6	2015	16.0	19.8	10.2 ^a	SPMA	10.2 ⁽¹⁾
Accessibility of care									
MH-2	Practising psychiatrists (/1000 pop)	→	0.17	2016	-	-	-)	RIZIV – INAMI	0.19 ⁽¹⁾
MH-3	Waiting time longer than 1 month for first contact in ambulatory mental health centre (% of pop in contact with ambulatory mental health centre)	⊖	-	2017	44	-	-	VAZG	-
Appropriateness of care									
MH-4	Rate of involuntary committals in psychiatric hospital wards (/10 000 pop)	↗	7.3	2016	7.1	6.3	10.3	MPG – RPM	-
MH-5	ER visits for social, mental or psychic reason (% of admissions in ER in general hospitals)	ST	1.6	2016	1.7	1.5	1.4	MZG – RHM	-
MH-11 NEW	Proportion of readmissions within 30 days in psychiatric hospitals (in the same hospital, %)	●	14.1	2016	14.7	11.1	11.1	MPG – RPM	-
Appropriateness of prescribing pattern in ambulatory patients									
MH-6	Use of antidepressants (total DDD/1000 pop/day)	↗	79.0	2016	71.8	98.6	62.3	Farmanet – Pharmanet (EPS)	70.2 ⁽¹⁾
MH-7	Use of antidepressants (% of adult population, at least once in the year)	→	13.1	2016	11.9	16.2	11.2	Farmanet – Pharmanet (EPS)	-
MH-8	Percentage of patients with short duration (< 3 months) of antidepressants treatment (% of pop on antidepressants)	⊕	42.6	2016	43.2	41.3	43.7	IMA – AIM	-
Safety of prescribing pattern in ambulatory patients									
ELD-9	Patients (65+ years old) prescribed antidepressants with anticholinergic effect (>80 DDD, %)	⊕	12	2016	10	15	14	EPS (IMA – AIM)	-
Contextual indicator									
MH-10	Number of hospitalisation days in psychiatric hospital wards (/1000 pop)	↗	351	2016	381	293	261	MPG – RPM	-

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

^a underestimated ⁽¹⁾Source: OECD Health Statistics 2018.



10 LONG-TERM AND ACUTE CARE FOR THE ELDERLY

The elderly population deserves special attention in the health system. First of all they represent a large part of the population. In 2018 more than two million persons in Belgium were aged 65 and older, representing 19% of the total population. They also require particular health services. Not only is there a strong correlation between older age and demand for acute medical services, many of them also require ongoing support on longer-term basis, to assist with their daily activities. In this chapter we focus on both long-term and acute care for the elderly population.

Long-term care (LTC) services have been defined by international institutions (WHO, OECD, Eurostat) as a range of services required by persons with reduced degree of functional capacity (physical or cognitive) and who, as a consequence of this, need help for an extended period of time for their basic and/or instrumental activities of daily living (ADL).¹²⁸ Basic ADL include a.o. bathing and showering, dressing, getting to toilet, transferring oneself and feeding oneself. Instrumental ADL include a.o. cleaning and maintaining the house, preparing meals and taking prescribed medications.¹²⁹

Informal care, i.e. care provided by family and friends (mostly spouses and children) have traditionally been an important source of care for people with long-term care needs. If informal care is no longer sufficient, **formal care** by professionals is required. Formal care can in first instance be provided at home, by home nurses. In Belgium, **home nursing care** is available to persons with low to severe ADL or with cognitive limitations, irrespective of their age. Home nurses provide basic nursing (mainly hygienic) care as well as technical nursing interventions.¹³⁰ Note that besides home nursing care there are also home assistance services (*'thuishulp'*-*'aide à domicile'*) for mainly instrumental ADL.

For elderly who can no longer live at home, there are two main types of **residential facilities: homes for the elderly**^w, which provide nursing and

personal care to older persons with mainly low to moderate limitations (categories O, A, B, C, Cd and D on the Katz scale), and **nursing homes**^x, for persons strongly dependent on care but without need of permanent hospital treatment (categories B, C, Cd and D on the Katz scale). Besides homes for the elderly and nursing homes, there are also service flats, now called *'assistentiewoningen/résidences-services'*, as important semi-residential care setting, where people can live independently in an adapted and safe building, with a common room for interaction with other residents and with support from care services if needed.

Until the 6th State Reform of 2014, LTC for the elderly was embedded in the RIZIV – INAMI health insurance scheme: mainly homes for the elderly, nursing homes and home nursing care. With the 6th State Reform, a substantial shift took place in the competency for LTC from the federal level towards the regions.¹³¹

Accessibility of long-term care services

In order to live a good life at older age, people require smooth access to LTC services, either at home or in institutions. The number of users of LTC can serve as a proxy indicator for the availability and accessibility of these services. The number of users also gives information on the sustainability of the LTC system because the extent to which a country relies on formal or informal care and the extent to which care is provided in institutions or at home are important determinants of public expenditures on LTC.¹²⁸ It should be noted that formal care is not always a substitute for informal care; often it is a complement, supporting and coming on top of informal care.

Most recent available date from 2016 show that 8.5% of the elderly over 65 years lived in residential care (ELD-1), whilst 5.1% of elderly received home nursing care (ELD-2). Of note is the fact that there is considerable geographical variation in use of residential and home nursing care. Compared to Flanders and Wallonia, a higher percentage of elderly in Brussels-Capital is in residential care (10.3% in Brussels compared to 9.0% in Wallonia, 8.0% in Flanders). Vice versa, Brussels-Capital has the lowest

^w Dutch: Rustoorden voor bejaarden (ROB; now called woonzorgcentrum (WZC)); French: maison de repos pour personnes âgées (MRPA)

^x Dutch: rust- en verzorgingstehuis (RVT; now called woonzorgcentrum (WZC)); French: maison de repos et de soins (MRS)



percentage for home nursing care (3.3%), together with the provinces of Liège and Luxembourg. The provinces Hainaut and Limburg have the highest use of home nursing care (6.7% and 8.8% of elderly respectively).

Due to different ways of provision of LTC, international comparison is difficult, but the available data from OECD countries show that on average 13% of people over 65 receive LTC, either in institutions or at home (2015 data). Though the total number is very close to the Belgian situation, the mixture appears somewhat different. Compared to other countries, Belgium appears to have relatively high use of residential facilities and low use of home nursing care. The general perception however is that both residential and home nursing care services are well developed in Belgium. Yet there is a growing concern about its affordability for the elderly, the budgetary sustainability of some services, and also growing privatisation – in both home and residential care settings.¹³¹

Residential bed capacity

As in many other European countries, Belgian LTC policy has aimed to expand home care services so that people can postpone institutionalisation as long as possible. The RIZIV – INAMI budget for home nursing is 'open' so that it can follow the needs. Correspondingly, public expenditures on home nursing services have grown substantially. Also the budget for residential care expanded substantially, although residential care capacity has been restricted by moratoria. Furthermore, to respond to the high care needs of residents, a significant number of lower care beds in homes for the elderly have been converted to higher care beds in nursing homes.¹³⁰

Given the ageing of the population, however, there will be an increased need for LTC services in general, at home as well as in residential care.¹³² Upon request of the policymakers, in 2011 the Federal Planning Bureau and KCE developed a model to forecast the needed number of residential beds in the future. According to the model, in 2025 149 000 to 177 000 beds would be needed. After 2025, the increase in need would even accelerate.¹³⁰ In order to monitor the evolution in number of beds we introduced a new indicator (ELD-4). In 2018 there were in total over 144 000 beds, indicating a need for further growth. Whilst the number of beds per 1 000 persons 65+ has declined in the period 2011-2014, it has increased in the period 2015-2018 to reach 68 beds per 1 000 persons 65+ in 2018. Compared to other

European countries, Belgium ranks relatively high. Belgium is only preceded by Luxembourg and Netherlands, which have the highest number of beds of 86 and 85 beds per 1 000 persons 65+ respectively.

Policy options to temper the increase in needed beds are to further stimulate home care and support informal care and to ensure that the available beds are in priority used for elderly needing more intensive care. Especially for independent persons (category O of the Katz scale) but also for persons with low care-dependency (category A) it can be questioned whether moving to residential facility is the most appropriate option. We added a new indicator to monitor this problematic, measuring the percentage of independent elderly or elderly with low care-dependency (category O or A of the Katz scale) living in residential facility (ELD-5). Over the period 2011-2018, the proportion of patients in level O or A has steadily decreased, from 32% in 2011 to 25% in 2018. These data show a positive evolution, yet differences amongst regions may indicate further potential for improvement. In Brussels, more than a third (34%) of elderly living in residential facility still has certain autonomy. In Flanders this proportion stays reduced to 20%.

To avoid too early institutionalisation of independent or low care-dependent persons, besides home care services also other alternative care possibilities should be expanded, as it may concern persons in need of mental healthcare or social lodging who cannot find a place elsewhere and for whom the residential facility is currently a last resort solution. Also service flats can play a role as some people may experience social isolation at home. For an exploration of the issue and the formulation of policy alternatives we refer to a study recently commissioned by the Observatory for Health and Welfare of Brussels-Capital.¹³³

Informal care givers

Informal caregivers have traditionally been important contributors to fill the long-term care needs in a country. However, due to declining family size, increased geographical mobility and rising participation rates of women in the labour market, the availability of informal carers is expected to decline in the coming decades. The last SHARE (Survey of Health, Ageing and Retirement in Europe)¹³⁴ showed that Belgium scores well with 19% of the population aged over 50 providing informal care on daily or weekly basis (ELD-3). This is amongst the highest rates in the survey. However, also for



Belgium it may be difficult to escape the general trend of shrinking base of informal caregivers and the evolution should be further monitored in the future.

Although informal care is often seen as a cost-effective way to avoid or delay the need for institutionalisation,¹³⁵ it should not be overlooked that there are also indirect costs linked to informal care, both for individuals as for the state, in terms of forgone employment and possible negative impact on the informal carers' health.¹³⁶ This poses challenges as to how to incentivise informal care and how to support informal caregivers. Possibilities exist to formalise informal care through cash payments, legal rights, social security and training opportunities, which can incentivise informal care, support the caregiver and optimise the quality of the caregiving.¹³⁵ For more reflections on possible support measures, we refer to KCE report 223.¹³⁷

Accessibility of acute care for elderly

The ageing of the population not only poses pressure on long-term care services for the elderly but also on acute care services for the elderly. As there is a shortage of **geriatricians** in our country, a new indicator (ELD-5) was added to monitor the evolution of geriatric medical workforce. In recent years, a number of actions were taken to motivate more physician students to choose for geriatrics. The High Council for physicians-specialists and general practitioners has worked out a reform of the studies for specialists in internal medicine. The study trajectory of six years now starts with a joint trajectory ("truncus communis") of 3 years in which every student also acquires experience in geriatrics. Only after these 3 years, a definite choice for subspecialties has to be made. Furthermore, more RIZIV – INAMI codes were created to increase the remuneration of geriatricians. It remains to be evaluated whether the taken actions are sufficient to ensure the required workforce, especially considering that even more geriatricians will be needed in the future due to the ageing population.

Compared to all G-7 countries, Belgium has a lower geriatrician workforce with 0.3 per 10 000 population aged over 65. In the G-7 countries rates range from 0.4 in Canada up to 2.4 in the UK.¹³⁸

Safety in residential care

Fall incidents are a common cause of morbidity and mortality in the elderly. Recent data on fall incidents in elderly are only available for the Flemish community, where they are measured in the context of the Flemish Indicator Project in the homes for the elderly. Data from this project reveal that in 2017 a median of 12% of residents in Flemish homes for the elderly had a fall incident in one month time (ELD-7). This high percentage illustrates the high care need of residents in homes for the elderly and the need for further actions to prevent fall injuries in the elderly.

The occurrence of **pressure ulcers**, also known as bedsores, in a patient (either hospitalised, in residential care or at home) has a serious negative impact on the individual's health. Pressure ulcers can be prevented with good quality nursing care. The occurrence of pressure ulcers is one of the quality indicators measured in the Flemish project on quality indicators in homes for the elderly. These data show that in 2017 2% of residents had a pressure ulcer of category 2, 3, 4 or undetermined, measured on a single reference day (ELD-8). However, only in 1.3% of the residents the decubitus developed in the home for the elderly. No sufficient historical data are available to evaluate the trend and no recent international data are available for comparison. It is recommended that these quality indicators also be measured in the other Belgian regions, both to monitor the situation and to draw attention to the continued need for preventive efforts, to reduce the risk of pressure ulcers and to avoid conditions for them to become severe and fatal.

Nosocomial infections, often caused by antibiotic-resistant organisms, with methicillin-resistant *Staphylococcus aureus* (**MRSA**) are another major cause of morbidity and mortality in residential care. Residents of homes for the elderly are commonly colonised with MRSA and acquisition within these facilities is common. A study from Sciensano shows that in 2015 in a sample of nursing homes 9.0% of residents were carriers of MRSA (ELD-9). When comparing the results of the three available Belgian MRSA carriage surveys, a continuous decrease in the prevalence of MRSA carriage in nursing homes is observed, from 19% in 2005 over 12.2% in 2011 to 9.0% in 2015. Notwithstanding this positive evolution, MRSA should remain a continuous point of attention for workers and management of residential care facilities.



Appropriateness of care

Because of their side effects especially in older patients, **anticholinergic drugs** should be avoided as much as possible in this population. Yet data (ELD-10) show that in 2016 22% of the Belgian population over 65 are prescribed a dosage over 80 DDD of anticholinergic drugs, which indicates chronic use of this drug. Elderly in residential facilities are more frequently prescribed anticholinergics than elderly living at home (52% of 75+ in residential setting compared to 22% of 75+ at home). Historical data since 2011 show as good as no evolution. Furthermore there is considerable regional variation. Clearly there is need for improvement and the prescribing behaviors by clinicians should be improved through education, training and increased use of guidelines.

Antipsychotics are often prescribed for problem behaviour in patients with dementia, however, given the associated risks of these drugs, non-pharmacologic interventions are the recommended first step. Data show that in 2016 6.1% of population over 65 have been prescribed antipsychotics. This percentage is very high compared to other OECD countries. For comparison, Sweden, Norway, the Netherlands, France, Australia and Denmark prescribed antipsychotics to fewer than 3.5% of the population over 65. The problem appears particularly acute in residential setting. 32% of people aged over 75 in residential setting are prescribed antipsychotics (ELD-11), compared to only 5% of people aged over 75 living at home (ELD-12). Reducing the overuse of antipsychotics in residential setting remains a policy priority for Belgium.

Table 17 – Indicators on care for the elderly

(ID) Indicator			Belgium	Year	Flanders	Wallonia	Brussels	Source	EU-15 (mean)
Accessibility of long-term care services									
ELD-1	Long-term care in residential facility ^{a,b} (% pop aged 65+)	C	8.5	2016	8.0	9.0	10.3	IMA – AIM	4.3 ⁽¹⁾
ELD-2	Long-term home nursing care ^c (% pop aged 65+)	C	5.1	2016	5.5	4.8	3.3	IMA – AIM	8.7 ⁽¹⁾
ELD-3	Informal carers (% of pop aged 50+)	C	20	2015	---	---	---	SHARE	13.3 ⁽²⁾
ELD-4 NEW	Number of long-term care beds in institutions ^{a,b} (per 1 000 pop 65+)	C	68	2018	61	74 ^d	99	RIZIV – INAMI	46.2 ⁽³⁾
ELD-5 NEW	Low care-dependent persons in residential facility ^{a,b} (% of residents)	C	25	2018	20	31 ^d	34	RIZIV – INAMI	---
Accessibility of acute care									
ELD-6 NEW	Number of practising geriatricians (per 10 000 population)	C	0.30	2016	---	---	---	RIZIV – INAMI	---



Safety in residential care										
ELD-7	Fall incident during the last month in residential facility ^{a,b} (% of residents)	●	--	2017	12	--	--	VAZG	---	
ELD-8	Prevalence of pressure ulcers (grade II-IV) in residential facility ^{a,b} (% of residents)	●	---	2017	2.0	---	---	VAZG	---	
ELD-9	Prevalence of MRSA carriage in nursing homes ^b (% of residents)	+	9.0	2015	---	---	---	Sciensano	---	
Appropriateness of care										
ELD-10 NEW	Prescription of anticholinergic drugs >80 DDD in elderly (% of pop 65+)	ST	21.8	2016	19.6	25.9	23.7	EPS	---	
ELD-11 NEW	Prescription of antipsychotics in residential facility (% of residents 75+)	●	31.6	2016	---	---	---	EPS	---	
ELD-12 NEW	Prescription of antipsychotics outside residential facility (% of pop 75+)	↘	5.2	2016	---	---	---	EPS	---	

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

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

Bold results indicate regions with a relative risk higher than 1.2 (or lower than 0.83) when compared to the region with the best results.

VAZG = Vlaams Agentschap Zorg en Gezondheid.

a Home for the elderly in Dutch: woonzorgcentra (previously called rustoorden voor bejaarden – ROB) and in French: maison de repos pour personnes âgées (MRPA)

b Nursing home in Dutch: rust- en verzorgingstehuis (RVT) and in French: maison de repos et de soins (MRS)

c Long-term nursing care at home data is based on per diem lump sum billings

d Wallonia: German-speaking Community included

Sources of results for international comparison: (1) Estimate for OECD-16/18 derived from OECD Health Statistics 2017 <http://dx.doi.org/10.1787/888933605920> and <http://dx.doi.org/10.1787/888933605882>; no data on Belgium published; (2) OECD-18 from Health at a Glance 2017 based on SHARE survey, on population aged 50+; (3) OECD-31; (4) OECD-15 from OECD Health Statistics 2017



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

Table 18 and Table 19 summarise indicators reported in previous sections on the elderly population. In Table 18 we make the comparison between elderly 65+ for those not receiving any kind of long-term care, versus those receiving home nursing care and those living in residential facility. In Table 19 we make the comparison between elderly 75+ for those living in institution versus those living at home.

Overall, receiving home care or staying in a residential facility is associated with a higher influenza vaccination rate (P-4) and a higher contact rate with GPs (QC-2 and QC-3). Staying in a residential facility however is also associated with a higher use of antidepressants (MH-7), antibiotics (QA-4) and a higher use of anticholinergic drugs (ELD-10) and a lower contact rate with ophthalmologists in diabetic patients (QA-1 and QA-2).

Table 18 – Indicators reported previously in other sections, specifically on population aged 65+

(ID)	Indicator	Year	Source	Belgium	No formal care (65+)	Receiving home care (65+)	In nursing home or home for the elderly (65+)
Prevention							
P-4	Influenza vaccination (% pop aged 65+)	2016	IMA – AIM	54.7	53.8	70.7	82.1*
Continuity of care							
QC-2	Usual Provider Continuity index ≥ 0.75	2015-2016	IMA – AIM	67.6	66.9	83.2	80.5
QC-3	GP encounter within 7 days after hospital discharge (% aged 65+)	2016	IMA – AIM	56.6	50.2	68.0	69.5
Safety							
QS-6	Polypharmacy among the elderly (5 or more drugs of >80 DDD per year) (% of insured population 65+)	2016	Pharmanet Sciensano	39%	n.a.	n.a.	n.a.

Data on long-term nursing care at home are based on per diem lump sum billings.

*Influenza results for 65+ in nursing home or home for the elderly cover Brussels and Wallonia only (results for Flanders are not available in IMA – AIM data);

DDD = defined daily dose.

n.a. = not available

**Table 19 – Indicators specifically on population aged 75+**

(ID)	Indicator	Year	Source	Place of residence not in institution (75+)	Place of residence in institution (nursing home or home for the elderly) (75+)
MH-7	Use of antidepressants (% of pop 75+, at least once in the year)	2016	IMA – AIM	18.9	48.6
QA-1	Proportion of adult diabetics with appropriate follow-up (% of diabetic patients 75+ under insulin)	2016	IMA – AIM	30.7	20.1
QA-2	Proportion of adult diabetics with appropriate follow-up (% of diabetic patients 75+ under oral antidiabetics only)	2016	IMA – AIM	10.6	2.3
QA-4	Use of antibiotics (% of pop 75+, at least once in the year)	2016	IMA – AIM	44.4	62.2
QA-5	Use of antibiotics of second intention (% total DDD antibiotics in pop 75+)	2016	IMA – AIM	55.1	49.4
ELD-10	Prescription of anticholinergic drugs >80 DDD in elderly (% of pop 75+)	2016	IMA – AIM	22	52

DDD = defined daily dose.

Conclusion

MRSA carriage in residential care facilities for the elderly is decreasing but should remain a continuous point of attention for workers and management of these facilities. Data on fall incidents and pressure ulcers are difficult to interpret as they are only available for Flemish facilities and reliable data are only available since recently. It is recommended that these quality indicators also be measured in the other regions, to monitor the situation and to draw attention to the need for preventive efforts.

Too much anticholinergic drugs are prescribed in elderly and too much antipsychotics are prescribed in residential care facilities for the elderly. Prescribing behaviors of clinicians should be improved through education, training and increased use of guidelines. The number of polymedicated patients remains relatively high compared to other countries but has slightly decreased over time.



11 CARE AT THE END OF LIFE

Palliative care has been defined by WHO as “an approach that improves the quality of life of patients and their families facing the problem of life-threatening illness, through the prevention and relief of suffering by means of early identification, assessment and treatment of pain and other problems (physical, psychosocial and spiritual)”.¹³⁹ This definition emphasises the different aspects of palliative care, such as the holistic approach by a multidisciplinary team of care providers, a target population not restricted to cancer patients but to all patients with a life-threatening illness and the necessary support for the family.

Belgium has developed many structures and services for palliative patients, such as palliative networks, palliative home-care teams, palliative lump sum payments for the patient staying at home, palliative functions in hospitals and in residential facilities for the elderly.¹⁴⁰ In certain regions there are day centers for palliative care. In addition to palliative structures, Belgium has developed a legal regulation of euthanasia for adults and children.¹⁴¹

A Belgian study showed that palliative home care support use has a positive impact on quality of care whilst reducing total costs of care in the last 14 days of life. The study pointed to the need for policymakers and healthcare practitioners to strengthen the communication on the existing options for palliative home care support to patients and their caregivers.¹⁴²

In the past patients were often recognised too late as palliative patient - often only a week before death; therefore new criteria have been adopted which are no longer based on life expectancy but on fragility. Previously the legally defined condition to be eligible for palliative care was a life expectancy of maximum three months. The new criteria are based on the first Palliative Care Indicator Tool (PICT) scale, in which the first question is “Would you be surprised if your patient would decease in the coming 6 to 12 months?”.¹⁴³ With this new definition, patients can be detected earlier on.

This report did not aim to give a comprehensive overview of the current use of palliative care services but to select some warning indicators for clinical practice and policymakers. A major limitation was that nationwide data on end of life were only available for terminal cancer patients and it is not sure that we can extrapolate the results to all end of life situations. Of note is that a project in Flanders developed 31 quality indicators on palliative care. However, as the implementation of this indicator set is limited to 29% of palliative care services in Flanders (37 teams), the data from this source have not been included in this report.¹⁴⁴

Access to and timing of palliative care

The first two indicators in this chapter present data on palliative care received by cancer patients. 53% of terminal cancer patients received palliative care in 2015 (EOL-1), either at home or in hospital^y. This percentage has slightly increased over time, and is higher in Flanders. This percentage is probably an underestimation of the reality, as patients may receive palliative care in the hospital without specific billing.

Yet, 18.4% of terminal cancer patients died within one week after the start of palliative care (EOL-2). This percentage has slightly declined since 2012 (19.6%) which is a positive evolution. Although it concerns a minority of patients, the result remains a warning signal for healthcare providers and patients to be aware of the importance of a well-timed initiation of palliative care. With the new criteria of a palliative patient as adopted by Royal Decree in 2018, the situation is expected to improve.

^y Palliative care as identified in billing data: this includes patients receiving a lump sum for palliative care at the usual place of residence, patients with visits

of the general practitioner or nurse within a palliative setting, patients hospitalized in palliative units or hospitalized patients with visits of multidisciplinary palliative care teams.



Aggressiveness of care at the end of life

In addition to appropriate timing of palliative care, aggressiveness of care (e.g. inappropriate treatments in the final phase of life) can also be an important source of information for both healthcare providers and policymakers.¹⁴⁵ About 8.9% of terminal cancer patients still received chemotherapy in the last 14 days of their life (EOL-3), with higher rates in Wallonia. The data, however, make no distinction between curative and palliative chemotherapy, nor with unexpected deaths in cancer patients, which hampers the interpretation of these results. Since 2012, this percentage has slightly decreased.

Patient centeredness

In spite of the current organisation of palliative services supporting the patient and his relatives to help the patient stay at home, 63% of cancer patients died in a hospital, only 23.1% died at home and 6.8% in residential care (thus 29.9% died in their usual place of residence, EOL-4). The proportion of patients who died in a hospital is higher in Brussels. Over the period 2008-2015, there was a small decrease in patients who died in hospital and a small increase in patients who died in residential care.

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

Conclusion

The four indicators on end of life care only give a partial image of the current practice in Belgium, focused on timeliness, aggressiveness of therapy and patient centeredness in cancer patients. Since the previous performance report, the data show a positive, though small evolution. Efforts for the next report should be made to include other patient groups (such as patients suffering from dementia or other chronic diseases). This is in line with the Global Atlas of Palliative Care in which the definition of palliative care is extended to persons with a wide range of chronic conditions as well as life-threatening/limiting conditions.¹⁴⁶


Table 20 – Indicators on end of life care for patients with terminal cancer

(ID) Indicator			Belgium	Year	Flanders	Wallonia	Brussels	Source	EU-15 (mean)
Access to palliative care									
EOL-1	Patients who received palliative care ^a (% of terminal cancer patients who died in the year)	+	53.4	2015	59.8	46.1	43.7	Cancer Registry + IMA – AIM	---
Lack of timely palliative care									
EOL-2	Patients who died within one week after start of palliative care (% of terminal cancer patients who received palliative care and died in the year)	+	18.4	2015	16.3	21.7	23.0	Cancer Registry + IMA – AIM	---
Aggressiveness of care at the end of life									
EOL-3	Patients who received chemotherapy in the last 14 days of life (% of terminal cancer patients who died in the year)	+	8.9	2015	7.5	10.9	9.7	Cancer Registry + IMA – AIM	---
Patient centeredness									
EOL-4	Death at usual place of residence (home or in residential care) (% of terminal cancer patients who died in the year)	+	29.9	2015	31.0	30.1	20.7	Cancer Registry + IMA – AIM	---

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

Bold results indicate regions with a relative risk higher than 1.2 (or lower than 0.83) when compared to the region with the best results.

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



12 MOTHER AND NEWBORN CARE

Newborns

Neonatal mortality has declined in the last decades, and has stabilised since 2009 around 2.5 neonatal deaths per 1 000 live births. In 2015, neonatal mortality rate in Belgium was 2.2 per 1 000 live births, close to the EU-15 average (2.3 per 1 000 live births). **Perinatal mortality** however has increased slightly between 2005 and 2009 and is now decreasing. Due to that, it has been above the EU-13 average since 2005, but the gap has been shortened in 2015 (perinatal mortality rate is 6.0 per 1 000 births in Belgium against 5.7 for the EU-13 average). However, Belgian data are difficult to compare with international data because, among others, of differences in definition of foetal death.

The value of the **Apgar score at 5 minutes** is known to be highly correlated with neonatal mortality and to provide a good predictive value for subsequent mortality.¹⁴⁷ In Belgium, in 2015, the proportion of newborns with low (below 7) and very low (below 4) Apgar score at 5 minutes were 17.52 and 2.75 per 1 000 live births respectively. These proportions did not evolved much over time (although an average decrease is observed in the period 1998-2015) and are consistent with proportions in other European countries.¹⁴⁷

Very preterm births (between 22 and 31 weeks of gestation) are rare but account for a large part of neonatal deaths. The delivery of these newborns in maternity units with on-site **neonatal intensive care unit** is associated with lower mortality.^{147, 148} In Brussels in 2015, 3.66% of the very-preterm births occurred outside this type of ward, which represents a decrease with respect to 2011 (8.60%). In that region, most of the hospital sites with a maternity units also have a neonatal intensive care unit (7 out of 11), which can explain the low proportion of very-preterm born outside these units. The proportions are higher in Flanders and Wallonia (17.92% and 19.14% respectively) but also decreasing.

Interventions during labour and childbirth

The increasing use of interventions during labour and delivery has caused worldwide concern in the recent years.^{149, 150, 151} In Belgium, induction and episiotomy rates are still high, but largely decreasing overtime. **Induction rate** decreased from 31.9% in 1998 to 26.7% in 2015, while **episiotomy rate** (among vaginal deliveries) decreased from 47.9% in 2010 to 40.8% in 2015.

Since 1985 and up to 2015, WHO and international healthcare community have considered that C-sections rate should not be higher than 10-15%. This recommendation has been revised in 2015, the WHO stating that “*every effort should be made to provide caesarean sections to women in need, rather than striving to achieve a specific rate*”.³³ In Belgium, in 2016, **caesarean rate** among live births was 21.6%, i.e. below the UE-13 average of 25.9%. Although the C-section rate follows an increasing trend at the national level, a decrease is observed in Brussels since 2013 and in Wallonia since 2014. In addition, the WHO recommends the use of Robson classification to assess, monitor and compare C-section rates.^{33, 152} C-section rates for most of the Robson categories are within the expected ranges suggested by the WHO.¹⁵³ For multiparous women who have a single, full term pregnancy, C-section rate among women who have no previous caesarean (Robson categories 3 and 4) are low in Belgium (in 2016, 7.4% in Flanders, 6.2% in Wallonia, 7.4% in Brussels for Robson 4), compared to expected levels (not higher than 15% for Robson 4 according to WHO¹⁵³). On the other hand, C-section rate among women in with a previous caesarean (Robson category 5) is at or above the upper bound of the expected range (in 2016, 66.50% in Flanders, 63.9% in Wallonia and 59.7% in Brussels, while the expected range is 50-60%¹⁵³). This category (Robson 5) also contributed the most to the total C-section rate.



After having long held the adage "once a caesarean section, always a caesarean section" to be an unavoidable fact, clinical recommendations now consider that vaginal delivery after a C-section (VBAC) is now considered as a reasonable approach in a number of pregnancies. However, to reduce the risk of uterine rupture, it is recommended to avoid any form of inducement, especially by using prostaglandins.¹⁵⁴ In Belgium, the proportion of VBAC has decreased between 2010 and 2014 (from 34.30% to 30.54%). This is consistent with international trends that show a decrease in **VBAC rates** since the end of the nineties following an increase in the number of reported uterine ruptures and other obstetric complications.^{155, 156} Nevertheless, a recent increase has been observed in Belgium (VBAC rate in Belgium is 31.88% in 2015, the increase starting in 2012 in Brussels, 2013 in Flanders and 2014 in Wallonia). Future data still have to confirm this upward trend.

Box 13 – Law data and de facto data

When comparing the health system performance between regions in Belgium, two different approaches can be followed: a comparison between residents of different regions or a comparison between cares occurring in different regions. *De facto data* allow to analyse what occurs in a given region (for instance Brussels) while *law data* allow to analyse what happens for the residents of the region (for instance the persons living in Brussels). The distinction is interesting to perform when analysing mother and newborn care as a quarter of the women who give birth in Brussels do not live in that region. In 2016, 17.5% of the deliveries occurring in Brussels were from women living in Flanders and 6.9% from women living in Wallonia.¹⁵⁷ One should therefore pay attention to the type of data used when interpreting regional comparison. For instance, the proportion of VBAC is higher among women living in the Brussels region (law data) than among women giving birth in the Brussels region (de facto data). The episiotomy rate is lower among women living in the Brussels region than among women giving birth in the Brussels region.

Geographic variability in interventions during labour and childbirth

Geographic variability in interventions during labour and childbirth can be an indication of inappropriate care. Caesarean section is a commonly used illustration^{21, 32, 158, 159} but other interventions are also of interest. Within Belgium, geographical variability is quite large. In 2016, C-section rates per Belgian district ranged from 12% to 30%. Variability across hospitals is also large (ranging from 16% to 35%). The proportion of VBAC varies between Belgian hospitals from 12% to 61% (data 2015). Induction practices also varies widely across hospitals, from 10% to 49% (data 2015). The same variability of practice is also observed for episiotomy rate that ranges in 2015 from 8% to 84% among Belgian hospitals. Nevertheless, these disparities must be interpreted with caution as they may be partially explained by differences in case-mix between hospitals, as well as by other confounding factors that are not controlled for in the analysis.

Reduction of hospital length of stay

The **average length of stay for a normal delivery** is an indicator of the efficient use of services. It is a better indicator than the overall average length of stay to benchmark countries which does not take into account the differences in patient case-mix. In Belgium, the average length of hospitalisation for a single spontaneous delivery decreased from 4.96 days in 2010 to 3.83 in 2013 and then sharply decreased, down to 3.11 days in 2016. Budgetary decisions as well as the launch of seven pilot projects related to delivery with a reduced hospital stay¹⁶⁰ contribute to this downward trend. The average length of stay in Belgium is now close to the EU-13 average (2.8 days in 2016).

With the reduction of the hospital length of stay after a delivery, blood spots for neonatal screening tests for metabolic diseases have more often to be taken outside the maternity unit. In that context, a point of concern is the potential increase of the proportion of late blood collection, as they should be taken between the age of 3 and 5 days.^{161, 162} If there is more than 5 days between the date of birth and the date of blood collection there are consequences for the application of the cut-off values when analysing the blood sample.¹⁶³ It appears that, in Federation-Wallonia Brussels, the



proportion of late screening tests for metabolic diseases has indeed increased between 2013 and 2014 but then has sharply decreased in 2015 and 2016. In 2013, 2.59% of the tests were taken too late, while in 2016 this proportion was only 1.80%. At the same time, **the proportion of tests taken too early** (before 3 days of life) followed the same trend: an increase between 2013 and 2014 (from 0.13% to 1.73%) followed by a decrease. However, in 2016, the proportion of tests taken too early (0.57%) was not back yet to his level of 2013. On the other hand, the **proportion of tests that are received at the lab more than 4 days after the sample has been taken** has continually increased between 2013 and 2016 (from 11.05% to 16.70%).

Antenatal clinical assessment and screening tests

For low-risk pregnancies, seven antenatal consultations are recommended for multiparous and ten for primiparous regardless of the healthcare practitioner (gynaecologist, midwife or GP).¹⁶⁴ To ensure efficiency of care, an increase in the consumption of antenatal care provided by one type of provider should be compensated by a decrease in the consumption of antenatal care provided by another type of provider. However, in Belgium, we observe an increase of the **median number of antenatal consultations** (all types practitioners) from 14 in 2010 to 15 in 2016: both the median number of gynaecologist consultations and the median number of midwives consultations increased between 2010 and 2016 (from 10 to 11 and from 0 to 1 respectively) while the median number of consultations with a GP stayed stable over the period (2 consultations). In addition, in 2016, 85.08% of women with low-risk pregnancy had more than 10 antenatal consultations (66.78% if GP consultations are excluded). Nevertheless, some women (3.67% in 2016) with low-risk pregnancy had less than 7 antenatal consultations (6.29% if GP consultations are excluded). More detailed analyses can be found in Benahmed et al. (Forthcoming, 2019).¹⁶⁵

Regarding screening tests during pregnancy, the KCE guideline¹⁶⁴ does not recommend to routinely offer to each pregnant woman hepatitis C testing; does not recommend routine screening in all pregnant women for toxoplasmosis infection, repeated at different periods of pregnancy, although a single serological test prior to or at the beginning of pregnancy can be useful; and does not recommend routine screening in all pregnant women for cytomegalovirus infection, although a single serological test preferably prior to pregnancy can be useful. In June 2017, the RIZIV – INAMI nomenclature has been updated in that direction: new nomenclature codes for toxoplasmosis test cannot be billed more than twice during pregnancy and new nomenclature codes for cytomegalovirus test can only be billed during pregnancy in case of clinical presumption of an acute infection with the cytomegalovirus. However, the currently available data (up to 2016) do not allow us to analyse the impact of these recent changes. In 2016, 70.83% of pregnant women had **at least a hepatitis C test** during their pregnancy, 74.16% had **at least two toxoplasmosis tests**, and 48.62% had **at least two cytomegalovirus tests**. The proportions do not change much when focusing only on low-risk pregnancies. These proportions have increased since 2010 (they were respectively 62.78%, 69.29% and 45.00%). In addition, the median number of toxoplasmosis tests during pregnancy is not decreasing: from 3 [P25-P75: 1-4] tests for toxoplasmosis in 2010 to 3 [P25-P75: 1-5] tests in 2016.


Table 21 – Indicators on mother and newborn care

(ID) Indicator	Score	Belgium	Year	Flanders	Wallonia	Brussels	Source	EU (mean)
Effectiveness								
MN-1 NEW Neonatal mortality rate (per 1 000 live births)	+	2.16	2015	2.58	1.81	1.37	Statbel, OECD	2.3*
MN-2 NEW Number of newborns with low Apgar score (<7) at 5 minutes (per 1 000 live births)	ST	17.52	2015	18.70	15.06	18.40	Statbel	NA
Appropriateness								
MN-3 Caesarean section rate (per 1 000 live births)	ST	216	2016	216	223	206	RHM-MZG, OECD	259**
MN-4 NEW Induction rate (per 1 000 live and stillbirths)	+	267	2015	238	308	284	Statbel	NA
MN-5 NEW Episiotomy rate (per 1 000 vaginal live births)	+	408	2015	466	359	301	Statbel	NA
MN-6 NEW Proportion of vaginal births following a previous C-section (VBAC) (% of all women who delivered and had a previous C-section)	-	31.88	2015	30.14	31.24	38.68	Statbel, Euro-Peristat	26.1%***
MN-7 NEW Very preterm births in hospital without NICU (% of all births between 22 and 31 weeks of gestation)	+	NA	2015	17.92	19.14	3.66	SPE, CEpiP	NA
MN-8 NEW Repeated toxoplasmosis screening during pregnancy (% of women screened at least twice)	-	74.19	2016	73.73	77.70	68.55	IMA – AIM	NA
Efficiency								
MN-9 Average length of stay for a normal delivery (days)	+	3.11	2016	3.20	3.11	2.85	RHM-MZG, OECD	2.8**
MN-10 NEW Median number of antenatal consultations for low-risk pregnancies	-	15	2016	16	15	14	IMA – AIM	NA

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

* Data source: OECD Health Statistics 2018. EU-15: Denmark, Greece, UK, Ireland, France, Netherlands, Austria, Germany, Belgium, Portugal, Luxembourg, Italy, Spain, Sweden, Finland.

** Data source: OECD Health Statistics 2018. EU-13: Italy, Portugal, Ireland, Luxembourg, Germany, Austria, UK, Spain, Belgium, France, Denmark, Sweden, Finland.

*** Data source: Euro-Peristat. EU-26: Belgium, Czech Republic, Denmark, Germany, Estonia, France, Croatia, Italy, Cyprus, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Portugal, Slovenia, Slovakia, Finland, Sweden, England, Wales, Scotland, Northern Ireland, Iceland, Norway, Switzerland.



13 HIGHLIGHTS ON STRENGTHS AND WEAKNESSES OF THE BELGIAN HEALTH SYSTEM

Numerous positive developments are highlighted, as well as some issues for consideration.

Quality of curative care is average, with signs of improvement

Most aspects of the quality of care are situated within the EU-15 average, with some better points, such as a low mortality from causes avoidable through the health system or colorectal cancer survival, and some weak points, such as indicators in the appropriateness of care (for instance prescription of antibiotics or medical imaging exams) and in safety (i.e. prevalence of hospital-acquired infections). However, a favourable evolution is observed, in the coordination of care for cancer patients, for the proportion of diabetic patients using insulin following a care pathway, in avoidable admissions for diabetic patients, in AMI-case fatality rates and in MRSA infections in hospitals.

High patient satisfaction

From a patient's perspective, the assessment was quite positive: the Belgian population reported to be satisfied with their contacts with the health system, in ambulatory care as well as in hospital setting. However, some results were not recent and a more balanced image appears when examining the whole set of indicators.

An accessible health system, but delayed contacts for financial reasons

Accessibility of the system is guaranteed by a universal insurance coverage and the existence of social safety nets (maximum billing, increased reimbursement of medical expenses), and the level of out-of-pocket payments has declined (16% of total health expenditures, which is below the mean of other European countries). However, some concerns subsist: the

share of citizens reporting to have delayed contacts with health services for financial reasons is 2.2%, above the other European countries.

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

The health system is becoming more efficient in many aspects, as suggested by the increased use of low-cost medication, by the shift from inpatient (at least one night) to one-day surgical hospitalisations, and by a decrease in the length of stay for a normal delivery (which is now close to the EU-15 average). However, inefficiencies persist in different areas, as indicated by large unexplained geographic variation in some interventions or healthcare costs, over-use of investigations/equipment and inappropriate treatment in many domains of care.

Total health expenditures very close to the EU-15 countries

Total health expenditures represent 10.0% of our gross domestic product, and are mainly financed by the public sector (79%). Expenditures on health are very close (slightly higher) than the EU-15 average. Per capita health spending continued to grow in 2016.

Workforce estimates

The indicators on current GP and nurse workforce availability question the Belgian capacity to cope with demographic changes (e.g. ageing population, higher prevalence of multiple chronic conditions). The proportion of (new) GPs among all specialties does not reach the quotas fixed by the Planning Commission (40%): Flanders has raised the quotas (35%), but at the French community level, it is still too low (27%), and the average age of practising GPs is growing faster than for other specialties. Although the number of nursing graduates has increased in the last years, the number of nurses per patient in the hospital is lower than in other countries.



Socioeconomic inequalities are large in health

People in more disadvantaged social groups (measured by level of education, income or by eligibility for increased reimbursement of medical expenses) have, in comparison with the more advantaged social group: higher financial barriers to use healthcare services, a lower participation rate in cancer screening, fewer regular dental visits, a higher medication use (antibiotics, antidepressants, polymedication), a higher probability of having fewer than the recommended number antenatal visits during low risk pregnancies, and a higher continuity of care especially by the GP.

Preventive care deserve more attention

Preventive care does not always meets international targets: some infant vaccination coverage is still lower than the recommended immunization threshold, breast cancer screening coverage is suboptimal and not improving and influenza vaccination of the elderly is even diminishing. Moreover, a large share of the population has no regular contacts with a dentist (even if it is slowly improving).

Mental health and healthcare show worrying signals

The results of the mental health and healthcare indicators remain alarming. Waiting times for access to mental health centres are long (and getting longer over time), questioning the accessibility of mental health services. Hospitalisation rates in psychiatric wards continue to increase, as does the use of antidepressants. Some improvements may be noticed: suicide rate, while still high, is decreasing, less patients have a short antidepressants treatment. Past reform efforts in the psychiatric sector are not sufficiently visible.

Accessibility and quality of care in residential facilities for elderly patients

Quality of care in residential facilities for the elderly shows mixed results: MRSA carriage is decreasing, and while the number of polymedicated patients remains relatively high compared to other countries, it is slightly decreasing over time. Data on fall incidents and pressure ulcers are difficult to interpret as they are only available for Flemish facilities and reliable data

are only available since recently. It is recommended that these quality indicators also be measured in the other regions.

Points of concern are too much anticholinergic and antipsychotic prescriptions in residential care facilities for the elderly, drugs with consequences for patient safety.

Accessibility and quality of care at the end of life

The four indicators on end of life care only give a partial image of the current practice in Belgium, focused on timeliness, aggressiveness of therapy and patient centeredness in cancer patients. Since the previous performance report, the data show a positive, though small evolution. Efforts for the next report should be made to include other patient groups (such as patients suffering from dementia or other chronic diseases).

Care for mother and newborn

Effectiveness of care related to mother and newborn in Belgium is good: neonatal mortality rate and the proportion of newborns with low Apgar score are low. The system is also increasingly efficient, with an average length of hospital stay for a normal delivery now close to the UE average. Regarding appropriateness, most of the very preterm are now delivered in a hospital with on-site neonatal intensive care unit. However, the rates of interventions during labour and childbirth are still high, although improvements are noticed. Moreover, variability between Belgian hospitals is large. Overconsumption of care also seem to appear during pregnancy, for consultations with healthcare professionals as well as for screening tests such as for toxoplasmosis.

Regional disparities are documented

For many indicators in this report, minor to very large regional differences are observed, and deserve to be further explored.



PART 4 – DISCUSSION

14 BELGIAN HSPA AND POLICY PROCESS

14.1 The Belgian HSPA in the policy process

The role of a HSPA project in the policymaking process is highly important. A policy process traditionally consists of agenda setting (problem recognition and prioritising), policy formulation (proposal of solutions), decision making (choice of solution), policy implementation (putting solutions into practice) and policy evaluation (monitoring the results).¹⁶⁶

Strong governance support

The Belgian HSPA project, of which HSPA reports are important regular milestones, has many connections with policymakers.

The following prerequisites to include HSPA into policymaking can be identified:

1. *Existence of a strong commitment at high level*
On 18 March 2008, following a recommendation of the Tallinn Charter, a commitment was formulated in the Belgian governmental agreement on public health: “The performances of our health system (including quality) are to be assessed on the basis of measurable objectives.” This commitment – renewed by the following governments and supported by all heads of administrative bodies – was of great importance to put HSPA on the political agenda.
2. *Involvement of all health administrations*
Belgian health authorities asked their health administration to contribute to and give feedback on the HSPA report. An inter-administration working group has been created to monitor the project. The ten administrations (federal and regional) related to health were involved in the process.
3. *Independent scientific body*
An independent scientific group, composed of researchers of the Belgian Health Care Knowledge Centre (KCE), Sciensano (at the time

the Institute of Public Health (WIV – ISP)), the National Institute for Health and Disability Insurance (RIZIV – INAMI), and for this last report, the FOD – SPF Public Health has been put in charge of performing the assessment.

4. *Importance to capture needs, possible barriers and resistance*
At the time of the first evaluation study (2009),² a survey was addressed to stakeholders to find out their expectations. They expressed the need for evaluation, accountability, international comparison and improvement. Several barriers and risks were identified: lack of culture of evaluation, resistance, and complexity. They especially feared that no follow-up HSPA report would be made and that no decisions would be taken based on the first report.
5. *Making the link between scientific bodies and policymakers*
The inter-administration working group operates as a policy working group of the inter-ministerial conference (IMC) and reports to this conference. Its role is to fill the gap between scientific issues and policy issues to improve the health system, helping to translate evaluation into policy questions if needed. The role of the inter-administration working group has been crucial to insure continuity and to encourage actions.

Follow-up of the 2015 HSPA report

After the publication of the 2015 HSPA report⁴, several initiatives have been taken by different stakeholders. Here is a selection:

White paper on access to care⁵⁵: recommendations and concrete actions to improve access to care for vulnerable groups, published by INAMI – RIZIV and Médecins du Monde; several recommendations have been implemented, complementary reports have been published (Health care for undocumented migrants⁵⁷, Health care in Belgian prisons⁶¹), a third one is expected in the coming months (Organisation of health care services for asylum seekers).⁵⁹

Health Status Report (HSR): this report provides an overview of the health status of the population (life expectancy and quality of life, mortality and causes of death, diseases, determinants of health and health inequalities), published by Sciensano at the request of the Minister of Health.



Health system targets¹⁶⁷: another offshoot of the HSPA, this report explores the steps for the formulation of health system targets, published by KCE at the request of the Minister of Health.

Evidence-based practice roadmap: guidelines will be made more accessible to practitioners, there will be a central body to make sure that EBP is actually implemented on the field, e.g. choice of the guidelines to be developed, elaboration of action plans and tools to help practitioners in their daily work. This has been done for a first guideline on the low back pain pathway³⁰, with the development of an online tool available to practitioners.^z

Individual feedbacks to practitioners: GPs are receiving a feedback from INAMI – RIZIV with around 50 indicators to measure the quality of medication prescription, screening, follow-up of patients with chronic conditions, use of medical imaging and laboratory testing, etc. These indicators are related to those of the HSPA report.

Medical practice variation: practice variations have been observed for a lot of indicators throughout the HSPA reports; INAMI – RIZIV has set up an appropriate care cell which analyses these practice variations with the purpose of discussing them with the practitioners, and establish together practical measures to iron out these variations.

Box 14 – Follow-up of the HSPA 2012 report

Polymakers' responses after the 2012 HSPA report: lessons learned and suggestions for improvement from the polymakers

The 2012 report,³ presenting a first full HSPA diagnosis, was an opportunity to enter into an improvement process. Concretely, the Ministers of Health called special attention for and monitoring of the warning signals shown in the report.

Several priorities for improvement have been identified by the inter-administration working group: these priorities are linked to health promotion (obesity, tobacco, alcohol), screening strategy (breast, colorectal), mental health (suicides, antidepressants), chronic care (quality of the follow-up), safety (exposure to medical radiation, antibiotics), policies to increase the attractiveness of the GP profession (new status for GP graduates) and accessibility (delay in seeking care for financial reasons).¹⁶⁸ These topics have been addressed to IMC working groups that were invited to analyse the results, define or improve the strategy of the health authority members of the working groups and set specific targets.¹²⁷ Most of the IMC working groups engaged in an improvement process in 2013-2014: the problems that were identified were recognised and accepted, some groups adapted their programme for the next year, proposed to monitor new indicators, and included specific targets for some of them (e.g. antibiotics targets set by the BAPCOC in its 2014-2019 strategic plan). But, due to the time lag in data availability, none of the groups could show positive results in such a short period.

Several lessons could be learned from this experience, and two issues arising from the difficulty to translate HSPA into policymaking have been identified.

First, most of the IMC working groups did not agree with some indicators because they did not reflect their positive action in the domain, either because the indicator was too global or because it was not directly measuring specific actions. As a matter of fact, HSPA reports should remain a global evaluation (helicopter view) rather than be used to monitor the effect of specific programmes. In this view, it is sometimes difficult to use the same indicator for evaluation and monitoring. Performance indicators should indeed help to identify problematic topics, but these indicators are not always the best to monitor a situation and set targets.

^z <http://lowbackpain.kce.be/>



Second, some data were clearly outdated for diagnosis as well as for monitoring. This is inherent to the use of administrative data or registries. For international comparison, we sometimes had to rely on data from many years ago. Unavailability of recent data makes reporting at short intervals pointless: more must be done to have data access in a reasonable timeframe.

Hereunder are different lessons learned from our experience with policy makers:¹⁶⁸

Easy to understand

The data visualisation and the presentation of comparisons must be attractive, understandable, standardised and adjusted to the different types of readers. Warning signals should facilitate the prioritising of needed actions and/or further studies. These were the objectives of the synoptic tables and their colour codes presented in this report.

Universal message but in tailored reporting

HSPA and quality indicators are firstly addressed to policymakers as a tool to align priorities and foster commitments to solve problems. However, some dimensions can be dedicated to specific actors. For example, while financial access is specifically a policymakers' issue, effectiveness and appropriateness issues also concern health professionals.

As an example of monitoring tool addressed directly to health professionals, the extensive Belgian data collection on patient healthcare consumption and health professionals activity allows to send feedbacks, including benchmarking, to each health professional on his/her own activity. These feedbacks can be discussed within peer review committees to foster improvement.

Address concrete recommendations

To improve the usefulness of the report concrete actionable recommendations are needed. The IMC working group plays an important role in making these concrete recommendations to policymakers and pointing out priorities (including on data collection).

Explicit health objectives

The formulation of health(-related) objectives is essential to compare them with actual measures in the next HSPA reports. This is discussed in the next section.

14.2 Health system targets

Within the currently running agreement "Health 2020", the WHO European Region explicitly states it as an imperative for all its member states to establish a process for target-setting. Generally health targets are put forward as a multifunctional tool that can be used to guide health policymaking, to set priorities, to create political and administrative commitment, to monitor health system performance and to increase public accountability.

Internationally, an increasing number of countries set health targets. Also Flanders, one of Belgium's regions, has developed targets for a long time. The federal level however appears to lag behind. Therefore, in 2017 the KCE conducted a study to explore how Belgium could catch up with other countries and some of its regions. The study showed that in fact several federal actors already formulate quantified targets in a variety of health and healthcare domains, such as the targets on antibiotics, medical imaging and drug prescriptions to mention but a few. However, the target initiatives are scattered and they are not very visible. They miss a concert master, a leitmotiv and a stage. KCE therefore recommended to create a platform to coordinate and support the target setting and to communicate the targets as a coherent set. This platform should bring together representatives of political, administrative, scientific and operational levels from all relevant policy levels and domains. For more details we refer to KCE report 292.¹⁶⁷



15 CONCLUSION

This report presents the fourth evaluation of the performance of the Belgian health system, building on a former feasibility study and on two reports (2012 and 2015). By means of 121 indicators, it provides a broad picture of the performance of the health system. The indicators present the strengths and weaknesses of the system (see chapter 13 for a summary). Concerning the latter, it provides warning signals with respect to the status of the health system in terms of accessibility, quality, efficiency, sustainability and equity. In some cases, policymakers 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 policymakers, 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.

The ultimate goal of the health system is to improve the health of citizens living in Belgium. We hope this report is a valuable tool to help attaining this goal.

Box 15 – Be cautious when drawing conclusions

- Effects due to policy changes are very difficult to monitor through figures, especially in a report such as the HSPA, whose scope is not to provide a detailed analysis on a specific issue. The HSPA should not be seen as a tool to evaluate policies, its aim is to give a broad view (helicopter) of the health system. Results do not depend on a single factor, but have several causes, which can come from outside the health system. Results depend on the quality of the collected data (availability, bias, incompleteness...).
- Because they concern health and healthcare, the indicators we present in this report are intrinsically complex. They are never the result of a single action but reflect the interaction of a full set of variables and parameters. The value of the figures is probably linked to some political or administrative measures taken in the past but the reality is characterised by a certain inertia and it is necessary to wait

for a certain lapse of time in order to observe some effects on the field. Caution is therefore required when we observe the results.

- The frequency of data collection and the quality of these data also determine what we can learn from the indicators.
- While we have a large amount of data from hospitals, data from the ambulatory sector are rather limited. Nevertheless, the whole picture of the health system and the need for healthcare require the combination of both kinds of data. A better knowledge of the ambulatory sector is necessary to better assess the health system. More data should be collected and/or made available for analysis and the coupling of data should be made easier to allow following the patients from one setting to another, but privacy has to be ensured: a balance is required. Ambulatory care in Belgium is still lacking sufficient data to build adequate indicators, e.g. diagnostics and supplement fees would allow a better view of the health system and its changes (e.g. reforms to de-institutionalise mental health care).
- Setting targets is a difficult task, as there are many indicators where science and even ethics cannot define an exact target to be reached from a public health perspective. The setting of SMART (specific, measurable, achievable, realistic and time-bound) targets requires collaboration between political, administrative, scientific and operational actors. The collaboration should span the different policy levels (federal/regional) and be backed by all relevant policy domains.

The following warning signals have been identified in the 2019 performance report (see Box 16).

**Box 16 – Warning signals from the 2019 performance report**

With regard to the **quality of care**, there is room for improvement for several indicators, mainly in the areas of appropriateness, safety and continuity of care:

- The choice of antibiotics that are prescribed in first instance does not adequately meet the recommendations; only a slight improvement has been observed.
- The percentage of diabetic patients receiving a follow-up in line with the recommendations is too low, due to a.o. lower than recommended ophthalmologist consultations. This can also point to problems in accessibility for some specialities. Results are especially low for non-insulin-dependent patients. Coordination of care for these non-insulin-dependent patients is also poor.
- Inappropriate use of medical imaging for low back pain is still important. A slight improvement can be seen, mainly due to the decrease of X-rays; however, since 2010, no improvement on spine CT examination has been observed, and the number of MRIs is still growing.
- The prevalence of nosocomial infections in hospitals is too high in comparison with what would be expected based on the case mix of hospitalised patients. No improvement has been noticed between 2011 and 2017.

Regarding **financial accessibility**, even if out-of-pocket payments per capita slightly decreased since 2014, self-reported unmet needs for medical examination due to financial reasons in Belgium is higher than in other EU-15 countries, especially for the lowest income quintile (and the situation is getting worse for this part of the population).

On the availability of workforce:

- General medicine is a key part of the health system. Therefore it is worrying that the average age of general practitioners continues to increase. Should this situation persist, it may very quickly lead to problems for the functioning of primary care. Moreover, the minimum

quotas laid down for access to GP specialisation does not allow to reach a sufficient proportion of graduates becoming GPs for several years now (even if the situation has improved in 2016, especially in Flanders). In response, for 2018 the French Community has increased the minimum access quotas to the GP specialisation and the Flemish Community has set up a Flemish planning commission to work on it. Efforts should continue in this direction.

- The mean number of patients per professional nurse in acute hospitals is amongst the highest in Europe, which can have adverse effects on the quality of care.

Socioeconomic inequalities:

- People in more disadvantaged social groups (measured by level of education, income or by eligibility for increased reimbursement of medical expenses) have, in comparison with the more advantaged social group: higher financial barriers to use healthcare services, a lower participation rate in cancer screening, fewer regular dental visits, a higher medication use (antibiotics, antidepressants, polymedication), a higher probability of having fewer than the recommended number of antenatal visits during low risk pregnancies.

In the domain of **preventive care**, there are several simple and effective preventive interventions for which coverage is too low:

- Vaccination against influenza for the 65+ years old is below WHO targets and decreasing.
- The coverage rates of breast cancer screening in the target groups are relatively low and stagnate. Moreover, the coverage of organised breast cancer screening is too low to be efficient. Coverage of cervical and colorectal cancer screening lack a methodology to measure the national coverage.
- Almost half of the population has no regular contact with a dentist.



In the domain of **mental health and mental healthcare**:

- The high suicide rate remains challenging: no noticeable improvement has been observed over recent years.
- Waiting times for a first contact in ambulatory mental health centres are long and getting longer, pointing out problems in the accessibility and provision of mental health services in this setting.
- 13.1% of the adult Belgian population has at least one prescription for antidepressants per year, and the consumption is still rising. The duration of the antidepressant therapy is lower than the recommended duration for major depression treatment in more than 4 cases out of ten.

In the domain of **long-term and acute care for the elderly**, several indicators show poor results in residential care:

- The percentage of adult diabetics with appropriate follow-up is low for patients in residential care, because visits to the ophthalmologist are less frequent. This raises questions around the coordination of care for elderly patients in residential settings.
- Almost half of the 75+ years old patients in residential care are prescribed antidepressants, the appropriateness of which may be questioned.
- A high percentage (21.8%) of older patients (65+ years old) receive prescriptions for anticholinergic drugs, known for their side effects in this population (e.g. falls); the situation has not improved since 2011, and is especially concerning in residential care, where more than half of the 75+ years old patients are prescribed anticholinergic drugs.
- Antipsychotics are prescribed to nearly a third of the 75+ years old patients residing in a residential care.

In the domain of **care for mother and newborn**:

- The rate of caesarean sections is lower than EU-average but an important variability is observed across hospitals. Episiotomy and inductions rates are high and also show an important variability across hospitals.
- Repeated screening for toxoplasmosis during pregnancy is still very common, while guideline only recommends a single serological test prior to or at the beginning of pregnancy. The median number of antenatal consultation in low risk pregnancy is also far above the recommended number.
- The increase in the number of antenatal consultations by midwives is not compensated by a decrease in the number of antenatal consultations by gynaecologist.
- Shortened length of hospital stay for a delivery has been accompanied by a temporary increase of the proportion of neonatal screening tests taken outside of the recommended period of time, but this proportion has fallen since then. However, the proportion of tests arriving too late at the lab is still increasing. Nevertheless, these proportions are difficult to interpret as data are only centralised in Wallonia and Brussels.

Regional differences:

Regional disparities are also observed for many indicators.



■ RECOMMENDATIONS^{aa}

Recommendation 1 to policymakers: define measurable health objectives

The concept of performance is implicitly linked to the attainment of objectives, most of which are currently lacking in Belgium. In the absence of quantifiable objectives, this report describes the current situation and trends in Belgium, compares these where possible with international targets and benchmarks. Policymakers should ensure that health (system) objectives are defined with stakeholder consultation; these objectives must be measurable, set deadlines by which these objectives should be attained, and appoint accountable organisations. Quantified targets should be proposed along with specific objectives. Exploratory steps have been taken to formulate health system targets (KCE report 292).

Recommendation 2 to policymakers: continue to tackle the problems stressed by the warning signals

One objective of the performance report is to inform policymakers on areas that require attention. The concerned institutions and bodies are advised to carry on taking the warning signals (described in Box 16) into account for their agenda setting.

Recommendation 3 to health administrations: continue to improve the integration of health information systems

The data quality and timeliness are essential for the relevance of the indicators.

To the attention of health administrations:

- Continue efforts started on the integration of several health information sources, according to eHealth Action Plan 2019-2021.
- A Unique Patient Identifier (UPI) must be used allowing linkage of RHM – MZG and RPM — MPG with mortality data from the National register of natural persons with the greatest respect for the confidentiality of the individual data. The UPI allows to follow-up patients after discharge through the entire health system. Linkage with mortality data and follow-up after discharge would allow the computation of a number of international quality indicators, which cannot be computed for the moment.
- Accelerate access to administrative databases.
- Take the specific data issues listed in box 17 into account for their agenda setting.



To the attention of the FOD – SPF Public Health, RIZIV – INAMI and Sciensano:

- **Continue the efforts to transmit updated information to international organisations (OECD, Eurostat, WHO).**

Recommendation 4 to policymakers: initiate a process to discuss the ethical, legal and technical issues of the constitution of a multidimensional database allowing a better transversal follow-up of patients

Coupling of existing databases, whenever the possibility exists (cf. UPI in recommendation 3), currently can take more than a year to be available for analysis. As demonstrated by other European countries, potential improvements could involve the establishment of a simpler and shorter process to link existing databases for scientific analysis, or the creation of a coupled database (e.g. in the line of the IMA – AMI Permanent Sample – EPS), or the creation of a permanent database containing reference information that allows to link personal information from multiple databases (e.g. in the line of the KSZ – BCSS datawarehouse). The constitution of such a multidimensional database however involves a number of ethical, legal and technical issues, which have yet to be explored in the Belgian context.

^{aa} The KCE has sole responsibility for the recommendations.

**Box 17– Data availability/quality problems**

- Safety: lack of UPI does not allow to track readmissions in another hospital
- Safety/prevention: collection of the delivery of some medicines is lacking (benzodiazepines, meningococcal vaccine...)
- Accessibility: proportion of the population with a private health insurance (double counting for individuals having a voluntary insurance both with a private company and with a sickness fund); out-of-pocket payments: collection in ambulatory care
- Equity and inequalities: coupling of several data sources took too long (over a year) to be included in the report
- Prevention: for cancer screening, there is currently no methodology to calculate screening coverage at the Belgian level (especially for cervix and colorectal cancer); preventive dental care are not always registered if the dentist gives curative care (underestimation).
- Mental healthcare: lack of UPI does not allow to monitor patient after hospital discharge (in ambulatory care or when admitted in another hospital) nor to correctly measure readmissions (MH-11)
- Care for the elderly: BelRAI is not yet nationally fully operational in all care settings: data are still not exploitable
- Mother and newborn care: data on 3rd and 4th degree tears to the perineum are not included in birth certificates data collection, impeding comparison with episiotomy practices; data on breastfeeding after 3 or 6 months of life are not routinely collected; data on neonatal screening for metabolic diseases are not centralised; recording of (early) foetal deaths could be improved; data on vaccination (in particular on pertussis immunisation during pregnancy) are not comparable across regions.
- Healthdata.be: registries data are not accessible



■ APPENDIX

APPENDIX 1. LIST OF INDICATORS

QE-1	Asthma hospital admissions in adults (/100 000 pop)
QE-2	Complication of diabetes hospital admissions in adults (/100 000 pop)
QE-3	Breast cancer 5-year relative survival rate (%)
QE-4	Colorectal cancer 5-year relative survival rate (%)
QE-5	Case fatality within 30 days after admission for AMI (pop aged 45+, admission-based, %)
QE-6	Case fatality within 30 days after admission for ischaemic stroke (pop aged 45+, admission-based, %)
QE-7	Case fatality within 30 days after surgery for colon (c) or rectal (r) cancer
QE-7	Case fatality within 90 days after surgery for colon (c) or rectal (r) cancer
QE-8	Amenable mortality (rate/100 000 pop, age-adjusted)
QE-9	Preventable mortality (rate/100.000 pop, age-adjusted)
QA-1	Proportion of adult diabetics with appropriate follow-up (% of diabetic patients under insulin)
QA-2	Proportion of adult diabetics with appropriate follow-up (% of diabetic patients receiving only glucose-lowering drugs, excluding insulin, aged 50+)
QA-3	Use of antibiotics (total DDD/1000 pop/day)
QA-4	Use of antibiotics at least once in the year (% of population)
QA-5	Use of antibiotics of second intention (% total DDD antibiotics)
QA-6	Spine imaging (X-ray, CT scan, MRI per 100 000 population)
QA-7	Breast cancer screening outside age target group (% women aged 41-49)
QS-1	Prevalence of healthcare-associated infections (% of patients hospitalised)
QS-2	Incidence of hospital-acquired MRSA infections (/1000 hospital stays)
QS-7	Proportion of methicillin-resistant <i>Staphylococcus aureus</i> (MRSA) in acute care hospitals (% , median)
QS-8	Proportion of <i>Escherichia coli</i> with reduced susceptibility to 3rd or 4th generation cephalosporins (3GC/4GC I/R <i>E. coli</i>) in acute care hospitals (% , median)



QS-3	Incidence of post-operative pulmonary embolism or deep vein thrombosis, after hip or knee replacement (/100 000 hip or knee surgery discharges)
QS-4	Incidence of post-operative sepsis after abdominal surgery (/100 000 abdominal surgery discharges)
QS-5	Prevalence of hospital-acquired cat II-IV pressure ulcers (% of patients hospitalised)
QS-6	Polypharmacy among the elderly (5 or more drugs of >80 DDD per year) (% of insured population 65+)
QC-1	Coverage of global medical record (% of persons who have a global medical record (GMR) with a general practitioner)
QC-2	Usual Provider Continuity index ≥ 0.75
QC-3	GP encounter within 7 days after hospital discharge (% patients 65+)
QC-4	Proportion of adult diabetics (under insulin) with a convention/passport/care trajectory (% of patients)
QC-5	Proportion of adult diabetics (receiving only glucose-lowering drugs, excluding insulin) with a convention/passport/care trajectory (% of patients, 50+)
QC-6	Patients with cancer discussed at the multidisciplinary team meeting (%)
QP-1	Physician spending enough time with patients during the consultation (% of respondents, contact with GP/SP)
QP-2	Physician providing easy-to-understand explanation (% of respondents, contact with GP/SP)
QP-3	Physician giving opportunity to ask questions or raise concerns (% of respondents, contact with GP/SP)
QP-4	Physician involving patients in decisions about care and/or treatments (% of respondents, contact with GP/SP)
QP-5	Patients with a localised prostate cancer receiving no treatment around diagnosis date (%)
QP-6	Patients with localised testicular cancer (seminoma) receiving adjuvant treatment after surgery (%)
QP-7	Proportion of general hospitals measuring PREMs after a stay in C or D bed (%)
A-1	Coverage by the compulsory health insurance (% of the population)
A-2	Out-of-pocket payments (% of current expenditures on health)
A-10	Out-of-pocket medical spending (% of final household consumption)
A-3	Out-of-pocket payments per capita (in US \$ PPP)
A-11	Out-of-pocket payments for dental care (% of current expenditure on dental care)
A-4	Self-reported unmet needs for medical examination due to financial reasons in Belgium (% of individuals included in the survey)
A-12	Access to agreed tariffs: conventioned practising GPs in FTEs (per 10 000 population)
A-13	Access to agreed tariffs: conventioned practising dentists in FTEs (per 10 000 population)



A-14	Percentage of the billed fee supplements to the billed official health insurance fees
A-5	Practising physicians (/1000 population)
A-6	Practising nurses (/1000 population)
A-7	Number of nurse vacancies
A-8	Patient-to-nurse ratio
A-9	Waiting time of more than two weeks to get an appointment with a specialist (% of population asking an appointment)
E-1	One-day surgical admissions (% of surgical admissions)
E-3	Use of low-cost medication (% of total ambulatory DDDs)
E-4	Biosimilar treatments (%)
S-1	Current expenditure on health (% GDP)
S-2	Current expenditure on health per capita (in PPP US\$)
S-3	Current expenditure on health (% financed by public sector)
S-4	Medical graduates (/100 000 population)
S-14	Foreign-trained physicians (% of those licensed to practice)
S-5	Medical graduates becoming GP (% of those with medical specialisation)
S-6	Mean age of practising GPs (in FTE, years)
S-7	Physicians aged 55+ (% of those practising)
S-15	GP aged 55+ (% of those practising)
S-8	Nursing graduates (/100 000 population)
S-9	Nursing students following the bachelor route (% of new graduates)
S-10	Nurses aged 50+ (% of those professionally active)
S-16	Foreign-trained nurse (% of those licensed to practice)
S-11	Curative care bed-days (number/capita)
S-13	Percentage of GPs using electronic global medical record (eGMR) through MyCareNet
S-17	Electronic global medical record (% of all global medical record)



EQ-1	Income distribution in population (GINI coefficient)
EQ-2	Share of progressive receipts in healthcare financing (Ratio progressive receipts / total receipts, expressed as a %)
EQ-3	Share of regressive receipts in healthcare financing (Ratio regressive receipts / total receipts expressed as a %)
P-1	Polio (%, 4 th dose)
P-12	Diphtheria, tetanus and pertussis vaccination in children (%, 4 th dose)
P-2	Measles vaccination in children (%, 1 st dose)
P-2	Measles vaccination in adolescents (%, 2 ^d dose)
P-3	Pneumococcus vaccination in children (%, 3 th dose)
P-4	Influenza vaccination (% pop aged 65+) ^a
P-5	Incidence of measles (new cases/million pop)
P-6	Breast cancer screening (% women aged 50-69)
P-7	Breast cancer screening - organized programme (% women aged 50-69)
P-11	Regular contacts with dentist (% pop aged 3+)
MH-1	Deaths due to suicide (/100 000 pop)
MH-2	Practising psychiatrists (/1000 pop)
MH-3	Waiting time longer than 1 month for first contact in ambulatory mental health centre (% of pop with contact in ambulatory mental health centre)
MH-4	Rate of involuntary committals in psychiatric hospital wards (/10 000 pop)
MH-5	ER visits for social, mental or psychic reason (% of admission in ER in general hospitals)
MH-11	Proportion of readmissions within 30 days in psychiatric hospitals (in the same hospital, %)
MH-6	Use of antidepressants (total DDD/1000 pop/day)
MH-7	Use of antidepressants (% of adult population, at least once in the year)
MH-8	Percentage of patients with short-term duration (< 3 months) of antidepressants treatment (% of pop under antidepressant)
MH-9	Patients (65+ years old) prescribed antidepressants with anticholinergic effect (%)
MH-10	Number of hospitalisation days in psychiatric hospital wards (/1000 pop)
ELD-1	Long-term care in residential facility (% pop aged 65+)



ELD-2	Long-term home nursing care (% pop aged 65+)
ELD-3	Informal carers (% of pop aged 15+)
ELD-4	Number of long-term care beds in institutions (per 1 000 pop 65+)
ELD-5	Low care-dependent persons in residential/nursing facility for elderly (% of residents)
ELD-6	Number of practising geriatricians (per 10 000 population)
ELD-7	Fall incident during the last month in home for the elderly (% of residents)
ELD-8	Prevalence of pressure ulcers (grade II-IV) in home for the elderly (% of residents)
ELD-9	Prevalence of MRSA carriage in residential facility (% of residents)
ELD-10	Prescription of anticholinergic drugs >80 DDD in elderly (% of pop 65+)
ELD-11	Prescription of antipsychotics in residential/nursing facility for elderly (% of residents 75+)
ELD-12	Prescription of antipsychotics outside residential/nursing facility for elderly (% of pop 75+)
EOL-1	Patients who received palliative care (% of terminal cancer patients who died in the year)
EOL-2	Patients who died within one week after start of palliative care (% of terminal cancer patients who received palliative care and died in the year)
EOL-3	Patients who received chemotherapy in the last 14 days of life (% of terminal cancer patients who died in the year)
EOL-4	Death at usual place of residence (home or in residential care) (% of terminal cancer patients who died in the year)
MN-1	Neonatal mortality rate (per 1 000 live births)
MN-2	Number of newborns with low Apgar score (<7) at 5 minutes (per 1 000 live births)
MN-3	Caesarean section rate (per 1 000 live births)
MN-4	Induction rate (per 1 000 live and stillbirths)
MN-5	Episiotomy rate (per 1 000 vaginal live births)
MN-6	Proportion of vaginal births following a previous C-section (VBAC) (% of all women who delivered and had a previous C-section)
MN-7	Very preterm births in hospital without NICU (% of all births between 22 and 31 weeks of gestation)
MN-8	Repeated toxoplasmosis screening during pregnancy (% of women screened at least twice)
MN-9	Average length of stay for a normal delivery (days)
MN-10	Median number of antenatal consultations for low-risk pregnancies



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