

PERFORMANCE OF THE BELGIAN HEALTH SYSTEM: REVISION OF THE CONCEPTUAL FRAMEWORK AND INDICATORS SET



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SOPHIE GERKENS, CHARLINE MAERTENS DE NOORDHOUT, MÉLANIE LEFÈVRE, MURIEL LEVY, NICOLAS BOUCKAERT, CAROLINE OBYN, CARL DEVOS, ALINE SCOHY, ROBBY DE PAUW, BRECHT DEVLEESSCHAUWER, ANNEMIE VLAYEN, HARUN YARAS, CHRISTOPHE JANSSENS, PASCAL MEEUS



Title:	Performance of the Belgian health system: Revision of the conceptual framework and indicators set
Authors:	Sophie Gerkens (KCE), Charline Maertens de Noordhout (KCE), Mélanie Lefèvre (KCE), Muriel Levy (KCE), Nicolas Bouckaert (KCE), Caroline Obyn (KCE), Carl Devos (KCE), Aline Scohy (Sciensano), Robby De Pauw (Sciensano), Brecht Devleesschauwer (Sciensano), Annemie Vlayen (FOD Volksgezondheid – SPF Santé Publique), Harun Yaras (SPF Santé Publique – FOD Volksgezondheid), Christophe Janssens (KCE), Pascal Meeus (INAMI – RIZIV – Institut national d'assurance maladie-invalidité – Rijksinstituut voor ziekte- en invaliditeitsverzekering)
Project facilitator:	Nathalie Swartenbroekx (KCE)
Senior supervisor:	Sophie Gerkens (KCE)
Internal reviewers:	Laurence Kohn (KCE), Dominique Roberfroid (KCE)
External experts:	Hervé Avalosse (ANMC – Alliance Nationale Des Mutualités Chrésiennes), Rita Baeten (OSE – European Social Observatory), Frédéric Bielen (BSM – Brussels Metropolitan Area), Luk Bruyneel (Onafhankelijke Ziekenfondsen), Sophie Ces (ANMC – Alliance Nationale des Mutualités Chrétiennes), Jan De Maeseneer (Universiteit Gent), Thomas Deloffer (VPP – Vlaams Patiëntenplatform), Françoise De Wolf (Union Nationale des Mutualités Socialises), Geert Goderis (KU Leuven, ULB – Université Libre de Bruxelles), Sophie Lanoy (LUSS – Ligue des usagers des services de santé), Philippe Lejeune (Santhea), Erik Schokkaert (KU Leuven), Quentin Schoonvaere (Paqs – Plateforme pour l'Amélioration continue de la Qualité des soins et de la Sécurité des patients), Rudi Van Dam (FOD Sociale Zekerheid – SPF Sécurité Sociale), Carine Van de Voorde (KCE), Amélie Van Vyve (Sciensano), Sara Willems (UGent)
Stakeholders:	The following administrations and public institutions have been consulted throughout the duration of the project (inter-administration working group): At the federal level: • Representative of Minister of Health: Bernard Lange • INAMI – RIZIV: Hans Nagels, Benjamin Swine • KCE: Christophe Janssens • SPF Santé Publique – FOD Volksgezondheid: Pol Gerits, Peter Jouck, Timmy Van Dijck • Sciensano: Brecht Devleeschauwer • SPF Sécurité Sociale – FOD Sociale Zekerheid: Dirk Moens, Rudi Van Dam



At the regional level:

- Vlaamse Gemeenschap (Vlaams Agentschap Zorg en Gezondheid): Mathieu Roelants
- Région Wallonne (Direction générale opérationnelle des Pouvoirs locaux, de l'Action sociale et de la Santé et observatoire wallon de la santé): Dominique Dubourg, Maud Dujou, Carine Van Malderen
- Fédération Wallonie-Bruxelles (Direction générale de la Santé): Elvire Mfueni Bikundi
- Deutschsprachige Gemeinschaft (DGOV Ministerium der Deutschsprachigen Gemeinschaft): Emilie Braun, Karin Cormann
- Région Bruxelles Capitale (Observatoire de la Santé et du Social): Olivier Gillis, Elise Mendes da Costa

External validators:

Dheepa Rajan (WHO – World Health Organization, with the help of Sarah Thomson, David Novillo, and Tyrone Sy), Jon Cylus (European Observatory on health systems and policies), and Gaetan Lafortune (OECD - Organisation for Economic Co-operation and Development, with the help of Federico Pratellesi and Michael van den Berg)

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Owner of subscribed capital, options, shares or other financial instruments: Frédéric Bielen (BSM Management is the organization that coordinates this ASPE project and of which I hold 99% of the shares)

Holder of intellectual property (patent, product developer, copyrights, trademarks, etc.): Frédéric Bielen (Intellectual property / copyrights on the studies that we have developed and that we use within the ASPE Project)

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Participation in scientific or experimental research as an initiator, principal investigator or researcher: Rita Baeten (Projects commissioned by the RIZIV, including in access to health care): Geert Goderis (Idem: Publication



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Consultancy or employment for a company, an association or an organisation that may gain or lose financially due to the results of this report: Rita Baeten (Through my professional activity, if we can contribute within the ASPE Project to help health care institutions improve patient care in a "Patient Partner" vision, this could be of benefit to society in general)

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Presidency or accountable function within an institution, association, department or other entity on which the results of this report could have an impact: Sarah Willems (Director of District Health Center Watersportbaan vzw, Director of Sint Lodewijk vzw)

Layout:

Joyce Grijseels, Ine Verhulst

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

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LIST OF ABBREVIATIONS

ABBREVIATION	DEFINITION
A	Accessibility
ART	Antiretroviral Therapy
CF	Conceptual framework
COPD	Chronic Obstructive Pulmonary Disease
CT	Computed Tomography
DDD	Defined Daily Dose
E	Efficiency
ECDC	European Centre for Disease Prevention and Control
eGMR	Electronic Global Medical Record
EOL	End-of-Life
EQ	Equity
EU	European Union
ER	Emergency Room
FAGG – AFMPS	Federal Agency for Medicines and Health Products
FAMHP	Federal Agency for Medicines and Health Products
FOBT	Fecal Occult Blood Test
FPS Public Health	Federal Public Service Public Health, Food Chain Safety and Environment
FTE	Full-Time-Equivalent
GDP	Gross Domestic Product
GP	General Practitioner
HIS	Health Interview Survey
HiT	Health Systems in Transition
HIV	Human Immunodeficiency Virus



HPV	Human Papillomavirus
HSPA	Health System Performance Assessment
HSPM	Health Systems and Policy Monitor Network
IMC	Inter-ministerial conference
ICU	Intensive Care Unit
KCE	Belgian Health Care Knowledge Centre
LUSS	Ligue des Usagers des Services de Santé
MPG – RPM	Psychiatric hospital data
MRI	Magnetic Resonance Imaging
MRSA	Methicillin-Resistant Staphylococcus Aureus
MZG – RHM	Hospital discharge data
NMR	Nuclear Magnetic Resonance
OECD	Organisation for Economic Co-operation and Development
OOP	Out-of-pocket payment
P4P	Pay-For-Performance
PaRIS	Patient-Reported Indicator Survey
PPP	Purchasing Power Parity
PREMs	Patient-Reported Experience Measures
PROMs	Patient-Reported Outcome Measures
PRT	Patienten Rat & Treff
QA	Quality – Appropriateness
QC	Quality – Continuity
QE	Quality – Effectiveness
QP	Quality – People-centredness



R	Resilience
RIZIV – INAMI	National Institute for Health and Disability Insurance
S	Sustainability
SDG	Sustainable Development Goal
SP	Specialist
UHC	Universal Health Coverage
US	United States
VPP	Vlaams Patiëntenplatform
WAIT	Waiting to Access Innovative Therapies
WHO	World Health Organization



■ SCIENTIFIC REPORT

1 CONTEXT AND OBJECTIVES

1.1 Context

Health System Performance Assessment (HSPA) is a process aiming to assess the health system holistically, a 'health check' based on measurable indicators. HSPA is specifically mentioned in the Tallinn Charter¹ signed by all countries from the European region of the World Health Organization (WHO). This charter states that "health systems need to demonstrate good performance" and that member states must "promote transparency and be accountable for health system performance to achieve measurable results".¹ Each HSPA is developed along the lines of a conceptual framework that is country specific.

The strategic objectives of the Belgian HSPA are:

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

1.2 The Belgian HSPA in the policy process

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



Box 1 – Prerequisites to include HSPA into policymaking

Existence of a strong commitment at high level

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

Involvement of all health administrations via an inter-administration working group

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

Assessment by an independent scientific body

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

Importance to capture needs, possible barriers and resistance

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

Making the link between scientific bodies and policy makers

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

1.3 The Belgian conceptual framework

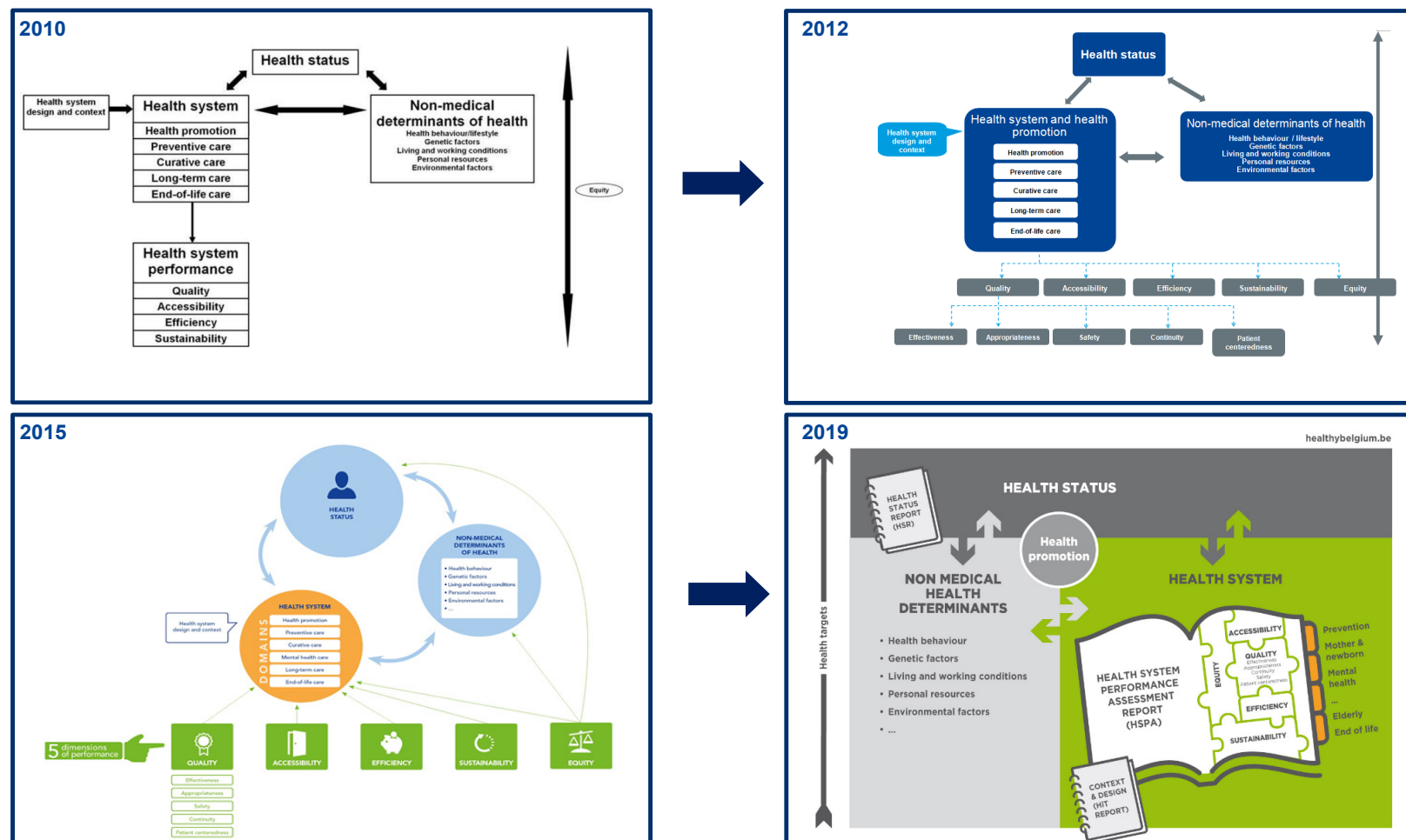
Based on a review of the literature and a broad consultation of experts and stakeholders, the Dutch and Canadian frameworks^{3, 4} were used as a starting point to develop the first Belgian HSPA conceptual framework, published in 2010.² These two frameworks were initially selected because they were complementary and when combined covered the range of *dimensions* deemed important by the consulted experts and stakeholders for assessing the performance of the Belgian health system. In addition, the combined framework was tailored to the Belgian health system context, by defining the scope of the framework as broad as possible (health system instead of healthcare system) and by adding a new dimension relevant to Belgian policy makers (the sustainability of the health system).

The resulting conceptual framework of the Belgian HSPA was subdivided in three interconnected tiers, i.e. (1) health status, (2) non-medical determinants of health and (3) health system performance, evaluated along dimensions and domains of care. The dimensions refer to the elements that are considered essential for a well-functioning and performant health system, i.e. accessibility, quality, etc. The domains refer to in-depth analyses of certain functions of the health system such as preventive care or of specific target populations such as people living with a chronic condition (see also Box 2).

Since the first framework, minor changes have been made throughout the successive reports, mainly to deepen some dimensions or domains of care and to increase the visual attractiveness of the design (see Figure 1).



Figure 1 – Evolutions of the Belgian HSPA conceptual frameworks



A detailed description of the changes can be found in each HSPA report.



The dimensions and domains analysed in the latest HSPA report, published in 2019, are listed in Box 2. Contextual elements allowing to have a global view of the Belgian health system and the main drivers of its performance were also added in the 2019 framework (described in the Health Systems in Transition (HiT) profile on Belgium).⁵

To avoid information overload that could drown out the main messages, it was also decided since the 2019 report:

- To split the information into several reports (i.e. a health status report including health determinants, a performance report, and a report on medical practice variations) rather than to publish only one single and voluminous report, allowing more in-depth information in each separate report; and
- To gather the key messages and results of each report in one single website (see Box 3), <http://healthybelgium.be/>, so that any citizen, being a policy maker, a public health researcher, a journalist, or anyone interested in the subject, can easily find key information and data to evaluate and better understand the Belgian health system. Information on the context and design of the Belgian health system were also added in the website (HiT profile⁵ and Key Data in Healthcare).

It should also be noted that the different reports (see Box 3) are produced by different institutions, further justifying the publication of separate reports. Because of such subdivisions and to avoid confusion for the reader, a specific terminology is now used to either refer to the global population health framework or to the specific report on the performance of the health system (HSPA framework), which is a subpart thereof (see Box 4).

Box 2 – Dimensions and domains of the 2019 HSPA report

The performance of the Belgian health system is assessed along the following dimensions and domains:

- **Dimensions:** five dimensions of the performance of the health system and of health services delivery were analysed in the 2019 report, i.e. quality, accessibility, efficiency, sustainability, and a fifth dimension, equity, that cuts across all levels. Quality of care was further subdivided into five sub-dimensions (effectiveness, appropriateness, safety, continuity and patient-centredness of care).
- **Domains:** they correspond to a more in-depth analysis of certain functions of the health system or a target population. In the 2019 report, the following domains were assessed: preventive care, mother and newborn care, mental healthcare, care for older people and end-of-life care.

Box 3 – Interconnected reports available on the website healthybelgium.be

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

- **Health Status Report (HSR):** assessing the health status of the Belgian population. This report is produced by Sciensano;⁶
- **Non-medical determinants of health:** Currently, there is no separate report on the non-medical determinants of health but some of them are included in the **Health Status Report** produced by Sciensano,⁶ i.e. lifestyle indicators (tobacco use, alcohol use, weight status, physical activity, nutritional habits), health literacy, and environmental factors (air quality).

Performance report (HSPA): assessing the performance of the Belgian health system and of health services delivery along several dimensions and care domains.⁷ This report is produced by KCE, RIZIV – INAMI, FPS Public Health, and Sciensano;



- **Medical Practice Variations:** assessing ‘unjustified’ variations in healthcare. This report is linked to the sub-dimension ‘appropriateness of care’ of the performance report and is produced by RIZIV – INAMI.⁸

To have a better view of the context in which the Belgian health system operates, descriptive reports are also available:

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

In the future, the following project is also expected:

- **Health priorities and targets:** initiatives to define Belgian health and healthcare priorities and targets are currently in progress. Once they will be determined and approved by the governments, indicators in the previously mentioned assessment reports (HSR, HSPA, medical practice variations) related to these priorities and targets will be flagged. At that time, new indicators could also be added in these assessment reports.

Box 4 – Terminology: Performance (HSPA) framework versus global population health framework

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

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

1.4 Scope and rationale

This report focuses on the third tier of the global assessment, i.e. the performance of the health system and of health services delivery (HSPA report). Performance assessment is a recurrent process, with a first pilot report published in 2010 and the last and fourth edition published in 2019 (see Box 5).

The next HSPA report was initially foreseen for 2024 to be aligned with the next Belgian federal parliamentary elections. Nevertheless, as Belgium will hold the presidency of the Council of the European Union (EU) from January 2024, it was decided to advance its publication to December 2023.

To make the process more dynamic, it has also been decided to use the period prior to the publication of a new performance report to analyse new domains/dimensions, to revise existing ones, or to deepen some of them in thematic reports. Three intermediate themes have already been published since 2019: a first one on equity (KCE report 334),¹⁰ a second one on the use of projections to assess the sustainability of the health system



(KCE report 341)¹¹ and a third one on care for people living with a chronic condition (KCE report 352)¹².

These evolutions led to a high number of indicators (see Box 5), resulting in a workload that became difficult to manage and a risk of information overload for decision makers. Moreover, new dimensions such as resilience, have emerged as relevant in the literature.

Before the publication of the fifth edition of the performance report (hereafter the 2024 HSPA report), it was therefore decided:

- To review the HSPA conceptual framework, with a focus on potential new dimensions;
- To review existing dimensions and domains in order to identify and select only the most relevant indicators (aiming at a final number of indicators around 120).

Due to time constraints, reviewing all dimensions and domains before the 2024 HSPA report was not possible; it was therefore decided to limit the review to accessibility, equity, and quality – people-centred care for the following reasons:

- **Accessibility:** The European Expert Group on HSPA published in 2021 a report on accessibility, i.e. “Improving access to healthcare through more powerful measurement tools”.¹³ This report could help in identifying potential missing indicators and select the most relevant ones to the Belgian context.
- **Equity:** The thematic report of 2020¹⁰ provided a detailed analysis of equity and it was necessary to make a selection amongst these new indicators for the 2024 HSPA report.
- **Quality – People-centred care:** With the publication of the PaRIS study,¹⁴ foreseen for 2024 (for the population-based study), new “people-centredness” indicators will be available for Belgium. It was also recommended by the external reviewers of the thematic report on people living with chronic conditions¹² to extend this domain.

Only minor revisions were done for the remaining (sub-)dimensions (financial sustainability, sustainability – workforce capacity, sustainability – health technologies and infrastructure, quality – effectiveness, quality – appropriateness, quality – safety, quality – continuity, efficiency) and 2024 domains (prevention, mental healthcare, care for older-people, end-of-life care), mainly based on data availability.

It should also be noted that, at the end of the reviewing process of the new Belgian conceptual framework, the European Observatory on Health Systems and Policies and the World Health Organization (WHO) published a new HSPA framework.¹⁵ A comparison of the two frameworks was therefore also carried out (see chapter 8).

Box 5 – Overview of the performance reports

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

- **HSPA 2010:** conceptual framework and feasibility study for 54 indicators;²
- **HSPA 2012:** 74 indicators and first full evaluation;¹⁶
- **HSPA 2015:** 106 indicators;¹⁷
- **HSPA 2019:** 121 indicators¹⁸ (most of the health status indicators have been moved to a distinct publication by Sciensano: the **Health Status Report**);

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

- **Thematic report 2020:** on equity, with 27 indicators;¹⁰
- **Thematic report 2021:** on the use of projections to assess the sustainability of the health system, with three new projection-based indicators;¹¹
- **Thematic report 2022:** on care for people living with a chronic condition, with 27 indicators.¹²



1.5 Objectives

The objectives of this report were:

- To review the conceptual framework, with a focus on identifying potential new performance dimensions or sub-dimensions (see chapter 2);
- To identify relevant indicators for the new (sub-)dimensions selected during the review of the conceptual framework, namely resilience and sustainability –governance (see chapters 3 and 4). A new sub-dimension on environmental sustainability was also identified but for a question of timing and data availability, this sub-dimension is not yet developed in the Belgian HSPA;
- To review existing dimensions and domains, with a focus on identifying potential missing indicators and reducing the resulting number of indicators to the most relevant ones. Three (sub-)dimensions were thoroughly reviewed, i.e. accessibility, equity, and quality – people-centred care (see chapters 5 and 6). For the remaining dimensions and domains, only minor revisions were made (mostly based on data availability) (see chapter 7);
- To compare the Belgian global population health framework with the framework proposed by the European Observatory on Health Systems and Policies and WHO (see chapter 8).

2 A NEW CONCEPTUAL FRAMEWORK

2.1 Introduction

As mentioned in sections 1.4 and 1.5 it was time to review the conceptual framework (CF) of the performance report because health systems have evolved since the first Belgian HSPA report (in 2010) and new concepts of performance measurements have emerged in the increasing number of other HSPA CFs.

The aim of this review was not to start from a blank page, which could have alienated regular readers of the Belgian HSPA series.

On the contrary, the aim was to maintain as much as possible the choices made and reconfirmed in previous Belgian HSPA reports and to focus on identifying potential new performance dimensions or sub-dimensions. It should be noted that the identification of new domains (see Box 2 in section 1.3 for a definition of dimensions and domains) was considered out-of-scope because their selection is based on the needs of Belgian decision makers and is done in discussion with the inter-administration working group, including representatives of federal and federated administrations implied in health-related matters (see Box 1 in chapter 1 and Box 10 in chapter 7). Moreover, as explained in section 1.3, Belgian HSPA reports focus on the health system and on health services delivery. A review of how to assess the health status of the population or the non-medical determinants of health is therefore out-of-scope.



2.2 Method

2.2.1 Pragmatic literature review

In a first stage, a pragmatic literature review was conducted looking for existing HSPAs that included CFs. The search databases Pubmed, Scopus and Google scholar were used, with a search strategy based on keywords related to health system performance (see the appendix related to this chapter). In addition, a snowball search strategy was applied.

Secondly, a call for HSPA reports from other EU countries (hereafter mentioned as EU call) was launched during the 24th meeting of the EU Expert Group on HSPA (on 18 February 2020) and accompanied by a follow-up email to the EU HSPA Expert Group members.¹⁹

The core elements (see Box 6) included in the retrieved HSPA CFs were listed by one expert of the research team in an excel sheet and ranked according to the frequency with which they appeared in the retrieved HSPA CFs. These elements were identified using the graphical representations of these CFs. The duplicate elements were deleted.

Box 6 – Elements of HSPA CFs

Each HSPA has its own concepts and does not specifically refer to domains and dimensions as in Belgium. We therefore use the term “elements” to refer to all concepts used in other HSPA CFs. These elements could be related to a need, an objective, a process, etc. (see a categorisation of these elements in section 2.3).

2.2.2 Expert meetings

Three meetings were held with the objective to develop the final CF for Belgium. Before the first expert meeting, all CFs retrieved from the pragmatic literature review and the EU call (see section 2.2.1) were sent to experts and each of them was asked to select the three most relevant ones in the Belgian context.

At the **first expert meeting** (May 2021), CFs selected by experts were discussed and a consensus was sought on the most relevant ones to keep for further analyses. Next, the different elements of these selected CFs were extracted, they were compared with the long list of elements retrieved from all CFs (i.e. the Excel sheet described in section 2.2.1) to avoid missing out important elements, and they were classified in categories (see section 2.3).

Based on these classified elements, each HSPA expert was then given the opportunity to construct a proposal of new CF via an individual Miro board (miro.com). Instructions were sent to the experts about how to create or modify content on the Miro board (e.g. new elements have to be added in white, colours of the existing elements cannot be modified, the size of the existing elements can be modified, etc.). Experts who did not master Miro could receive support from the research team’s principal investigator or work directly on paper.

The Miro boards were then collated, presented and discussed at a **second expert meeting** (September 2021). The elements to be included and a preliminary design of the CF were established.

The CF was then refined by a design expert and five different versions were presented at a **third expert meeting** (December 2021), mainly to reach consensus on the final design. This CF was then presented at the **2022 Health Systems and Policy Monitor Network (HSPM)**²⁰ meeting on 21 October 2022 in Italy and discussed with **international HSPA experts** during this meeting.

The final CF was presented on March 2023 to the inter-administration working group of the Belgian HSPA report (see the colophon of this report).



2.2.3 Comparison with the WHO framework

A comparison of this final CF with the framework proposed by the European Observatory on Health Systems and Policies and WHO was then done. Results of this comparison can be found in chapter 8.

2.3 Results

From the pragmatic review of the literature and the EU call, 21 HSPA CFs were identified (20 retrieved through the literature review and one from the EU call, see the appendix related to this chapter). Fifteen of these CFs were related to HSPA reports from European countries, including Belgium. A total of 171 elements were extracted from these 21 CFs and ranked according to their frequency of appearance. The most frequently cited elements were: access to healthcare services (n=19), equity (n=18), quality (n=18), efficiency (n=15), health status (n=15), effective(ness) (n=13), safe(ty) (n=13), patient/person/family centeredness (n=9), financing (n=8), costs (n=6), need (6) and non-medical health determinants (6).

During the **first expert meeting**, the HSPA CFs from Germany²¹, Ireland²² and the simplified version of the OECD framework, published by the EU working group on HSPA²³, were identified by the HSPA experts as the most relevant ones (both in terms of content and design) in the Belgian context.

After the extraction of the elements from these selected CFs and their comparison with the long list of 171 elements, 63 elements were retained for inclusion in the Miro exercise because they were measurable and relevant in the Belgian context^a. The 63 elements were then grouped into categories, and included in the Miro board (Figure 2). The following categories were determined:

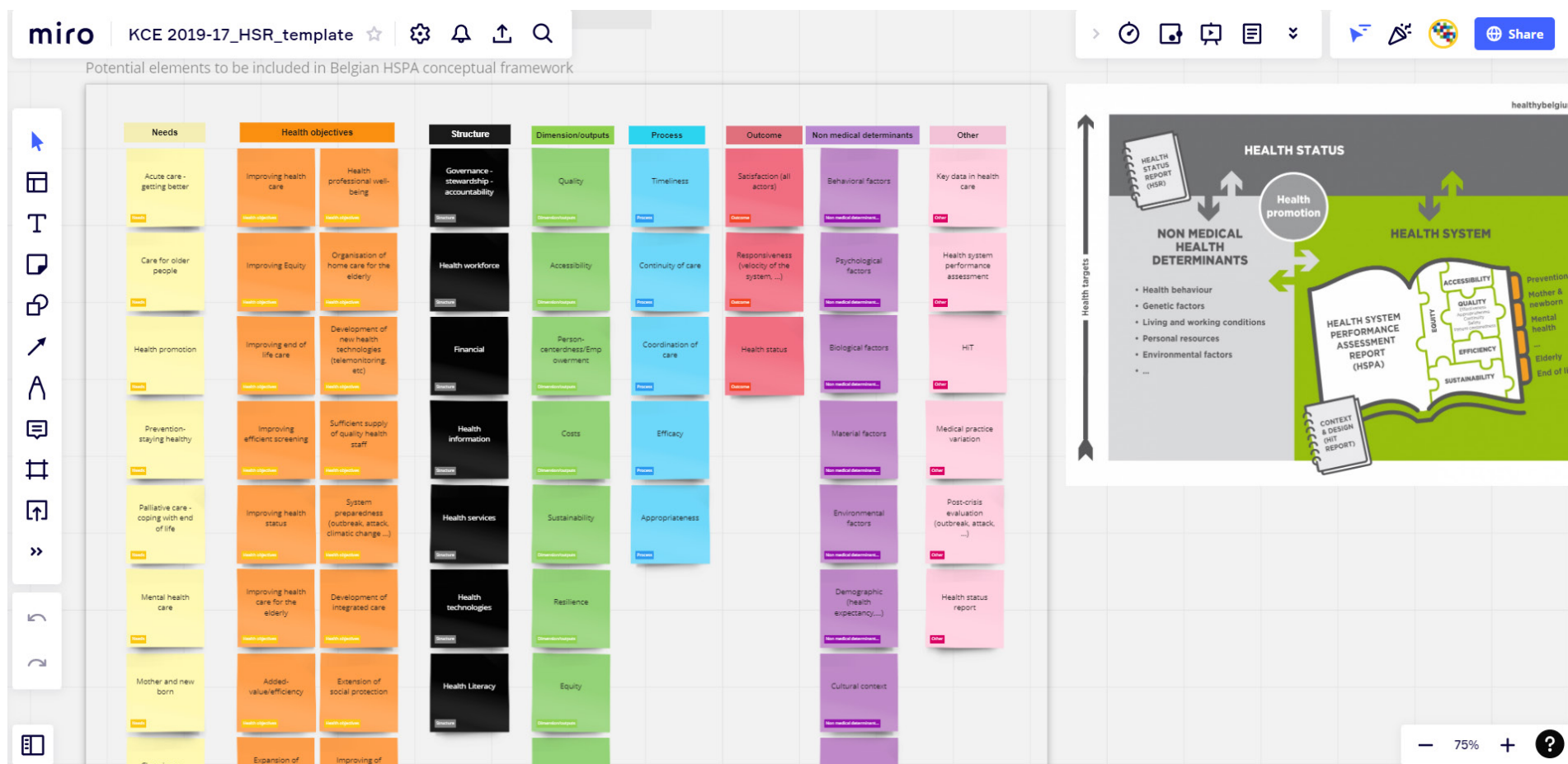
- Needs and related domains: “getting better / acute care”, “staying healthy / preventive care”, “coping with end of life / palliative care”, etc.
- Health objectives: such as “improving healthcare”, “improving equity”, “improving health status”, etc.
- Elements of structure: “governance”, “health workforce”, “financing”, etc.
- Dimensions / outputs: quality, accessibility, resilience, etc.
- Process: timeliness, continuity of care, appropriateness, etc.
- Outcomes^b: satisfaction and responsiveness of the health system, health status, etc.
- Non-medical determinants of health: behavioural factors, environmental factors, etc.
- Other

^a Inclusion was discussed with Belgian experts and indicators that did not correspond to the scope of the Belgian HSPA framework were either excluded (e.g. qualitative indicators on legal aspects) or grouped (indicators on health determinants or in the scope of the health status report)

^b In a first step, health objectives and outcomes were classified separately according to what was mentioned in the conceptual framework of the country (objective or outcome) but their meaning is the same. In practice, during the reflection, they were considered together



Figure 2 – Example of Miro board sent to the experts





After the second meeting with Belgian HSPA experts, 6 dimensions and 13 sub-dimensions were retained for the HSPA (see Figure 3 and Box 7). From those, three new elements were identified (resilience, health literacy, governance) compared to the existing Belgian CF and a new way of presenting the sub-dimensions was agreed (e.g. changing patient-centred care by people-centred care, classify financial access, health workforce availability, health literacy, and health services distribution in accessibility and classify financial sustainability, health workforce capacity, and health technologies and infrastructure in sustainability) (see Figure 3). Nevertheless, health literacy was finally considered out-of-scope (as related to health promotion, see explanation in Box 7).

After the 2022 HSPM meeting, an additional element was identified, i.e. the environmental impact, and was added as a sub-dimension of sustainability.

Figure 3 illustrates the final CF. The design was largely inspired by the most recent Irish HSPA CF,²² which takes the form of three nested circles, representing three dimensions of performance (sustainability, accessibility, quality), crossed by the transversal dimensions of the performance of the health system (equity, resilience, efficiency).

The three interconnected tiers present in the global population health framework (see section 1.3 and Box 4) were maintained, i.e. the **health status** of the population, the **non-medical determinants of health**, and the **performance of the health system**, as well as the **health targets**, reflecting Belgian health priorities (under development, see Box 3 of section 1.3). **Health promotion** goes beyond the health system (covering also interventions in the field of education, fiscal measures, road safety, etc.) and is therefore presented by a circle that overlaps the three tiers. In the performance report, health promotion and care prevention are covered very partially with a focus on preventive services delivered by the health system, such as vaccination (primary prevention) and screening (secondary prevention). To highlight the link between health promotion and care prevention, both are coloured in light blue in the figure.

As explained in the introduction (see section 1.4), changes only concerned the third tier, i.e. the performance of the health system and of health services delivery (in colour in the figure). Within this coloured part, the position of each element was determined according to the following reasoning:

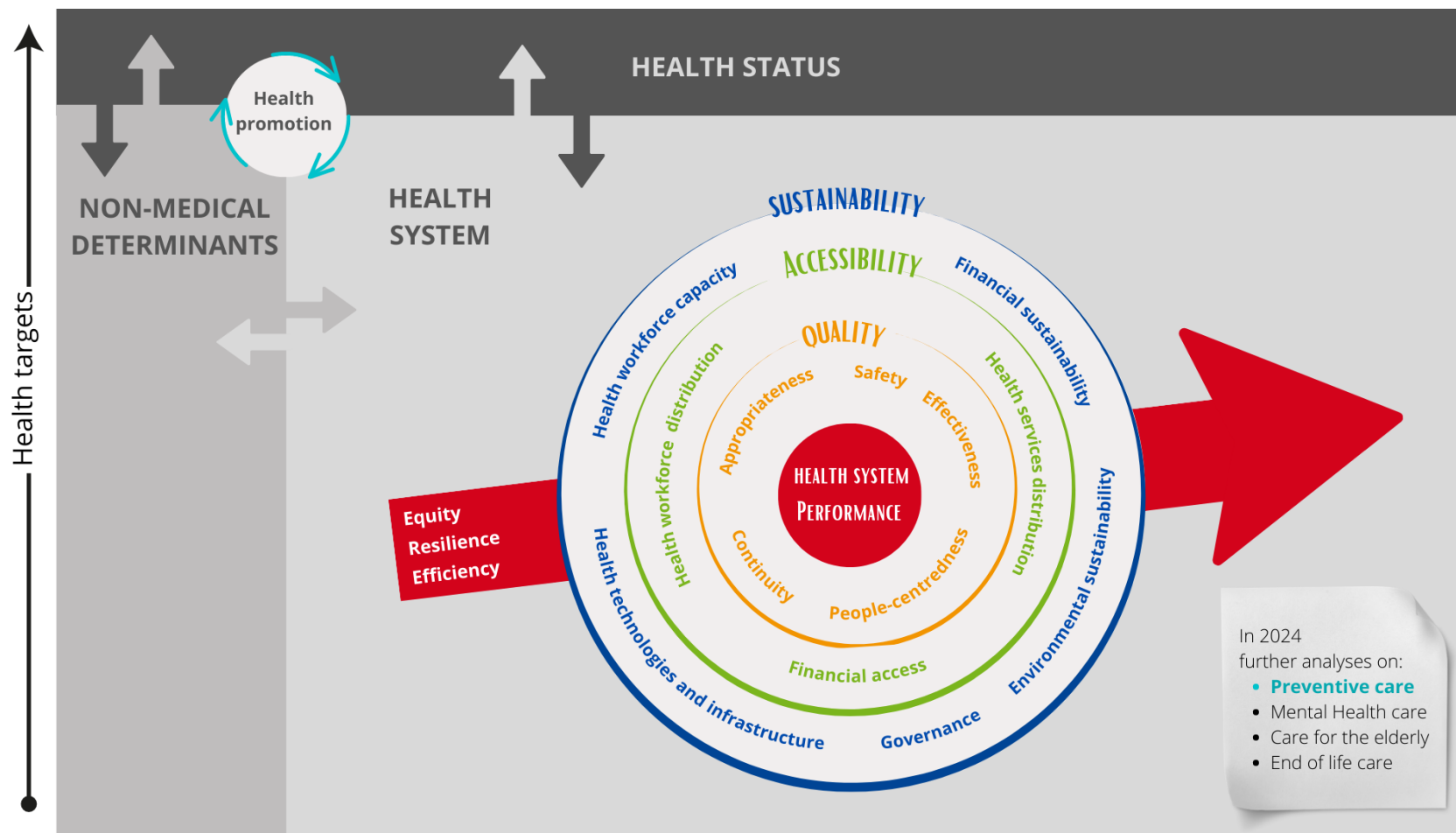
- The performance of the health system is the core of the circle, in red, as the main focus; i.e. having a performant health system (intermediary objective) to improve the health status of the population (final objective);
- Sustainability is represented as the outside circle because it mainly concerns structural elements of the health system in support of other dimensions;
- Accessibility is depicted in the middle circle, as it results from choices on resources distribution that are influenced by the structural elements of the health system;
- Quality is represented as the inner circle, as it mainly concerns process indicators related to health services delivery by health professionals or health institutions that are influenced by choices on structural elements (sustainability) and by resources distribution (accessibility);
- Equity, resilience, and efficiency are considered to be cross-cutting dimensions requiring transversal analyses.

A definition of all **dimensions** and sub-dimensions, including the new ones, can be found in Box 7.

As previously, some specific **domains** (preventive care, mental healthcare, etc.) are also studied and presented on the right-hand side of the circle (in the tag label) (see also chapter 7 on the review of domains).

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

Figure 3 – Updated Belgian HSPA conceptual framework





Box 7 – Definitions of dimensions and sub-dimensions

- **Sustainability**, defined as the system's capacity to remain durably financed by public sources; to provide and maintain workforce (e.g. through education and training), infrastructure and equipment; to be innovative; to be responsive to emerging needs, and to reduce its environmental impact (adapted from NHPC 2001²⁴ and WHO 2017²⁵). Sustainability does not only focus on the current situation but also tries to anticipate future evolutions (e.g. by using projections). Sustainability is analysed through five sub-dimensions:
 - **Governance (new)**, defined as the capacity of health decision makers to ensure accountability, agency and transparency, to provide fit-for-purpose institutions, and to be responsive to the population's needs (adapted from Papanicolas et al. 2022¹⁵) (see also chapter 4 for details about this new sub-dimension).
 - **Financial sustainability** (or '*financial resources generation*'), which comprises economic and fiscal sustainability. Economic sustainability refers to the growth in health expenditure as a proportion of GDP. Current expenditures are sustainable up to the point where the social costs of these expenditures exceed the value produced. Fiscal sustainability refers to the capacity to collect public revenues (taxes and social contributions) to meet public expenditures.²⁶
 - **Health workforce capacity** (or '*human resources generation*'), defined as the system's capacity to provide and maintain (in the future) a sufficient health workforce. This includes indicators on inflow and outflow (the number of new graduates, the share of foreign workers, the share of the workforce that will retire in the near future, the degree of specialisation) and on potential (future) shortages (projections of the supply and the demand, the number of vacancies, proxies of absenteeism and the workforce's well-being and satisfaction).
 - **Health technologies and infrastructure** (or '*physical resources generation*'), defined as the system's capacity to provide and maintain (in the future) sufficient infrastructure and (innovative) health technologies, including health products, medical equipment and health information systems.
- **Environmental sustainability (new)**, currently defined as the system's capacity to minimize negative impacts on the environment and leverage opportunities to restore and improve it to the benefit of the health and well-being of current and future generations.²⁵ For a question of timing and data availability, this sub-dimension is not yet developed in the Belgian HSPA.
- **Accessibility**, defined as the ease with which health services are reached by the population in terms of physical access, costs, time, and availability of qualified personnel.²⁷ Accessibility is influenced by decisions on resources generation and is analysed through three sub-dimensions:
 - **Financial access**, driven by decisions on '*financial resources generation*', and focusing on the breadth of the coverage by the compulsory health insurance (who is covered?), the scope of the coverage (what is covered?), and the depth of the coverage (how much of the healthcare costs is covered?). Unmet needs for healthcare for financial reasons, access to agreed tariffs, and the share of fee supplements are also indicators of financial accessibility.
 - **Health workforce availability and distribution**, driven by decisions on '*human resources generation*' and analysing the number of healthcare professionals and their geographical distribution.
 - **Health services distribution**, driven by decisions on '*human*' and '*physical resources generation*' and reflected a.o. by waiting times and unmet needs due to geographic reasons.
 - It should be noted that **health literacy** was initially added as a fourth sub-dimension of accessibility in the revised Belgian CF, because health literacy (including digital health literacy) impacts people's ability to access health services. Nevertheless, health literacy is considered to be in the first place an indicator of health



promotion that goes beyond the scope of the health system and concerns individuals' ability to understand and manage information related to healthcare but also to health determinants (e.g. environmental factors, healthy lifestyle), and to health.²⁸ It was therefore decided to exclude health literacy indicators from the Performance report and to keep them in the section on health determinants of the Health Status Report (developed by Sciensano and also available on the HealthyBelgium.be website).

- **Quality**, 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”.²⁹ In this report, the concept has been further subdivided into five sub-dimensions:
 - **Effectiveness of care**, 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”.²⁷
 - **Appropriateness of care**, defined as “the degree to which provided healthcare is relevant to the clinical needs, given the current best evidence”.²⁷
 - **Safety of care**, defined as “the degree to which the system does not harm the patient”.²⁷
 - **Continuity and coordination of care**, addressing “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”.²⁷ Four aspects 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).

- **People-centred care**, addressing “the extent to which healthcare is organised around people' needs, responds to individual preferences of patients and tries to ensure that patient values guide clinical decisions”.³⁰
- **Equity**, analysing inequalities that are deemed to be unfair or stemming from some form of social injustice. One tries to distinguish between fair and unfair sources of inequalities and assess inequalities related to the latter. Equity is a transversal dimension, which means that (in)equities are examined for a selection of indicators from other dimensions and domains. More specifically, horizontal equity is analysed, i.e. whether people with the same healthcare need receive the same (access to) care, irrespective of other characteristics such as income, education, place of residence, etc. For example, do people with the same health profile consult the specialist at the same frequency? Do we find systematic differences between socio-economic groups after adjustment for differences in health?
- **Efficiency** in healthcare usually concerns the relation between inputs (i.e. sustainability indicators such as financial resources, workforce, infrastructure) and intermediate outputs (i.e. accessibility and quality indicators such as waiting times, etc.) or ultimate health outcomes (i.e. health status indicators such as the life years gained), and is therefore considered as a transversal dimension. However, the relation between inputs and outcomes is complex and is driven by factors outside the control of health system managers.³¹ A frequently used indicator of efficiency is for example life expectancy related to health expenditure per capita. Health expenditure is nevertheless only one of the many determinants of life expectancy. This is the reason why this type of analysis is not performed in the Belgian HSPA reports. In the performance reports, it was rather decided to analyse sub-sector specific indicators representative of a more efficient use of care services (such as the use of generic pharmaceuticals or the shift from inpatient to day-care hospitalisations).



- **Resilience (new)**, analysing the capacity of a health system to “(a) proactively foresee, (b) absorb, and (c) adapt to shocks (...) in a way that allows it to (i) sustain required operations, (ii) resume optimal performance as quickly as possible, (iii) transform its structure and functions to strengthen the system, and (iv) (possibly) reduce its vulnerability to similar shocks and structural changes in the future”.³² In the forthcoming performance report, resilience will be analysed in relation to a specific shock, the COVID-19 pandemic, and will focus on the health system capacity to cushion the impact of the shock (absorptive capacity), to sustain required operations (adaptive capacity), and to transform its structure and functioning, making the system less vulnerable to future shocks (transformative capacity). The capacity of the health system to proactively foresee the advent of a shock and minimise its potential impact (preventive capacity) will only be studied in complementary analyses. Indeed, the preventive component is based, on the one hand, on the existence of “crisis-preparedness” plans and surveillance mechanisms, and on the other hand, on the level of performance of the health system outside of any shocks. While the evaluation of crisis-preparedness plans and surveillance mechanisms is rather descriptive and qualitative, the latter is based on the assessment of all other performance dimensions outside of any crisis, i.e. performant health systems are more able to minimise the impact of a shock. For more details about the new dimension on resilience, see chapter 3.

3 HEALTH SYSTEM RESILIENCE, A NEW TRANSVERSAL DIMENSION

3.1 Assessing health system resilience as part of HSPA

Although “health system resilience” was still an emerging concept, the relevance of assessing resilience as part of HSPA was already pointed out before the COVID-19 pandemic.

In 2014, the European Commission published its “*Communication on effective, accessible and resilient health systems*” proposing an agenda with tools and mechanisms to improve the performance of health systems in European countries.³³ The need for health system resilience was stressed: health systems “*must be able to adapt effectively to changing environments, tackling significant challenges with limited resources*”. With this aim in mind, the European Commission urged for further investigation into resilience-enhancing factors for health systems and ways to build these. It recommended that Member states analyse these factors based on their national experience, complemented by EU work on sharing best practices and on designing policy measures.

In their 2016 edition of “*Health at a Glance: Europe*”, the OECD and European Commission provided, for the first time, a chapter on “*resilience, efficiency and sustainability of health systems*” including a small set of indicators related to how countries have responded to recent economic or other shocks on their health system, and efforts to improve the efficiency of health systems to respond to growing needs with limited resources.³⁴ These indicators referred to eHealth adoption, capital expenditure, generic pharmaceuticals, ambulatory surgery, length of stay in hospitals, medical and nursing graduates and public expenditure on health and long-term care. The 2018 edition continued on this path with a chapter “*resilience: innovation, efficiency and fiscal sustainability*”.³⁵

A conceptual framework for assessing the resilience of a health system was progressively developed, in particular by the European Observatory on Health Systems and Policies (2020)³⁶ and the EU Expert Group on HSPA (2020)³⁷. However, the concept of (health system) resilience gained more attention following the COVID-19 pandemic.



A growing literature attempts to measure whether health systems were resilient to the COVID-19 crisis and how they could build back after the pandemic. Notably, the European Observatory on Health Systems and Policies identified 20 interrelated strategies to enhance resilience during the COVID-19 crisis and proposed to assess resilience based on these key strategies.^{38, 39} In the same report the main challenges when attempting to assess health system resilience to the COVID-19 crisis were also discussed, in particular the difficulty to define the concept of resilience, issues in quantifying the magnitude of the COVID-19 pandemic, problems to obtain timely robust data, and complications in interpretation as broad strategies (often outside the health system) interact with health outcomes.

Despite these challenges, in a number of international studies, efforts were made to quantitatively assess health system resilience to the COVID-19 pandemic. In the 2020 edition of *“Health at a Glance: Europe”*, the OECD and European Commission provided an initial assessment of the impact of the COVID-19 crisis on European health systems, and their resilience to the pandemic.⁴⁰ The analysis focused mainly on the initial (before COVID-19) capacity in terms of hospital beds, Intensive Care Unit (ICU) beds and workforce as well as on strategies to adapt resources to cope with the COVID-19 surge (infrastructure, workforce, protective equipment, etc.). The report also analysed the capacity of the system to maintain non-COVID-19 services, in particular primary care consultations. Also, the 2021 edition of the *“State of Health in the EU country profiles”* analysed preparedness to the pandemic, response capacity and governance.⁴¹ Response capacity was mainly assessed through the analysis of quantitative indicators related to human and physical resources, ICU capacity, provision of personal protective equipment and medical supplies, provision of non-COVID-19 services, testing strategies, etc. In the last edition (2022) of *“Health at a Glance: Europe”*, the OECD and European Commission continued their assessment of health systems’ responses to COVID-19 and encouraged countries to use this experience to guide their adaptation of the system to strengthen resilience.⁴² The assessment consisted of eight indicators, largely related to the COVID-19 pandemic: vaccination against COVID-19, use of teleconsultations, public health laboratory capacity, intensive care beds, adoption of Electronic Medical Records, capital expenditure in the health sector and projections of public expenditure on health and long-term care.

The OECD also developed an analytical framework aimed at assessing countries’ response to COVID-19. The first country report (Luxembourg) was published in November 2022.⁴³ It includes a section on the resilience of the Luxembourg health system to COVID-19 that compares Luxembourg’s performance to other OECD countries for several indicators. In February 2023, the OECD also published a report drawing lessons from the COVID-19 crisis titled *“Ready for the Next Crisis? Investing in Health System Resilience”*.⁴⁴

3.2 Defining health system resilience

Broadly speaking, resilience is the capacity of a system to absorb change and continue to function, and its capacity to recover (or “bounce back”) after some disturbance. The origin of the concept can be found in physics, but the notion has been more recently used in various heterogeneous fields such as ecology, sociology, psychology and finance.³⁷ As the concept has broadened and evolved over time, there are several definitions of resilience, which might lead to confusion. Within health system research, the concept is still evolving and no common unique definition exists to describe its meaning. In a literature search performed in 2018, Fridell et al. (2020)⁴⁵ identified that health system resilience is mainly related to adaptation, maintenance, absorption, learning, transformation, withstanding and responding to shocks.

The definition of “health system resilience” retained for the Belgian HSPA framework is inspired by the working definition developed by the EU Expert Group on HSPA³⁷ and later adopted by the Expert Panel on effective ways of investing in health (EXPH)³²: *“Health system resilience describes the capacity of a health system to (a) proactively foresee, (b) absorb, and (c) adapt to shocks (...) in a way that allows it to (i) sustain required operations, (ii) resume optimal performance as quickly as possible, (iii) transform its structure and functions to strengthen the system, and (iv) (possibly) reduce its vulnerability to similar shocks and structural changes in the future”*.



The above definition encompasses four main components of resilience:^{37, 46}

1. Preventive capacity: the ability of the health system to proactively foresee the advent of a shock and minimise its potential future impact
2. Absorptive capacity: the capacity of the health system to cushion the impact of shocks
3. Adaptative capacity: the capacity of the health system to sustain required operations
4. Transformative capacity: the capacity of the health system to transform its structure and functioning, making the system less vulnerable to future shocks.

A similar definition has been used by the OECD and the European Commission in the 2020 and 2022 editions of *“Health at a Glance: Europe”*^{40, 42} although in these reports the analysis was predominantly focused on the capacity to absorb (point b of the definition) and to adapt (point c of the definition) to a specific shock, namely the COVID-19 pandemic. Thomas et al. (2020) also defined resilience using these four components as *“the ability to prepare for, manage (absorb, adapt and transform) and learn from shocks.”*³⁶

For the purpose of this study, a shock is defined as *“any sudden and extreme change which will impact on a health system”*.³⁷ Although resilience to more structural, non-sudden, changes that affect the health system (e.g. population aging, growing burden of chronic diseases, etc.) are also widely discussed in the literature^{45, 47}, it is considered out-of-scope for the resilience dimension of the Belgian HSPA framework.

Many types of very different shocks may affect the health system in various ways. Those that have been documented before the COVID-19 pandemic include other epidemics or health emergencies (such as infectious diseases outbreaks like Ebola outbreaks⁴⁸), natural disasters (extreme weather events, natural catastrophes such as hurricanes⁴⁹, etc.), economic crisis (the most documented case being certainly the 2008 financial crisis and subsequent recession^{50, 51}) and conflict and mass migration (notably the war in Syria⁵²).

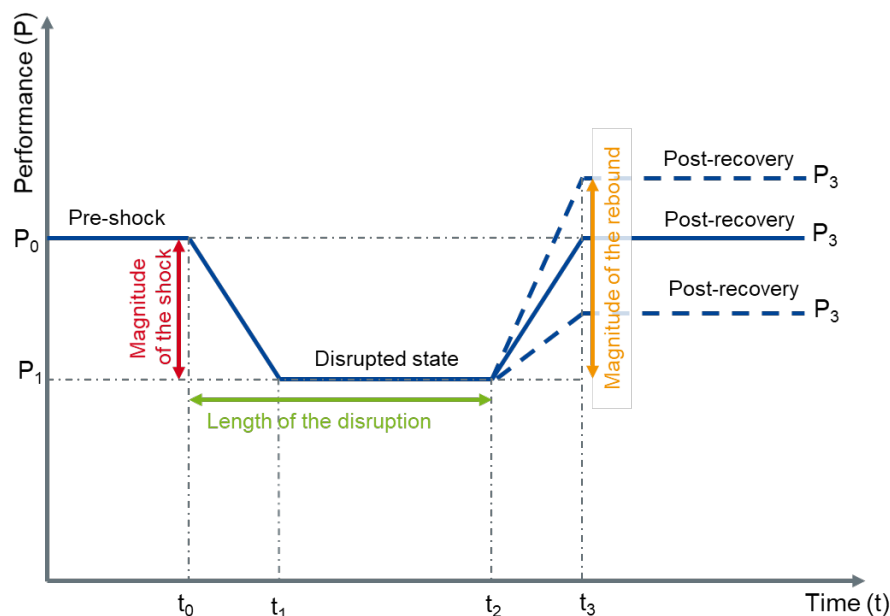
Many other types of shocks may also affect the system such as terrorist attacks, cyberattacks, antimicrobial resistance or pharmaceutical innovation. Several typologies of shocks exist (whether they impact the supply or the demand for healthcare services, whether they are epidemiologic, technological, economic, whether they are short term or long lasting, whether they affect a geographically limited area or not, etc.). Because of this extensive range of types and characteristics of shocks that might affect the health system, a complete assessment of the resilience capacity of a health system will likely require a large number of diverse, shock-specific indicators. **In the 2024 HSPA report, the analysis will be restricted to the health system resilience to the COVID-19 crisis only.**

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

From this, resilience can be defined as the ability to minimise the impact of the crash (measured by the distance between P_0 and P_1), to minimise the duration of the disruption (measured by the distance between t_0 and t_2), and to transform its structure such that P_3 is equal to or higher than P_0 .



Figure 4 – Health system performance variation following a shock



Source: inspired by EU Expert Group on Health System Performance Assessment (2020)³⁷

Similar graphical representations of the concept of health system resilience have frequently been used, especially in the context of the COVID-19 crisis, for instance by the EU Expert Group on HSPA³⁷ or the OECD.⁵³ The version used in this chapter identifies three sub-dimensions of resilience that can be quantitatively measured. In the 2024 Belgian HSPA report, HSPA indicators will be used to measure, in the context of the COVID-19 crisis in Belgium:

- The magnitude of the disruption (represented by the red arrow on Figure 4). Measuring the distance between P_0 and P_1 allows to assess the absorptive capacity, i.e. the ability to cushion the impact of the shock. The smaller the difference between P_0 and P_1 is, the more resilient the system is.
- The length of the disruption (represented by the green arrow on Figure 4). Measuring how long it takes before the indicator starts bouncing back allows to assess the adaptive capacity of the system. A more resilient system starts bouncing back sooner.
- The magnitude of the rebound (represented by the orange arrow in Figure 4). Comparing the post crisis value of the indicator (using the most recent available data) with its pre-crisis level (P_0) or with its disrupted level (P_1) allows to assess the capacity of the system to recover and even transform its structure and functioning.

3.3 Scope of the chapter

As already stated, the scope of this chapter is limited to the health system resilience to one specific acute shock, namely the COVID-19 pandemic. Also, the analysis, based on Figure 4, focusses on three of the sub-dimensions (absorptive, adaptive and transformative capacities) described by Blanchet et al. (2017).⁴⁶ The preventive component of resilience (the ability of the health system to proactively foresee the advent of a shock and minimise its potential future impact) will only be studied in complementary analyses but does not constitute the focus of this chapter. Indeed, the preventive component is based on the one hand on the existence of “crisis-preparedness” plans and surveillance mechanisms, and on the other hand, on the level of performance of the health system outside of any shocks (i.e. the level of P_0 in Figure 4).



While the evaluation of crisis-preparedness plans and surveillance mechanisms is rather descriptive and qualitative (and therefore out-of-scope of Belgian HSPA reports), the latter is based on the assessment of all other performance dimensions outside of any crisis, i.e. performant health systems are more able to minimise the impact of a shock. In addition, all these elements are not specific to the COVID-19 pandemic but concern all crises affecting health in general.

Also, as the COVID-19 pandemic is, at the time of writing, still an ongoing crisis,⁵⁴ a definitive assessment would be premature. In particular, it is certainly too soon to entirely grasp the magnitude of the rebound. Also, in some cases the post-recovery level can be temporarily higher than the pre-shock level because of some catching-up effect (as the system has been disturbed for a while, it overcompensates during some time, but this effect does not necessarily last). For other indicators, it will be difficult to assess the magnitude of the shock, for instance because data were not collected before the shock. Therefore, in many cases, only a partial analysis measuring one or two or the three elements described in Figure 4 will be carried out.

Finally, for this chapter, the selection of indicators was restricted to indicators directly related to the healthcare system. In particular, indicators related to the health status, such as mortality indicators, was considered out-of-scope. The interested reader can find relevant information on the evolution of such indicators during the COVID-19 crisis in Belgium in the COVID-19 section of the Health Status Report available on the website <https://www.healthybelgium.be/en/health-status/covid-19-crisis>. Also, the assessment of the impact of policy measures unrelated to the healthcare system itself, such as lock-downs or school closures, was considered out-of-scope.

3.4 Selection of indicators

To assess the Belgian health system resilience to COVID-19, a long list of potential indicators was constructed, using available lists of indicators from Thomas et al. (2020)³⁶, the EU Expert Group on HSPA (2020)³⁷, Sagan et al. (2021)³⁹, the “Health at a Glance: Europe” (2020)⁴⁰, the “Belgium Country Health Profile” (2021)^{55, 56}, the international inventory of HSPA indicators,⁵⁷⁻⁶⁰ updated by a review of the literature performed in the thematic report on chronic patients¹² (see a summary of results in the appendix related to this chapter), the recent German²¹ and Irish²² HSPA frameworks, published after the updated inventory cited above, the “Health at a Glance: Europe” (2022)⁴², the OECD evaluation of Luxembourg’s response to COVID-19 (2022)⁴³ as well as the indicators already measured in the Belgian 2019 HSPA report¹⁸. It must be noted that the OECD report “Ready for the Next Crisis? Investing in Health System Resilience”⁴⁴ was published after this process was completed, consequently indicators from this report were not included in the long list of potential indicators. Nevertheless, most indicators in the OECD report were included in previous reports and a rapid verification afterwards indicated that no indicators were missed due to the omission of this report. A careful review of the long list of potential indicators was performed to see if the indicators could be used to assess resilience as defined above.

Three criteria were used:

- Relevance (with respect to the scope defined above): only indicators which value could potentially be affected by sudden shocks such as the COVID-19 crisis were included. Using this criterion, it was judged that, for instance, geographical access to maternity services was not a suitable indicator. This criterion also allows to exclude indicators measuring the preparedness of the health system, rather than its actual response to the shock. Such indicators will therefore only be presented in complementary analyses. In addition, it permits to exclude indicators that are not directly related to the healthcare system such as health status indicators or measures related to general policies such as lock-downs or school closures.



- Quantitative measure: to be included in the Belgian HSPA reports, the indicator should be measurable in a quantitative way. Therefore, a group of qualitative or descriptive indicators suggested by several authors were excluded. In the Belgian context, for example, it has been described that the authorities have adapted many strategies and policies to the new environment and learnt from previous mistakes. For instance, at the beginning of the crisis, there was no access to data on ICU bed availability. Ad hoc hospital surveys have been used before the set-up of a dedicated platform. Also the data collection has been adapted several times (see for instance Van de Voorde et al. (2020)⁶¹). This descriptive process shows some resilience but cannot be quantitatively measured and is therefore considered as out-of-scope for the Belgian HSPA reports. Nevertheless, the sum of all these actions could have contributed to a more rapid bounce back of regularly measured indicators. If this is the case, this can be evidenced in the HSPA report.
- Data availability: only indicators for which repeated data throughout the year (e.g. monthly data – up to at least 2021 for the most recent) were judged sufficient to precisely assess the magnitude of the disruption, the length of disruption and the magnitude of the rebound.

The last criterion (availability of repeated data) considerably reduces the number of potential indicators. Therefore, all the indicators meeting all three criteria were kept. Contrary to approaches followed for other dimensions (see chapters 5 and 6), no prioritisation of indicators was performed by an expert group. The long list of indicators, their sources and the reasons for exclusion can be found in the appendix related to this chapter.

By definition, all the selected indicators are performance indicators that could fit in another dimension of the HSPA framework. In particular, a group of indicators concern the provision of adequate workforce, which is also assessed in the sustainability dimension. However, in the resilience dimension the focus lies on the use of repeated data throughout the year to precisely assess the magnitude of the disruption, the length of disruption and the magnitude of the rebound. The same indicators are therefore interpreted in a different way.

3.5 Results

The selected indicators are presented in Table 1 along with the original source(s) of the indicator and the sources of the data that will be used to assess them in the Belgian context. It should be noted that the potential indicators that were screened were often described in very broad terms (e.g. ICU capacity, health workers job satisfaction). The description of the selected indicators in Table 1 is more precise, but largely dependent on availability of data at the Belgian level.

For ease of presentation, indicators are grouped in three categories: (1) ensure adequate workforce, (2) maintain essential health services and routine public health services and (3) scale-up existing capacity and implement new health services. For each indicator, we will make maximum use of existing data to quantify the magnitude of the disruption, the length of the disruption and the magnitude of the rebound (see Figure 4).



Table 1 – Health system resilience indicators

ID	Indicator	Source of the indicator	Belgian source of data
Ensure adequate workforce			
R-1 New	Healthcare professionals who consider leaving the profession (% of respondents, Power to Care)	<u>Job satisfaction:</u> HSPA Ireland (2021) ²² European Observatory - Sagan et al. (2021) ³⁹ EU Expert Group - Thomas et al. (2020) ^{36, 37}	Sciensano (Power to Care)
R-2 New	Number of hospital bed closures due to staff absenteeism or force majeure	<u>Health workers absenteeism/shortage:</u> HSPA Ireland (2021) ²²	FPS Public Health (ICMS)
R-3 New	Number of nurses vacancies in hospitals	European Observatory - Sagan et al. (2021) ³⁹ EU Expert Group - Thomas et al. (2020) ^{36, 37} OECD – Luxembourg (2022) ⁴³	FPS Public Health
Maintain essential health services and routine public health services			
R-4 New	Number of essential surgical hospital acts	<u>Change in utilisation of services:</u> European Observatory - Sagan et al. (2021) ³⁹ OECD – Luxembourg (2022) ⁴³	RIZIV – INAMI (Hospital Audit Unit)
R-5 New	Number of new invasive cancer diagnoses	<u>New cancer diagnoses:</u> Health country profile – Belgium (2021) ⁵⁶ OECD and EU - Health at a Glance (2020) ⁴⁰ OECD – Luxembourg (2022) ⁴³	Belgian Cancer Registry
Scale-up existing capacity and implement new health services			
R-6 New	Hospitals with occupancy rate for COVID-19 patients in ICU licensed beds above 60%* (% of general hospitals with ICU licensed beds)	<u>ICU occupancy rate/capacity:</u> Health country profile – Belgium (2021) ⁵⁶ OECD and EU - Health at a Glance (2020) ⁴⁰ EU Expert Group - Thomas et al. (2020) ^{36, 37} OECD and EU - Health at a Glance (2022) OECD – Luxembourg (2022) ⁴³	FPS Public Health (ICMS and surge capacity survey)
R-7 New	Number of contacts (including teleconsultations) with a GP	<u>Teleconsultation, telehealth, telemedicine and remote services:</u>	RIZIV – INAMI



		Health country profile – Belgium (2021) ⁵⁶ OECD and EU - Health at a Glance (2020) ⁴⁰ European Observatory - Sagan et al. (2021) ³⁹ OECD and EU - Health at a Glance (2022) ⁴² OECD – Luxembourg (2022) ⁴³	
R-8 New	Average duration between COVID-19 testing and test result	<u>Testing capacities:</u> Health country profile – Belgium (2021) ⁵⁶ OECD and EU - Health at a Glance (2020) ⁴⁰ European Observatory - Sagan et al. (2021) ³⁹ OECD – Luxembourg (2022) ⁴³	Sciensano
R-9 New	Average duration between positive COVID-19 test result and contact tracing initiation	<u>Contact tracing capacities:</u> Health country profile – Belgium (2021) ⁵⁶ OECD and EU - Health at a Glance (2020) ⁴⁰ European Observatory - Sagan et al. (2021) ³⁹	Sciensano
R-10 New	COVID vaccination in the last six months (at least one dose, % of the population)	<u>Vaccination:</u> Health country profile – Belgium (2021) ⁵⁶ European Observatory - Sagan et al. (2021) ³⁹ OECD and EU - Health at a Glance (2022) ⁴² OECD – Luxembourg (2022) ⁴³	Sciensano
R-11 New	COVID vaccination in the last six months (at least one dose, % of the population 65+)	<u>Vaccination:</u> Health country profile – Belgium (2021) ⁵⁶ European Observatory - Sagan et al. (2021) ³⁹ OECD and EU - Health at a Glance (2022) ⁴² OECD – Luxembourg (2022) ⁴³	Sciensano

* As reliable data on non-COVID-19 patients in ICU are not yet available, we divided the number of COVID-19 patients by the number of licensed ICU beds reserved for COVID-19 patients (i.e. 60% in March 2020).



Table 1 only shows the selection of principal indicators, but, whenever possible, secondary indicators will also be analysed. Hereafter we provide a short description of the rationale beyond the choice of principal and secondary indicators and of the data that will be used to analyse them.

Ensure adequate workforce

It is largely acknowledged that the COVID-19 period exerted considerable pressure on healthcare professionals, in terms of increased workload, but also in terms of physical and psychological symptoms.⁶²⁻⁶⁵ To counter that, countries have implemented various schemes to support the mental health of healthcare professionals and to offer financial and practical assistance.⁶⁶ To measure Belgian health system resilience regarding the **wellbeing of healthcare professionals**, we will use data from the Power to Care survey carried out by Sciensano and LIGB – KU Leuven. This survey counts eight rounds (of which the first four do not include professionals from Wallonia) between April 2020 and September 2021. Respondents (ranging from around 700 to 2 800 depending on the round) were asked to self-assess their chronic stress symptoms (feeling tired, being under pressure/stress, not being able to relax, lack of sleeping/waking up, difficulty concentrating), acute stress symptoms (hyperalertness/increased alertness, feelings of anxiety), other personal symptoms (reliving events at work outside of work, insufficient regularity in life, feeling unhappy and depressed, not recognising one's own emotional reactions) and negative symptoms on a professional level (considering quitting the profession, feeling alone, doubting one's own abilities, feeling insecure in the team). The share of respondents with high scores for “considering quitting the profession” will be used as principal indicator (R-1) and analysed by region and type of professionals (nurses vs others, working in hospitals vs others, etc.). Other items will be used as secondary indicators. In addition, a focus on ICU staff will be brought forward by the use of data from Van den Heede et al. (2022).⁶⁷

Shortage of staff resulting from **absenteeism of healthcare professionals**, in particular nurses working in hospital services, is known to be both a consequence of the COVID-19 crisis and an obstacle to quality of care in COVID-19 times.^{68, 69} In Belgium, absences of health professionals have been quantified in limited contexts⁷⁰ but no administrative comprehensive

data exist at the national level. To quantify the hospital staff absences and their evolution during the COVID-19 pandemic, we will therefore rely on proxies. First, since October 2021, as part of the daily data registered in the context of surge capacity plans, hospitals must register the number of (ICU and other) hospital beds that are “closed due to staff absenteeism or force majeure and not available for the hospitalisation of (COVID-19 or non-COVID-19) patients”. Second, the yearly survey of hospital statistics contains, since 2013, a question about the number of unfilled nurses vacancies. The number of nurses vacancies in hospitals is defined as “the number of vacancies for which a call (intern/extern) is launched”. Hospitals are asked to complete this question for four moments in time each year: 31 March, 30 June, 30 September and 31 December. Both the number of closed beds (R-2) and the number of nursing vacancies (R-3) will be used as proxies to assess the magnitude of the disruption, the length of the disruption and the magnitude of the rebound in terms of hospital staff absenteeism.

Maintain essential health services and routine public health services

From mid-March 2020, hospitals in Belgium and in other countries were asked to stop non-essential activities in order to free up equipment, nurses and physicians for the treatment of COVID-19 patients.⁶¹ Belgian hospitals had to stop all elective consultations, investigations and procedures. It was however specified that essential care could continue. Nevertheless, no concrete formal definition of essential and non-essential care was provided. Hospitals were allowed to resume regular hospital care in a stepwise manner from 4 May 2020. To assess the ability of hospitals to maintain essential activities, we will use the change in **hospital regular essential surgical hospital activities** (R-4) with respect to what was expected based on 2019 data following the methodology of the Hospital Audit Unit within RIZIV – INAMI, FPS Public Health and FAGG – AFMPS.⁷¹ Change in hospital regular non-essential surgical hospital activities will be presented as a secondary indicator. The results will also be complemented by additional analyses on the evolution of the number of hospital admissions and of a selection of urgent and non-urgent hospital activities using alternative sources.^{72, 73} Also, the ability to maintain emergency department



services will be analysed, using the evolution in the number of emergency room admissions as secondary indicator, based on RIZIV – INAMI nomenclature data. The capacity of hospitals to maintain mental healthcare activities was also essential. Therefore, using FPS Public Health (MPG – RPM) data, we will also analyse as secondary indicators the changes in the number of admissions in psychiatric hospital wards (psychiatric hospitals and psychiatric wards of general hospitals), in the number of psychiatric admissions through emergency departments, in the number of hospitalisation days in psychiatric hospital wards, and the total number of stays in psychiatric hospital wards. This will allow us to assess if mental health services in hospitals were maintained but of course, the activity could also have been affected by a deterioration in the mental health of the population.

Concerning public health services, organised population screening programmes for female breast cancer, cervical cancer, and colorectal cancer were suspended in the week of 16 March 2020 and resumed mid-May 2020. An important decrease in the absolute number of **new cancer diagnoses** was also documented during the first wave of the pandemic by the Belgian Cancer Registry, thanks to the data from the laboratories for pathological anatomy (for which the delivery of data was accelerated due to the crisis).⁷⁴ Using more comprehensive data (the Belgian Cancer Registry's incidence database, that contains data from oncological care programmes in the hospitals as well as from laboratories for pathological anatomy), we will assess the magnitude of the disruption, the length of the disruption and the magnitude of the rebound concerning new cancer diagnoses. The percentage change in new invasive cancer diagnoses (R-5) per month relative to the same month in 2017-2019 will be used as principal indicator. Indicators per cancer type and age categories will be used as secondary indicators.

The ability to maintain the continuity of outpatient care will also be assessed. However, as it was done partially through the development of a new type of health service (teleconsultations) this will be investigated in the next section.

Scale-up existing capacity and implement new health services

Intensive care resources faced enormous pressure during the pandemic, resulting in some places in intensive care demand exceeding available supply.⁴² Increasing **occupancy rates in intensive care units** have been associated with increasing mortality.⁷⁵ In response, many countries increased their ICU capacity, creating “surge” capacity. However, an analysis of in-hospital mortality of COVID-19 patients treated in ICU in Belgium during the first wave has shown evidence that the “ICU overflow” (when the number of ICU beds occupied by COVID-19 patients exceeds the number of licensed ICU beds reserved for COVID-19 patients) was an explanatory variable of in-hospital mortality of COVID-19 patients.⁷⁶ From 30 September 2020, hospitals have been encouraged to search for a better distribution of COVID-19 patients between hospitals, rather than using extra ICU bed capacity.⁶¹ Occupancy rates in ICU beds in Belgium will be used as a secondary indicator to give an indication of Belgium's ability to absorb the surge of COVID-19 patients (i.e. the ability to manage inflow of patients, keep occupancy rates under control and to limit overflows). However, an analysis at the national level does not allow to identify whether some hospitals were overloaded while others still had free capacity. Therefore, the core analysis will examine occupancy rates at the hospital level in order to capture variation between hospitals and provide insights on whether patients were distributed in a way that reduced mortality risks associated with overflow. To do so, we will measure the share of hospitals with a high occupancy rate for COVID-19 patients in ICU licensed beds (R-6). The rationale of this indicator is that, although national occupancy rate could stay high, a better distribution of patients across hospitals will lead to a reduction in the share of “overflowed” hospitals. As reliable data on non-COVID-19 patients in ICU are not yet available, we will follow Taccone et al. (2021)⁷⁶ and divide the number of COVID-19 patients by the number of licensed ICU beds *reserved for COVID-19 patients*. In March 2020, this reserved number was set at 60% of the total number of licensed ICU beds. All the indicators related to ICU capacity will make use of the daily data hospitals must register since the beginning of the pandemic (ICMS and surge capacity survey).



The COVID-19 pandemic forced public authorities to encourage innovative ways of providing healthcare services. Among them, **teleconsultations** (as an alternative to in-person contact with physicians) have been largely promoted in many countries.⁴² In Belgium, nomenclature codes were created for teleconsultations in March 2020 in order to ensure access to essential care while preventing the spread of the virus by avoiding direct contact between patients and health professionals. As principal indicator, we will measure the evolution of the total number of contacts (including teleconsultations) with a GP (R-7). This will allow us to assess if teleconsultation helped to maintain the previous volume of activity. Of course, the total volume of activity could also have been affected by the number of COVID-19 cases. As a secondary indicator, we will measure the share of teleconsultations among contacts with a GP, as a percentage of the total number of contacts with a GP in the pre-COVID-19 period. It is important to use the pre-COVID-19 total number of contacts in the denominator, in order to show how teleconsultations indeed *replaced* in-person contacts. Also, the same indicators will be presented for contacts with any physician (beyond the focus on GPs), including mental health services (remote psychotherapies). For these indicators, RIZIV – INAMI billing data for the concerned nomenclature codes will be used.

Contact tracing is one of the major public health tools that has been developed to control the spread of COVID-19. However, many countries failed to implement it effectively.⁷⁷ Delays may occur at every stage of the process: between onset of symptoms and testing, between testing and results, and between a positive test result and the initiation of contact tracing. To interrupt the transmission of COVID-19, the ECDC recommended that “contact tracing should be done for as many cases as possible as fast as possible”.⁷⁸ To monitor COVID-19 cases investigation, the ECDC recommended notably to measure the proportion of cases where contact tracing is initiated within 24 hours of diagnosis. This indicator will be used as a secondary indicator in our analysis in complement to the more precise principal indicator, i.e. the average duration between positive COVID-19 test result and contact tracing initiation (R-8). Large-scale **population testing** was also one of the essential means to control the outbreak.⁴⁰ To ensure efficient isolation and proper contact tracing, shortening the delay between testing and results was also crucial. To assess

this, we will use as principal indicator the average duration between testing and result (R-9). We will not use the time between symptoms onset and testing or contact tracing initiation as principal indicators because the delay before the test takes place is more dependent on population behaviour than on the performance of the health system. Nevertheless, as secondary indicators, we will provide average durations between onset of symptoms and test prescription and between test prescription and actual testing. Laboratory diagnostic test data and contact tracing data will be mobilised, following the methodology of Proesmans et al. (2022).⁷⁹

In addition, many countries in Europe have developed and implemented contact tracing apps, but their impact and the willingness of the population to participate is not clear.³⁹ It was suggested that to be effective alongside other interventions, around half the total population should use the app.⁸⁰ However, it was highlighted that, despite some willingness to install contact tracing apps, the (correct) usage of them might have been lower.⁸¹⁻⁸⁴ In Belgium, the *Coronaalert* app was launched in September 2020. Monthly downloads and usage will be used as secondary indicators to assess the evolution of Belgian health system performance regarding contact tracing.

The rapid development and deployment of **vaccines** were important elements contributing to pandemic management.⁴² Coverage of COVID-19 vaccination in the adult population and among specific groups (65+, 85+, etc.) have been widely monitored using indicators such as the percentage of the population who received primary course vaccination, or primary course and booster vaccinations.⁸⁵ These elements will be analysed as secondary indicators. Also, the same indicators will be measured for the specific group of healthcare professionals.⁸⁶ However, as time passes and a large share of the population is vaccinated, continuing to monitor these indicators appears to be less relevant. To assess the evolution of Belgian health system performance regarding COVID-19 vaccination, we will use as principal indicators the percentage of the population, and of the population aged 65 and over, who received at least one vaccine dose in the last six months (R-10 and R-11). These indicators allow a meaningful analysis both in the first stages of deployment of vaccine as well as when a large coverage is already achieved. As secondary indicators, this will also be analysed for other target groups (85+ and healthcare professionals).



3.6 Complementary analyses

In addition to the measures of the magnitude of the disruption, the length of the disruption and the magnitude of the rebound for the performance indicators described above, the assessment of health system resilience to COVID-19 will encompass a broader pre/post crisis analysis. Concretely, for a selection of relevant indicators identified in other dimensions of the Belgian HSPA framework (such as quality, accessibility, etc.), a comparison between results before and after/during the COVID-19 pandemic will be performed in the 2024 HSPA report.

During the review of the long list of potential indicators to assess resilience described in section 3.4, we also identified one indicator for which the last criterion (repeated data throughout the year) was not met but that showed high relevance. This indicator on the constitution of a workforce reserve (R-12) will therefore be presented in the complementary analyses (see Table 2). In the same way, a complementary analysis will be carried out on two indicators of preparedness (not specific to the COVID-19 pandemic): the preparedness to public health risks and acute events (R-13) and the perceived likelihood that government would be prepared for the next pandemic (R-14).

Table 2 – Health system resilience indicators in the complementary analyses

ID	Indicator	Source of data
R-12 <i>New</i>	Workforce reserve	Federated entities
R-13 <i>New</i>	People who perceived that the government is likely to be prepared for the next pandemic (% of respondents, Trust)	Building Trust to Reinforce Democracy: Main Findings from the 2021 OECD Survey on Drivers of Trust in Public Institutions ⁸⁷
R-14 <i>New</i>	Country preparedness to public health risks and acute events (average score on a 1-100 scale)	SCORE for Health Data Technical Package ⁸⁸

3.7 Limitations

In the 2024 HSPA report, the resilience of the Belgian Health System to the COVID-19 pandemic will be assessed using the methodology and indicators described above. Although the addition of the resilience dimension into the HSPA framework contributes to enrich the performance assessment, the analysis manifests some inherent weaknesses.

The selection of indicators has been largely constrained by data availability. As repeated data are needed to assess the magnitude of the disruption, the length of the disruption and the magnitude of the rebound, many indicators for which data are only available in Belgium on a yearly basis were excluded from the main analysis and only reported in the complementary analyses (e.g. quality indicators, workforce availability, catastrophic/impoverishing health spending). Some relevant indicators were also excluded because no data were available at all (e.g. temporary increased workload of health workforce, provision of services for at-risk population groups).

For selected indicators also, weaknesses in the analysis will result from lack of data. For instance, it is not possible to assess the share of the *at-risk* population who received at least one COVID-19 vaccine dose in the last six months because no data are available on the at-risk population despite the fact that specific groups (immunocompromised, etc.) were targeted in early



vaccinations campaigns in Belgium. Also, no national data on nurses' absenteeism are available in Belgium, therefore, this indicator will be analysed using proxies (number of closed beds and nurses vacancies). In a same way, no reliable data are yet available on the number of non-COVID-19 patients in ICU beds, therefore ICU capacity will be analysed for COVID-19 patients only.

Because adaptations were necessary due to the lack of data, but also because some measures are specific to the context of each country, the results will not be directly comparable with international results. For instance, ICU capacity during the COVID-19 crisis will be analysed at the hospital level in order to assess the distribution of patients across hospitals. In international studies, ICU capacity is generally analysed at the macro (national or regional) level. Also, we will analyse vaccination using the share of the population who received at least one dose in the last six months. While this indicator allows a meaningful analysis at different stages of vaccine deployment, it is, to the best of our knowledge, not yet used internationally. Nevertheless, when possible, we will make use of international analyses and reports to indirectly compare with other countries the performance of the Belgian health system regarding its resilience to the COVID-19 crisis.

Belgian HSPA reports focus on quantitative measures to assess the performance of the health system. However, the resilience of the system could be in many ways analysed using qualitative studies. As these analyses are out of scope, the reader should be aware that the assessment proposed here is only partial.

Finally, one must also keep in mind that the results shown by the selected indicators do not depend on a single factor, but have several causes, which can come from outside the health system. The selected indicators are complex by nature and never result from a single action but reflect the interaction of a full set of variables and parameters. Due to these confounding factors, the selected indicators should not be used to evaluate the policy response the COVID-19 crisis, but rather to give a broad view of the health system resilience.

4 HEALTH SYSTEM GOVERNANCE, A NEW SUB-DIMENSION OF SUSTAINABILITY

4.1 Assessing health system governance as a part of HSPA

Health system governance has been receiving increasing attention in health system research and was identified as a missing sub-dimension of sustainability in the Belgian conceptual framework (see chapter 2). In the past decade, a rising number of governance frameworks applied to the health sector have been developed in different countries and with different perspectives (e.g. researcher, policy maker, development partner).¹⁵ There are two layers of health system governance, one is about the governance of the overarching health system (system-level) and the other is about the governance of specific sectors of the health system. The health system governance depends on collaborations with other sectors and stakeholders outside the health system, which can make its assessment more complex than in certain other dimensions. Since the COVID-19 pandemic, good governance has gained further importance as central government institutions were forced to rapidly adjust decision-making processes and cross-government policy-coordination, while pre-existing structures were not always adapted to respond to the multidimensional impacts of the COVID-19 pandemic.⁸⁹

4.2 Defining health system governance

WHO defined governance as *“ensuring [that] strategic policy frameworks exist and are combined with effective oversight, coalition-building, regulation, attention to system design and accountability”*.⁹⁰ The concept of “stewardship” has also been used to describe the governance role within health systems. However, since the introduction of “stewardship” by the World Health Report 2000,⁹¹ this concept has been inconsistently defined and applied.¹⁵ The concept of “governance” has been more widely used in recent literature. Definitions used by different organisations have a great deal in common in terms of content, yet accents differ.



We decided to base our understanding of governance on the framework developed by the WHO and the European Observatory on Health Systems and Policies, hereafter called the WHO framework (see also chapter 8). Indeed, when it was decided to include governance as a sub-dimension of the new Belgian conceptual framework, a new HSPA framework had just been published by the WHO and the European Observatory on Health Systems and Policies, including a review of existing health system governance frameworks. Consequently, their proposed definition of good governance was used as a starting point and was complemented with other definitions of governance reported in the frameworks used to identify potential governance indicators (see section 4.4 below).

In the WHO framework, governance is broken down into four sub-functions: to ensure strategic vision and policy-making (“policy and vision”), to ensure participation/partnerships/collaboration (“stakeholder voice”), to ensure transparent data-driven and evidence-based decisions (“information and intelligence”, and to ensure legislation and regulation towards public health goals (“legislation and regulation”). Each sub-function has different “assessment areas” which are topical issues facilitating the evaluation of how performant the system’s governance is. Each “assessment area” is then matched with a range of indicative measures. Importantly, good governance of the health system is defined in terms of accountability and agency, fit-for-purpose institutions, as well as transparency.¹⁵ Accountability consists in explaining actions, the answerability and responsibility of those actions and the underlying decisions. Policy makers and politicians, who are governing the health system, are accountable to the population for steering the health system towards public health goals, and providers are accountable to both policy makers and the population. Agency refers to “the capacity of individuals to make their own free choices and act independently”.¹⁵ Within the health system context, accountability and agency are related to the concept of empowerment, which looks at how well health system users can “pro-actively seek services when needed, engage in self-care, and voice their views and experiences to ensure responsive health policy-making”.¹⁵ Fit-for-purpose institutions refer to “the existence of functional institutions that enable the achievement of public health goals and involve the resources and support required to undertake the activities needed to achieve the institution’s stated goals”.¹⁵ According to a definition by Woods (1999),

transparency is achieved when “institutions inform the public and other actors of both upcoming decisions and decisions that have been made, and of the process by and grounds on which decisions are being made”.⁹² Vian (2020) also refers to transparency as “the public availability of usable information”.⁹³ In the WHO framework, all governance sub-functions contribute to these three good governance outcomes.

When reviewing the existing governance indicators (see section 4.4 below), it was identified that several frameworks also included indicators related to responsiveness. For a health system to be responsive “institutions and processes should try to serve all stakeholders to ensure that the policies and programs are responsive to the health and non-health needs of its users”.⁹⁴ In the WHO framework, responsiveness is considered as a final goal of the health system, with a direct link to the governance function, meaning that actions in the governance function directly affect the outcome of responsiveness, without necessarily linking to other health system interventions. Hence, we decided to add responsiveness as one of the outcomes of good governance.

In the new Belgian HSPA framework, governance was therefore defined as the capacity of health decision makers to ensure accountability and agency, transparency, provide fit-for-purpose institutions and be responsive to the needs of the population.

4.3 Scope of the chapter

The scope was limited to indicators related to the governance of the overarching health system (i.e. system-level indicators). Indicators on the governance of specific sectors of the health system (e.g. healthcare provider-level indicators) were considered out-of-scope because they were included in other dimensions or sub-dimensions of the HSPA framework. Indicators on Belgian governance at a macro level, including sectors other than health, were also considered out-of-scope.



4.4 Selection of indicators

As it was decided to add the sub-dimension sustainability – governance to the Belgian HSPA conceptual framework, a process to identify and select indicators which could be used to evaluate this sub-dimension was undertaken. First, a long list of potential indicators was constructed based on available frameworks from the following sources:

- The 20 HSPA frameworks identified in the appendix of chapter 2.
- An international inventory of HSPA indicators,⁵⁷⁻⁶⁰ updated by a review of the literature performed in the intermediate HSPA report on chronic patients (see a summary of results in the appendix related to this chapter).¹²
- The governance chapter of the report “Health System Performance Assessment: A framework for policy analysis” by the WHO and the European Observatory on Health Systems and Policies.¹⁵
- Two frameworks for assessing health system governance identified through snowballing.^{94, 95}

One expert of the research team first extracted indicators or indicative questions/measures related to governance from these frameworks.

Second, two experts of the research team carefully reviewed these indicators to check if they could be used to assess health system governance in Belgium as defined in section 4.2. Four criteria were used:

- Relevance with respect to the scope: the selection of indicators is restricted to indicators directly related to health system governance (see section 4.3).
- Quantitative measure: to be included in Belgian HSPA reports, the indicator should be measurable in a quantitative way.
- Data availability: no new data collection is undertaken for Belgian HSPA reports. All data exploited are extracted from existing data sources. Indicators that cannot be derived from existing databases without substantial additional resources were therefore excluded.

- Avoid duplication: the selection of indicators was restricted to indicators that are not already included in another dimension of the Belgian HSPA framework. Indicators related to specific sub-sectors or providers of the health system (e.g. hospitals, pharmaceuticals) were excluded, as these were generally already included in other dimensions (e.g. quality, accessibility) of the framework.

These criteria considerably reduce the number of potential indicators. Therefore, all the indicators meeting these all three criteria were kept and contrary to approaches followed for other dimensions (see chapters 5 and 6), no prioritisation of indicators was performed by an expert group. The long list of indicators, their sources and the reasons for exclusion can be found in the appendix related to this chapter.

4.5 Results

Among the 20 HSPA frameworks identified in the appendix of chapter 2, only four frameworks included indicators related to governance. All frameworks identified through the three other sources included governance indicators.

After reviewing the long list of indicators, only four indicators (listed in Table 3) met the four inclusion criteria of the selection process.

**Table 3 – Sustainability: governance indicators**

ID	Indicator	Source of the indicator	Data source for Belgium
S-29 New	People satisfied with the healthcare system (% of respondents, Gallup World Poll)	Estonia's HSPA Framework (2009 snapshot)	Gallup World Poll via OECD statistics
S-30 New	Trust in the healthcare system (Scored on a 1-10 scale)	International inventory of HSPA indicators	Living, working and COVID-19 e-survey (Eurofound)
S-31 New*	Patient having a formal participation role in health policy (Scored on a 1-3 scale)	WHO framework: "Health system performance assessment: a framework for policy analysis"	OECD Health System Characteristics Survey
S-32 New	Availability of data to monitor health-related Sustainable Development Goals (SDGs) (%)	WHO framework: "Health system performance assessment: a framework for policy analysis"	SCORE for Health Data Technical Package (WHO)

**Inclusion of this indicator in the 2024 HSPA report will depend on the quality of the data available.*

The indicator on citizen satisfaction with the healthcare system (S-29) is related to system **responsiveness** to population needs and **accountability and agency**. This indicator also measures how well the healthcare system lives up to expectations. As citizens are stakeholders in healthcare systems, their opinions are important in shaping health policies and providing feedback for reforms or health programs. Citizen satisfaction has political and strategic value to health system decision makers, as it brings legitimacy to policies and the policy-making process. High citizen satisfaction with specific services such as healthcare is associated with higher trust in public institutions, which represents an important element for the effective functioning of democratic governments.⁹⁶ Citizen satisfaction with the healthcare system was also found to be positively associated with perceived fairness and equity.⁹⁶ It is important to note that citizen satisfaction is different from patient satisfaction, which is measured at the healthcare provider level. Data from the Gallup World Poll will be used to measure this indicator. The Gallup World Poll measures citizen satisfaction with the healthcare system across the world using, in general, a nationally representative sample of 1 000 citizens in each country.

The indicator on trust in the healthcare system (S-30) is related to system **responsiveness** to population needs and **accountability and agency**. Trust is important for a performant health system because it supports the cooperation throughout the system that is required to improve health.⁹⁷ At an institutional level, the population's trust in healthcare providers and decision makers may influence health-seeking behaviours, in turn affecting accessibility and utilisation of services.⁹⁸ Low levels of public trust are not only a risk for health system legitimacy, but can also harm population health. Evidence has shown that trust in the healthcare system is associated with better health-related outcomes, such as health-related quality of life, patient satisfaction, and therapy compliance.⁹⁹ The COVID-19 pandemic emphasised the importance of trust, as discordant and conflicting information made the public health response more difficult. Support and compliance with measures to control and prevent the spread of COVID-19 were highly dependent on trust in the healthcare system.¹⁰⁰ Data from the "Living, working and COVID-19" e-survey carried out by the Eurofound will be used to measure this indicator.



This survey was conducted online in the 27 EU countries in April/May 2020, June/July 2020 and February/March 2021 and asked respondents “how much you personally trust the healthcare system”.

The indicator on patients’ formal participation role in health policy (S-31) is related to **accountability and agency**.¹⁵ The ability of people using the health system to make decisions and influence the care they receive is essential to a people-centred health system and to hold the government accountable. Citizens’ participation in health policy requires governments to pro-actively engage with a wide range of population groups and stakeholders through institutionalised mechanisms. The extent to which patient voices are institutionalised in macro decision-making processes across different health system areas reflects the importance given to users of the health system in designing the system. A composite indicator developed by the OECD using data from the OECD Health Systems Characteristics Survey will be used to evaluate the institutionalisation of patient voice in health policy making.¹⁰¹ This indicator assesses whether patients have a formal role in five different health policy areas: (1) licensing of pharmaceuticals, (2) coverage or reimbursement, (3) health technology assessment, (4) decisions related to service planning, and (5) definition of public health objectives. Nevertheless, in the last survey (2016), Belgium only responded to two of the five questions used to construct the composite indicator.¹⁰² Thus, the indicator on patients’ participation in health policy will only be included in the 2024 HSPA report if the data provided in the next round of the survey (results foreseen in September 2023) are of good quality.

The indicator on the availability of data to monitor health-related Sustainable Development Goals (S-31) is related to **transparency**. Transparency is essential to maintain public trust in healthcare decision makers and providers. The availability of data ultimately “allows scrutiny of public actors and their decisions” and in this way can help to mitigate risks of corruption.⁹³ It is important for countries to have health data easily accessible to facilitate the assessment of health interventions, health research and evidence-based policy-making. Ideally, health data should be collected over time on a regular basis and be disaggregated by inequality dimensions such as sex,

age, economic status, education, place of residence and other context specific population subgroups.

There exist 59 health and health-related SDG indicators, including 27 indicators under the overarching health goal (i.e. SDG3: Ensure healthy lives and promote well-being for all at all ages) that countries need to consider and monitor in national health strategies and policies, and 32 health-related indicators that fall within other SDGs (e.g. SDGs related to water and sanitation or nutrition).¹⁰³ Each country has the responsibility to monitor the progress made in implementing the SDGs and this requires high-quality, accessible and timely data collection and analysis to ensure that no one is excluded. Data for this indicator will be extracted from the WHO SCORE for Health Data Technical Package, which evaluates a country’s health information system according to five interventions represented by the acronym SCORE: Survey populations and health risks; Count births, deaths and causes of death; Optimise health service data; Review progress and performance; Enable data use for policy and action. The score allocated to each of the five interventions will be used as secondary indicators.

Several indicators reported in the sub-dimension quality – people-centred care could also have been used to measure governance, as they were related to the empowerment of the population and the responsiveness of the system to population needs. However, these indicators were kept in the quality dimension because they were analysed at the sub-sector or healthcare provider level (e.g. hospitals, physicians; see section 4.3).

In a similar way, a few indicators on the preparedness of the system could also have been used to measure governance but will be analysed in the resilience dimension (see the complementary analyses of section 3.6).

No relevant indicator requiring data provision was identified in the long list of indicators. Nevertheless, after the comparison with the WHO HSPA framework (in chapter 8) and after the validation meeting, two indicators were considered as relevant if data are collected, i.e. the speed of decision making and administrative expenditures on health. Relevant indicators requiring data provision are indicators that meet the selection criteria except for data availability (see also Box 11 in chapter 7).



4.6 Limitations

Overall, quantitative measures of health system governance remain underdeveloped in the reviewed frameworks. The assessment of the performance of health system governance is mostly done qualitatively in the literature. As a result, the governance indicators selected for the 2024 HSPA report provide only a partial view of the performance of the Belgian health system governance. A description of the governance of the Belgian health system can be found in Chapter 2 of the HiT profile for Belgium, with a qualitative assessment of the health system governance in Chapter 7.⁵ Furthermore, it is uncertain whether data to measure the selected health system governance indicators will still be available for future Belgian HSPA reports.

It should also be noted that during the review of the accessibility dimension with Belgian experts (see Chapter 5), an indicator on informal payments to access healthcare services was discussed. This indicator could also have been included in the governance sub-dimension, as a measure of the perception of corruption in the healthcare system. However, the experts had excluded this indicator because of its unreliability. They indicated that some respondents might misunderstand the survey question on which the indicator is based (i.e. *“Apart from official fees did you have to give an extra payment or a valuable gift to a nurse or a doctor, or make a donation to the hospital?”*, from the *Special Eurobarometer on Corruption*) and consider supplements as informal payments while they are legal. As this misunderstanding would lead to an overestimation of the perception of corruption in the Belgian healthcare system, this indicator was excluded both from the accessibility dimension and the governance sub-dimension.

5 IN-DEPTH REVIEW OF THE ACCESSIBILITY AND EQUITY DIMENSIONS

5.1 Introduction

As mentioned in the study rationale section (see section 1.4), on one hand, the subsequent evolutions of the performance report led to an inflation in the number of indicators (resulting in 157 indicators in total, including the indicators in the fourth edition of the performance report and those from thematic reports published after). To continue monitoring all these indicators would have resulted in a workload that would be difficult to manage, as well as a risk of overloaded information and lack of focus for the decision makers.

On the other hand, the European Expert Group on HSPA published in 2021 a report on accessibility, which could help us identify potential missing indicators.¹³

The aim of this chapter was therefore twofold, i.e. firstly identifying potentially missing indicators for the dimensions accessibility and equity and secondly, selecting the most relevant ones in the Belgian context. Accessibility and equity dimensions were reviewed together given that the same group of experts were involved in the process.

5.2 Method

In a first stage, a long list of indicators for accessibility and equity was drawn up based on the following sources (see upper part of Figure 5):

- The latest Belgian HSPA report (published in 2019)¹⁸ and the thematic report on equity (published in 2020)¹⁰;
- An international inventory of HSPA indicators,⁵⁷⁻⁶⁰ updated by a review of the literature performed in the thematic report on chronic patients¹² (see a summary of results in the appendix related to this chapter). From this list, one expert of the research team selected indicators related to accessibility or equity;



- The indicators on accessibility and equity from the new German²¹ and Irish²² HSPA frameworks, published after the updated inventory cited above;
- Topics mentioned in the report of the EU expert group on HSPA on accessibility.¹³

In a second stage, one expert of the research team removed duplicates and grouped indicators with a high degree of similarity (e.g. indicators on waiting times) from the long list, and classified them according to the (sub-)dimensions of the new conceptual framework (equity, financial access, health workforce availability and distribution, and health services distribution). It should be noted that at that moment, health literacy was selected as a sub-dimension of accessibility (see Box 7). Indicators on health literacy were therefore initially included in the indicators listed for accessibility.

In a third stage, an expert meeting was organised to select the most relevant indicators in the Belgian context while accounting for data availability. Given the aim of the exercise, mainly Belgian experts were invited, i.e. three experts from the sickness funds (only two of them participated), two experts from Belgian universities, three representatives of patients associations (for the three communities, i.e. from the '*Vlaams Patiëntenplatform*' (VPP), the '*Ligue des Usagers des Services de Santé*' (LUSS), and the '*Patiënten Rat & Treff*' (PRT) associations, but only two of them participated), one expert from RIZIV – INAMI, two from the FPS Public Health, one from the FPS Social Security, three from Sciensano (only two of them participated), and four from KCE.

Internationally, two experts were invited (from the WHO and from the European Social Observatory) but only one was able to participate (from the European Social Observatory). Participating experts are listed in the appendix of this chapter.

Prior to the expert meeting, each expert was asked (1) to go through the long list of indicators and to propose potentially missing indicators; (2) to select their preferred indicators, within a minimum (at least one) and a maximum number per sub-dimension; (3) to rank the selected indicators from the most to the least relevant one; and (4) to determine how they would allocate a maximum of 25 indicators across the 5 (sub-)dimensions (equity, financial access, health literacy, health workforce availability and distribution, health services distribution). They were also invited to make any additional comments, such as identifying possible indicators that would not be classified in the appropriate sub-dimension. It should also be noted that experts were not obliged to do the exercise for all the (sub-)dimensions but only for those for which they considered they had sufficient competencies.

To prepare the meeting, one expert of the research team sorted the indicators in each sub-dimension based on their average score^c, highlighted the new proposed indicators or comments, and provided additional relevant information on the median score, the number of experts who had selected the indicator, the number of experts who had selected the indicator in the top 3, and the average number of indicators for each sub-dimension to reach a total of 25 indicators (see the appendix related to this chapter for details). The results were discussed during the expert meeting to obtain the final selection of indicators.

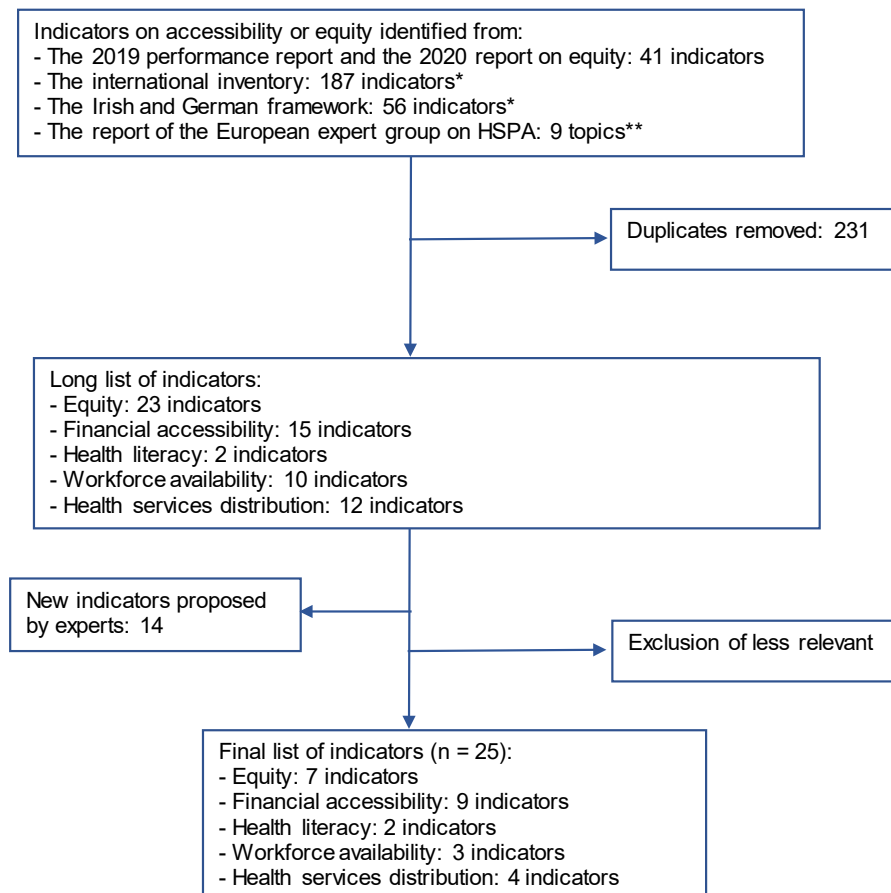
5.3 Results

The flow diagram describing the selection of indicators can be found in Figure 5.

^c For financial access for example, a maximum of 10 indicators could be selected by experts. For each expert, the indicator identified as the most relevant (according to his/her ranking) therefore obtained a score of 10 (i.e.

equal to the maximum number of indicators to be selected), the next one a score of 9, etc. Indicators that were not selected received a score of 0. Per sub-dimension, an average score for each indicator was then calculated.

Figure 5 – Flow diagram describing the selection of indicators on accessibility and equity



**It should be noted that some of the selected indicators were mentioned in other categories than accessibility but were considered as in scope based on our framework (e.g. in some frameworks indicators on waiting times are considered in the “efficiency” dimension, while in our framework they are considered in the “accessibility” dimension).*

***This report rather provided a list of potential topics and methods to assess accessibility than a list of specific indicators. Moreover, some methods were more descriptive or qualitative than quantitative and were excluded. The selection was thus based on topics to be covered (e.g. data on the health workforce was considered as one topic) and not all topics were selected because some of them were related to other dimensions of our report (such as the topic on people-centredness and patient-reported outcomes).*



Results per (sub-)dimension are presented in the next sections. Because these (sub-)dimensions were deeply reviewed, it was decided to restart their ID numbering rather than using the one prevailing in previous editions of the Belgian HSPA report. The correspondence between previous and new numbering can be found in the appendix related to this chapter. Details on all scores obtained for each indicator as well as remarks can be found in the appendix related to this chapter. Based on the expert meeting, indicators were classified in the following categories:

- Selected;
- Selected (relevant) but no data currently available;
- Moved to another (sub-)dimension or as a secondary analysis of a principal indicator (secondary indicator);
- Excluded.

5.3.1 Equity

Results regarding the equity dimension are described in Table 4 and Table 5. A total of seven equity indicators were selected. For each indicator, transversal analyses will be performed to determine whether people with the same needs receive the same (access to) care, regardless of other characteristics such as income or education. For these analyses, individual-level data on healthcare use (IMA – AIM data) will be linked to socio-economic and health status data (EU-SILC survey). More details on the method can be found in the KCE report 334.¹⁰ Furthermore, as socio-economic inequalities are present throughout the entire health system, the chapter on equity will also bring together analyses of socio-economic inequalities observed in indicators of other dimensions and domains where a distinction by socio-economic group can be made.

Table 4 – Equity: Selected indicators

ID	Indicators
EQ-1	Contacts with the healthcare system (Number of contacts and at least one contact): GP, medical specialists, ER (population aged 18+)
EQ-2	Contacts with the healthcare system (Number of contacts and at least one contact): GP (population aged 18+)
EQ-3	Contacts with the healthcare system (Number of contacts and at least one contact): Medical specialists (population aged 18+)
EQ-4	Contacts with the healthcare system (Number of contacts and at least one contact): ER (population aged 18+)
EQ-5	Contacts with the healthcare system (Number of contacts and at least one contact): Inpatient hospitalisation (population aged 18+)
EQ-6	Regular contacts with a dentist (population aged 18+)
EQ-7	Regular preventive contacts with a dentist (adults and children)

GP = General Practitioner; ER = Emergency Room.



Table 5 – Equity: Relevant indicators requiring data provision, indicators moved to another (sub-)dimension or to a secondary analysis of a principal indicator, and excluded indicators

Relevant indicators requiring data provision	Moved indicators	Excluded indicators
Transversal analysis on: • Teleconsultations* • Mental healthcare contacts* • Contacts in medical houses with a capitation remuneration system**	Moved to financial access: • A-9: Proportion of households facing catastrophic out-of-pocket payments, with the following secondary indicator: ◦ Proportion of households facing (further) impoverishing out-of-pocket payments	Transversal analyses on: • Contacts in the healthcare system in past year (% population aged 18+): Day care • Coverage of global medical record (population aged 18+) • Influenza vaccination (population aged 65+) • Breast cancer screening – in organised programme or outside programme (women aged 50-69) • Use of antidepressants (population aged 18+) • Use of antibiotics at least once in the year (population aged 18+) • Polymedication (population aged 65+) • Income distribution in population (GINI coefficient) – (EQ-1 in the 2019 Performance report) • Share of progressive receipts in healthcare financing (Ratio progressive receipts / total receipts, expressed as a %) (latest year available 2017) – (EQ-2 in the 2019 Performance report) • Share of regressive receipts in healthcare financing (Ratio regressive receipts / total receipts expressed as a %) (latest year available 2017) – (EQ-3 in the 2019 Performance report)

**The reimbursement of teleconsultation and of consultations with a psychologist was too recent to be able to make transversal analyses. **In Belgium, “medical houses” are a particular type of primary care practices that are financed per capitation (as opposed to the general fee-for-service financing system of GP services). Because they are not financed on a fee-for-service basis, no data are currently available for this indicator.*



5.3.2 Financial access

Results regarding the financial access sub-dimension are described in Table 6 and Table 7. A total of nine indicators were selected, including two new indicators and one new secondary indicator.

Table 6 – Financial access: Selected indicators

ID	Indicators
A-1	Coverage by the compulsory health insurance (% of the population entitled to compulsory insurance) Secondary indicator (New): Available data on vulnerable people not entitled to the compulsory insurance, such as undocumented migrants or asylum seekers
A-2	Out-of-pocket payments (OOPs) (% of current expenditure on health) Secondary indicators on the share of OOPs by function (inpatient care, outpatient care, etc.) and on the share of current expenditure on health by financing scheme (Public health insurance; voluntary health insurance; OOPs)
A-3	OOP medical spending (% of final household consumption) (<i>A-10 in the 2019 performance report</i>)
A-4	Households facing catastrophic out-of-pocket payments (% of respondents, HBS) Secondary indicator on the proportion of households facing (further) impoverishing out-of-pocket payments
A-5	OOPs for hospital care (% of total hospital care expenditures) Secondary indicator on the share of extra-billing (<i>A-14 in the 2019 performance report</i>)
A-6	People with self-reported unmet needs for medical examination due to financial reasons (% of respondents, EU-SILC) (<i>A-4 in the 2019 performance report</i>) Secondary indicator: Households having postponed medical care because of financial reasons (% of respondents, HIS)
A-7	People with self-reported unmet needs for dental examination due to financial reasons (% of respondents, EU-SILC) (<i>also A-4 in the 2019 performance report</i>) Secondary indicator: Households having postponed dental care because of financial reasons (% of respondents, HIS)
A-8 New	Volume of outpatient activity done by « conventioned physicians » (i.e. physicians acceding to the agreement on national tariffs) (% of outpatient consultations/contacts with practising physicians)
A-9 New	Volume of ambulatory activity done by « conventioned dentists » (i.e. dentists acceding to the agreement on national tariffs) (% of outpatient consultations/contacts with practising dentists)

EU-SILC = EU statistics on income and living conditions, HBS = Health Budget Survey, HIS = Health Interview Survey, OOP = Out-of-pocket payments



Table 7 – Financial access: Relevant indicators requiring data provision, indicators moved to another (sub-)dimension or to a secondary analysis of a principal indicator, and excluded indicators

Relevant indicators requiring data provision	Moved indicators	Excluded indicators
- Percentage of people who are in debt for their healthcare* - Data on supplements in ambulatory care^d* - Data on non-reimbursed services*	Moved to workforce availability and distribution: - Access to agreed tariffs: conventioned practising GPs in FTEs (per 10 000 population), as secondary indicator of A-10 - Access to agreed tariffs: conventioned practising dentists in FTEs (per 10 000 population), as secondary indicator of A-10	- Out-of-pocket payments per capita (in US \$ PPP) - Out-of-pocket payments as percentage of GDP - Percentage of the households that find it hard to cover their health expenses (Health Interview Survey (HIS)) - Informal payments to doctors

*No data

5.3.3 Health literacy

Results regarding health literacy are described in Table 8 and Table 9. An indicator on the level of health literacy of the population (on which data are available from HIS) was selected by the experts but was finally not retained for the 2024 performance report because its assessment will be done in the Health Status Report, more precisely in the sub-section on health determinants.

A number of indicators were listed as relevant but requiring data provision, amongst which an indicator related to the level of digital health literacy and some indicators from the PaRIS (Patient-Reported Indicators Survey) survey from OECD on health literacy in general (see Table 9). It was however also considered more appropriate to analyse these indicators in relation to health determinants. Therefore, they were finally not retained for the performance report, although data may be available for some of them e.g. there are data available from Eurostat on internet use.

Only one indicator, on the knowledge of protection mechanisms and related rights, is considered directly influenceable by “health system interventions” to improve accessibility but as there is currently no data available, it was also considered ‘relevant indicator requiring data provision’. Once available, such indicator could e.g. be included in the sub-dimension “financial access” (as the sub-dimension on health literacy will not be kept in the HSPA report).

^d Solidaris published a study on supplements in ambulatory care based on 2016-2017 available data (supplements not always filled in) of people affiliated to their sickness funds (see <https://flipflashpagesuniflip.com/3/61981/1102941/pub/document.pdf>) but details on all supplements for Belgium are not available.

**Table 8 – Health literacy: Selected indicators**

ID	Indicators	Moved to
I	Rate of respondents with excellent and sufficient health literacy (HIS)	Health Status report – Health determinants: https://www.healthybelgium.be/en/health-status/determinants-of-health/health-literacy

Table 9 – Health literacy: Relevant indicators requiring data provision and excluded indicators

Relevant indicators requiring data provision	Excluded indicators
• Data on internet use, digital health literacy and digital divide* • Potential indicators from the PaRIS (Patient-Reported Indicators Survey) survey from OECD (e.g. on the ability to understand health issues or on the confidence in managing own health and well-being)* • An indicator on the knowledge of the health and social security system and on the knowledge of rights (e.g. knowledge of protections measures)**	• Physician providing easy-to-understand explanation (% of respondents, contact with GP/SP) • Time per consultation

*To consider in the report on health determinants; **No data

5.3.4 Workforce availability and distribution

Results regarding workforce availability and distribution are described in Table 10 and Table 11. A total of three indicators were selected, including one new indicator.

Table 10 – Workforce availability and distribution: Selected indicators

ID	Indicators
A-10	Practising physicians (/1000 population) (<i>A-5 in the 2019 performance report</i>) • Secondary analyses per OECD specialty (General Practitioners; Pediatricians; Gynecologists; Psychiatrists; Medical group; Surgical group) and per Belgian specialty (more detailed), with specification of the number and density of practising physicians, practising physicians in FTE, and practising physicians that acceded to the agreement on tariffs (conventioned physicians) • Secondary analyses by district (distribution)
A-11	Practising nurses (/1000 population) (<i>A-6 in the 2019 performance report</i>) • Secondary analyses by region and sector of activity
A-12 New	Practising dentists (/1000 population) • Secondary analyses by district (distribution)



Table 11 – Workforce availability and distribution: Relevant indicators requiring data provision, indicators moved to another (sub-)dimension or to a secondary analysis of a principal indicator, and excluded indicators

Relevant indicators requiring data provision	Moved indicators	Excluded indicators
/	Moved to sustainability: • Number of nurse vacancies (A-7 in the 2019 performance report) Moved to quality - safety: • Patient-to-nurse ratio in hospital (A-8 in the 2019 performance report, no more recent data), repaced by QS-9	• Practising caring personnel (personal care workers) (/1000 population) (only 2018 data available for Belgium) • Practising pharmacists (/1000 population) • Practising physiotherapists (/1000 population) • Practising midwives (/1000 population) • Nurse-to-physician ratio

5.3.5 Health services distribution

Results regarding health services distribution are described in Table 12 and Table 13. A total of six indicators were selected, including five new indicators.

**Table 12 – Health services distribution: Selected indicators**

ID	Indicators
A-13 New	People with unmet need for medical examination due to geographic (too far for travel) or waiting time reasons (% of respondents, EU-SILC) • Secondary indicator: People who experienced delay in getting healthcare because the time to get an appointment was too long (% of respondents, HIS, PE10_1) • Secondary indicator: People who experienced delay in getting healthcare due to distance or transport problems (% of respondents, HIS, PE11_1) • Secondary indicator: Women aged 15-49 years old living within 30 minutes of the nearest maternity service (%) (only one year available: 2019, <i>A-16 on the healthybelgium.be website</i>)
A-14 New	People with unmet need for dental examination due to geographic (too far for travel) or waiting time reasons (% of respondents, EU-SILC survey)
A-15	Patients who experienced waiting time of more than two weeks to get an appointment with a specialist (% of respondents asking an appointment in past year, HIS, PE02_3) • Secondary indicator: Patients who experienced the waiting time to get an appointment with a specialist as a problem (% of respondents, HIS, PE03_3)
A-16 New	Patients who experienced waiting time of one day or more to get an appointment with a GP (% of respondents asking an appointment in past year, HIS, PE02_2) • Secondary indicator: Patients who experienced the waiting time to get an appointment with GP as a problem (% of respondents, HIS, PE03_2)
A-17 New	Deaths among people on waiting lists for organs (% of the population on waiting list)
A-18 New	Population living within 20 km of the nearest hospital (% of the population)

Table 13 – Health services distribution: Relevant indicators requiring data provision, indicators moved to another (sub-)dimension or to a secondary analysis of a principal indicator, and excluded indicators

Relevant indicators requiring data provision	Moved indicators	Excluded indicators
• Need for additional data on waiting times or geographical access (access within “x” minutes to specific services, including mental health services or services for people with a high dependency level, or specialists, including conventioned physicians, see the appendices related to this chapter)* • Number of GPs or medical houses that do not accept new patients anymore*	Moved as secondary indicator of A-13: • Geographical access: Percentage of women aged 15-49 years old living within 30 minutes of the nearest maternity service (only one year available: 2019; <i>A-16 on the healthybelgium.be website</i>)	• Number of hospital beds per 1000 population (with subanalyses on the type of beds) • Numbers of people awaiting donor organs • Number of medical technology units per 1000 population (NMR, CT, MRI) • Number of hemodialysis equipment per 1000 population • Number of community pharmacies per 1000 population

*No data



6 IN-DEPTH REVIEW OF PEOPLE-CENTRED CARE, A SUB-DIMENSION OF QUALITY

6.1 Introduction

This chapter aims to identify new indicators related to people-centred care, a sub-dimension of quality, and select the most relevant ones for the Belgian context. The “people-centred” term was first introduced in the early 1960s by Carl Rogers¹⁰⁴ but currently, there is no single agreed definition of the concept. The Health Foundation in the UK defined a people-centred care health system as: *“one that supports people to make informed decisions about, and to successfully manage, their own health and care, able to make informed decisions and choose when to invite others to act on their behalf. This requires healthcare services to work in partnership to deliver care responsive to people’s individual abilities, preferences, lifestyle and goals”*.¹⁰⁵ People-centred care is recognised as an important component of healthcare quality and therefore of the performance of the health system. The assessment of people-centredness typically concerns the acknowledgement of patients’ needs, wants, and preferences, the quality of the provider-patient communication and the patients’ and carers’ involvement. People-centredness improves patient experience and counters the problems associated with fragmented care, such as contradictory medical advice, overprescribing, overhospitalisation and unresponsiveness.¹⁰⁶

In recent years, several initiatives have been initiated to measure and promote people-centred care in Europe and in Belgium. Since 2011, the OECD edits a questionnaire on patient experiences with some questions related to the quality of the consultation (e.g. *“did this doctor spend enough time with you?”* or *“did this doctor give you an opportunity to ask questions or raise concerns about recommended treatment?”*).^{107, 108} Since 2013, the Health Interview Survey includes the OECD instrument dedicated to patient experiences with ambulatory care. In 2017, the OECD also initiated the Patient-Reported Indicator Surveys (PaRIS) to measure Patient-Reported

Outcome Measures (PROMs) and Patient-Reported Experience Measures (PREMs) in primary care for people living with chronic conditions in Europe and other countries outside Europe (see Box 8).

In 2015, the Belgian federal government and federated entities agreed on a joint plan to develop an integrated and people-centred care system with a focus on people with chronic diseases. Since 2018, this plan includes the financing of various pilot projects around patient empowerment, carers’ support, case management, concentration and coordination.¹⁰⁹ The government is currently developing a new inter-federal plan for integrated care. This plan should become the driving force behind a transition that is widely supported by the various competent authorities and the care and welfare sectors. Patient satisfaction is also increasingly taken into account in the financing of care in Belgium, in particular through the integration of patient-reported experience measures (PREMs) in the Pay for Performance (P4P) programme of hospitals (see Box 9). Other initiatives also exist to measure experience of the patients e.g. Vlaamse PatiëntenPeiling.

Box 8 – The Patient-Reported Indicator Survey (PaRIS)

PaRIS is an international project initiated by the OECD to develop, standardise and implement new indicators that measure the outcomes and experiences of healthcare. **The International Survey of People Living with Chronic Conditions** is the first to assess the outcomes and experiences of patients managed in primary care across countries. The PaRIS survey aims to fill a critical gap in primary healthcare, by asking about aspects like access to healthcare and waiting times, as well as quality of life, pain, physical functioning and psychological well-being.^{14,}

¹⁰⁸ In Belgium, PaRIS is managed by Sciensano. The Belgian pilot Survey of People Living with Chronic Conditions has been implemented during the summer 2021 (patients) and autumn 2021 (general practitioners). In the pilot survey, the inclusion criteria were: to be older than 45 years and have consulted a GP in the last 6 months. It means that people without chronic diseases were still included in PaRIS. The survey was rolled out at the national level in early 2023. The inclusion criteria of the main survey are similar to those of the pilot survey.



Box 9 – The P4P programme

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

Quality is assessed by the authorities based on indicators regarding their structure, process and results (accreditation process, incidents notification, patient experience measurement, clinical processes and outcomes). In 2017–2018, 94% of hospitals participating in the P4P programme (96 out of 102) collected PREMs.¹⁸ Concerning patient-reported outcome measures (PROMs), this has not been systematically established.

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

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

6.2 Method

The search strategy to find the people-centred care indicators was similar to the methodology put forward in the chapter on equity and accessibility (see section 5.2). A long list was created that included indicators from the international inventory⁵⁷⁻⁶⁰, from the OECD report (2021) on “*the Health for the People, by the People*”¹⁰¹, from the Belgian HSPA report (2019)¹⁸ from the PaRIS (see Box 8) and from the P4P Belgian programme (see Box 9).

From the long list (see the appendix related to this chapter), **25 indicators were pre-selected** because they were related to the people-centred care sub-dimension and calculable for Belgium. Three were retained from the international inventory, four from the OECD report, six from the Belgian HSPA report, ten from the PaRIS study and two from the P4P.

An expert meeting was then organised on 28 June 2022 to select the most relevant indicators. Because the aim was to identify the most relevant indicators for the Belgian context, only Belgian experts were invited: two experts from Sciensano, one expert from the RIZIV – INAMI (did not participate), two experts from the sickness funds, two experts from Belgian universities, three representatives of patients associations (for the three communities, i.e. from the ‘*Vlaams Patiëntenplatform*’ (VPP), the ‘*Ligue des Usagers des Services de Santé*’ (LUSS), and the ‘*Patiënten Rat & Treff*’ (PRT) associations, one participated), three experts from the FPS Public Health (two participated), three representatives of the quality of care at the hospital (‘*Plateforme pour l’Amélioration continue de la Qualité des soins et de la Sécurité des patients*’, Patient Friendly Hospital and Santhea) and two from KCE. Participating experts are listed in the appendix of this chapter.

Prior to the expert meeting, each expert was asked to (1) go through the long list of indicators and to propose potential missing indicators; (2) select the 12 most relevant indicators (minimum 1 – maximum 12) and (3) rank the indicators from the most to the least preferred.

In preparation of the meeting, one expert of the research team sorted the indicators based on their average score (see section 5.2) and highlighted the new proposed indicators or comments. The results were then discussed during the expert meeting to obtain the final list of indicators.



6.3 Results

Results are described in Table 14 and Table 15. A total of **seven quality – people-centred care indicators were selected**. Five indicators from PaRIS, one from the P4P programme and one from the Belgian HSPA (2019), based on the health interview survey (HIS).

Table 14 – Quality – People-centred care: Selected indicators

ID	Indicators	Data source
Selected		
QP1	Patients reporting that physicians (GP/SP) spend enough time with them during the consultation (% of respondents, HIS)	HIS
QP-8 NEW	Patients rating last consultation with healthcare professional (physician, nurse...) as good to excellent (% of respondents, PaRIS)	PaRIS
QP-9 NEW	Patients discussing with the healthcare professionals involved in their care what is most important for them in managing their own health and wellbeing (% of respondents, PaRIS)	PaRIS
QP-10 NEW	Patients involved as much as they want to be in decisions about their care (% of respondents, PaRIS)	PaRIS
QP-11 NEW	Patients reporting they have a care plan that takes into account all their health and wellbeing needs (% of respondents, PaRIS)	PaRIS
QP-12 NEW	Patients reporting they receive useful information at the time they need it to help them manage their health and wellbeing (% of respondents, PaRIS)	PaRIS
QP-13 NEW	Average percentage of positive experience in maternity, C/D bed or daycare	P4P

**Table 15 – Quality – People-centred care: Not selected indicators**

ID	Indicators
NEW	Proportion of patients reporting their healthcare professionals involve their family, friends and/or carers as much as they want to be in decisions about their care
NEW	Patients having a formal participation role in health policy (composite score 1 to 3)
NEW	Proportion of patients reporting healthcare professional spends enough time with them (last consultation in primary care: physician, nurse, ...)
NEW	Patients being able to choose providers in: primary, specialist, or hospital care (composite score 1 to 3)
NEW	Proportion of patients reporting healthcare professional gives them an opportunity to ask questions or raise concerns about recommended treatment
NEW	Percentages of professional care providers expressing satisfaction with the quality of care delivered by their organisation
NEW	Percentages of professional care providers reporting that sufficient staff and qualified staff is available to ensure good-quality care
NEW	Proportion of GPs who are developing patient care plans collaboratively with patients and/or families
NEW	Proportion of patients reporting they are most often/always considered as a 'whole person' rather than just a disease/condition in relation to their care
NEW	Share of individuals using the internet for seeking health information in the previous 3 months
NEW	Percentage of professional care providers rating the quality of care delivered within their own unit or team as inadequate
NEW	Share of people agreeing that people are treated equally in their area
QP2	Physician providing easy-to-understand explanation (% of respondents, contact with GP/SP)
QP3	Physician giving opportunity to ask questions or raise concerns (% of respondents, contact with GP/SP)
QP4	Physician involving patients in decisions about care and/or treatments (% of respondents, contact with GP/SP)
QP5	Patients with a localised prostate cancer receiving no treatment around diagnosis date (%)
QP6	Patients with localised testicular cancer (seminoma) receiving adjuvant treatment after surgery (%)
QP7	Proportion of general hospitals measuring PREMs after a stay in C or D bed (%)



7 MINOR REVIEWS OF OTHER DIMENSIONS AND DOMAINS

7.1 Introduction and method

7.1.1 Dimensions

As described in chapter 2, three new (sub-)dimensions of performance were introduced in the new conceptual framework and only two of them were developed in this report, i.e. the resilience and the governance of the health system (see chapters 3 and 4). The environmental impact will be investigated at a later stage. The (sub-)dimensions accessibility, equity, and quality – people-centred care were also reviewed to identify and prioritise the most relevant indicators in the Belgian context (see chapters 5 and 6). Within the timeframe foreseen for the 2024 HSPA report, it was nevertheless not possible to deeply review the remaining dimensions, i.e. sustainability, quality, and efficiency. Only minor revisions were therefore implemented for these dimensions, based on data availability, on indicators identified in the thematic reports published after the 2019 HSPA report, and on new indicators identified in the previous chapters and judged more relevant for these dimensions.

7.1.2 Domains

The usual process for the selection of new domains is described in Box 10. Up to now, each new domain selected was added to the previous ones, leading to an increase in the number of indicators. For feasibility reasons, it was therefore decided to limit the number of domains per HSPA report to a maximum of 5.

Box 10 – Process for the selection of new domains

- To meet the needs of policy makers, a call is opened to the HSPA inter-administration working group (see Box 1 of section 1.2) at the beginning of each new HSPA cycle. In particular, members of the inter-administration working group are asked which (new) domains they would like to be explored in-depth;
- The research team (i.e. the independent scientific body) investigates the proposals and assesses their feasibility;
- A meeting between the research team and the HSPA inter-administration working group is then organised and a consensus is sought on the most relevant (and feasible) ones.

In the latest cycle, care for people living with a chronic condition was added as domain, and analysed in a thematic report published in 2022.¹² Given the recent data included in this thematic report, it was decided to not update it in the 2024 HSPA report and to only report its main indicators in the core analysis, i.e. in the dimensions (see section 7.2.8). The same decision was taken for the domain mother and newborn care, analysed in the 2019 HSPA report (see section 7.2.9). For the upcoming 2024 HSPA report, the following domains were selected: preventive care, mental healthcare, care for older people (meaning people aged 65 years and more) and end-of-life care. As for non-reviewed dimensions, only minor revisions of these domains were made, based on the same method and rationale.

7.1.3 Optional indicators

During the review of the (sub-)dimensions accessibility, equity, and quality – people-centred care, some indicators were identified as relevant by experts but data were unavailable (either not collected or not published). These indicators were therefore identified as “relevant indicators requiring data provision”. In other (sub-)dimensions and domains, recent data were also unavailable for some indicators. Nevertheless, as indicators in these (sub-)dimensions and domains were not yet prioritised by experts, the necessity to obtain data for these indicators was not yet determined. They were therefore rather identified as optional indicators (see Box 11).

**Box 11 – Relevant and optional indicators**

- **Relevant indicators requiring data provision:** concerns indicators identified as relevant by experts but with no data available (either not collected or not published). They belong to a dimension for which a prioritisation exercise has already been carried out by experts (i.e. accessibility, equity, or quality – people-centred care).
- **Optional indicators for future prioritisation exercises:** concerns indicators for which no recent data are available but belonging to a dimension or domain for which no prioritisation exercise has already been done. It is therefore too early to affirm that data should be provided for these indicators.

7.2 Results

7.2.1 Sustainability

Three indicators were selected to assess financial sustainability, including one new indicator (see Table 16). Two indicators were moved to secondary analyses because of a redundancy with indicators added from the thematic report of 2021.¹¹

Twelve indicators were selected to assess the workforce capacity, including two new indicators (see Table 17). Two indicators were moved to secondary analyses because of a redundancy with indicators added from the thematic report of 2021.¹¹ Moreover, three indicators related to a potential workforce shortage will be analysed in the 2024 report in the dimension resilience to assess the impact of COVID-19 on the capacity of the health system to ensure an adequate workforce. Outside a shock-specific analysis, these indicators reflect the system's capacity to provide and maintain (in the future) a sufficient health workforce and are therefore considered to be related to sustainability. Once the impact of COVID-19 will no longer be analysed in the resilience section, these indicators will be reported in sustainability. It should also be noted that, depending on data availability, one of the new indicators (S-23) might not be reported in the 2024 HSPA report and would be published later on the website healthybelgium.be.

Concerning health technologies and infrastructure, three indicators were selected, including two new ones (see Table 18). Two indicators were also listed as optional for future prioritisation exercises because no recent data were available.

Indicators on governance are described in chapter 4. By adding the three new indicators on governance, the sustainability dimension has 21 indicators.

Table 16 – Financial sustainability

ID	Indicators	Comments
Selected indicators		
S-3	Public funding of healthcare (% of current expenditure on health)	Selected from HSPA 2019
S-20	Projection of public expenditure on health (% GDP), evolution in percentage points	Selected from thematic report 2021
S-21 <i>New</i>	Projection of public expenditure on reimbursed pharmaceuticals	Selected from the thematic report 2021 (data were not yet available for the 2021 report)
Moved indicators		
(S-1)	Current expenditure on health (% GDP)*	Moved to secondary analyses of S-3, redundant with S-20
(S-2)	Current expenditure on health per capita (in PPP US\$)**	Moved to secondary analyses of S-3

**Not kept because redundant information in S-20 and in secondary analyses of S-3; **Not kept because redundant information in secondary analyses of S-3.*



Table 17 – Workforce capacity

ID	Indicators	Comments
Selected indicators		
Inflow		
S-4	Medical graduates (/100 000 population)	Selected from HSPA 2019
S-5	Medical graduates becoming GP (% of those with medical specialisation)	Selected from HSPA 2019
S-14	Foreign-trained physicians (% of those licensed to practice)	Selected from HSPA 2019
S-8	Nursing graduates (/100 000 population)	Selected from HSPA 2019
S-9	Nursing students following the bachelor route (% of new graduates)	Selected from HSPA 2019
S-16	Foreign-trained nurses (% of those licensed to practice)	Selected from HSPA 2019
Outflow		
S-7	Physicians aged 55+ (% of those practising)	Selected from HSPA 2019
S-10	Nurses aged 50+ (% of those professionally active)	Selected from HSPA 2019
Potential (future) shortage		
S-18	Projection of the number of contacts with GPs (Demand), evolution in %	Selected from thematic report 2021
S-19	Projection of the number of GPs active in the healthcare sector (Supply), evolution in %	Selected from thematic report 2021
S-22 <i>New</i>	Projection of the number of nurses active in the healthcare sector (Supply), evolution in %	Selected from thematic report 2021 (data not yet available in 2021)
(S-23 <i>New</i>)	(Projection (horizon scanning) on the demand for nurses (Demand), evolution in %)	Selected from potential indicators of the thematic report 2021. It is nevertheless possible that data will not be available before 2024 (=> published later on the website when available).
Analysed in resilience dimension		
Potential (future) shortage		
R-1 <i>New</i>	Healthcare professionals who consider leaving the profession (%)	Selected from and currently analysed in the chapter on resilience
R-2 <i>New</i>	Number of hospital bed closures (as proxy of nurse absenteeism)	Selected from and currently analysed in the chapter on resilience
R-3	Number of nurses vacancies in hospitals	Selected from HSPA 2019, moved from the chapter on accessibility (A-7 in 2019). Currently analysed in the chapter on resilience
Moved indicators		
(S-6)	Mean age of practising GPs (in FTE, years)	Moved to secondary analyses of S-7, redundant with S-19
(S-15)	GPs aged 55+ (% of those practising)	Moved to secondary analyses of S-7, redundant with S-19



Table 18 – Health technologies and infrastructure

ID	Indicators	Comments
Selected indicators		
S-11	Curative care bed-days (number/capita)	Selected from HSPA 2019
S-27 New	GPs meeting the thresholds for use of eHealth services to qualify for the integrated practice bonus for at least 6 on the 8 eHealth services (% of practising GP)	Instead of S-13 and S-17 (not relevant anymore)
S-28 New	Notifications of temporarily unavailable packs of medicines for human use with a critical impact (Number)	Selected from the review of accessibility
Removed indicators		
(S-13)	Percentage of GPs using electronic global medical record (eGMR) through MyCareNet	Mandatory since 2021* (100%), replaced by S-27
(S-17)	Electronic global medical record (% of all global medical record)	Mandatory since 2021* (100%), replaced by S-27
(S-20)	W.A.I.T indicator for innovative medicines (in days)	Already removed in the 2019 HSPA report because of the quality of data (see appendix 1 of the 2019 HSPA report)
Desirable if data becomes available		
-	Future number of hospital beds according to various policy scenarios (supply side) vs Projected required number of hospital beds (demand side)	Optional indicators identified in the thematic report 2021
	Future number of residential care beds according to various policy scenarios vs Projected need for residential care for older persons	

*Earlier in some situations

7.2.2 Quality

Selected indicators of effectiveness of care (ten indicators), safety of care (six indicators including two new ones), appropriateness of care (eight indicators), and continuity of care (seven indicators) are described in Table 19 to Table 22. The most important changes concerned the sub-dimension on safety, because no recent data were available for three indicators. Two new indicators on the safety culture in hospitals were added.

Indicators on people-centred care are described in chapter 6. By taking into account the seven indicators related to people-centred care, the quality dimension includes a total of 38 indicators.



Table 19 – Quality: Effectiveness of care

ID	Indicators	Comments
Selected indicators		
Effectiveness primary care – avoidable hospital admissions		
QE-1	Asthma hospital admissions in adults (/100 000 population)	Selected from HSPA 2019
QE-10	COPD hospital admissions in adults (/100 000 population)	Selected from thematic report 2022
QE-2	Complication of diabetes hospital admissions in adults (/100 000 population)	Selected from HSPA 2019
Effectiveness of (primary and specialised) care – adhesion to a long and difficult treatment		
QE-11	Successful treatment of pulmonary tuberculosis (% of people with laboratory confirmed pulmonary tuberculosis)	Selected from thematic report 2022
Effectiveness hospital care – health outcomes		
QE-3	Breast cancer 5-year relative survival rate (%)	Selected from HSPA 2019
QE-4	Colorectal cancer 5-year relative survival rate (%)	Selected from HSPA 2019
QE-5	Case fatality within 30 days after admission for AMI (% of the population aged 45+, admission-based)	Selected from HSPA 2019
QE-6	Case fatality within 30 days after admission for ischaemic stroke (% of the population aged 45+, admission-based)	Selected from HSPA 2019
QE-7	Case fatality within 30 days after surgery for colon I or rectal(r) cancer (% of the population, surgery based)	Selected from HSPA 2019
QE-8	Treatable mortality (rate/100 000 population, age-adjusted)	Selected from HSPA 2019
Moved indicators		
QE-9	Preventable mortality (rate/100.000 population, age-adjusted)	Moved to prevention



Table 20 – Quality: Safety

ID	Indicators	Comments
Selected indicators		
Hospital care: Healthcare-associated infections		
QS-1	Prevalence of healthcare-associated infections (% of patients hospitalised)	Selected from HSPA 2019
QS-2	Incidence of hospital-acquired MRSA infections (/1000 hospital stays)	Selected from HSPA 2019
QS-7	Methicillin-resistant Staphylococcus aureus (MRSA) in acute care hospitals (% , median)	Selected from HSPA 2019
QS-8	Escherichia coli with reduced susceptibility to 3rd or 4th generation cephalosporins (3GC/4GC I/R E. coli) in acute care hospitals (% , median)	Selected from HSPA 2019
Hospital safety culture		
QS-9 <i>New</i>	Health workers thinking that staffing levels are sufficient to handle the workload and work hours appropriate to provide the best care for patients (% of respondents, HSPSC)	Instead of A-8 in HSPA 2019 (see also the chapter on accessibility)
QS-10 <i>New</i>	Health workers who have positive overall perceptions of patient safety (% of respondents, HSPSC)	Proposed by an expert during the review of quality – people-centred care
Moved indicators		
QS-6	Polypharmacy among older people (5 or more drugs of >80 DDD per year) (% of insured population 65+)	Moved to care for older people
Optional indicators for future prioritisation exercises (no recent data)		
QS-3	Incidence of post-operative pulmonary embolism or deep vein thrombosis, after hip or knee replacement (/100 000 hip or knee surgery discharges)	In HSPA 2019, no recent data available because of the transition to the ICD-10 International Classification of Diseases
QS-4	Incidence of post-operative sepsis after abdominal surgery (/100 000 abdominal surgery discharges)	In HSPA 2019, no recent data available because of transition to the ICD-10 International Classification of Diseases
QS-5	Prevalence of hospital-acquired cat II-IV pressure ulcers (% of patients hospitalised)	In HSPA 2019, no recent data available

HSPSC = Hospital Survey on Patient Safety Culture

**Table 21 – Quality: appropriateness**

ID	Indicators	Comments
Selected indicators		
Primary care – Patients with a chronic condition (guidelines)		
QA-1	Appropriate follow-up of diabetes (% of people 18+ living with diabetes and under insulin)	Selected from HSPA 2019
QA-2	Appropriate follow-up of diabetes (% of people 18+ living with diabetes and receiving glucose-lowering drugs other than insulin)	Selected from HSPA 2019
Primary care – Prescribing patterns (guidelines)		
QA-3	Use of antibiotics (total DDD/1000 pop/day)	Selected from HSPA 2019
QA-4	Use of antibiotics at least once in the year (% of population)	Selected from HSPA 2019
QA-5	Use of antibiotics of second intention (% total DDD antibiotics)	Selected from HSPA 2019
Inappropriate medical imaging		
QA-6	Spine imaging (X-ray, CT scan, MRI units per 100 000 population)	Selected from HSPA 2019
Hospital care – Mother and newborn care (guidelines)		
QA-8	Caesarean section rate (per 1 000 live births)	Selected from HSPA 2019 (domain: mother and newborn care, MN-3)
Specialised care – Cancer (guidelines)		
QA-9	Patients with localised testicular cancer (seminoma) receiving adjuvant treatment after surgery (% of patients with localised testicular cancer stage I treated with orchiectomy)	Selected from HSPA 2019 (previously QP-6)
Optional indicator for future prioritisation exercises		
QA-7	Breast cancer screening outside age target group (% women aged 41-49)	In HSPA 2019 but contradiction between Belgian guidelines and recent European recommendations ¹¹⁰ => will be reconsidered in a prioritisation exercise

**Table 22 – Quality: Continuity and coordination**

ID	Indicators	Comments
Selected indicators		
QC-1	Coverage of global medical record (% of people who have a global medical record (GMR) with a general practitioner)	Selected from HSPA 2019
QC-2	Usual Provider Continuity index ≥ 0.75 (% of patients with 3 or more contacts with GP in last 2 years)	Selected from HSPA 2019
QC-3	GP encounter within 7 days after hospital discharge (% patients 65+)	Selected from HSPA 2019
QC-4	Diabetes follow-up within a convention/passport/care trajectory (% of people 18+ living with diabetes and under insulin)	Selected from HSPA 2019
QC-5	Diabetes follow-up within a convention/passport/care trajectory (% of people 18+ living with diabetes and receiving only glucose-lowering drugs, excluding insulin)	Selected from HSPA 2019
QC-6	Patients with cancer discussed at the multidisciplinary team meeting (% of patients with cancer)	Selected from HSPA 2019
QC-7	People with a referral pharmacist (% of people who should have a referral pharmacist)	Selected from thematic report 2022



7.2.3 Efficiency

Indicators on efficiency can be found in Table 23. The four indicators of the 2019 HSPA report were kept and one indicator from the domain on mother and newborn care was added.

Table 23 – Efficiency

ID	Indicators	Comments
Selected indicators		
E-1	One-day surgical admissions (% of surgical admissions)	Selected from HSPA 2019
E-2	Average length of stay for a normal delivery (days)	Selected from HSPA 2019 (MN-9 (domain mother and newborn) in HSPA 2019 and E-2 in HSPA 2015)
E-3	Use of low-cost medication (% of total ambulatory DDDs)	Selected from HSPA 2019
E-4	Use of biosimilar treatments (% of biologicals)	Selected from HSPA 2019
E-5	Low-care dialysis (% of dialyses)	Selected from HSPA 2019

7.2.4 Preventive care

Indicators on preventive care can be found in Table 24. The ten indicators of the 2019 HSPA report were kept and three desired indicators for which no data were available in 2019 were added (P-14, P-8, P-9, data collection in progress). Nevertheless, depending on the duration of the data collection, two of these indicators (P-8 and P-9) might not be reported in the 2024 HSPA report and would be published later on the website healthybelgium.be.



Table 24 – Preventive care

ID	Indicators	Comments
Selected indicators		
P-1	Polio (% 4th dose)	Selected from HSPA 2019
P-12	Diphtheria, tetanus and pertussis vaccination in children (% 4th dose)	Selected from HSPA 2019
P-2a	Measles vaccination in children (% 1st dose)	Selected from HSPA 2019
P-2b	Measles vaccination in adolescents (% 2d dose)	Selected from HSPA 2019
P-3	Pneumococcus vaccination in children (% 3rd dose)	Selected from HSPA 2019
P-14 New	HPV vaccination in adolescent (%)	Selected from HSPA 2019 (desired indicator)
P-4	Influenza vaccination (% pop aged 65+)a	Selected from HSPA 2019
P-5	Incidence of measles (new cases/million pop)	Selected from HSPA 2019
P-6	Breast cancer screening (% women aged 50-69)	Selected from HSPA 2019
P-7	Breast cancer screening – organised programme (% women aged 50-69)	Selected from HSPA 2019
(P-8)	(Cervix cancer screening (% women aged 25-64))	Selected from HSPA 2019. It is nevertheless possible that data will not be available before 2024 (=> published later on the website when available).
(P-9)	(Colorectal cancer screening (FOBT) (% population aged 50-75))	Selected from HSPA 2019. It is nevertheless possible that data will not be available before 2024 (=> published later on the website when available).
P-11	Regular contacts with dentist (% pop aged 3+)	Selected from HSPA 2019
P-13	Preventable mortality (rate/100.000 pop, age-adjusted)	Selected from HSPA 2019 (QE-9)
Removed indicators		
P-10	Breast cancer screening outside age target group (% women aged 40-49) (QA-7 in the 2019 HSPA report)	P-10 in HSPA 2015 and QA-7 in HSPA 2019 (see Table 21)



7.2.5 Mental healthcare

Indicators on mental healthcare can be found in Table 25 (11 indicators selected). The indicator related to suicide was not kept because it is analysed in the Health Status Report.⁶ Moreover, one new indicator was identified during the review of accessibility, i.e. the number of psychologists registered at RIZIV – INAMI (necessary to enable the patient to obtain a reimbursement).

Table 25 – Mental healthcare

ID	Indicators	Comments
Selected indicators		
MH-2	Practising psychiatrists (/1000 pop)	Selected from HSPA 2019
MH-3	Waiting time longer than 1 month for first contact in ambulatory mental health centre (% of population with contact in ambulatory mental health centre)	Selected from HSPA 2019
MH-4	Rate of involuntary committals in psychiatric hospital wards (/10 000 population)	Selected from HSPA 2019
MH-5	ER visits for social, mental or psychic reason (% of admission in ER in general hospitals)	Selected from HSPA 2019
MH-6	Use of antidepressants (total DDD/1000 pop/day)	Selected from HSPA 2019
MH-7	Use of antidepressants (% of adult population, at least once in the year)	Selected from HSPA 2019
MH-8	Use of short antidepressant treatment episodes (% of adult population under antidepressant)	Selected from HSPA 2019
MH-10	Number of hospitalisation days in psychiatric hospital wards (/1000 population)	Selected from HSPA 2019
MH-11	Readmissions within 30 days in psychiatric hospitals (in the same hospital, % of admissions)	Selected from HSPA 2019
MH-12 New	Number of psychologists registered at RIZIV-INAMI	Selected from the chapter on accessibility
Moved indicators		
MH-1	Deaths due to suicide (/100 000 pop)	Moved to the Health Status Report
MH-9	Patients (65+ years old) prescribed antidepressants with anticholinergic effect (%)	Moved to the domain on care for older people



7.2.6 Care for older people aged 65 years and more

Thirteen indicators on care for older people were selected, see Table 26. New data for two of these indicators will not be available before 2024. These indicators will be updated at a later time on the website and only previous results will be presented in the 2024 HSPA report.

Table 26 – Care for older people

ID	Indicators	Comments
Selected indicators		
ELD-1	Long-term care in residential facility (% pop aged 65+)	Selected from HSPA 2019
ELD-2	Long-term home nursing care (% pop aged 65+)	Selected from HSPA 2019
(ELD-3)	<i>(Informal carers (% of pop aged 50+))</i>	<i>Selected from HSPA 2019. Only 2018 data will be available for the 2024 HSPA report. More recent data will not be available before 2024 (will be updated on the website when available).</i>
ELD-4	Number of long-term care beds in institutions (per 1 000 population 65+)	Selected from HSPA 2019
ELD-5	Low care-dependent people in residential/nursing facility for older people (% of residents)	Selected from HSPA 2019
ELD-6	Practising geriatricians (per 10 000 population)	Selected from HSPA 2019
ELD-7	Fall incident during the last month in home for older people (% of residents)	Selected from HSPA 2019
ELD-8	Prevalence of pressure ulcers (grade II-IV) in home for older people (% of residents)	Selected from HSPA 2019
(ELD-9)	<i>(Prevalence of MRSA carriage in residential facility (% of residents))</i>	<i>Selected from HSPA 2019. New data not available before 2024 (will be updated on the website when available).</i>
ELD-10	Prescription of anticholinergic drugs >80 DDD in older people (% of population 65+)	Selected from HSPA 2019
ELD-11	Prescription of antipsychotics in residential/nursing facility for older people (% of residents 75+)	Selected from HSPA 2019
ELD-12	Prescription of antipsychotics outside residential/nursing facility for older people (% of population 75+)	Selected from HSPA 2019
ELD-13	Polypharmacy among older people (5 or more drugs of >80 DDD per year) (% of insured population 65+)	Selected from HSPA 2019 (QS-6)



7.2.7 End-of-life care

Indicators on end-of-life care can be found in Table 27. No changes were made compared to the 2019 HSPA report, with a total of four indicators selected.

Table 27 – End-of-life care

ID	Indicators	Comments
Selected indicators		
EOL-1	Patients who received palliative care (% of terminal cancer patients who died in the year)	Selected from HSPA 2019
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)	Selected from HSPA 2019
EOL-3	Patients who received chemotherapy in the last 14 days of life (% of terminal cancer patients who died in the year)	Selected from HSPA 2019
EOL-4	Death at usual place of residence (home or in residential care) (% of terminal cancer patients who died in the year)	Selected from HSPA 2019



7.2.8 Care for people living with a chronic condition

Because a thematic report on the performance of care for people living with a chronic disease was published in 2022, this domain was not retained for the 2024 HSPA report. Nevertheless, indicators on the care for people living with a chronic disease can be found in the following dimensions:

- Quality-effectiveness: QE-1 Asthma hospital admissions in adults (/100 000 pop); QE-10 COPD hospital admissions in adults (/100 000 pop); QE-2 Complication of diabetes hospital admissions in adults (/100 000 pop); QE-11 Percentage of people with laboratory confirmed pulmonary tuberculosis successfully treated
- Quality-appropriateness: QA-1 Proportion of people living with diabetes with appropriate follow-up (% of people under insulin); QA-2 Proportion of people living with diabetes with appropriate follow-up (% of people receiving glucose-lowering drugs other than insulin)
- Quality-continuity: QC-4 Proportion of adults living with diabetes (under insulin) with a convention/passport/care trajectory (% of patients); QC-5 Proportion of adults living with diabetes (receiving only glucose-lowering drugs, excluding insulin) with a convention/passport/care trajectory (% of patients); QC-7 Number of people with a referral pharmacist (/number of people who should have a referral pharmacist)
- Efficiency: E-5 Proportion of low-care dialysis (%)
- Accessibility: A-17 Number of deaths among people on waiting lists for organs

7.2.9 Mother and new-born care

This domain was not retained for the 2024 HSPA report. Nevertheless, the following indicators can be found in the quality and efficiency dimensions:

- Quality-appropriateness: QA-8 Caesarean section rate (per 1 000 live births)
- Efficiency: E-2 Average length of stay for a normal delivery (days)

8 COMPARISON WITH THE HSPA FRAMEWORK FOR UHC

8.1 Introduction and method

At the end of the development process of the Belgian HSPA conceptual framework revision, the WHO and the European Observatory on Health Systems and Policies published an HSPA framework for Universal Health Coverage (UHC) (hereafter referred to as WHO HSPA framework for UHC or WHO framework).¹⁵ The aim of this chapter was to narratively compare these two frameworks. A list of indicative measures of performance was also proposed in the WHO HSPA framework for UHC.¹⁵ This list was compared with all indicators of the Belgian global population health framework (i.e. including the Health Status Report) and with other information provided on the healthybelgium.be website (i.e. the reports on Medical Practice Variations, Key Data in Healthcare and the HiT profile).

8.2 Characteristics of the WHO HSPA framework for UHC

The WHO HSPA framework for UHC has five main contributions: 1) it puts forward a definition and scope of the health system, 2) it sets out the main health system goals and outcomes, 3) it identifies and describes the health system's functions, 4) it provides a framework for assessing the performance of each function, and 5) it outlines the relationship between the performance of each function and the attainment of health systems goals and outcomes.

The following steps were taken to develop the WHO HSPA framework for UHC presented in Figure 6:¹⁵

- Determining the **boundaries of the framework**. The health system was defined as actors and actions whose primary intent is health improvements.¹¹¹ While the influence of contextual elements and of shocks on the health system was explicitly represented in the figure, it was beyond the scope of the WHO HSPA framework for UHC (in colour in the figure). In the same way, the impact that health improvement and

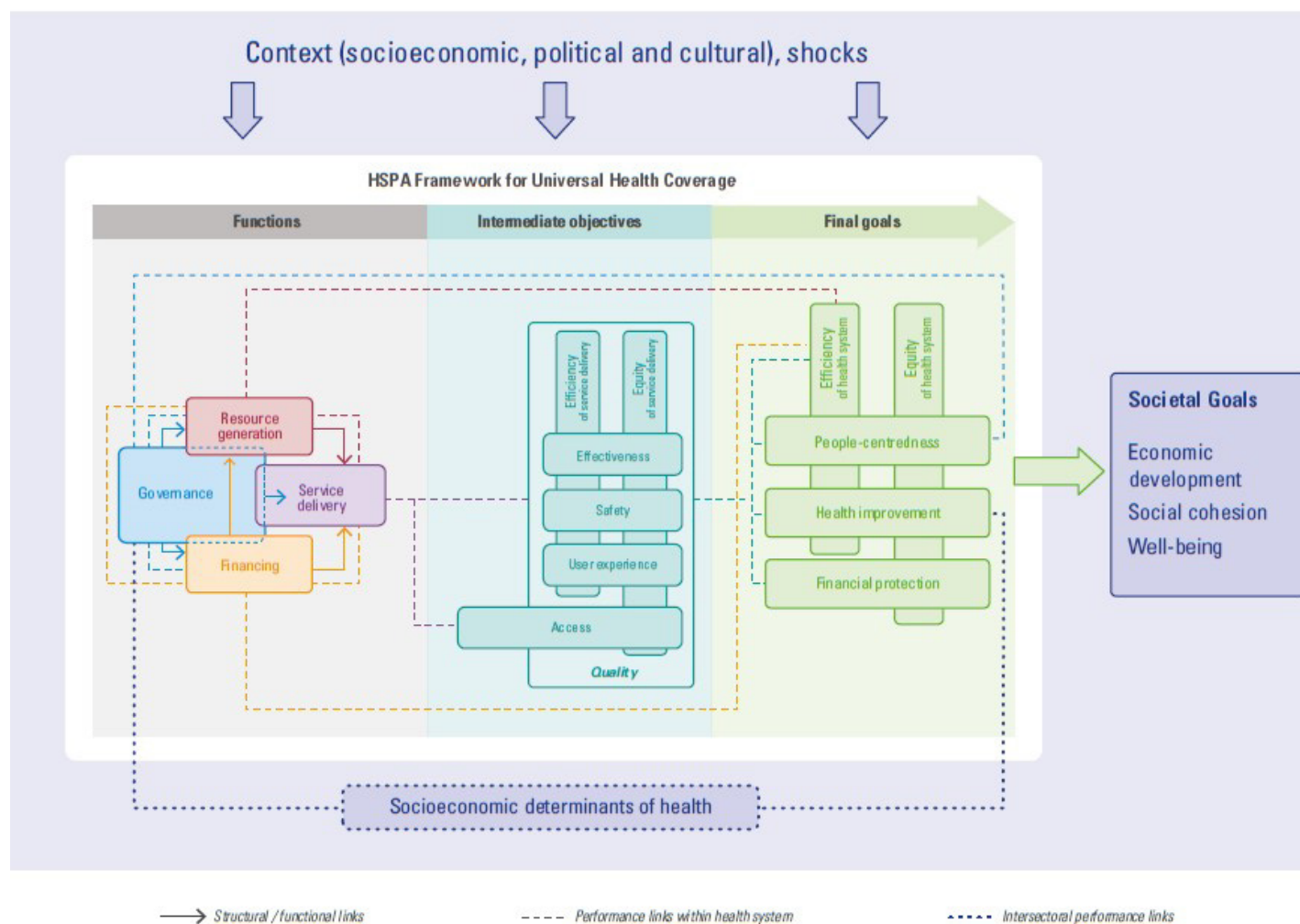


other health system goals have on overall societal goals and the influence of socioeconomic health determinants were clearly recognised but also fell beyond the scope of the WHO HSPA framework for UHC.

- Defining the **health system functions** that influence the performance. The WHO HSPA framework for UHC included four functions (**governance, financing, resource generation** and **service delivery**). Then, **a set of assessment areas and indicative measures for each function** was identified (i.e. a set of sub-functions). In the figure, functions were represented with structural links (solid line) because they influence each other. The governance function overlapped the three other functions because governance was also included in the other functions.
- Identifying the **health system's goals** for the WHO HSPA framework for UHC. Five health system goals were identified i.e. **health improvement, people centredness, financial protection**, and cross-cutting goals related to health system **equity** and health system **efficiency**.
- Identifying the **intermediate objectives**, i.e. the necessary steps on the pathway to achieve the health system goals: **access** and **quality**. These intermediate objectives provided an important link between the performance of the health system functions and the attainment of the health system goals. Access and quality were directly connected with the goals. They were also the outcomes of a well-performing service delivery function. Access overlapped quality to represent the fact that people have first to overcome the barriers of the access before any measure of quality is possible. Quality was subdivided into **effectiveness, safety**, and **user experience** as well as into the cross-cutting dimensions of service delivery function – **efficiency** and **equity**.
- **Defining what well performing health system functions** look like, and beginning to map out how information from other assessment tools can be used to measure this.



Figure 6 – WHO HSPA framework for UHC

Source: WHO HSPA framework for UHC¹⁵



8.3 Comparison

Based on the list of indicative measures proposed for each function/intermediate objective of the WHO framework, a classification of the Belgian 2024 HSPA indicators under each of these concepts was done. For each indicative measure, if the indicator was not included in the Belgian 2024 HSPA report, it was also reported whether the information was available in another report related to the Belgian global population health framework and available on the [healthybelgium.be](https://www.healthbelgium.be) website (Health Status Report, HiT profile, Medical Practice Variation, and Key Data in Healthcare). Results are summarised in Figure 7, and details for each indicative measure can be found in the appendix related to this chapter.

From a conceptual point of view, the functions of governance, financing and resource generation of the WHO HSPA framework for UHC correspond to the sustainability dimension in the Belgian HSPA framework, although some indicative measures proposed in the WHO framework are also classified in other dimensions of the Belgian framework (for example some indicators of workforce and financing are included in the accessibility dimension).

The service delivery function of the WHO HSPA framework for UHC is divided into public health, primary care, and specialised care (which correspond to domains^e or to specific settings highlighted in the core analysis^f in the Belgian HSPA framework) and is assessed through the intermediate objectives of accessibility, quality, efficiency, and equity (which correspond to dimensions other than sustainability in the Belgian framework, and with efficiency and equity also viewed as cross-cutting dimensions).

As in the WHO framework, the Belgian framework also allows to assess whether the final objectives of people-centredness, financial protection, efficiency and equity are achieved while the final objective of health

improvement is assessed in the Belgian Health Status Report (also including a section on equity). Nevertheless, other final objectives and targets could be identified for Belgium (work in progress, see Box 3 of chapter 1).

It should also be noted that the authors of the WHO framework highlighted that the framework could be used to study the potential causes and/or potential impact of a shock on health system performance but the resilience of the health system is not specifically taken up within the framework while the Belgian HSPA framework specifically includes resilience as a cross-sectional dimension that is analysed in relation to a specific shock.

Moreover, socioeconomic determinants of health are represented but are considered outside of the health system boundaries in both frameworks.

Finally, the comparison permitted to identify additional potential indicators (see the appendix related to this chapter). Some of them were already identified in the previous chapters while others were new and should be considered during future prioritisation exercises (as part of a long list to investigate), i.e. the average age of hospital infrastructure and of some heavy medical equipment, administration spending, discounts for pharmaceuticals, the share of people living with HIV receiving ART, and patient reported medical, medication, and lab test errors. Moreover, the analysis highlighted the importance of having a definition of health priorities and targets.

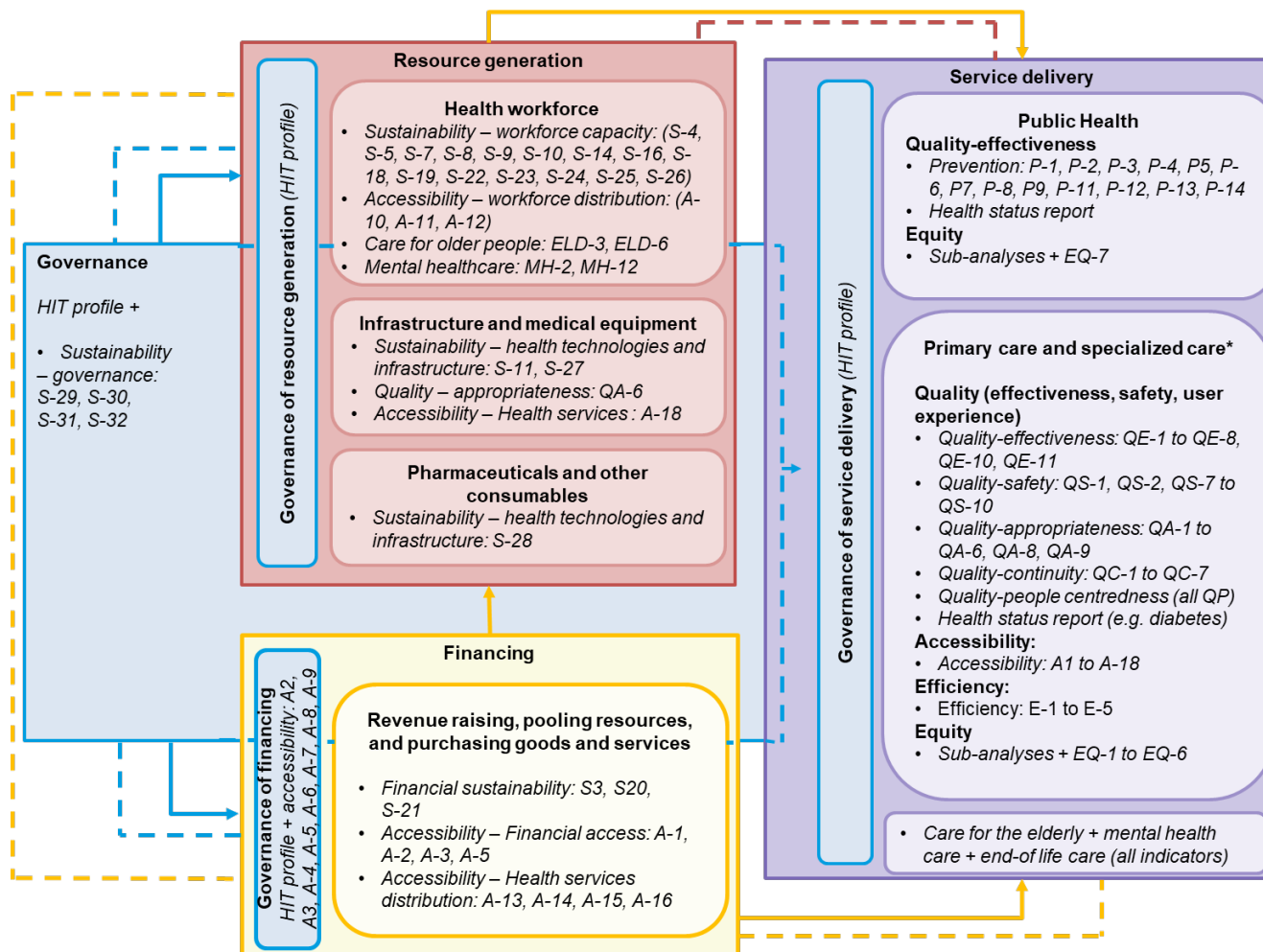
In conclusion, even if there are some differences in terms of structure and concepts used between the Belgian and the WHO HSPA frameworks, the rationale behind these concepts is similar and this comparison helped to confirm the completeness and relevance of the Belgian HSPA conceptual framework.

^e Currently preventive care, mental healthcare, care for older people, and end-of-life care.

^f Currently primary care, specialised care, care for people living with a chronic condition, and mother and newborn care (highlighted by sub-title in bold in the tables of chapter 7)



Figure 7 – Comparison between the Belgian HSPA framework and the WHO HSPA framework for UHC



Adapted from the WHO HSPA framework for UHC. Functions and intermediate objectives of the WHO framework are highlighted in bold; elements of the Belgian conceptual framework are in italic. —> Structural/functional links - - -> Performance links with health system



9 DISCUSSION AND CONCLUSION

A comprehensive framework

The objective of this report was twofold: on the one hand, to identify whether new concepts should be integrated into the Belgian HSPA conceptual framework to improve its completeness and, on the other hand, to limit the analysis to the most relevant indicators. Limiting the analysis to the most relevant indicators allows to maintain an optimal level of readability for policy makers (with a focus on the priorities put forward by the Belgian experts) and to keep the workload reasonable for the independent scientific body in charge of the assessment (i.e. having around 120 indicators as in the 2019 report, even after integrating indicators from the thematic reports published afterwards).

The comparison of the Belgian HSPA conceptual framework with the WHO HSPA framework for UHC confirmed that the first objective was achieved. Although some differences in design and concepts used can be highlighted, the understanding of key concepts behind both frameworks was similar.

Efforts to reduce the number of indicators to the most relevant ones must continue

In trying to achieve the first objective, it was unlikely that the second objective would be achieved. Although efforts were done to be restrictive when revising the dimensions of accessibility, equity and quality – people-centred care, the addition of new (sub-)dimensions added 18 indicators (14 indicators of resilience and 4 of sustainability – governance) and the selection process for the 2024 HSPA report ended with a total of 145 indicators, which is far from the target of 120 indicators. As a new dimension (environmental sustainability) is still in the pipeline, efforts to reduce the number of indicators in other dimensions and domains should continue in the future. Moreover, although involving experts in the selection of indicators is a necessary step to enrich the work, asking them to be restrictive in the analysis is not an easy task given their strong interest in the subject. The review of accessibility and equity permitted to reduce the number of

indicators from 35 (including the thematic report on equity) to 25, but with a shift of some indicators as secondary indicators and secondary analyses, giving only a limited reduction in workload. The review of quality – people-centred care for its part did not reduce the number of indicators (still equal to seven).

Areas for improvement in the provision of relevant health data in Belgium have been identified

During the review of the accessibility and equity dimensions, experts identified that the quality of some selected indicators could be improved by the collection of additional data (in particular improved data on OOPs, waiting times, contacts with the healthcare system, protection mechanisms and geographical access, see Box 12). The provision of these data by Belgian administrations in charge of health or data collection (RIZIV – INAMI, FPS Public Health, FPS Social Security, Federated entities, Sciensano, Statbel) or by the future Belgian administration for health data (development in progress) would enrich Belgian HSPA reports and would allow to replace the use of proxies for some indicators by direct data.

Comparing the new Belgian HSPA framework developed in this report with the WHO framework also permitted to identify potentially interesting indicators to investigate in the future. These indicators were identified as “potential indicators” in the appendix related to chapter 8. Some “potential indicators” were also reported in chapter 7 (review of other dimensions and domains). In the future, these potential indicators could be added to the list of relevant health data to collect if they are identified as relevant by experts once the related dimensions and domains are reviewed.

Finally, some problems and areas of improvement highlighted in the 2019 HSPA report are still relevant (see also Box 12).

**Box 12 – Areas for improvement in the provision of relevant health data****Data availability on the following topics would improve the analysis of equity and accessibility:**

- A registration of contacts in medical houses with a capitation remuneration system;
- Data on the share of the population in debt for their healthcare;
- A registration of supplements in ambulatory care;
- A registration of out-of-pocket payments for non-reimbursed health services;
- Data on the share of the population that is familiar with the financial protection measures of our health system;
- Data on the share of the population having access within “x” minutes to specific services (GPs, hospitals, mental healthcare);
- Data on waiting times for specific services ;
- Data on the number of GPs or medical houses that do not accept new patients anymore;
- Data on the vulnerable population that is not entitled to the compulsory health insurance (e.g. asylum seekers, etc.)

Data availability on the following topics would improve the analysis of resilience - sustainability:

- Data on nurses absenteeism in hospitals
- Data on the wellbeing of health professionals (requiring a perpetuation of the power to care survey)

As in the 2019 HSPA report, the following problems in data availability also remain:

- With the transfer of some competences to federated entities since the sixth State Reform, the collection of some data is not anymore centralised, and the completeness of these data for Belgium is reduced (e.g. ELD-1 - Long-term care in residential facility);
- ICD-10 transition from ICD-9: the translation of procedures is not yet finalised (some indicators cannot be updated).

A source of information for national and international experts interested in health system performance measurement

Although no analysis of performance measures is included in this report, it remains an interesting source of information for national and international experts interested in assessing the performance of the health system. The report can be seen as a reference book that brings together information from different relevant sources. Firstly, the detailed comparison of the Belgian HSPA framework with the WHO framework performed in the appendix allows interested readers (Belgian or international) to know where to find information on the different indicative measures of the WHO framework, including qualitative aspects, on the healthybelgium.be website. For example, for some of the indicators that were more descriptive, the interested reader will find in the appendix which sections of the HiT profile address the topic. Furthermore, a list of additional indicators to those proposed by the WHO framework can be found in the same appendix. The indicators listed in the appendices related to the chapters on resilience, sustainability – governance, accessibility, equity, and quality – people-centred care are also a useful source of information for experts interested in the topic. As the exclusion criteria may be country dependent, interested readers are advised to use the long lists of indicators of the appendices rather than the selected ones.

**A conceptual framework adapted to the needs, linked to health(care) priorities and objectives, and enriched by international experience**

Having a common conceptual framework for all countries is not the ultimate goal to be achieved, as each health system operates in its own context. Each conceptual framework will depend a.o. on the priorities of the country and the means available (the budget to produce the report but also the availability of data) and must meet the specific needs of the targeted public (e.g. country's policymakers). It is in response to requests from the Belgian inter-administration working group on HSPA that the domains of care for older people and mental healthcare are for example investigated in depth in the Belgian HSPA framework.

Ongoing initiatives to develop Belgian health and healthcare priorities and objectives will also help in the future to better respond to the needs of policymakers and to select the most relevant indicators in light of the policy objectives and priorities. To better respond to the population needs, representatives of patients' associations will also be integrated in the Belgian inter-administrative working group in the future (see Box 1 in chapter 1 for more details on the inter-administrative working group).

From an international point of view, the publication of conceptual frameworks, long list of indicative measures, or lessons learned when developing an HSPA report remain an essential source of information for researchers wishing to develop their own HSPA conceptual framework. Similar international publications helped us greatly in the development of this report and we hope that this publication will in turn be helpful to other researchers.

The HSPA should not be seen as a tool to evaluate policies but rather as a tool that provides warning signals for areas requiring further in-depth analysis

Finally, it is important to note that effects due to policy changes are very difficult to monitor through figures, especially in HSPA reports whose scope is not to provide a detailed analysis on a specific issue. The HSPA should not be seen as a tool to evaluate policies, its aim is to give a broad view of the health system rather than an in-depth analysis of the health system performance.

Results presented in HSPA reports do not depend on a single factor, but have several causes, which can come from outside the health system. The indicators presented in HSPA reports are intrinsically complex and are never the result of a single action but reflect the interaction of a full set of variables and parameters. Caution is therefore required when interpreting the results. The Belgian HSPA report must therefore be seen as a tool that provides warning signals with respect to the status of the health system in terms of accessibility, quality, efficiency, sustainability, resilience and equity but these signals will then require further in-depth analysis.

What are the next steps

The publication of the next HSPA report is foreseen for January 2024. Results and warning signals will be presented to the inter-ministerial working group who will in turn transmit these results to the relevant policy makers. A communication plan will be developed in December 2023.

It should also be noted that if some warning signals merit further analysis, administrations and policy makers have the opportunity to submit a research proposal on these topics to the KCE annual call for projects.

Finally, once the results are disseminated, the inter-administration group will again be met to identify their needs for the next report.



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