



Towards a fairer and more effective measurement of access to healthcare across the EU

Final report

28 November 2018

ICF makes big things possible

ICF is a global consulting and technology services provider with more than 5,000 professionals focused on making big things possible for our clients. We are policy specialists, social scientists, business analysts, technologists, researchers, digital strategists and creatives. Since 1969 government and commercial clients have worked with ICF to overcome their toughest challenges on issues that matter profoundly to their success. Our five core service areas are described below. Engage with us at icf.com.



Research + Analyse

Our teams delve deep into critical policy, industry and stakeholder issues, trends, and behaviour. By collecting and analysing data of all kinds, we help clients understand the current landscape clearly and plan their next steps wisely.



Assess + Advise

With equal parts experience and dedication, our experts get to the heart of the issue—asking all the right questions from the start. After examining the results and evaluating the impact of research findings, we counsel clients on how to best navigate societal, market, business, communications, and technology challenges.



Design + Manage

We design, develop and manage plans, frameworks, programmes, and tools that are key to each client's mission or business performance. These solutions often stem from our analytics and advice.



Identify + Implement

Our experts define and put into place the technology systems and business tools that make our clients' enterprises more effective and efficient. We deploy standard or customised methodologies based on the business context.



Engage

Realising the promise of the digital revolution requires foresight and heightened understanding. Both are baked into the solutions-focused engagement work that runs through all we do.

Towards a fairer and more effective measurement of access to healthcare across the EU

Final report

A report submitted by [ICF Consulting Services Limited](#)
in association with

[Quantos](#)

Date: 28 November 2018

Job Number 30301601

[Andrew Jarvis](#)

[ICF Consulting Services Limited](#)

Watling House

33 Cannon Street

London

EC4M 5SB

T +44 (0)20 3096 4800

F +44 (0)20 3368 6960

www.icf.com



Document Control

Document Title	Towards a fairer and more effective measurement of access to healthcare across the EU
Job No.	30301601
Prepared by	Richard Smith, Kimon Spiliopoulos, Zoi Diamantakou, Photis Stavropoulos
Checked by	Andrew Jarvis, Katerina Mantouvalou, Dr Platon Tinios, Professor Konstantinos Athanasakis, Professor Peter Goldblatt and Dr Tassos Philalithis
Date	28 November 2018

This report is the copyright of DG SANTE and has been prepared by ICF Consulting Services Ltd under contract to “Towards a fairer and more effective measurement of access to healthcare across the EU”. The contents of this report may not be reproduced in whole or in part, nor passed to any other organisation or person without the specific prior written permission of DG SANTE.

ICF has used reasonable skill and care in checking the accuracy and completeness of information supplied by the client or third parties in the course of this project under which the report was produced. ICF is however unable to warrant either the accuracy or completeness of such information supplied by the client or third parties, nor that it is fit for any purpose. ICF does not accept responsibility for any legal, commercial or other consequences that may arise directly or indirectly as a result of the use by ICF of inaccurate or incomplete information supplied by the client or third parties in the course of this project or its inclusion in this project or its inclusion in this report.

Contents

Abstract 1

Executive summary	2
1 Introduction	1
2 Context	2
2.1 Introduction	2
2.2 EU policies on healthcare have strengthened over time	2
2.3 Good and equitable access to healthcare matters	4
2.4 There is no single approach to measuring access to healthcare	5
3 Method of approach	6
3.1 Introduction	6
3.2 Work Package 1: Inception and literature review	6
3.3 Work Package 2: Analysis of currently available indicators	6
3.4 Work Package 3: Proposal for new indicators	8
3.5 Work Package 4: Framework implementation strategy and roadmap	8
4 Framework to measure access to healthcare	12
5 Indicators to measure access to healthcare	24
5.1 Identification of existing indicators	24
5.2 Proposals for new indicators and other refinements	28
6 Pilot testing of the proposed indicators	82
6.1 Availability	82
6.2 Affordability	96
6.3 Adequacy	114
6.4 Accessibility	140
6.5 Appropriateness	165
7 Statistical comparison of access to healthcare in four countries	168
7.1 Greece	168
7.2 Germany	177
7.3 Portugal	186
7.4 Slovenia	195
8 Indicator framework assessment	205
8.1 Weaknesses and gaps in the framework	206
9 Proposed indicator framework	213
10 A strategy and roadmap to move towards a fairer and more effective measurement of access to healthcare across the EU	226
10.1 Strategy to deliver a fairer and more effective measurement of access to healthcare in the EU	226
10.2 Roadmaps	252
Annex 1 Survey questionnaire	266
Annex 2 Data sources used to compile the indicator repository	274
Annex 3 New indicators	278
Annex 4 Specific questionnaires	301

Abstract

Access to quality healthcare is central to citizens' wellbeing, life expectancy and social protection. It is, however, a rather complex concept with no a single definition or standard approach to its measurement across the EU. This project undertook a systematic review of literature and policy, together with consultations with experts, to establishing a conceptual framework covering key dimensions of access to healthcare: Availability, Affordability, Adequacy, Timeliness, Accessibility and Appropriateness. The conceptual framework was first populated with existing indicators, with work undertaken to develop amendments to existing indicators and formulation of new indicators to cover all dimensions of the framework. The project tested and refined the proposed indicators and subsequently developed a strategy and roadmap. These will enable DG SANTE and key stakeholders to further develop the framework of indicators in line with future data and new methodological advancements. This study was delivered by ICF and its expert partners, Quantos and UCL.

Executive summary

Introduction and research aims

In 2018, ICF and Quantos were commissioned to develop and pilot a new set of healthcare access measurements and to improve existing measurements. This was achieved through the following specific research aims:

- Reviewing existing measures and indicators, as well as the different aspects of access across the EU.
- Developing and testing possible new indicators and/or improvements to existing indicators, ensuring that groups vulnerable to exclusion are reached and a ‘total picture’ is acquired of access to healthcare in countries and regions.
- Developing a framework for measuring access to healthcare in the EU, together with a strategy and roadmap to scale-up and implement that framework in its different versions.

This work contributes to actions to deliver the European Pillar of Social Rights. Principle 16 which relates to health care, states, ‘Everyone has the right to timely access to affordable, preventive and curative health care of good quality’. The framework developed during this study builds on this definition, proposing new indicators and improvements to existing indicators across all the segments of healthcare: preventative, primary, secondary and long-term care.

Research process

This research process was undertaken by researchers and statisticians at ICF and Quantos. It involved a systematic literature and policy review, critical challenge through review, workshops involving academic experts and policy practitioners. It was overseen by a steering group convened by DG SANTE.

Conceptual framework

These aims were achieved by developing a conceptual framework which accurately defined the key aspects determining fair and effective access to healthcare. Six determinants of access to healthcare were thereby identified, as outlined in Table 1.1 below.

Table ES1.1 Definitions of determinants of access to healthcare

Determinant	Definition
Availability	Whether a healthcare service or product is available continuously in the healthcare system
Accessibility	Whether a quality healthcare service or product is easily accessible in terms of distance or transportation means to reach it or design of the healthcare system facilities
Timeliness	Whether a healthcare service or product is available or reachable with the promptness appropriate to the patient's needs
Adequacy	Whether a healthcare service or product is relevant and meets stakeholder (patient, doctor and others) expectations
Affordability	Whether seeking healthcare services depends on a patient's financial resources

Determinant	Definition
Appropriateness	Whether a healthcare service or product does not disregard the cultural, social or other individual characteristics of a patient

Source: ICF

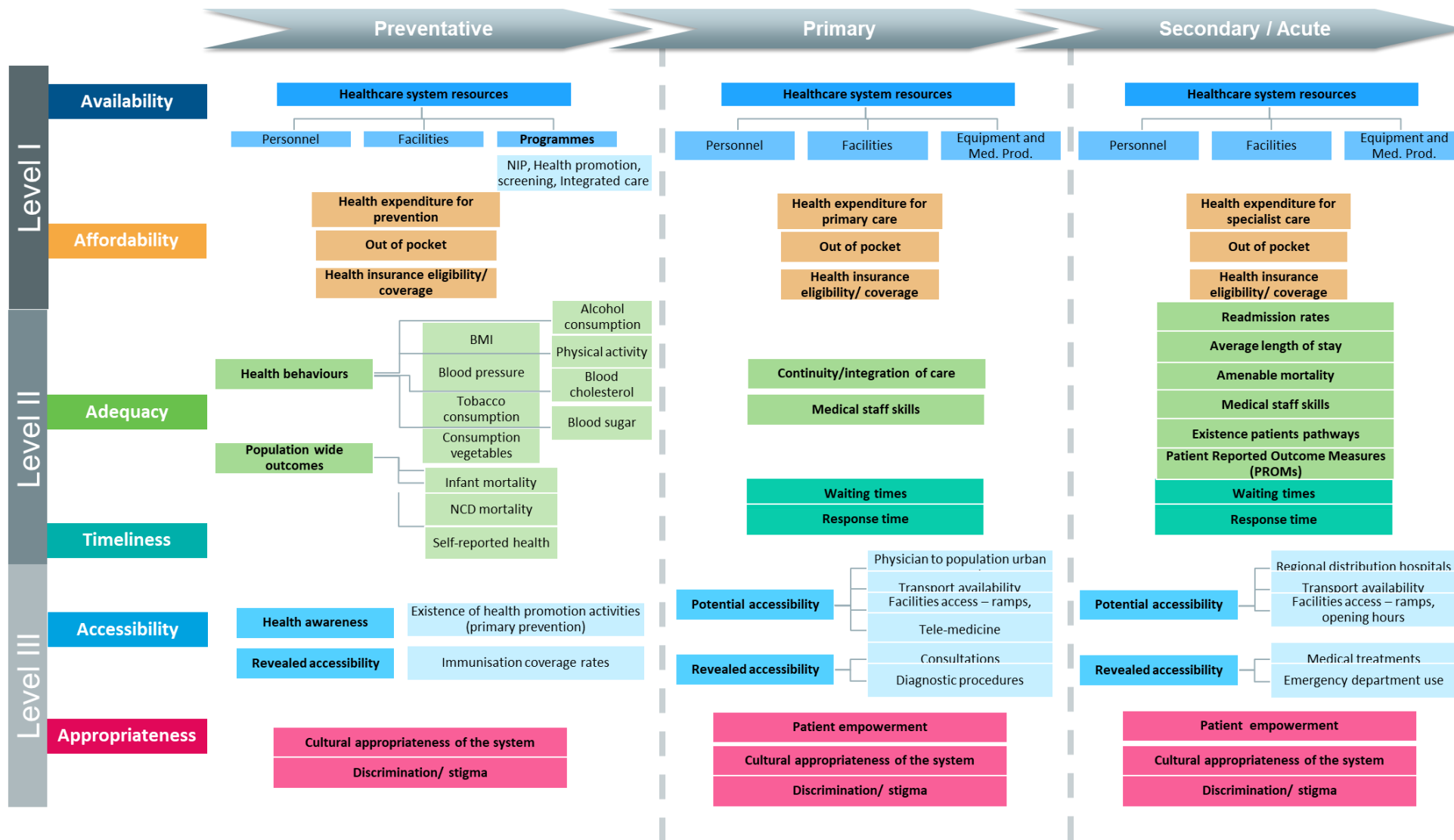
These determinants are expanded further in the conceptual framework below (Figure ES1.1).

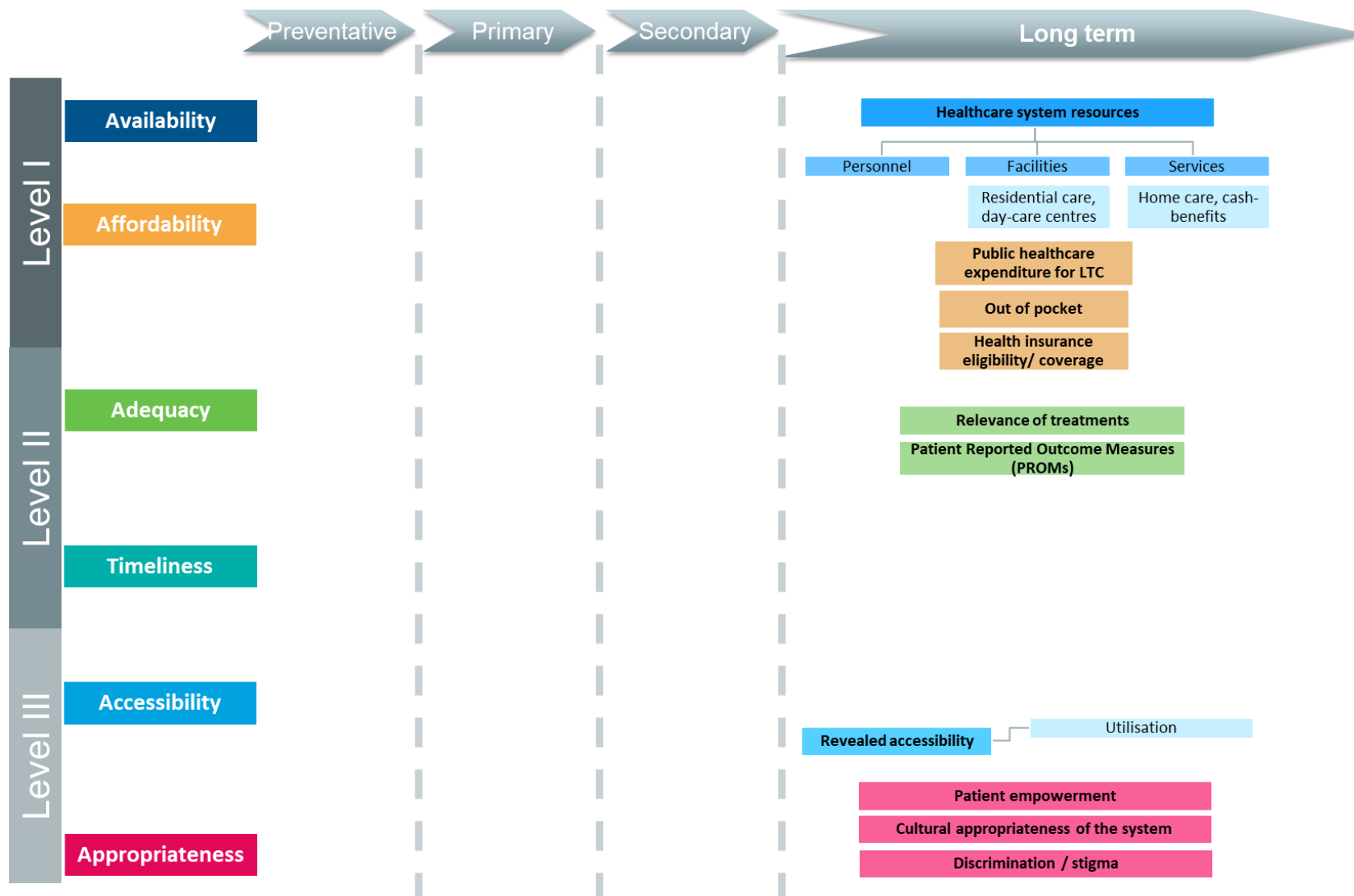
In line with the definition of access to healthcare included in the European Pillar of Social Rights, identified determinants tend to go beyond the very strict understanding of access, involving for example also issues related to quality or effectiveness of healthcare. This approach is necessary, because low quality or low effectiveness of healthcare have a negative impact on access. Indeed, while measuring access to healthcare, it is necessary to consider traditional access indicators in the broader context, taking into account interrelated aspects.

It should be noted that, whilst the framework presented is applicable to all Member States, it is necessary to define conditions to contextualise the framework, taking into account the fact that Member States are not epidemiologically meaningful units for the purpose of comparison. Furthermore, the characteristics of disadvantaged groups vary a lot across Europe, so it might be not relevant to apply the same metrics across in all cases.

The mechanistic interpretation may lead to inappropriate conclusions and policy development. For example, frequent screening may point at overuse of procedures rather than at unproblematic accessibility. Also input indicators are only meaningful if interpreted in the context of specific characteristics and organisation of the healthcare systems, for example distribution of doctors may be optimal in one setting and not in the other due to characteristics of organisation of healthcare provision.

Figure ES1.1 Conceptual framework developed to measure access to healthcare





Indicator development

Using the conceptual framework, the study team compiled a list of existing indicators from Eurostat, Organisation for Economic Co-operation and Development (OECD), World Health Organization (WHO), United Nations International Children's Emergency Fund (UNICEF), Eurofound/ European Quality of Life Survey (EQoL), European Patients' Forum (EPF), European Collaboration for Healthcare Optimization (ECHO), European Monitoring Centre for Drugs and Drug Addiction (EMCDDA), Medecins du Monde (MdM), Michigan Patient Experience of Care Initiative (MiPEC), data from several other relevant projects and data from national statistical offices.

The initial search for existing indicators relevant to access to healthcare identified 1,462 indicators, broken down across the dimensions of the framework as follows: Availability: 185 indicators; Affordability: 166 indicators; Adequacy: 367 indicators; Timeliness: 62 indicators; Accessibility: 614 indicators; Appropriateness: 68 indicators.

An examination of the indicators collected was then undertaken for each of the six dimensions of the analytical framework. The team focused on areas that were not sufficiently covered by indicators, using the results of academic and policy review, together with expert workshops, to propose new indicators and refine existing indicators. The primary aim was to propose indicators to close the gaps in the framework. However, other improvements to existing indicators were also investigated and solutions proposed.

Profiling information for each indicator was collected¹, alongside specific information that could be used in subsequent indicator testing, such as: indicator name; relevant access dimensions; specific source; breakdowns in which the indicator is available (e.g. sex, age); availability of data coverage (countries, years, sub-national level); reference population; periodicity; link to online metadata; link to the data source; data source path: navigation instructions to locate the particular dataset in the data source's dissemination environment; strengths and weaknesses. Statistical testing and data analysis was carried out in four pilot countries (Greece, Germany, Slovenia and Portugal) to compare indicator results with contextual information.

Following the assessment, the proposals for new indicators and existing indicator amendments were revised. The '*Indicator Framework with existing data*' consists of 98 indicators, while the '*Indicator Framework with additional data*' consists of 105 indicators.

Ultimately the proposals increase the number of indicators in the framework. Care has been taken to group indicators into specific dimensions and nodes, however, there may be scope in future to develop composite indicators to try and understand overall tendencies arising from the indicators included in the framework. This could be undertaken using clustering or factor analysis which would enable composite indicators to be developed for fewer dimensions of interest. However, the issue with such approaches is that they involve explicit or implicit weighting of indicators. This is problematic as different stakeholders may not agree with weightings applied, and indeed, different weightings may be more appropriate in different geographical contexts.

¹ All indicators included in testing are contained in an Indicator repository which includes the following information (where available) for each indicator: data availability; methodological soundness; access dimensions; relevance; accuracy; timelines and punctuality; accessibility and clarity; coherence and comparability; and cost and burden.

Strategy and roadmap for the population of the framework

The strategy and roadmap comprise separate but closely linked tools that support the population of the framework with data to measure access to healthcare across the EU. Taken together these tools translate the theoretical and technical outcomes of the work and identify specific changes to existing indicators and work to develop new indicators.

The strategy is intended to deliver the actions required to implement a conceptual framework, with associated indicators that enable more effective measurement of access to healthcare across the EU.

The roadmap identifies the key actions (and their pathways) which should be taken to implement the desired changes to existing indicators and develop new indicators to improve access to healthcare.

Delivery mechanisms and key stakeholders

Ultimately, the actions identified in the strategy would improve the overall framework established to understand features of access to healthcare in the EU. More specifically, the proposed actions would allow the framework to be used to address the different needs of various healthcare stakeholders in measuring access to healthcare in the EU.

The strategy and roadmap require DG SANTE to take ownership of the developed framework and to be the strategic lead in delivering the specific actions outlined.

This does not mean that DG SANTE is responsible for delivery of each of the actions outlined below; indeed, many of these actions must be delivered by other stakeholders.

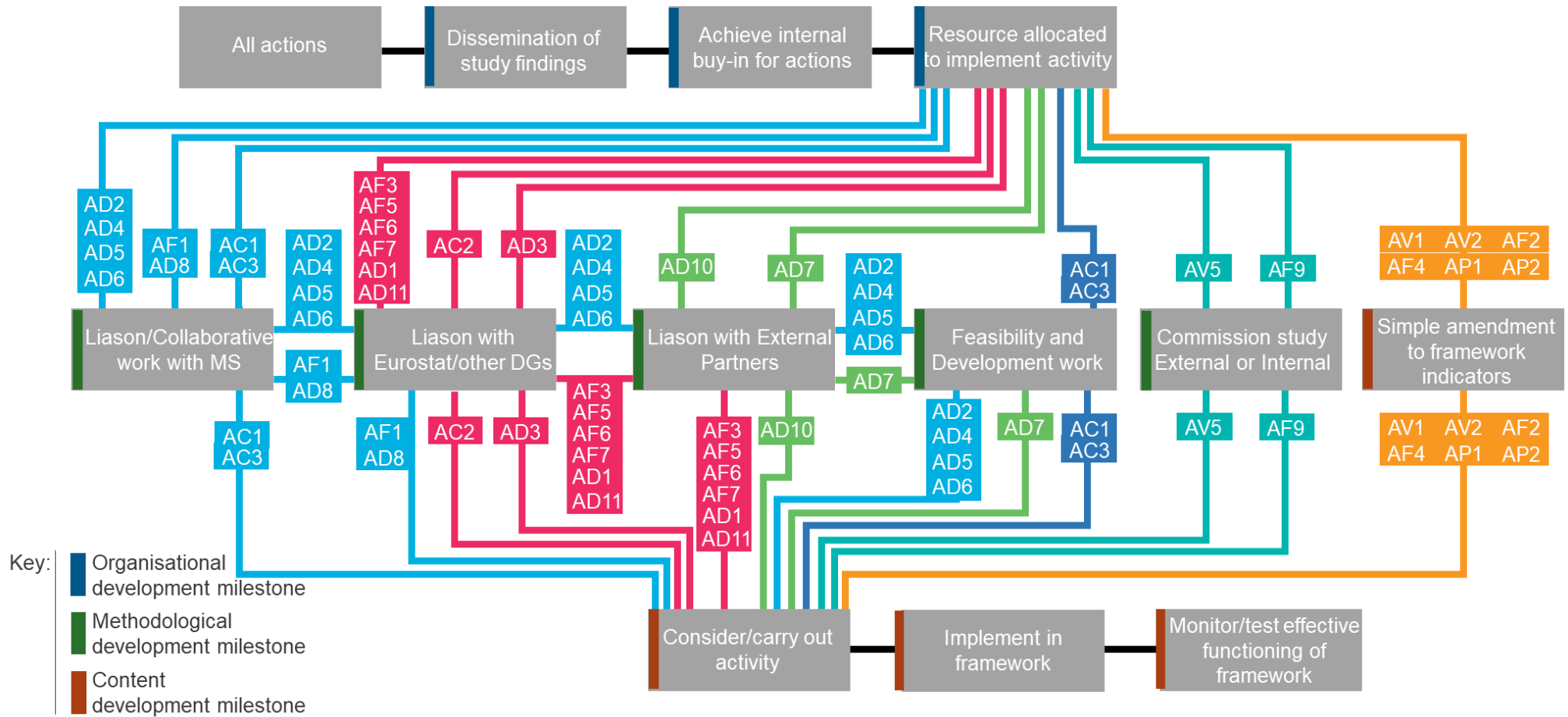
Convening a working group comprised of relevant stakeholders (many of whom are identified in the strategy and roadmap below) is thus likely to be the most appropriate approach to deliver the strategy and roadmap.

The following stakeholders have been identified as important to the delivery of the actions required to amend existing indicators and to establish new indicators. Some of these stakeholders would also be involved in overseeing the delivery of those actions:

- European Commission;
- Eurostat;
- OECD;
- European Observatory on Health Systems and Policies;
- European and national organisations representing the interest of patients, healthcare professionals;
- Member State authorities involved in healthcare;
- Eurofound;
- Health Literacy Europe;
- Academic experts and specialist researchers.

An overview of the detailed roadmap is provided below, summarising the work needed to implement the study's recommended actions for improving existing indicators and devising new ones.

Figure ES1.2 Roadmap for implementation of recommended actions



1 Introduction

This is the final report of the study 'Towards a fairer and more effective measurement of access to healthcare across the EU'. It presents the work undertaken in four specific work packages (an explanation of specific tasks and sequencing is outlined below):

- WP1: Inception and literature review;
- WP 2: Analysis of currently available indicators;
- WP 3: Proposal for new indicators;
- WP4: Framework implementation, strategy and roadmap.

This report is supported by the following annexes:

- Annex 1 presents the survey questionnaire
- Annex 2 lists the data sources used for the indicators repository
- Annex 3 provides details of proposed new indicators; and,
- Annex 4 contains details of specific questionnaires.

2 Context

2.1 Introduction

European health systems face a number of challenges, including ageing populations and a rise in the prevalence of chronic disease, budget constraints, and increasing levels of health inequality within and between Member States. In the face of the increasing demand for services, financial pressures and an uneven distribution of healthcare professionals, ensuring that healthcare systems can guarantee equitable access to healthcare is critical².

2.2 EU policies on healthcare have strengthened over time

Access to good quality healthcare has been on the EU strategic agenda for many years. For example, the 2008-2013 EU Health Strategy 'Together for Health' focused on policies intended to prevent ill-health through: improving equality of access to good and quality healthcare; addressing health threats that may affect multiple Member States; supporting people to be healthy in old age; and further advancements in health systems and health technologies³. The strategy also included specific EU actions to: implement laws and standards aimed at improving health product and service standards, as well as patient health and safety; develop tools for Member States to support cooperation and the sharing of best practice in relation to health; and fund projects through the EU Health Programme, focusing on improving citizens' health security, promoting health (and the reduction of health inequalities), and generating and disseminating health information and knowledge⁴.

The European Commission is committed to improve access to healthcare and reduce health inequalities. The European Pillar of Social Rights, EU Social Charter, the EU Founding Treaty and the International Covenant on Economic, Social and Cultural Rights all establish a right of access to core health services for everyone, particularly vulnerable and marginalised groups. EU legislation, policies and actions that address challenges in access to health care include:

- The Third Health Programme, 2014-2020 - *Health for Growth*. Compared to previous health programmes, this has a broader geographical scope and focuses more on reducing health inequality, developing common tools and approaches, and improving access to medical expertise and information to improve healthcare quality.
- Access to healthcare is one of the three interconnected dimensions (accessibility, effectiveness and sustainability) put at the centre of attention in the European Semester and State of Health in the EU. Accessibility to healthcare was for example stressed in Country Specific Recommendations addressed in 2018 to Latvia, Slovenia, Bulgaria, Cyprus, Lithuania and Romania and in Country Reports for many other Member States.

² Patient Access Partnership, 2015. *Interest Group on Access to Healthcare Preliminary Opinion of the Expert Panel on Access to Health Services in the EU*.

³ European Communities, 2007. *Together for Health: A Strategic Approach for the EU 2008-2013*. https://ec.europa.eu/health/ph_overview/Documents/strategy_wp_en.pdf

⁴ European Communities, 2007. *Health programme 2008-2013: Together for Health*. Office for Official Publications of the European Communities. http://ec.europa.eu/health/ph_programme/documents/prog_factsheet_en.pdf

- In 2011, the Council of Health Ministers established an EU-level reflection process to aid Member States in providing modern, responsive and sustainable health systems⁵. More specifically, it recognised that 'whilst ensuring equitable access to high quality healthcare services in circumstances of scarce economic and other resources has always been a key question, at present it is the scale and urgency of the situation that is changing and, if unaddressed, it could become a crucial factor in the future economic and social landscape of the EU'.
- In December 2013, the Council of Health Ministers endorsed the current progress, concluding with a call for further work on the 'reflection process on modern, responsive and sustainable health systems'⁶.
- The 2017 Annual Growth Survey (AGS)⁷ noted that the top priority is for the EU to build growth and competitiveness to ensure lasting recovery. It thus recommended that active social inclusion strategies should be developed, including broad and equitable access to affordable and high quality health services.
- The 2014 Commission Communication on effective, accessible and resilient health systems recognises access to healthcare as an individual's possibility to receive the care he or she needs; it is the result of interaction between different factors, including coverage (who is entitled to healthcare), basket of benefit (what citizens are entitled to), affordability and availability of healthcare services.
- The Commission requested that the Expert Panel on effective ways of investing in Health (EXPH) deliver opinions on access to health in order to further develop their access agenda. The EXPH consists of 12 independent specialists and provides the Commission with information on effective ways of investing in health. The EXPH provided two opinions on access to healthcare. The first, issued in 2016, identified the key factors and policy levers crucial to ensuring access to healthcare, while the second (issued in 2017) provided a model of benchmarking access to healthcare, thereby assisting Member States to better identify the gaps and needs for policy actions.
- The Commission has established an Expert Group on Health Systems Performance Assessment, in order to better understand how health systems, work across Europe and carry out actions to improve them, including improving accessibility⁸. Reports delivered by this group, for example: "Tools and methods to assess integrated care in Europe" or "A new drive for primary care in Europe" touch upon issues of critical importance for more accessible healthcare systems.
- In 2006, Member States agreed on common objectives on the accessibility, quality and financial sustainability of healthcare in the context of the Open Method of Coordination for social protection and social inclusion⁹.

⁵ Council of the European Union, 2011. *Council Conclusions: Towards modern, responsive and sustainable health systems*. https://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/lisa/122395.pdf

⁶ Council of the European Union, 2013. *Council Conclusions on the Reflection process on modern, responsive and sustainable health systems*. http://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/lisa/140004.pdf

⁷ European Union, 2017. https://ec.europa.eu/info/files/2017-european-semester-annual-growth-survey_en

⁸ European Commission, 2014. *Expert Group on Health Systems Performance Assessment (HSPA)*. http://ec.europa.eu/health/systems_performance_assessment/policy/expert_group/index_en.htm

⁹ Council of European Union, 2006. Press release 2714th Council Meeting: *Employment, Social Policy, Health and Consumer Affairs*. http://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/lisa/88755.pdf

In order to meet the aims of the EU policies and strategies, the EU and its Member States work closely with international and national stakeholders, including NGOs, organisations representing patients and health professionals, trade unions, health providers and businesses with health interests. Examples of the mechanisms used to support this work include the 2014 stakeholders' partnership on access to healthcare, and the interest group on access to healthcare of Members of the European Parliament (MEPs) set up in 2015. As well as working to improve the measurement of access to healthcare at EU level, the Commission supports efforts of Member States through for example sharing good practices¹⁰. A major objective of the European Reference Network, recently set up by the European Commission, is to improve patients' access to highly specialised, high quality and safe care by enhancing cooperation among Member States¹¹.

The MEP Interest Group on Access to healthcare (as a result of its close collaboration with PACT) advocated for the need and therefore, put forward a proposal to the European Parliament for voting in favour of the allocation of funding under the 2016 EU budget for the initiation of this pilot project.

2.3 Good and equitable access to healthcare matters

Ensuring that European citizens have good and equitable access to healthcare is important for several reasons:

- Healthcare is a significant determinant of wellbeing, contributing to health improvements and prolonged life, as well as the prevention of suffering and ill-health¹².
- A healthy population is associated with better economic growth, labour market participation and productivity. In particular, higher expenditure and more equitable distribution of resources in the healthcare system is linked to better health of the population (the relationship is not linear). This in turn leads to greater economic prosperity through higher productivity¹³.
- Persistent avoidable and preventable inequalities in healthcare within and between Member States conflict with the rights stated in the Charter of Fundamental Rights. They also conflict with the EU Treaty objective to ensure '*the development of human resources with a view to lasting high employment and the combating of exclusion*' (European Union, 2008). The EU and its Member States are legally bound to reduce health inequalities, and the provision of equitable and accessible healthcare plays a key role here.

Population health indicators show that health status has improved across the EU over the past decade but these improvements have been unequally distributed. There are widespread inequalities in health and access to healthcare within and between

¹⁰ Patient Access Partnership, 2015. *Interest Group on Access to Healthcare Preliminary Opinion of the Expert Panel on Access to Health Services in the EU*. http://eupatientaccess.eu/files/Report_EP_debate-17_Nov_2015.pdf

¹¹ European Commission, n.d. *European Reference networks: Policy – more*. http://ec.europa.eu/health/ern/policy/more/index_en.htm

¹² Nolte, E and McKee, M., 2011. '*Variations in amenable mortality – trends in 16 high-income nations*'. *Health Policy*, 103 no 1, pp 47-52.

¹³ European Commission, 2010. *European Economy: Projecting future healthcare expenditure at European level: drivers, methodology and main results*.

http://ec.europa.eu/economy_finance/publications/economic_paper/2010/pdf/ecp417_en.pdf

Member States, reflecting the different conditions in which people are born, grow, live and work.

There is variation among Member States in:

- **Life expectancy.** In 2014, a one-year old boy in Latvia could expect to live to an average age of 69.1 years, compared to 80.4 years in Italy¹⁴;
- **Number of healthy life years.** In general, people in Eastern and Central Europe are likely to have a shorter life expectancy and, across the life course, to spend more years in ill-health than EU citizens in other parts of the continent¹⁵;
- **Mortality and morbidity.** In Bulgaria in 2012, 65.8% of all deaths were caused by circulatory disease, compared to 25.2% of deaths in France¹⁶;
- **Infant mortality.** Despite an overall decline in the overall infant mortality rate¹⁷ at EU level between 2004 and 2014, rates are still high in some countries. In 2014, Romania had the highest infant mortality rate, at 8.4 deaths per 1,000 live births, compared to Cyprus, which had the lowest rate of 1.4 deaths per 1,000 live births¹⁸.

2.4 There is no single approach to measuring access to healthcare

There is currently no single, uniform approach to measuring access to healthcare across the EU. Most methods focus on data from a small number of different sources. These are typically related to financial resources (Eurostat), affordability of services (Eurostat, OECD), healthcare system resources (Eurostat, OECD, WHO) and levels of provision (Eurostat, OECD, WHO) and self-reported incidences of unmet healthcare needs (gathered via EU Statistics on Income and Living Conditions (SILC)¹⁹ and published on Eurostat). A recent *ad hoc* module of EU-SILC (2016) concerned access to services (which included healthcare and home care). Some indicators measure the level of healthcare provision in Member States and others the extent to which provision addresses individuals' needs, for example the number of procedures or hospital resources (e.g. hospital beds). Other relevant data can be obtained through the European Social Survey (ESS)²⁰, for example subjective wellbeing and healthcare utilisation.

¹⁴ Eurostat, 2016. *Healthy life years and life expectancy at birth*.

¹⁵ *Ibid.*

¹⁶ Eurostat, 2016. *Causes of death*.

¹⁷ The infant mortality rate represents the ratio of the number of deaths of children under one year of age during the year to the number of live births in that year. The value is expressed per 1,000 live births.

¹⁸ <http://ec.europa.eu/eurostat/data/database>

¹⁹ EU Statistics on Income and Living Conditions survey.

²⁰ ESS website: <http://www.europeansocialsurvey.org/data/>

3 Method of approach

3.1 Introduction

The project activities were grouped into five work packages. Four of these concerned research activity, while the fifth delivered management and reporting commitments throughout the duration of the 12-month project. The research activity work packages were:

- Work Package 1: Inception and literature review;
- Work Package 2: Analysis of currently available indicators;
- Work Package 3: Proposal for new indicators;
- Work Package 4: Framework implementation strategy and road map.

The following sub-sections describe the research tasks taken under each of the work packages. Table 3.1 below provides a summary overview of the work packages and their component tasks.

3.2 Work Package 1: Inception and literature review

The inception stage involved discussion between DG SANTE and the study team to agree the proposed study methodology and deadlines for specific research outputs.

This stage of the research also involved assessment of the existing methods and frameworks for measuring access to healthcare, as well as identification of possible changes to current methods. This assessment necessitated an **in-depth literature and policy review**. Working with the experts from the study team, the focus and parameters of the systematic review were defined and tested before proceeding to the full review. A wide range of sources were included in the review, for example:

- Social science, social care, nursing and allied academic publications and health databases (e.g. PubMed, EBSCO, Cinahl, Social Science Citation Index, Social Services Abstracts, ASSIA, Social Care Online, Medline, HMIC, Cochrane).
- Policy documents and activities, for example, WHO and OECD publications, the preliminary opinion of the EXPH on effective ways of investigating in health on 'access to health services in the European Union' published in September 2015, and the resulting position statements, e.g. from the EPF.

The relevant information was extracted and analysed to determine the quality of the evidence base assembled. The findings were then synthesised, which yielded some useful initial ideas on the research questions (see Section 4), as well as information used in subsequent work packages.

3.3 Work Package 2: Analysis of currently available indicators

The purpose of this work package was to develop a detailed understanding of the existing indicators of access to healthcare in EU Member States, and to analyse and assess their quality and the extent to which they cover particular aspects of access to healthcare. The work package consisted of conceptual framework development work, indicator assessment, a stakeholder survey, and an expert workshop.

Developing the conceptual framework was the first step. Information from the literature review, together with input from the study experts, was used to define the dimensions of the framework. This enabled the access indicators to be categorised

into six distinct building blocks, or nodes, of the framework (Availability, Accessibility, Timeliness, Adequacy, Affordability, and, Appropriateness).

Following development of the conceptual framework, the project team compiled a list of the existing indicators. However, it should be noted that this was not a linear process. Rather, development of the conceptual framework continued throughout the project and was based on multiple rounds of feedback during indicator development work and examination by experts. The search for existing indicators relevant to access to healthcare resulted in the collection of a repository of 1,420 indicators. These were analysed to determine their quality and feasibility of implementation in all Member States. The quality assessment was based on aspects of statistical quality according to the ESS (data availability, methodology, relevance, accuracy, timeliness and punctuality, accessibility and clarity, coherence and comparability, cost and burden). In practice, not all information was available for each indicator.

In addition to the individual assessment of each indicator, a synthetic assessment was undertaken to evaluate the coverage of access to healthcare from each of the six perspectives identified in the theoretical framework. This involved mapping the compiled indicators onto the aspects of access to healthcare indicated in the framework.

A **stakeholder consultation** also formed part of this work package. Its purpose was to further develop the evidence base of stakeholder opinions and concerns relating to access to healthcare. It focused specifically on the limitations and gaps of the current indicators used to measure access to healthcare and the perceived requirements for - and application of - new indicators.

The survey was undertaken between 27 March 2018 and 18 May 2018. It received a total of 19 responses from 11 Member States, with respondents from European organisations/associations, experts/academics, Ministries of Health, national statistical offices, Ministries of Social Affairs, Institute of Hygiene, National Health Service (NHS) Digital, and Public Health England. Findings from the survey were presented to the study steering group, discussed in full in the Interim Report and used as part of the evidence base for framework and indicator development.

A **first expert workshop** was held on 20 April 2018, attended by experts in the field of health economics, public health and statistics. The purpose of the workshop was to discuss the work to date, including the framework and the indicator repository. Participants agreed with the conceptual framework generally. However, it was suggested that a single framework is a way forward.

This was subsequently discussed and agreed with the study steering group. It should be noted this deviated from the original plan suggested in the Terms of Reference (ToR) for the study. The initial intention was to design a new framework using only existing data, distinguishable from the current methods of measuring access to healthcare and to then create a second, extended version of the new framework, featuring new indicators.

The development of the conceptual framework and indicator assessment work revealed that current methods were somewhat disparate and incomplete (see Section 4.1.1), with their coverage and robustness of data making them unsuitable for comparison purposes. As the project evolved, the current methods were incorporated into the proposed framework, which was then populated with both new and existing indicators.

Section 9 provides an approximation of this original plan, showing two indicator frameworks: one with indicators that can readily be collected from existing data, and another extended version that includes the proposed new indicators.

3.4 Work Package 3: Proposal for new indicators

This work package developed possible new indicators and/or improved existing indicators. It therefore focused on the weaknesses and gaps identified in Work Package 2.

Work to develop new indicators or indicator improvements focused on the possibility of addressing: gaps in existing indicators (e.g. missing breakdowns, such as by income class, sub-populations that are not covered, lack of the indicator at sub-national level, lack of the indicator for some Member States); other problems in existing indicators (e.g. reduced relevance, lack of comparability between Member States); and coverage gaps (i.e. aspects of access to healthcare for which no indicator is currently available in the EU).

The **second expert workshop**, which took place on 16 July 2018, critically assessed and validated the work taken to date. Participants were drawn from the internal project team and expert stakeholders representing both policy-making (representatives from international organisations, policy-making bodies and interest groups) and specialist academic researchers. The main issues discussed were: validation of the proposal of new indicators (considered alongside existing indicators); the feasibility and limitations of the suggestions; and the usefulness and relevance of adapting the conceptual framework to specific subsets of diseases.

The discussion on adaptation of the framework to specific disease groups concluded with an agreement that it would not be useful to add this grouping as another dimension to the framework. Were it to be added, the framework would contain a significant number of new indicators with a lack of standard definition between countries. However, care was taken to select existing indicators which are broken-down by disease category and, where possible, to propose new indicators with such breakdowns (i.e. where categories were found in the international classifications and codings used).

Where such breakdowns were deemed useful but not yet feasible, these were noted for future consideration. A notable example was health expenditure, which requires further methodological developments by Eurostat. Following this work on new indicators, the indicator repository was updated.

3.5 Work Package 4: Framework implementation strategy and roadmap

Work Package 4 used the framework developed to measure access to healthcare in the EU. It proposed a strategy and roadmap to implement the recommended actions to develop existing indicators and establish new indicators.

This work involved detailed consideration of each of the proposed actions, identification of specific activities to deliver those actions and specific milestones to achieve and measure the desired actions. The results of this work form Section 10 of this final report.

Table 3.1 provides a detailed breakdown of the individual research tasks in each Work Package, the research steps undertaken and the outputs in each case. It links these activities and outputs to the specific requirements set out in the ToR for the study.

Table 3.1 Overview of the Work Packages and deliverables

Work Package	Tasks	Steps	Outputs (O) and deliverables (D)	From the ToR
Work Package 1: Inception and literature review Completed by January 2018	Task 1.1: Inception and mobilisation	Step 1: Project mobilisation Step 2: Kick-off meeting & inception report	Updated work plan, risk assessment and quality plan (O) Inception report (D1)	Deliverable 1
	Task 1.2: Literature and policy review	Step 1: Define the focus & parameters of the review Step 2: Develop & implement search and screening strategy Step 3: Extract information from scientific literature & policy documents Step 4: Synthesis of findings	Literature review on measuring access to healthcare (O)	Result 1 Activity 1
Work Package 2: Analysis of currently available indicators Completed by mid-May 2018	Task 2.1: Conceptual framework development		Conceptual framework to measure access to healthcare (O)	Activity 4
	Task 2.2: Identification of existing indicators	Step 1: Compile list of existing indicators Step 2: Specify criteria for analysis Step 3: Compile information Step 4: Evaluation of each indicator Step 5: Synthetic analysis Step 6: Finalise the analysis Step 7: Develop indicator repository	Indicator repository (Excel) (D2)	Result 1 Activity 2 Deliverable 4 (draft)
	Task 2.3: Stakeholders' survey	Step 1: Define health stakeholders to be included in survey sample Step 2: Develop survey Step 3: Administer the survey Step 4: Collect and analyse responses		Result 1 Activity 2
	Task 2.4: First expert workshop	Step 1: Review of potential candidates Step 2: Prepare material Step 3: Run workshop Step 4: Incorporate feedback	Validation of conceptual framework (O)	Result 1 Activity 2
	Task 2.5: Reporting	Step 1: Preparation of the interim report Step 2: Peer review and finalisation Step 3: First interim meeting	Interim Report (D3)	Deliverable 2
Work Package 3: Proposal for new indicators	Task 3.1: Identification of additional indicators	Step 1: Identify the needs for indicators Step 2: Identify new indicators or improvements to current indicators	Additional indicators fiches (D4)	Result 2 Activity 3

Work Package	Tasks	Steps	Outputs (O) and deliverables (D)	From the ToR
Completed by mid-September 2018		Step 3: Present improved and new indicators		
	Task 3.2: Second expert workshop	Step 1: Review participants Step 2: Prepare material Step 3: Run workshop Step 4: Incorporate feedback	Validation of additional indicators (O) Brainstorming on framework adaptation (O)	Result 2 Activity 3 Activity 4
	Task 3.3: Update indicator repository (Excel)		Updated indicator repository (Excel) (D5)	Deliverable 4
	Task 3.4: Reporting	Step 1: Prepare draft report Step 2: Peer review and finalisation Step 3: Second interim meeting	Draft study (D6)	Deliverable 3 (draft)
Work Package 4: Framework(s) implementation strategy and roadmap Completed by November 2018	Task 4.1: Framework with existing data	Step 1: Proposal for a new framework for measuring access to healthcare in the EU using only currently available data Step 2: Test the indicator framework		Result 3 Activity 4
	Task 4.2: Framework with additional data	Step 1: Identify weaknesses and gaps in the framework produced in Task 4.1 Step 2: Produce the new framework Step 3: Demonstrate the new framework		Result 3 Activity 4
	Task 4.3: Discuss framework(s)	Step 1: Describe framework application and compare to current methods Step 2: Discuss benefits and limitations, both theoretical and practical		
	Task 4.4: Define strategy and roadmap			Result 3 Activity 5
	Task 4.5: Assess need for adaptation for disease groups	Step 1: Preliminary assessment of need for adaptation Step 2: Identify potential indicators Step 3: Assess potential adaptations and their cost effectiveness	Decision on framework adaptation (O)	Result 3 Activity 5
	(if framework adaptation is relevant) Task 4.5bis: Framework adaptation to	Step 1: Produce specifications of the adapted framework(s) Step 2: Adaptation of the strategy Step 3: Adaptation of the roadmap		Result 3 Activity 5

Work Package	Tasks	Steps	Outputs (O) and deliverables (D)	From the ToR
	disease areas			
	Task 4.6: Produce final report	Step 1: Prepare final report Step 2: Prepare abstract and executive summary Step 3: Peer review and finalisation Step 4: Prepare publishable narrative summary	Final report (D7) Publishable narrative summary (D8)	Deliverable 3 Deliverable 5 Deliverable 6 Deliverable 7

Deliverable (D); Outcome (O)

Source: ICF

4 Framework to measure access to healthcare

This section outlines the results from the extensive literature and policy review undertaken for this study (the process of developing this evidence base is outlined in Section 3.2 above). This evidence review provided the foundation for the framework for assessing access to healthcare. The section concludes with a presentation of the framework.

4.1.1 Findings from the literature and policy review

The findings are structured around the five research questions:

1. What are the current methods used to measure access to healthcare?
2. What are the determinants of access to healthcare?
3. What are the limitations of current methods for measuring access to healthcare?
4. What are the stakeholders' expectations on what access to healthcare should measure?
5. Are there suggestions for changing these methods?

4.1.1.1 Q1. What are the current methods used to measure access to healthcare?

Utilisation

Utilisation is a concept that appeared frequently in the literature. Andersen conceptualised utilisation as 'realised access'. In other words, the type, site, purpose, and time interval as determined by population characteristics (age, ethnicity, etc.) and health system characteristics (policy, resources, and organisation)ⁱ. Fields and Briggs (2001) investigated the assumption that levels of utilisation and perceptions of accessibility are mutually and positively relatedⁱⁱ. Their research explored the hypothesis that those with the easiest access to a service might be expected to use it most, since they have fewer severe barriers to overcomeⁱⁱⁱ. They found a weak but significant positive nonlinear relationship between frequency of use and perceptions of accessibility for diabetics, asthmatics, and all patients. This implies that accessibility impacts rates of use to an extent, but that other factors are also at play.

Supply and demand measures (quantitative)

Health policy papers are often guided by supply side factors in access to healthcare, such as the availability of services. Other papers, such as Thiede (2005)^{iv}, focus on the demand side of access, such as people's subjective choices or freedom to use healthcare. Measuring spatial access also received considerable attention across the literature^v, with some authors building models to quantify geographical distance as a crucial determinant of access^{vi, vii}. Wang's (2012) paper underlines the importance of measuring spatial separation between supply (i.e. healthcare providers) and demand (i.e. population), and how they are connected in space.

Subjective measures (qualitative)

Some studies focus on patient experiences, such as Goldsmith's (2007) qualitative inquiry into access to healthcare for disadvantaged groups in North Carolina and Ontario^{viii}. These studies are often narrow in scope and representative of one specific sub-group, such as experiences of healthcare for undocumented migrant children and pregnant women^{ix}, or people with a disability^x. Individual perception measures can cover perceived barriers, such as Wilson and Rosenberg's (2004) identification of barriers to receiving care, which includes individuals reporting being too busy to get

care or being afraid of the doctor^{xi}. Another perception measure highlighted in some literature sources relates to perceived unmet need. The EU-SILC survey is a useful tool for unmet need assessment in the EU, as it provides information on barriers to access, including prices, waiting lists and problems related to physical access (distance and lack of means for transportation)^{xii}. The quality of care is another perception measure, as identified in the growing literature on ‘effective coverage’, which is defined as the proportion of the population who require a service and receive it with ‘sufficient quality to be effective’^{xiii}.

4.1.1.2 Q2. What are the key determinants of access to healthcare?

Six key determinants were identified, with literature extracted into these targeted sub-groups. The analysis follows this structure.

Availability

Availability is defined as constituting the ‘physical existence of health resources with sufficient capacity to produce services’ (Levesque et al., 2013, p.6)^{xiv}. This relates to a series of questions cited by the Economist Intelligence Unit (2017, p.16): ‘Are there enough hospitals or clinics, doctors, nurses and midwives, medicines and equipment? In the case of medicines, are they registered or approved in the country? Are they available/in stock?’^{xv}. The literature highlights that this is dictated by numbers of healthcare providers^{xvi}, good planning of facilities^{xvii}, and adequate and appropriately qualified staff^{xviii}.

Accessibility

Evans et al. (2013, p.546) defines accessibility as: ‘the availability of good health services within reasonable reach of those who need them and of opening hours, appointment systems and other aspects of service organisation and delivery that allow people to obtain the services when they need them’^{xix}. This is often framed as geographical/spatial accessibility,^{xx} and can be related to socio-organisational access, as the organisational healthcare structures must match the needs of society^{xxi}. An abundance of literature highlights that rural citizens are disproportionately affected by accessibility issues, with a review prepared by the RUPRI Health Panel (2014) noting that rural places tend to have lower population densities, resulting in rural residents having to travel further to access healthcare^{xxii}. It is worth noting that this opinion is disputed elsewhere, with, for instance, Haggerty et al. (2014) stating that urban care-seekers invoke the barrier of distance more frequently than rural dwellers^{xxiii}.

Timeliness

According to many sources, access to healthcare services ‘means timely use of personal health services to achieve the best health outcomes’ (MacKinney et al., 2014, p.3)^{xxiv}. Waiting time is a key measure of this^{xxv}, and are the result of a complex interaction between demand and supply of healthcare services^{xxvi}. One study indicated that waiting time is the most commonly cited access issue for Canadians^{xxvii}. Some sources consider a socioeconomic aspect, arguing that people in blue-collar jobs have less flexibility to attend surgery hours due to their perception that their job could be at risk^{xxviii}.

Quality

Healthcare services ‘must be effective to gain access to satisfactory health outcomes’ (NCCSDO, 2001, p.3)^{xxix}. The literature indicates that good quality health services are determined by factors such as well-educated physicians and high standards of safety regulations for pharmaceuticals and medical devices^{xxx}. Part of the EU mandate is to

ensure equitable access to high-quality health services for everyone across Member States, such as access to quality medicines available at fair prices^{xxx}. However, no comparable data on user experience is currently collected in the EU^{xxxii}. One study noted that experiences of perceived disrespect in the context of healthcare results in individuals being less likely to pursue subsequent necessary care in future^{xxxiii}. Various studies highlighted negative experiences for specific sub-groups, such as less satisfaction with care among American and Canadian citizens with disabilities^{xxxiv}, and perceptions of provider prejudice among ethnic minorities from in a United States (US) study^{xxxv}.

Affordability

Goldsmith defines affordability as ‘the relationship between the price of services or the design of insurance and the users' ability to cover the costs, whether through out of pocket payments or insurance’ (2007, p.65)^{xxxvi}. Literature covering this topic can be divided into sources focusing on the costs for the *individual* (including direct and indirect/opportunity costs, such as taking time off work or transport costs)^{xxxvii} and those looking at costs for the *state* (such as the negative impact on healthcare following austerity policies in Greece)^{xxxviii}. While medical insurance requirements in America mean that their experiences of affordability of healthcare differ to those of citizens in the EU, the costs associated with healthcare are widely perceived as a hugely important determinant of healthcare in both regions. Cost is the most commonly cited access issue for Americans according to one study^{xxxix}, and is similarly deemed the most important determinant of unmet need among poorer people in Europe in another study^{xl}.

Acceptability

Acceptability refers to ‘people’s willingness to seek services’ (Evans et al., 2013, p. 546)^{xli}, and is generally conceptualised as operating at the individual level. The EXPH (2016, p.21) highlighted a wide range of personal characteristics that determine feelings of acceptability in respect of healthcare services, including ‘beliefs about health, levels of health literacy, coping and communication skills, other psychosocial factors and access to different resources’^{xlii}. Some articles attribute perceptions of acceptability to broader social groups. For example, Roma groups can consider hospitals dangerous due to community beliefs around death and disease^{xliii}. The role played by intersectionality was evidently important in the literature, e.g. one study argued that LGBT groups experience inequality in access to healthcare because they are treated as a homogenous group, with their intersecting identities (based on gender, race etc.) overlooked^{xliiv}.

Based on the findings from the literature, the study team developed its own definitions for the six determinants and refining two of them in order to capture their essence accurately and succinctly. These definitions were reviewed by stakeholders during the study and were examined by experts during the expert workshops. They are provided in Table 4.1 below.

Table 4.1 Definitions of determinants of access to healthcare

Determinant	Definition
Availability	Whether a healthcare service or product is available in the healthcare system
Accessibility	Whether a healthcare service or product is easily reachable in the healthcare system
Timeliness	Whether a healthcare service or product is available or reachable in a reasonable time in the healthcare system

Determinant	Definition
Adequacy	Whether a healthcare service or product is relevant and up to date with medical and technological developments
Affordability	The extent to which seeking healthcare services impacts the resources of a patient
Appropriateness	Whether a healthcare service or product respects the beliefs and sensibilities of a patient/provider

4.1.1.3 Q3. What are the limitations of current approaches for measuring access to healthcare?

Conceptual problems with the theory

Across the literature reviewed for this study, existing theories on access to healthcare have been criticised for various reasons. Goldsmith (2007) emphasises for example that existing theory is unsuccessful at predicting healthcare use and insufficiently explains variation in actual health services use^{xlv}. This point can be linked to extensive debate on rural-urban divides in access to healthcare and how this impacts variation in service use. Haggerty et al. (2014) suggest that comparing accessibility between urban and rural areas requires measurement instruments that are equally discriminatory in each context^{xlvi}. Zhang et al. (2008) emphasise the importance of place in their study measuring access to eye care, as they state that very few studies have touched upon contextual characteristics, such as the demographic make-up of an area in which a patient resides, and its impact on eye care services^{xlvii}. The relationship between use of health services and contextual factors is also seen as under-represented by Baker (2009), with existing datasets often including variables which are easy to measure and quantify, while ignoring those that are harder to measure and quantify, such as social capital and health system structure^{xlviii}.

Existing theory is also often criticised for not being applicable beyond 'dominant-culture, middle-class populations'^{xlix}. This issue could be attributed to the well-documented dominance of a Western biomedical model of health in current debates on access to healthcare. Daley and Macdonnell (2011) assert that the types of access and equity indicators that have been developed, such as waiting time for joint replacement, are of most relevance to the 'priority population', based on limited demographic characteristics, disorders and diagnosesⁱ. This narrow biomedical perspective on health disparities overlooks the complex structural dynamics and social determinants that influence equitable access to care for diverse groups, especially those on the margins of society. This is linked to the earlier point about the importance of recognising intersecting aspects of identity, such as race, ethnicity, gender, sexuality, etc.ⁱⁱ. Both research and policy responses to inequalities in access to healthcare often focus on groups defined by single characteristics rather than acknowledging people's multiplicity of characteristics and the important consequences of those interactionsⁱⁱⁱ.

Another issue highlighted is the failure to incorporate individual perceptions and beliefs on a large and comparative scale. Harris (2013) observes a failure to translate access to dental care from an abstract and vague construct into something which is specific, concrete, observable, and therefore measurable, which creates problems at a national political level too^{liii}.

Existing theory is seen as failing to account for the *interaction* between the healthcare system and the individual. Ricketts and Goldsmith (2005) note that measures of non-use of health services specifically are poorly understood^{liiv}. The decision to forgo or delay care may be personal and unique to the individual, and thus may be unrelated

to the healthcare system or cultural context. For example, non-use may result from a previous negative experience with the healthcare delivery system, such as disrespectful provider behaviour. A consensus on the most important indicators and how they interact to determine access, is overdue^{lv}.

Data limitations in implementation of existing theory

The EXPH states that comparable data on overall user experiences of the health system are not available in the EU^{lvi}. Routinely collected data on the quality of patient-provider interactions are limited to a handful of Member States. The only routinely collected data available across all Member States are for unmet need due to fear of doctor, hospital, examination or treatment. In general, this is a very minor source of unmet need, although there is some variation across countries. A similar issue was found across studies on access to healthcare in Canada. This is largely due to there being no agreement among Canadian provinces, the federal government, or researchers about how to measure waiting time^{lvii}. Much like the EU, a pan-Canadian approach to defining and capturing common data elements to allow comparisons among sectors and provinces is called for^{lviii}.

The indicators routinely used to monitor access in the EU are limited in scope and relevance^{lix}. Few are available across all 28 Member States, almost none are available at sub-national level and only a handful can be broken down by population sub-group (mainly indicators from EU-SILC which are available by income quintile and by labour status). A series of relatively fixed variables that are used, such as ratio of practitioners at population level, fail to acknowledge access as a dynamic process with considerable potential for individuals and families to modify their behaviour^{lx}.

4.1.1.4 Q4. What are the stakeholders' expectations on what access to healthcare should measure?

The literature on stakeholders' expectations in respect of measuring access to healthcare made numerous suggestions. Gulliford et al. (2001) affirm that there is a need to develop better methodologies and instruments for eliciting patients' views of services^{lxi}. They argue that there is a need for systematic review of the content and significance of barriers to patient access to services, including variations among different social and ethnic groups, leading to longer-term primary research.

The EXPH asserts that it is necessary to gather information from groups facing multiple vulnerabilities who are likely to experience the biggest barriers to access^{lxii}. This will enable Europe to match the quantity and quality of data available to health policy makers in countries such as the US and Australia. They suggest that countries in the EU should be required to collect standardised administrative data on the use of health services to enable identification of unmet need. These administrative data on the use of services should be linked to data on individual characteristics, including socio-demographic information and measures of deprivation within geographically defined communities. Data on user experiences would also help to identify and interpret evidence of barriers to access.

Views on the financial costs for patients differs considerably between the US and Europe, chiefly due to the marked differences in private healthcare service provision. According to Harris et al. (2013), a more comprehensive view of access should consider dimensions related to financial affordability, together with other factors such as resource availability and cultural acceptability^{lxiii}. The EXPH identified a limitation of unmet need data in Europe, in that it failed to recognise financial hardship experienced by patients when using health services, which might present a financial barrier to use in future^{lxiv}. Suggestions to include proxy measures of financial hardship were considered by the EU Social Protection Committee's Joint Assessment

Framework for Health^{lxv} in 2014. In their pursuit of progress towards 'universal coverage', the WHO and the World Bank have proposed measuring financial protection by looking at the proportion of people facing very high ('catastrophic') health expenditure (defined as a percentage of household spending), and the proportion of the population who fall into poverty due to health spending^{lxvi}.

More research is needed on how typical indicators of access (e.g. health workforce shortages, time spent with health professionals and waiting time) affect health outcomes^{lxvii}. Clinton and MacKinney (2014) suggest that access can be measured by either process measures (how the system works) or outcome measures (results or final products)^{lxviii}. Examples of the latter include vaccine preventable illness or prolonged life.

The EPF (2016) underlines that, from patients' perspectives, a key area of access that is not addressed by existing indicators is specific information on access to healthcare and other connected services for patients with chronic, long-term conditions or multimorbidities^{lxix}. There is therefore a need for more indicators geared towards measuring access to quality chronic disease care and management.

The EPF (2016) also states that a lack of common definitions of key terms, such as chronic disease or disability, presents an obstacle to comparable data across Europe^{lxx}. It believes that the Commission has a role to play in ensuring collaboration towards inclusive common definitions of these terms.

The Social Protection Committee Indicators Sub-Group (SPC ISG) (2015) recommends a broad common methodological framework for the development of a portfolio of EU social indicators^{lxxi}. An indicator should be measurable in a sufficiently comparable way across Member States, the Committee asserts that such comparability requires internationally applied definitions and data collection standards. Indicators that are overly sensitive to structural differences or that raise interpretation problems should be avoided.

4.1.1.5 Q5. Are there suggestions of changing the methods used to measure access to healthcare?

Some authors suggest changing the methods used to measure access to healthcare. For example, Wang et al. (2013) underline the importance of including as many variables as possible to capture the many dimensions of socioeconomic and cultural variation^{lxxii}. This includes demographic variables (e.g. population with high healthcare needs including seniors of ages above 65, children of ages 0–4 and women of child-bearing age 15–44), socioeconomic status (e.g. population in poverty, female-headed households), living conditions (e.g. households with an average of more than one person per room), linguistic barriers and education (e.g. linguistically isolated households) and transportation mobility (e.g. households without vehicles).

Duck-Hye et al. (2006) assert that the inequitable geographical distribution of healthcare resources has long been recognised as a problem in the US. They argue that traditional measures of geographical distribution do not consider interactions between patients and providers across administrative borders (such as a simple ratio of supply to demand in an area), nor do they account for the demand side (such as distance to the closest provider)^{lxxiii}. Advances in geographical information systems (GIS) are prompting improved measures of geographical accessibility (such as the two-step floating catchment area method), although the authors indicate that there is still room for improvement in this method and further study is warranted.

Analysing access to dental care, Harris (2013) suggests the need for a distinction between 'entry access' and 'effective access', and indicators which could measure

both of these forms of access^{lxxiv}. In other words, a distinction should be drawn between the concept of access to care which is related to the availability and the process of entry into health services (entry access) and the issues which come into play after a patient has entered the system, pointing at whether effective, equitable, and efficient care is obtained (effective access).

Apparicio et al. (2017)^{lxxv} also suggest changing the current methods used to measure access. They compare different approaches to measuring potential spatial access to urban health services. They highlight the discrepancies in results produced by different distance and aggregation methods, underlining the importance of choosing a precise type of distance and aggregation method to accurately assess potential geographical access to health services in urban areas.

4.1.2 Good practice examples of measuring access to healthcare

The literature and policy review identified examples of good practice in measuring access to healthcare. These provide examples of important themes and specific indicators determining access to healthcare. Braithwaite et al. (2017) compared healthcare performance indicators and frameworks across eight OECD countries (Australia, Canada, Denmark, England, the Netherlands, New Zealand, Scotland and the US). They looked at performance frameworks, defined as 'conceptual frameworks that set out the rationale and design principles for an indicator set' (p.1), and found that the most commonly used domains in performance frameworks were safety, effectiveness and - significantly - access. They noted that access is included as a performance indicator for Australia, Canada, the Netherlands, Scotland and the US. These countries endeavour to improve the quality and performance of their healthcare systems and recognise the measurement of access as vital in this process.

The Expert Group on Health Systems Performance Assessment refers to Slovenia's efforts as one such example of good practice. Slovenia carried out an extensive qualitative survey on barriers for access to primary care and preventative services for vulnerable individuals²¹. The survey is not standard practice. The Expert Group found that attempts to assess the clinical performance of primary healthcare systems were rare among Member States. Collecting detailed information on the barriers to access experienced by this specific sub-group is therefore good practice.

Similarly, the General Practice Assessment Questionnaire (GPAQ)²² is another example of good practice. The GPAQ assesses access to healthcare, focusing particularly on continuity of care. This is a well-established patient survey questionnaire available to General Practitioners (GPs) in England, covering all practice patient survey requirements and approved as part of the Quality and Outcomes Framework (QOF). Developed by the National Primary Care Research and Development Centre in Manchester and introduced after 2004, much of the questionnaire focuses on access. For instance, it asks patients about receptionists, appointments, opening times and the timeliness of access to a preferred GP²³. Results from the questionnaire can then be compared against national benchmarks, such as satisfaction with the availability of a particular doctor. A further example of good practice in this area, and also in widespread use in England, is the national GP Patient Survey (GPPS), commissioned by the Department of Health. GPPS is an

²¹ A New Drive for Primary Care In Europe: Rethinking the Assessment Tools and Methodologies, 2018: Report of the Expert Group on Health Systems Performance Assessment.

²² https://www.kingsfund.org.uk/sites/default/files/field/field_document/continuity-care-patient-experience-gp-inquiry-research-paper-mar11.pdf

²³ <http://www.phpc.cam.ac.uk/gpaq/home/background/>

independent survey conducted annually to understand how people feel about their GP practice, which includes monitoring the achievement of access targets, such as availability of a preferred GP or waiting time (e.g. the percentage of patients who usually wait 15 minutes or less after their appointment time). Both surveys provide examples of formalised approaches to evaluating patients' experiences of care by measuring quality and then providing insights into improving access to healthcare overall.

Another good practice example which evidences attempts by a country to develop an understanding of its healthcare system is Canada's Primary Health Care Indicator Development Project (2006), led by the Canadian Institute for Health Information (CIHI)²⁴. The project developed a set of 105 primary healthcare indicators to measure experiences of primary healthcare ('the foundation of Canada's health system') and close information gaps by providing advice on future data collection infrastructure. Access is a central aspect of many of the indicators. They seek to measure, for example, access to primary healthcare through a regular provider, using indicators such as population with a regular primary healthcare provider and primary healthcare after-hours coverage. The set of agreed indicators reflect the aspects of healthcare provision that a range of stakeholders believe should be measured. By developing and refining how access is measured, Canada is able to deepen its understanding of how the healthcare system is evolving, and, ultimately, enhance the system and how it is managed.

A similar national effort to deepen understanding of access to healthcare is seen in the scoping exercise undertaken by the NHS Service Delivery and Organisation (SDO) Research and Development Programme²⁵. The SDO produced a 'conceptual map' which details key issues in access to healthcare, based on consultations with a broad range of stakeholders, including patient, professional and charitable organisations. The scoping exercise identified seven key areas for future research, outlining the efforts already undertaken to assess access, as well as the primary and secondary research required to address gaps in knowledge or understanding. For example, in the area of 'Planning the availability of services', the report states that there has been much work, especially in rural areas, assessing issues relating to the location and configuration of services. However, it highlights the need for a methodological review offering advice on the use of geographical models in the evaluation of access to healthcare.

4.1.3 Development of the conceptual framework (Task 2.1)

This study builds on the definition of access to healthcare included in the EU Pillar of Social Rights, Chapter III, Principle no.16, healthcare: '*Everyone has the right to timely access to affordable, preventative and curative healthcare of good quality*'. The conceptual framework provides a comprehensive overview of access to healthcare, as defined by this principle, and was developed to reflect the different aspects of access to healthcare and its determinants.

The development of the conceptual framework was based on findings from the literature review and expert advice. The results of Work Package 1 provided a clear

²⁴ Pan-Canadian Primary Health Care Indicators Report 1, Volume 1.
https://www.cihi.ca/en/pdf_phc_indi_report1vol1fin_en.pdf

²⁵ Access to healthcare: report of a scoping exercise for the National Coordinating Centre for NHS Service Delivery and Organisation R&D (NCCSDO), 2001. London: London School of Hygiene and Tropical Medicine. Available at: http://www.sdo.lshtm.ac.uk/pdf/accessscopingexercise_report.pdf

picture of existing methods, their limitations and recommendations to improve the current approaches to measuring access to healthcare around the world.

Following the workshop feedback, the definitions of determinants of access to healthcare (see Table 4.2) were updated, together with the conceptual framework.

Table 4.2 Definitions of determinants of access to healthcare

Determinant	Definition
Availability	Whether a healthcare service or product is available continuously in the healthcare system
Accessibility	Whether a quality healthcare service or product is easily accessible in terms of distance or transportation means to reach it or design of the healthcare system facilities
Timeliness	Whether a healthcare service or product is available or reachable with the promptness appropriate to the patient's needs
Adequacy	Whether a healthcare service or product is relevant and meets stakeholder (patient, doctor and others) expectations
Affordability	Whether seeking healthcare services depends on a patient's financial resources
Appropriateness	Whether a healthcare service or product does not disregard the cultural, social or other individual characteristics of a patient

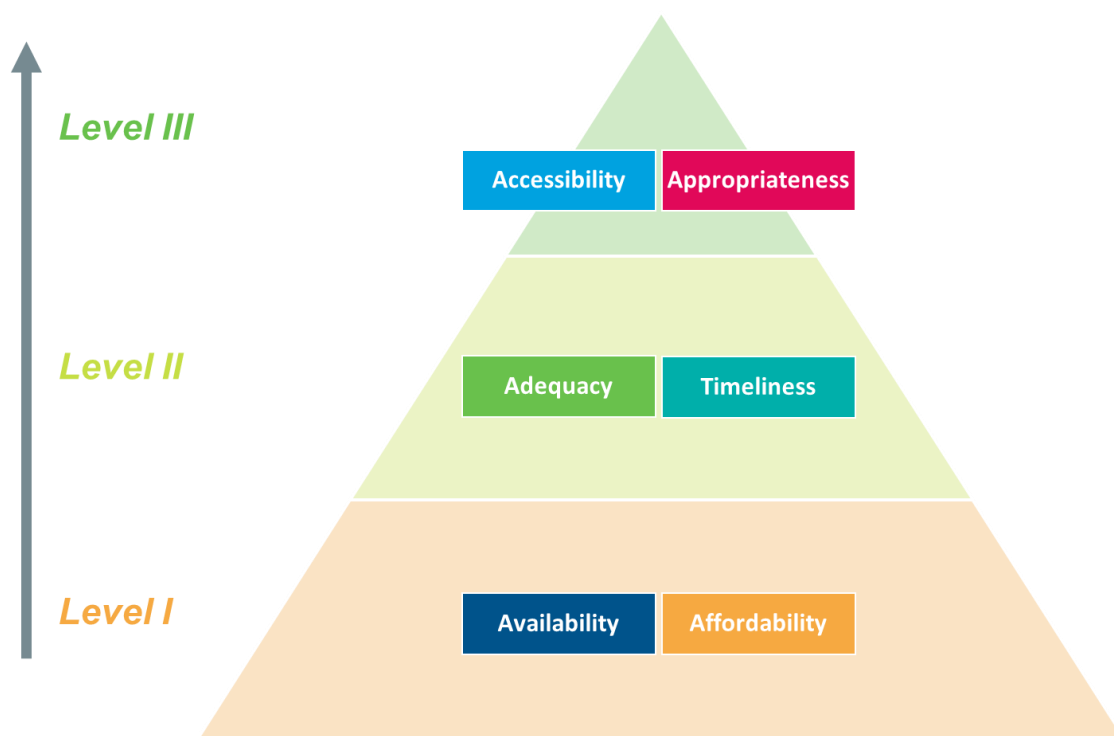
Source: ICF

The notion of access to healthcare is complex and any attempt to conceptualise it is likely to result in a loss of some information. Although acknowledging the existence of inter-dependencies among the six determinants, the conceptual framework focuses on describing the elements of each individual determinant. In line with the definition of access to healthcare included in the European Pillar of Social Rights, identified determinants tend to go beyond the very strict understanding of access, involving for example also issues related to quality or effectiveness of healthcare. This approach is necessary, because low quality or low effectiveness of healthcare have a negative impact on access. Indeed, while measuring access to healthcare, it is necessary to consider traditional access indicators in the broader context, taking into account interrelated aspects.

It should also be stressed that certain determinants are relevant only if certain conditions have occurred, e.g. a patient will not be affected by the accessibility of a treatment if that treatment is not available in the healthcare system. A hierarchy of the six determinants was developed to reflect such considerations.

The hierarchy of determinants can be portrayed as a pyramid (see Figure 4.1 below) with the two most fundamental determinants at the bottom (Level I) and two additional levels at the top (Level II and III) including two determinants each.

Figure 4.1 Hierarchy of determinants of access to healthcare



Source: ICF

Level I determinants are essential for access. They focus on the components of the healthcare system: a product or service must be available and/or affordable in the healthcare system.

Once the first two determinants are in place, Level II determinants point at the fitness for purpose of the healthcare system: the product or service, even if available and/or affordable, should be adequate (relevant and meet expectations (quality) and delivered in time especially for certain conditions).

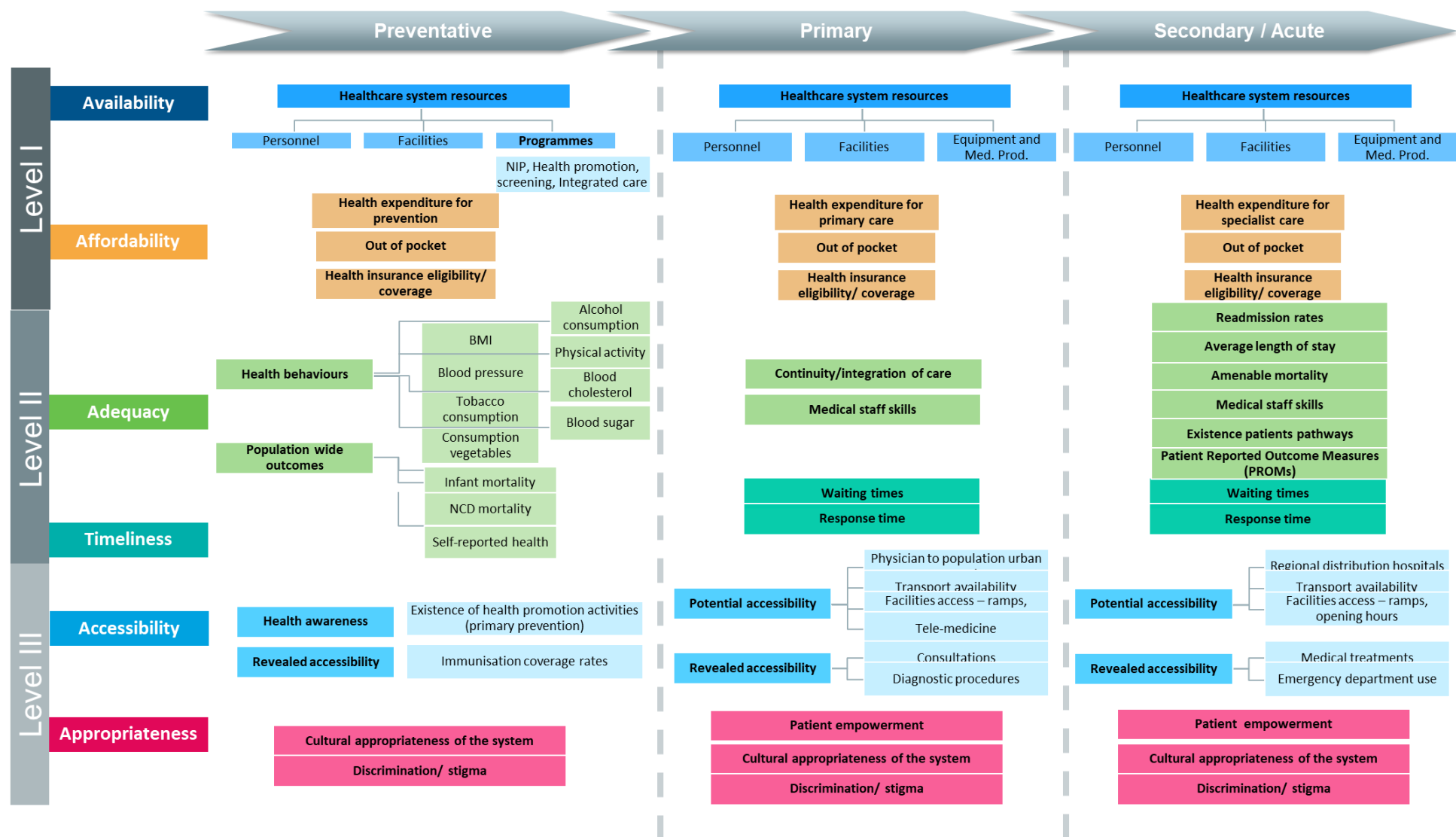
Level III determinants focus on the ease with which the healthcare system can be navigated by patients: the product or service, even if available and/or affordable and fit for purpose, should be accessible and perceived to be appropriate.

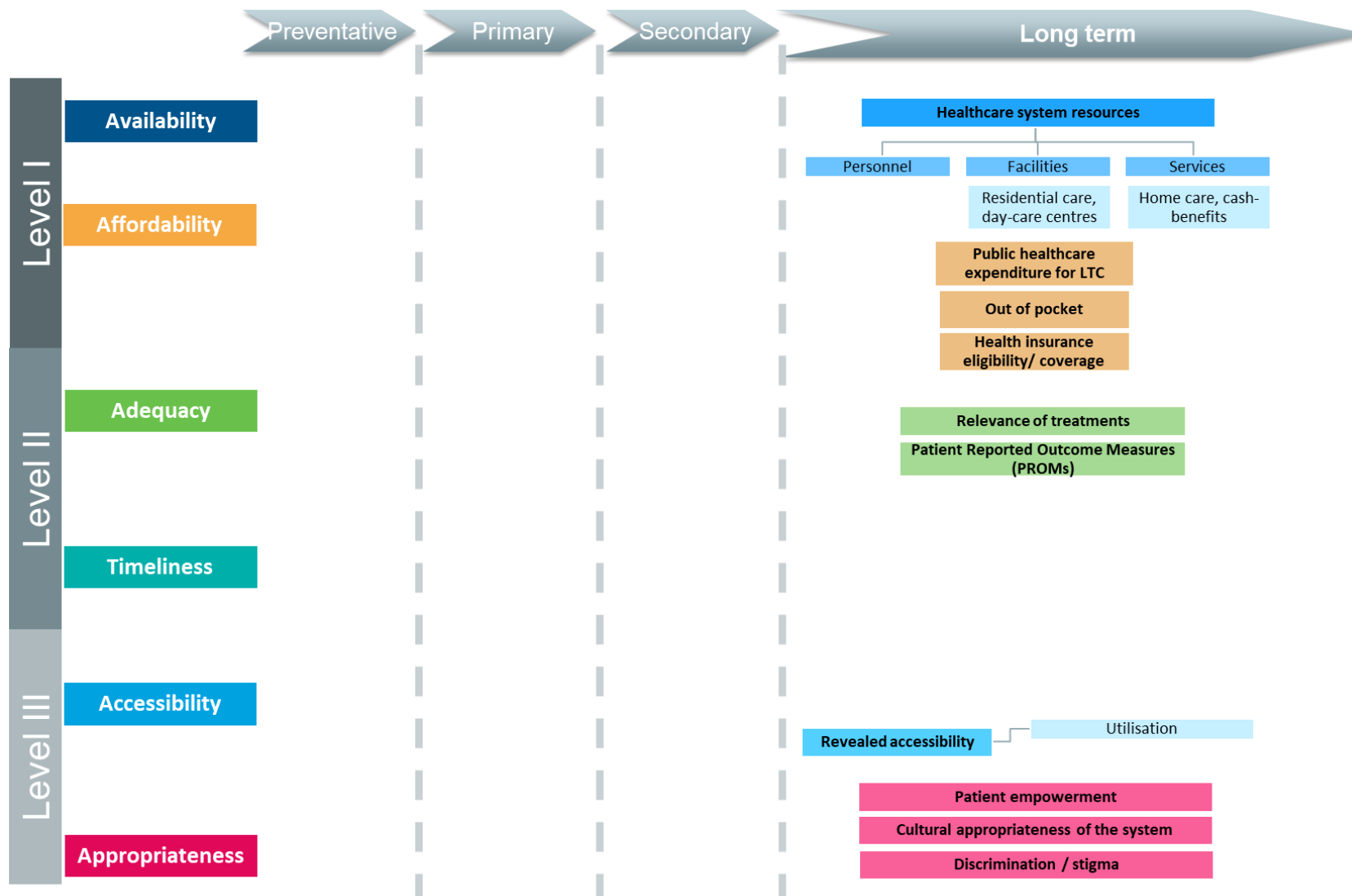
For each of the six determinants of access – Availability, Accessibility, Timeliness, Adequacy, Affordability and Appropriateness – a series of sub-categories or ‘nodes’ was defined to better describe different elements affecting access. Access indicators were also organised into the different building blocks of the framework as ‘sub-nodes’.

The framework was discussed in the two expert workshops and modified based on the feedback received. Figure 4.2 provides the validated conceptual framework to measure access to healthcare in the EU.

The conceptual framework considers the diversity of perspectives on measurements of access to healthcare, and the inherent challenge of achieving consensus on the indicator set to be used. The application of the framework provides a cross-sectional image of the state of access to healthcare in the EU. Depending on the breakdown of the indicators, the framework can be used to measure access to healthcare for the entire population (EU or single Member States) and by population sub-groups (e.g. by socioeconomic status).

Figure 4.2 Framework to measure access to healthcare





Source: ICF

5 Indicators to measure access to healthcare

This section describes the steps taken by the study team to compile the list of existing indicators to measure access to healthcare in EU Member States.

Following this identification, the study team assessed the indicators' quality and mapped them against each determinant in the conceptual framework.

Inputs from the study team and external experts on the proposed indicators enabled an analysis of the coverage of the dimensions of the framework. This prompted the subsequent step outlined in this section which involved the proposal of additional indicators.

5.1 Identification of existing indicators

A list of the existing indicators available to measure access to healthcare was compiled. Their quality and the feasibility of implementation in all EU Member States was then assessed. The key sources used to compile the list of existing indicators were²⁶:

- Eurostat;
- OECD;
- WHO;
- European Observatory on Health Systems and Policies;
- UNICEF;
- Eurofound/ European Quality of Life Survey (EQoL);
- European Collaboration for Healthcare Optimization (ECHO);
- European Monitoring Centre for Drugs and Drug Addiction (EMCDDA);
- European Patients' Forum (EPF);
- Médecins du Monde (MdM);
- Michigan Patient Experience of Care Initiative (MiPEC)
- Data collected from several other relevant projects (QUALICOPC, Eurochip, Emergency Services, EUHPID, Eurociss, Pomona, EUDIP, CHILD, Environment/ Health, IMCA, Manpower, Musculoskeletal, Peristat, Oral Health, etc.);
- Data from national offices (Austria, Denmark, Germany, Sweden, Australia, Canada, Japan, etc.);

The search for existing indicators relevant to access to healthcare identified 1,432 indicators. This long list was mapped to the conceptual framework, ensuring that the six determinants of access were covered by as many relevant indicators as possible. The selection criteria used to populate the conceptual framework were: quality, frequency of data collection and coverage of Member States. The list also included indicators that only cover non-EU countries (e.g. US, Australia). These were not analysed to the same extent as the EU indicators but were nonetheless interesting conceptually and methodologically, with the potential to generate ideas for proposing new indicators.

The large number of indicators collected was based on clear reasoning. Firstly, there were groups of similar indicators from different sources. In order to allow flexibility in the pilot testing of the indicators, all such similar indicators were retained. Secondly, many indicators from 'non-regular' sources (e.g. discontinued projects) were included

²⁶ See Annex 4 for a complete list of data sources used to compile the indicator repository.

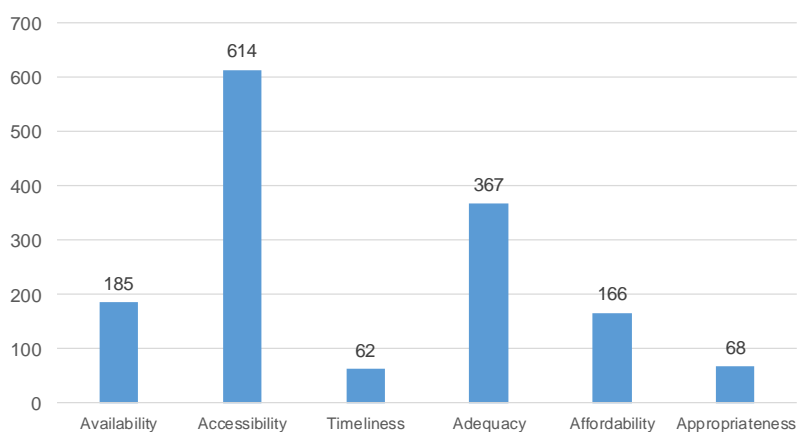
because they could potentially lead to ideas for new indicators. Thirdly, every relevant indicator was compiled, including several very specific in scope, to ensure that every node in the framework could be sufficiently covered. The analysis included indicators from both 'main' sources, with databases that are updated regularly, and other sources, which capture less commonly used indicators but which are still valuable in this instance.

The following points should be emphasised:

- Each indicator could be assigned to more than one dimension because of overlaps in the underlying concepts. The indicators in the repository were assigned to one or two dimensions (and, in very few cases, three).
- Similarly, at the lower 'node' levels under each dimension, it was not always possible to assign indicators to a single node. Therefore, the labels of the nodes used in the repository under each dimension sometimes contain combinations of nodes of the framework.
- Technically, many indicators in the repository are really sets of indicators and the distinction is not always obvious. For example, Eurostat health expenditure indicators are found in two entries in the repository, in healthcare expenditure by provider and in spending on health as share of government spending. In the healthcare expenditure by provider, measurements can be expressed in various units (Euro per inhabitant, million purchasing power standards (PPS), PPS per inhabitant, etc.). One could argue that these are actually different indicators. Given the large number of indicators, where the description was sufficiently clear, a single entry was noted. For example, the following single entry from the Eurofound/ EQoL survey 'Difficulty of covering expenses for a) GP, family doctor or health centre services, b) Dental care, c) psychologist, psychiatrist or other mental health services, d) Emergency healthcare, e) Other hospital or medical specialist services' corresponds to multiple questions and thus multiple indicators.

With these provisos in mind, Figure 5.1 below shows the number of indicators in the repository per dimension.

Figure 5.1 Number of indicators per dimension of the framework



Source: ICF

Note: The sum of frequencies is larger than the total number of indicators (1,462) because several indicators are allocated to more than one dimension.

Indicators in the repository are described through a range of information:

- **Data availability:** the extent to which data needed to compile the indicator are available or are easy to collect across EU Member States.

- **Methodological soundness:** the soundness of the methods used to compile the indicator.
- **Access dimensions:** the specific dimension(s) of access to healthcare to which the indicator refers. These are the dimensions of the conceptual framework (Task 2.1) already mentioned.
- **Relevance:** the degree to which the indicator meets the needs for measurement of access to healthcare across Europe.
- **Accuracy:** the closeness of computations or estimates of the indicator to the exact or true value.
- **Timelines and punctuality:** timeliness of information reflects the length of time between the availability of the indicator and its reference period. Punctuality is the time lag between the actual release of the indicator and the date on which it was scheduled for release.
- **Accessibility and clarity:** the simplicity and ease, and the conditions and modalities by which users of the indicator can access, use and interpret it, with the appropriate supporting information and assistance.
- **Coherence and comparability:** coherence measures the extent to which the indicator is consistent with other healthcare access or other socioeconomic indicators, for example through having the same reference population and period, relying on the same accounting practice for financial data, etc. Comparability refers to how comparable its values are over time and between countries and sub-national regions^{lxxvi}.
- **Cost and burden:** the cost of producing the indicator and the administrative burden on the producer and on the units providing input data (for example, individual survey respondents, enterprises providing company data).

The repository contains one indicator per row, information on the criteria of the analysis (access dimensions and statistical quality aspects) and other information. The complete list of fields is given below:

- Indicator name;
- Relevant access dimensions;
- Source;
- Breakdowns in which the indicator is available, e.g. sex, age, etc.
- Availability of data-coverage: countries, years, sub-national level, reference population;
- Periodicity;
- Link to online metadata;
- Link to the data source;
- Data source path: navigation instructions to locate the particular dataset in the data source's dissemination environment;
- Strengths;
- Weaknesses;
- Path: the path to the documentation folder holding the information about the indicator.

This repository is an Excel file (D2) which can serve as a reference for DG SANTE. It allows filtering by several criteria, such as source or access dimension(s), and includes pointers to online resources or more detailed documentation located by the study team. The second version of the repository, submitted on 9 October 2018, has more homogenised and enriched content, additional columns with the available breakdowns, several corrections, etc.

The different metadata structures among the sources made it difficult to carry out a consistent quality assessment of the indicators for all sources. In many cases, either

no metadata information were available, or were incomplete. As a result, many fields in the repository could not be populated.

In general, the statistical quality problems of the set of indicators in the repository were quite typical. Limitations in the comparability of indicators between countries were mostly observed in those based on administrative data and stemmed from differences in the way healthcare provision is organised in countries or differences in definitions and data compilation practices. For example, some countries do not cover all healthcare providers (i.e. both public and private). Also, in the OECD's indicators on health resources, the definition of health personnel varies greatly between countries. The methodologies for data collection followed by countries vary for some indicators. Again, not all countries provide data to the OECD for the whole pharmaceutical market. Some provide data only for the community pharmaceutical market or for the reimbursed pharmaceutical market. In other cases, recording the cause of an admission to hospital depends on the situation, with admission records registering the complication causing the admission in some cases, and in others recording only the underlying medical condition.

A rare methodological limitation was observed in the WHO survey on eHealth from 53 WHO European Region countries: each country used a group of experts and was constrained to one response, although there was not always consensus between the experts.

Limitations were also observed in the accuracy of some indicators because many surveys are not representative of the statistical population. For example, some health surveys cover only people living in private households.

A very common weakness of several indicators which refer to self-reported measures (e.g. health status, medical histories, unmet needs) is the inherent bias in subjective responses, even in surveys which are highly harmonised such as the EU-SILC. Some accuracy issues were observed in cases where indicator data are based on a small number of survey responses.

The indicators were mapped to the aspects of access to healthcare indicated in the framework. An analysis of the coverage of the dimensions of the framework was then carried out. Each indicator could be assigned to more than one dimension because of overlaps in the underlying concepts. Several indicators were temporarily assigned to 'sub-cases' not exactly matching the nodes in the framework with a view to identifying possible new nodes.

The **Availability** dimension contains numerous indicators (185) covering almost the entire 'tree' of the framework. Only the end nodes are relatively sparsely populated. In relation to personnel, although doctors and nurses are adequately covered, this is not the case for midwives. Facilities are well covered, as are resources and equipment. However, due to the rapid advances in medical technology in recent decades, there are no indicators on innovative medicines.

The dimension of **Affordability** is covered by 166 indicators. Most refer to public health expenditure, health insurance coverage, co-payments/ deductibles, out-of-pocket expenses and treatments skipped due to cost. Catastrophic expenditure is covered by a single indicator but indicators on treatments skipped for particular reasons can also be considered relevant. The use of generic medicines is similarly covered by a single indicator.

Adequacy is the second most highly populated dimension, with 367 indicators. Health status (with various mortality rates) and self-reported health are very well covered and

there are also several indicators on re-admission rates, average length of stay, amenable/preventable mortality, medical staff skills and time per visit.

There are relatively few indicators (62) in the **Timeliness** dimension. Most concern waiting time, time between diagnosis and treatment, early diagnosis/treatment and treatments skipped due to waiting time. There are no indicators measuring travel times or time to diagnosis from first visit. However, access problems due to travel times are included in indicators measuring unmet needs for a large variety of reasons and are thus allocated to other dimensions.

Accessibility is the most populated dimension, with 614 indicators. Potential accessibility is well covered only in the virtual accessibility node. For physical accessibility, health promotion activities are adequately covered. Coverage of facilities' opening hours is rare and data on the appointment system are not found anywhere. Indicators on the geographical distribution of resources are also uncommon. Health literacy is well covered. The majority of the indicators fall under revealed accessibility i.e. in unmet needs and utilisation rates. There are numerous indicators on access levels and barriers, consultations, medical treatments and surgeries, screenings, dental care, immunisation coverage, hospital beds occupancy rates, etc. Relatively frequent sub-cases are related to access by special groups, health attitudes and hospital mental healthcare.

Specific sub-cases included medical staff IT skills, eHealth/mHealth (mobile) programmes, best practice, infections/complications after surgery and unnecessary procedures.

The **Appropriateness** dimension includes 68 indicators, most linked to satisfaction. Beliefs/perceptions about health are poorly covered. There are sufficient indicators for the cultural competence of medical personnel, and one node on the ethical competence of medical personnel.

5.2 Proposals for new indicators and refinements

This section discusses how existing indicators collected in the indicator repository fit the conceptual framework. It also presents a proposal for new indicators to measure access to healthcare in the EU in areas where indicators are insufficient or non-existent.

The proposal was formed from the analysis of the dimensions of the framework (determinants of access to healthcare) that are not populated by indicators, or that are not sufficiently covered by available indicators. It is based on:

- Discussion during the second workshop;
- Comments and suggestions from DG SANTE following the second workshop;
- Subsequent literature review and desk research;
- Discussion of the draft final report with Commission representatives and the comments and suggestions received.

The primary aim was to propose indicators to close the gaps in nodes of the framework. However, other improvements in existing indicators were also investigated and solutions are proposed here. The comments and suggestions by DG SANTE received after the circulation of the notes from the second workshop were valuable and guided much of the desk research.

An effort was made to offer clear and specific proposals, accompanied by draft indicator fiches for new indicators. In some cases, however, this was not possible. The production of some indicators must wait for further methodological developments by Eurostat and other organisations. In several other instances, the proposals cannot be easily implemented and require further research work, going beyond the scope of the current project.

This section presents proposals of indicators by dimension in the framework. In each dimension, all first-level nodes are examined and the solutions to identified 'issues' (for example lack of indicators to measure important aspects) are identified and discussed. When there is no issue, this is simply noted. If general issues arise (not corresponding to specific dimensions) they are presented in Section 5.7. A summary of the proposals is also provided in Section 5.8.

Annex 3 contains the fiches for the proposed new indicators, by dimension in the framework. After the review of the proposals, the fiches were revised.

5.2.1 Availability

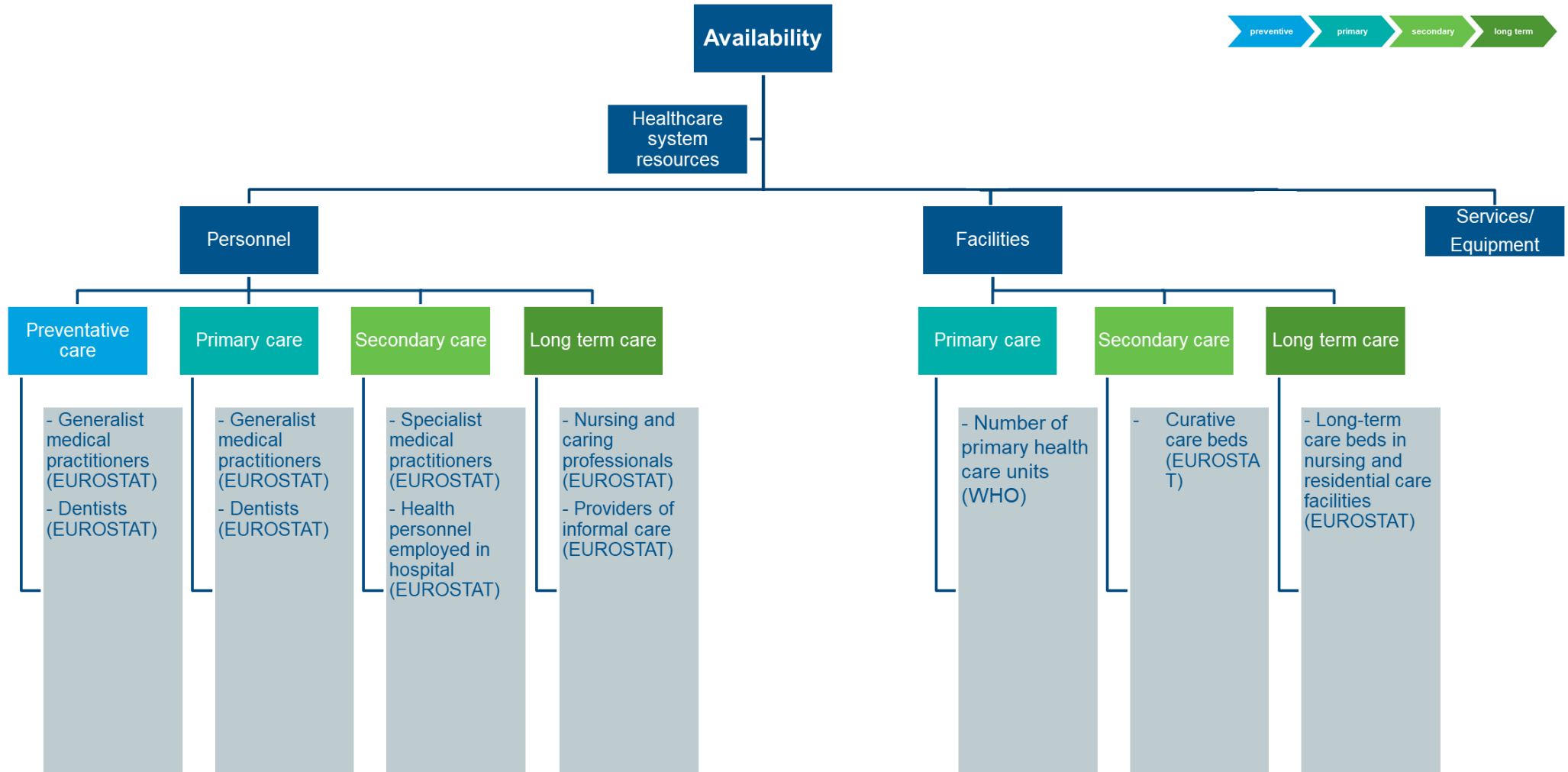
Figure 5.2 and 5.3 show the indicators in the Availability dimension in the conceptual framework. Each node is adequately populated, with the exception of:

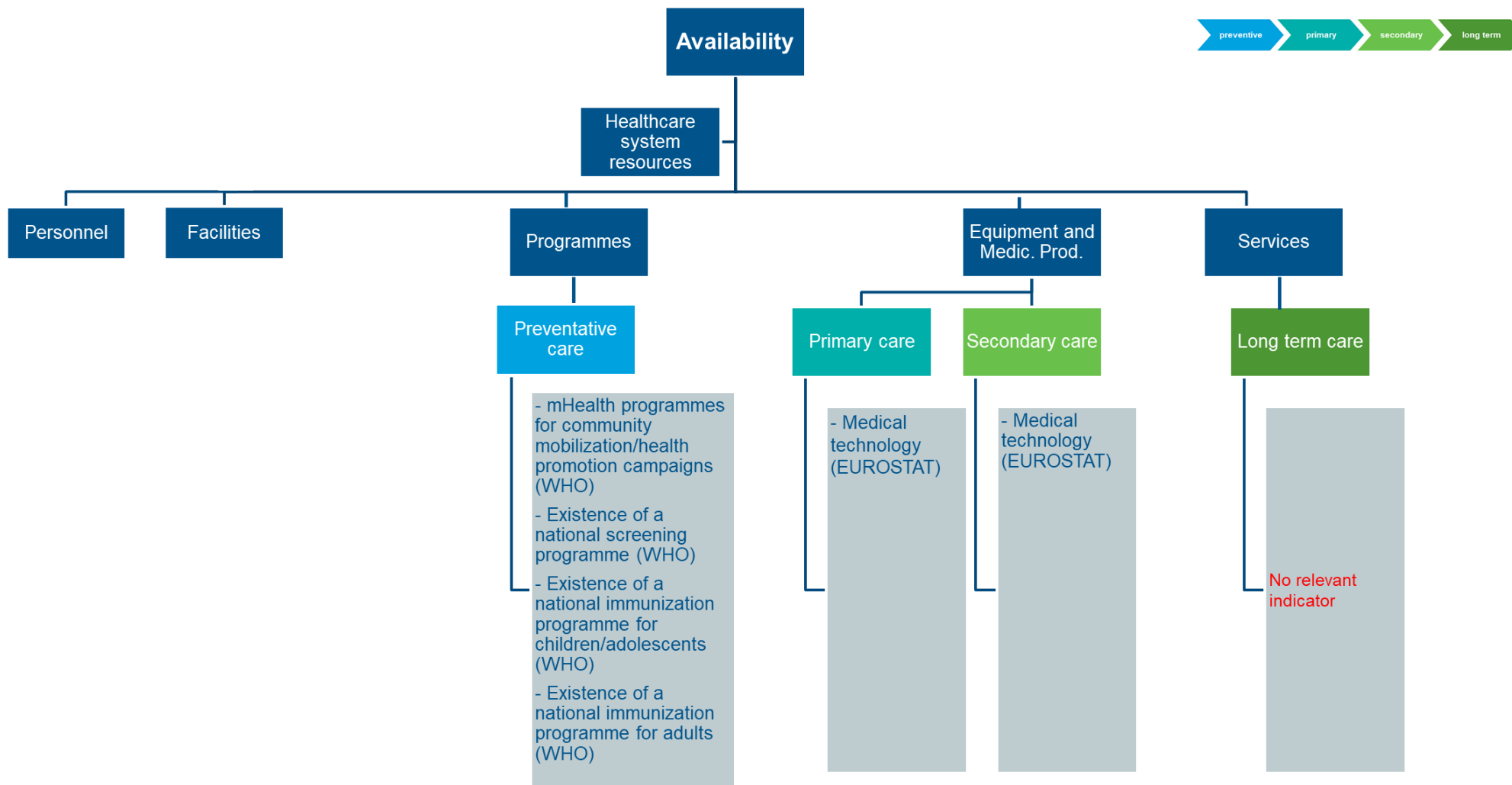
- Facilities in preventative care, where there is no indicator;
- Equipment and medical products in primary and secondary care, where the indicators do not cover medical products;
- Services in long-term care, for which there is no indicator.

Eurostat indicators on health personnel employed in hospitals in secondary care are disaggregated by category of personnel. Of primary interest are medical doctors and nursing professionals and midwives.

A suggestion from DG SANTE on the availability of healthcare professionals disaggregated by subcategories of healthcare personnel is also addressed.

Figure 5.2 Proposed indicators for the Availability dimension





5.2.1.2 Personnel

- ▶ Issue: DG SANTE asked for greater focus on aspects of the availability of the healthcare workforce, such as emigration and age.

Proposed approach:

The available Eurostat data (collected together with OECD and WHO-Europe data through the Joint Questionnaire on Non-Monetary Health Care Statistics) do not facilitate identification of immigrants (e.g. by providing country of origin). However, they do include sex and age, (the latter in the groups < 35, 35-44, 45-54, 55-64, 65-74 and ≥ 75 years) for *physicians*, which include both generalist and specialist medical practitioners.

There is no other way to collect such disaggregated statistics through another survey (e.g. the Eurostat's EU Labour Force Survey (EU-LFS), as the occupation coding makes such collection problematic. The available Eurostat data are based on rigorous definitions agreed between Eurostat, the OECD and WHO.

The proposal is therefore to enrich this node and add the number of physicians by sex and age. Since physicians can be generalists or specialists, this indicator should be associated with all preventative, primary and secondary care stages.

PROPOSALS FOR THIS SUB-NODE

1. Proposal to enrich the node by adding the Eurostat indicators with the number of physicians broken down by sex and age groups to the currently placed indicators, in all preventative, primary and secondary care stages.

5.2.1.3 Facilities

- ▶ Issue: The Facilities node in preventative care is empty.

Proposed approach:

It was not possible to find any relevant indicator. As facilities for preventative care are largely related to GPs' offices, any relevant information would be too strongly correlated with the number of these medical practitioners. This node is considered redundant and the proposal is to remove it entirely.

PROPOSALS FOR THIS SUB-NODE

2. Proposal to remove the Facilities/preventative care node.

5.2.1.4 Programmes

- ▶ Issue: None.

PROPOSALS FOR THIS SUB-NODE

No additional indicator or change to existing indicators is proposed.

5.2.1.5 Equipment and medical products

- ▶ Issue: The existing indicators in primary and secondary care are from Eurostat and cover the availability of certain medical technology equipment but not medical products.

Proposed approach:

No proposal is made to address this gap. DG SANTE will commission a future study to examine in greater depth how to measure availability of medical products in the EU.

PROPOSALS FOR THIS SUB-NODE

No additional indicator or change to existing indicators is proposed, but the sub-node could be revisited on the basis of the planned study of DG SANTE.

5.2.1.6 Services

- ▶ Issue: The Services node in long-term care is empty.

Proposed approach:

In the analysis that follows, long-term care is defined as ‘a range of services and assistance for people who, as a result of mental and/or physical frailty and/or disability over an extended period of time, depend on help with daily living activities and/or are in need of some permanent nursing care²⁷. Long-term care services can be provided formally or informally. The definitions are taken from the publication referenced above:

- Formal care services are provided by ‘licenced providers, either at home or outside the home of the care dependent person. Providers can be public, profit-seeking or not-for-profit organisations and the care professionals can be employees or self-employed’.
- ‘Informal care is provided by informal carers, such as relatives, spouses, friends and others, typically on an unpaid basis and in the home of the care recipient’.

The quantification of the variety of services offered in long-term care across the Member States presents many methodological difficulties. The study team adopted the approach suggested in the second workshop, which recommended the focus on *support for informal (or family) care*, as informal carers are the main providers of long-term care. The problems faced by these workers are well known: they work under difficult conditions, suffer from job-related health problems and have difficulties

²⁷ Spasova, S., Baeten, R., Coster, S., Ghailani, D., Peña-Casas, R. & Vanhercke, B., 2018. Challenges in long-term care in Europe; A study of national policies. EC: DG Employment, Social Affairs and Inclusion.

remaining in employment. Yet they play a fundamental role and demographic trends are driving an increasing need for their services²⁸.

A recent OECD report²⁹ examined this indicator of support of informal care workers by quantifying the opportunity cost of the time they spend caring (assuming that if they were not providing informal care they would work in a typical job at the median wage in their country). There were several problems with data availability and accuracy for this indicator³⁰. A different methodology was followed in a study on informal care in Europe³¹, which attempted to find determinants of taking-up an informal caregiver role in terms of demographics, socioeconomic characteristics and attitudes, using data from the ESS. This was based on qualitative analysis of the results.

A simpler and more direct approach is proposed here, since availability can be measured directly instead of observing some of its determinants (such as motivation or wellbeing status), as in the above studies. The approach here assumes that support of informal caregivers is reflected in their population size and its growth or decline.

One option is to measure the ratio of the number of informal caregivers to the number of recipients of the long-term care (see [indicator fiche AV1](#)). The number of informal caregivers (providing assistance at least once per week) can be obtained from the European Health Interview Survey³². The OECD data provide estimates of the number of long-term care recipients in their register 'Health/ Long-Term Care Resources and Utilisation'. The annual change rate of this ratio (or a compound change rate if annual data are not available) would also be useful in monitoring trends.

Alternatively, the ratio of informal to formal carers could be measured, to ascertain whether the official supply of services is insufficient. Estimates for the number of formal caregivers are available from the OECD, in their register 'Health/ Long-Term Care Resources and Utilisation' (see [indicator fiche AV2](#)).

Caution is needed with both of these options. As with many other indicators, the users must examine the indicators in their proper context. Depending on the benefits received by a recipient of long-term care in a country and/or the legal provisions for family obligations, the recipient may have a choice between employing a formal caregiver or a relative or friend. Ideally, any analysis using these indicators should consider grouping countries according to a taxonomy³³.

PROPOSALS FOR THIS SUB-NODE

3. Proposed indicator: Ratio of the number of informal caregivers to the number of recipients of the long-term care and the annual (or compound) change rate of this ratio - see [indicator fiche AV1](#).

²⁸ Social Protection Committee, 2014. Adequate social protection for long-term care needs in an ageing society. Luxembourg: European Union. <http://ec.europa.eu/social/BlobServlet?docId=12808&langId=en>

²⁹ Muir, T., 2017. 'Measuring social protection for long-term care', *OECD Health Working Papers*, No. 93, OECD Publishing, Paris. <http://dx.doi.org/10.1787/a411500a-en>

³⁰ For example, respite care policies which reduce opportunity costs rather than compensating for them, less easily quantified costs to people's health and employment opportunities, etc.

³¹ Verbakel, E., Tamlagsrønning, S., Winstone, L., Fjær, E. L., & Eikemo, T. A., 2017. Informal care in Europe: findings from the European Social Survey (2014) special module on the social determinants of health. *The European Journal of Public Health*, 27(suppl_1), pp. 90-95.

³² Other sources of information on the number of informal caregivers are the EQoL and the rotating module of the ESS. However, EQoL has a relatively small sample size and the scheduling of the special module in the ESS is not fixed. EHIS is therefore preferred.

³³ See, for example, Sundström, G., Malmberg, B., Sancho Castiello, M., del Barrio, É., Castejon, P., Tortosa, M. Á., & Johansson, L., 2007. Family Care for Elders in Europe: Policies and Practices. In Szinovacz, M. & Davey, A. (eds.), *Caregiving Contexts. Cultural, Familial, and Societal Implications*.

4. Alternative proposed indicator: Ratio of formal to informal caregivers and the annual (or compound) change rate of this ratio - see [indicator fiche AV2](#).

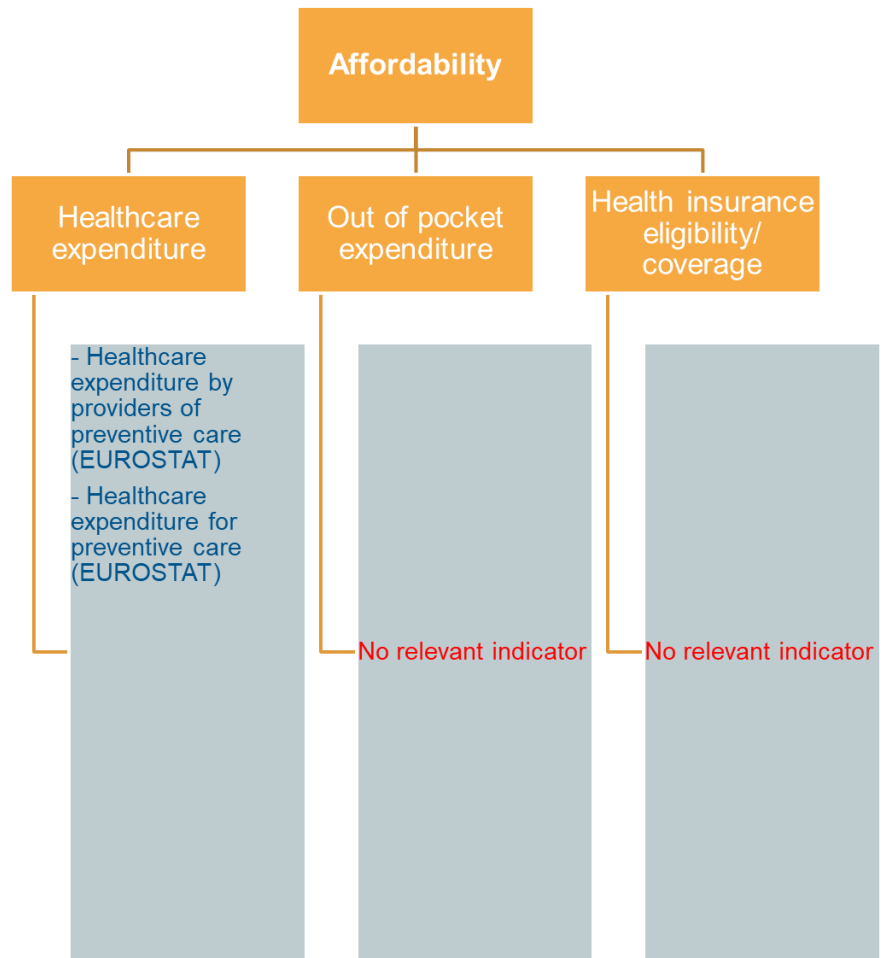
5.2.2 Affordability

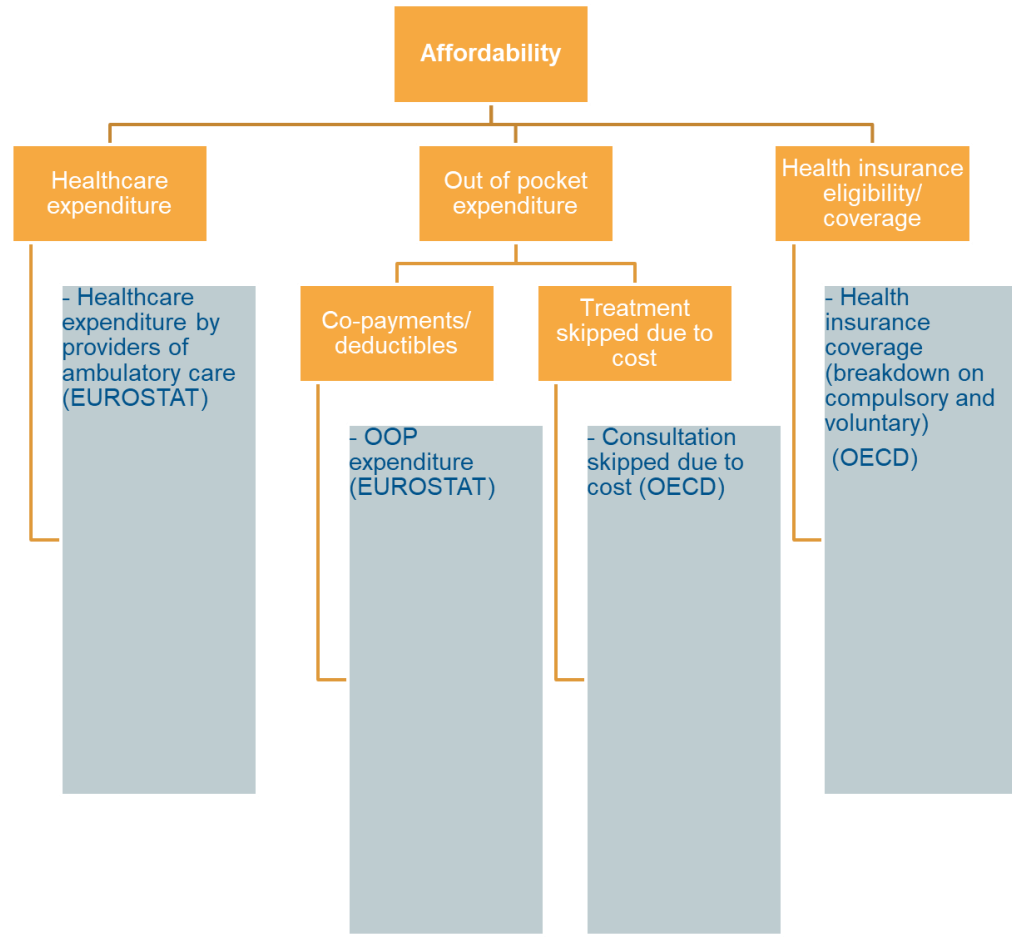
Figure 5.3 shows the indicators in the Affordability dimension. The nodes which are not covered are:

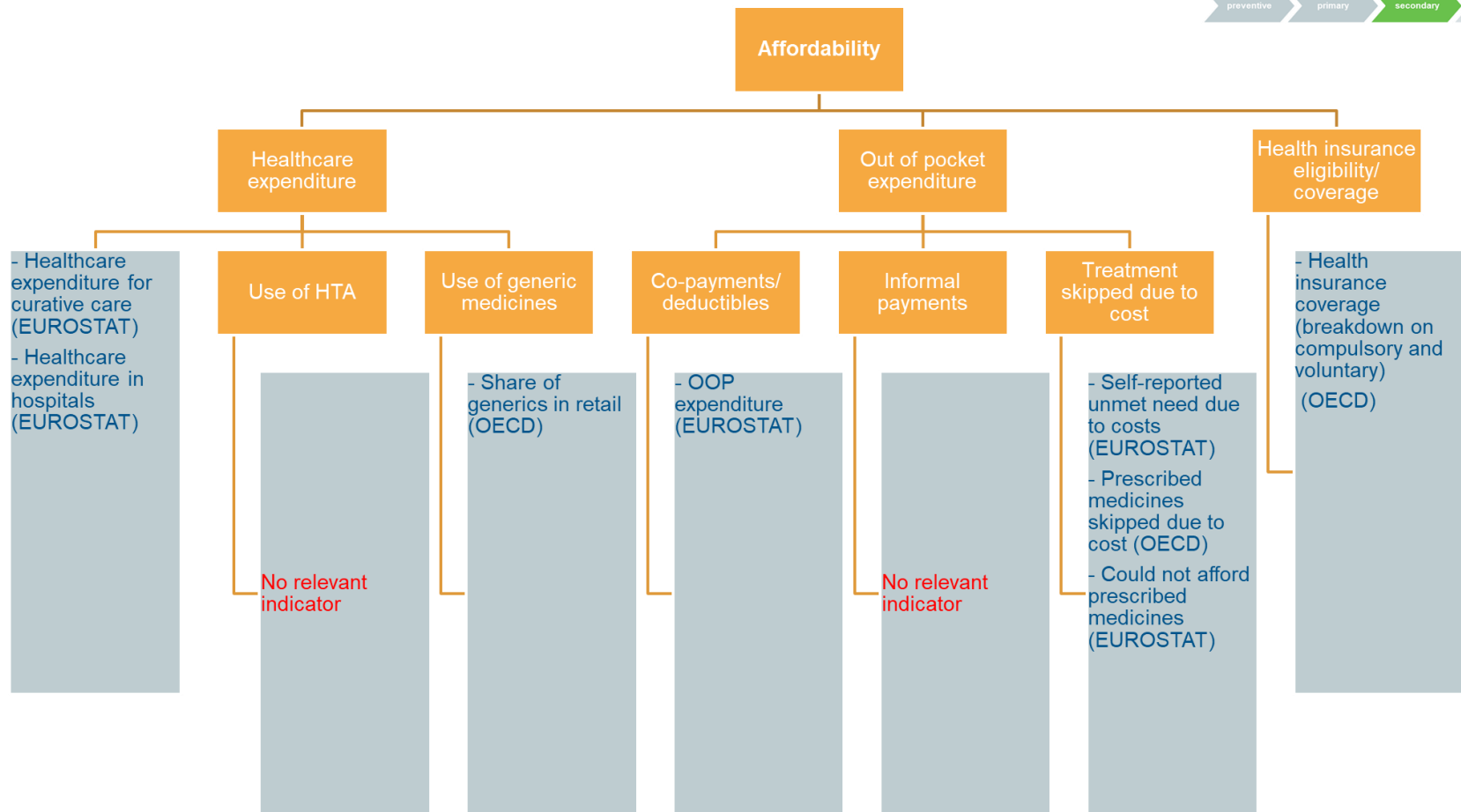
- Healthcare expenditure / Use of health technology assessment (HTA) in secondary care;
- Out-of-pocket expenditure in preventative care and long-term care;
- Out-of-pocket expenditure / informal payments in secondary care;
- Health insurance eligibility / coverage in preventative and long-term care.

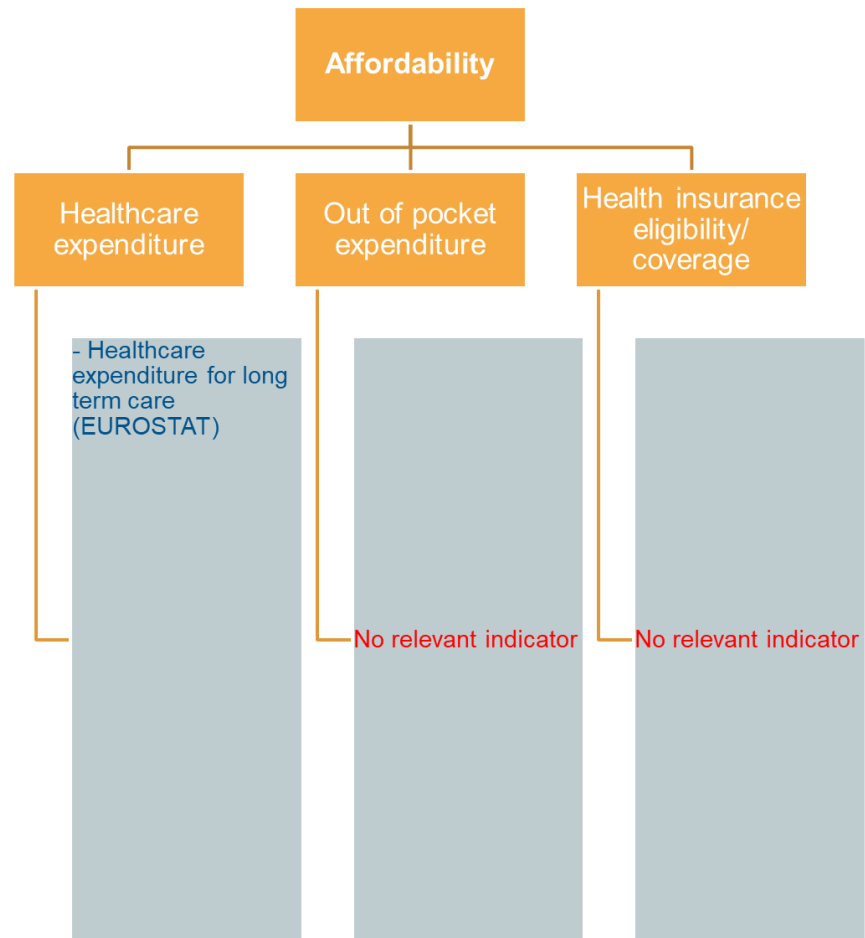
During the second workshop, the current indicators in Health insurance eligibility / coverage in primary and secondary care (decomposition of health insurance/ coverage into compulsory and voluntary, from OECD data) were considered weak. They did not carry much information, given the near-universality of health insurance coverage in the EU and the consequent lack of sufficient differentiation.

Figure 5.3 Proposed indicators for the Affordability dimension









5.2.2.2 Healthcare expenditure

- ▶ Issue: Healthcare expenditure / Use of HTA in secondary care is not covered.

Proposed approach:

With regard to the use of HTA, it was suggested in the second workshop that the study team look at the use of *budget impact assessment and cost effectiveness* studies. The International Society for Pharmacoeconomics and Outcomes Research (ISPOR) website was recommended, as it has country descriptions.

The study team examined the ISPOR site and, while descriptions of healthcare systems were found³⁴, there was no information providing the assessment of the use of HTA.

There is a substantial body of relevant literature on the *cost effectiveness* of healthcare systems. Cost effectiveness assessment methods are, for example, described in detail in a book by the European Observatory on Health Systems and Policies³⁵. These methods are generally applied by measuring certain inputs (interventions in the healthcare system) and outputs (epidemiological, biomedical, behavioural, psychosocial, etc.) and attempting to calculate the *marginal value of the interventions*. A book by Drummond³⁶ (with more than 15,000 citations) has influenced almost all recent literature. This kind of analysis is more relevant to theoretical models and studies than to practical methods for constructing easily explained indicators. A recent article³⁷ notes that '*Measures of healthcare efficiency that would combine cost and quality into a single measurement are not available outside of a research context*' and '*More research is needed to develop methods that would combine cost and quality into measurement of healthcare efficiency*'. For these reasons, this approach was abandoned.

Relevant information was also found in the European Network for Health Technology Assessment (EUnetHTA)³⁸. For example, the ongoing EUnetHTA Joint Action 3 (2016-2020) aims to define and implement a sustainable model for scientific and technical cooperation on HTA in Europe. The network offers assessment services for a variety of technologies. However, no data could be found comparing the use of HTA among countries.

An approach which seems suitable for replication at EU level was found in the 2015 Global Survey on Health Technology Assessment conducted by WHO³⁹. The survey questionnaire had five sections:

- The use of HTA principles in the public sector decision-making processes;
- Processes of HTA;
- Structures and capacity supporting HTA;
- Governance;
- Interests and impediments to strengthening capacity;

³⁴ <https://tools.ispor.org/htaroadmaps/>

³⁵ Cylus, J., Papanicolas, I., & Smith, P. C. (eds), 2016. *Health system efficiency - How to make measurement matter for policy and management*. European Observatory on Health Systems and Policies, Copenhagen, Denmark.

³⁶ Drummond, M. F., Sculpher, M. J., Claxton, K., Stoddart, G. L., & Torrance, G. W., 2015. *Methods for the economic evaluation of healthcare programmes*. Oxford University Press.

³⁷ Russo, P., & Adler, A., 2015. Healthcare efficiency: measuring the cost associated with quality managed care (*Langhorne, Pa.*), 24(7), p. 38.

³⁸ <https://www.eunetha.eu/2008/>

³⁹ <http://www.who.int/health-technology-assessment/HTASURVEY/en/>

It is proposed that an indicator on the capacity for conducting HTA should be constructed, based on data collected with this questionnaire (see [indicator fiche AF1](#)).

PROPOSALS FOR THIS SUB-NODE

5. Proposed indicator: Capacity to conduct health technology assessment (HTA) – see [indicator fiche AF1](#).

5.2.2.3 Out-of-pocket (OOP) expenditure

- Issue: OOP is not covered in preventative care.

Proposed approach:

The initial suggestion during the second workshop was to remove the node for OOP expenditure in preventative care, given that it is limited. It was noted, however, that new vaccines are not always recommended for universal mass vaccination (UMV), although they may be available on the market, and thus need to be purchased privately by patients.

In general, recommended vaccines for childhood and adolescent UMV are funded by the government or third-party payers. In France, the majority of recommended vaccines are available with a co-payment through private insurance, and in Austria, Poland and Romania, some recommended vaccines are available for private purchase. There is some variation in population attitude and ability to access OOP vaccines. For example, this is relatively unusual in the Netherlands and Sweden but more common in Spain, Austria, Greece and Romania.

It is proposed to develop an indicator measuring (as a score) which vaccines are recommended for UMV but not fully funded by the government or third parties (see [indicator fiche AF2](#)).

The general idea is to use the vaccines which are recommended for UMV in the majority of the EU Member States, calculate weights for them based on EU average expenditures and then compute weighted sums for each country according to their full coverage or not. Figure 5.4 below, illustrates the data required. It is taken from a recent study⁴⁰ and provides an overview of recommended childhood and adolescent UMV vaccines by country and funding level in 2017.

⁴⁰ Sheik, S., Biundo, E., et al., 2018. 'A report on the status of vaccination in Europe', *Vaccine*, Vol 36, Iss 33, pp. 4979-4992, <https://doi.org/10.1016/j.vaccine.2018>

Figure 5.4 Recommended childhood and adolescent UMV vaccines by country and funding level in 2017

UMV[28]	AT	BE	BG	HR	FI	FR	DE	GR	IT	NL	PL	RO	SP	SE	CH	UK
BCG	*	*	✓	✓	*	*	*	*	*	*	✓	✓	*	*	*	*
Hepatitis B	✓	✓	✓	✓	*	✓	✓	✓	✓	✓	✓	✓	✓	*	✓	✓
Polio	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Diphtheria	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Tetanus	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Pertussis	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Hib	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Pneumococcal	✓	✓	✓	*	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Rotavirus	✓	✓	✓	*	✓	*	✓	✓	✓	*	✓	*	*	*	*	✓
Measles	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Mumps	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Rubella	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Hepatitis A	*	*	✓	*	*	*	*	✓	*	*	✓	*	*	*	*	*
Varicella	✓	*	*	*	✓	*	✓	✓	✓	*	*	*	✓	*	✓	*
HPV	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	*	✓	✓	✓	✓
MenC	✓	✓	✓	*	*	✓	✓	✓	✓	✓	✓	*	✓	*	✓	✓
MenACWY	✓	*	✓	*	*	*	*	✓	✓	*	✓	*	*	*	*	✓
MenB	✓	*	*	*	*	*	*	*	✓	*	✓	*	*	*	*	✓
Influenza	✓	*	*	*	✓	✓	*	*	*	*	✓	*	*	*	*	✓
Legend	✓ Recommended for UMV								* Not recommended for UMV							
	Funded/reimbursed				Out-of-pocket (OOP)				Co-payment							
Abbreviations	AT: Austria, BE: Belgium, BG: Bulgaria, HR: Croatia, FI: Finland, FR: France, DE: Germany, GR: Greece, IT: Italy, NL: Netherlands, PL: Poland, RO: Romania; SP: Spain, SE: Sweden, CH: Switzerland§ (not licensed), UK: United Kingdom; BCG: Bacillus Calmette–Guérin; Hib: Haemophilus influenzae B; HPV: human papillomavirus; Men: meningitis; UMV: universal mass vaccination.															

Source: Sheik, S., Biundo, E., et al., 2018. 'A report on the status of vaccination in Europe'.

- Issue: OOP is not covered in long-term care.

Proposed approach:

The study team investigated in depth the issue of measurements of OOP in long-term care.

OOP is measured by Eurostat in the framework of the System of Health Accounts (SHA), using a common methodology with the OECD and WHO. In the SHA, health services are classified into healthcare 'functions'. Figure 5.5 shows the first-level categories of this classification.

Figure 5.5 The top-level healthcare functions in the System of Health Accounts (SHA)

Box 5.1. The classification of health care functions at the first-digit level	
HC.1	Curative care
HC.2	Rehabilitative care
HC.3	Long-term care (health)
HC.4	Ancillary services (non-specified by function)
HC.5	Medical goods (non-specified by function)
HC.6	Preventive care
HC.7	Governance and health system and financing administration
HC.9	Other health care services not elsewhere classified (<i>n.e.c.</i>)
Memorandum items: reporting items	
HC.RI.1	Total pharmaceutical expenditure
HC.RI.2	Traditional complementary alternative medicines
HC.RI.3	Prevention and public health services (according to SHA 1.0)
Memorandum items: health care related	
HCR.1	Long-term care (social)
HCR.2	Health promotion with a multi-sectoral approach

Source: Eurostat

Long-term care is defined in functions HC.3 ('long-term care – health') and HCR.1 ('long-term care – social'). The latter is relevant here as it concerns assistance or home help (whereas HC.3 concerns 'body help').

Household OOP expenditure is included in another classification, financing 'schemes', with code HF.3.

In principle, selecting these categories should suffice. In practice, however, the variety of methods used for the allocation of expenses and the different accounting practices among the Member States make these estimations impossible to compare. An effort to address the methodological issues involved was described on the agenda of the meeting of the Public Health Statistics Working Group in November 2015⁴¹. This effort was based on supplementary questionnaires sent in 2015 to test some approaches, i) for the measurement of expenditure on long-term care, and ii) for calculating OOP estimates. The results showed the magnitude of the difficulties. Figure 5.6 below shows a table from that report, with the most problematic areas with missing OOP data in red. Among them is long-term care, as shown by the cells corresponding to codes HC.3.1 and HC.3.4 (inpatient and home-based long-term care, respectively).

⁴¹ Retrieved from: <https://circabc.europa.eu/sd/a/562fc856-d270-48bf-b047-1d6ee59c2c39/DOC%202015-PH-07%20Methodological%20Developments%20in%20the%20Areas%20of%20Long-term%20Care%20and%20Out-Of-Pocket%20payments.pdf>

Figure 5.6 Missing data in the OPP expenditure indicator

Source: Eurostat

		Residential long-term care facilities	Providers of ambulatory health care	All other industries as secondary providers of health care	Rest of the world	Informal Payments
		HP.2	HP.3	HP.8.2	HP.9	
HC.1.1+HC.2.1	Inpatient curative and rehabilitative care					
HC.1.3	Outpatient curative care					
HC.3.1	Inpatient long-term care (health)					
HC.3.4	Home-based long-term care (health)					
HC.4	Ancillary services					
HC.5.1.2	Over-the-counter medicines					
HC.5.2	Therapeutic appliances and other medical durable goods					

The study team concluded that there are already comparability problems in each of the two areas, the estimation of OOP expenses and the measurement of expenditure for long-term care, even when considered alone. Addressing the problems at the intersection of these areas will have to wait for further methodological developments by Eurostat, the OECD and WHO.

This is also evident in the data disseminated by Eurostat, found in node 'Expenditure for selected healthcare functions by healthcare financing schemes' (hlth_sha11_hchf) under 'Healthcare expenditure – cross classified tables' of its dissemination database. Selecting long-term care and OOP results in too many countries with missing data.

- Issue: Informal payments in secondary care are not covered.

Proposed approach:

The participants in the second workshop asked the study team to search for possible OECD data on informal payments. The OECD collects data for healthcare expenditure based on the SHA, where, although informal payments are by definition part of OOP, they are not captured by administrative data and their estimation remains a significant difficulty. Exact figures on informal OOP expenditure are difficult to obtain, with many studies using projections and estimations as a proxy⁴².

Another suggestion was to check Eurobarometer surveys. Informal payments in health were examined (in the context of corruption), first in a 2013 Special Eurobarometer (No 397) which initiated much research on the issue⁴³ and, more recently, in a 2017 Special Eurobarometer (No 470) also focused on corruption, with minor modifications from the 2013 survey in the sampling methodology. The Standard Eurobarometer does not examine such issues. In the 2017 survey, respondents who had visited a public healthcare practitioner or a public healthcare institution in the past 12 months were asked if they had given an extra payment or valuable gift to the practitioner or had made a hospital donation in addition to the official fees. If so, they

⁴² Paris, V., Hewlett, E., Aaraaen, A., Alexa, J. & Simon, L., 2016. Healthcare coverage in OECD countries in 2012, OECD Health Working Paper No. 88.

⁴³ See, for example, Williams, C. C., & Horodnic, A. V., 2017. Rethinking informal payments by patients in Europe: An institutional approach. *Health Policy*, 121(10), pp. 1053-1062.

were then asked to select answers pertaining to the situation from a list of possible answers (intended to clarify if the extra payment was requested by the recipient or was given voluntarily). The 2013 survey included also a question on the amounts of money involved in informal payments.

While the information collected in these special surveys was very useful, the very small numbers of respondents in each country who reported such informal payments is problematic. Eurobarometer surveys are addressed to the general population. For example, in 2017, the largest numbers of informal payment reports were recorded in Romania (19) and Hungary (17).

The Eurofound/ EQoL survey was also examined. This includes a question on corruption in GP, family doctor or health centre services in the respondent's area. The possible replies in the 2016 questionnaire were:

- All people are treated equally in these services in my area;
- Corruption is common in these services in my area.

These replies are, however, subjective and reflect personal opinions rather than experiences.

Accordingly, the proposal is to use questions similar to those deployed in the 2017 Special Eurobarometer survey but as part of a general population survey with a sufficiently large sample, such as the health module of the EU-SILC instrument. This will allow construction of indicators for:

- Percentage of patients who were requested to give an extra payment, gift or donation in the past 12 months;
- An estimate of the total informal payments in a country.

Please see [indicator fiche AF3](#) for details.

- ▶ Issue: OOP expenditure has already been used to populate Affordability for primary and secondary care. During the second workshop the study team was asked to look at the methodological details of OOP expenditure data for primary care and assess whether the relevant indicator also applies to secondary care.

Proposed approach:

The investigation described earlier in this section showed that while there are indeed some methodological and comparability problems in the estimation of OOP expenses in general, these do not prevent the use of the relevant indicators in both primary and secondary care (contrary to the case of OOP expenditure in long-term care, where these problems are augmented by methodological problems in the allocation of expenses to long-term care).

As data are not yet available by disease, use of the same indicator for both primary and secondary care is suggested. As discussed in Section 3.3, for the disaggregation into stages, there needs to be a follow-up with Eurostat on further developments in the linking of SHA to disease-specific data.

PROPOSALS FOR THIS SUB-NODE

6. Proposed indicator: Share of recommended vaccines not fully funded - see [indicator fiche AF2](#)
7. Proposal to keep the OOP expenditure indicator for long-term care but exclude it from the framework until the methodological issues are resolved.
8. Proposed indicator: Level of informal payments in healthcare (secondary care) - see [indicator fiche AF3](#).
9. Proposal to use the already placed indicator of OOP expenditure in primary and secondary care until the methodological work by Eurostat on the linking of SHA with disease-specific data is completed and more accurate estimates by stage can be obtained.

5.2.2.4 Health insurance eligibility/ coverage

- ▶ Issue: The existing indicators in primary and secondary care are weak, as they do not provide much information.

Proposed approach:

Within the framework, the relevant nodes include existing indicators from the OECD on health insurance coverage (compulsory vs. voluntary) in primary and secondary care. These were criticised for not being informative, given the near-universal health insurance coverage in the EU and the lack of adequate differentiation between the Member States.

Instead of looking at insurance coverage, the proposal (based on a suggestion in the first workshop) is to use an approach recently studied by the OECD⁴⁴, namely to calculate the *depth of basic coverage*, as a score. Under this approach, a set of healthcare 'functions' is selected from the SHA, verifying those that are covered, and adding a weight for each. The weight is higher for the more expensive ones on average in the EU. The score is the sum of these weights (see [indicator fiche AF4](#) for a description of the calculations).

The following eight functions were used in the OECD study and are proposed for the current framework:

- Acute inpatient care;
- Outpatient - primary care physicians;
- Outpatient – specialists;
- Clinical laboratory tests;
- Diagnostic imaging;
- Pharmaceuticals;
- Dental care;
- Dental prostheses.

This study found that a score constructed in this way was negatively associated with health spending and positively associated with longevity, making it an important determinant of the value-for-money of a healthcare system.

⁴⁴ Lorenzoni, L., Murtin, F., Springare, L-S., Aaraaen, A. & Daniel, F., 2018. Which policies increase value for money in healthcare? OECD Health Working Paper No. 104.

The expenditure data required in the calculations may be mapped to items in the SHA. Strictly speaking, the relevant expenditures are mapped to ‘cells’ in the cross-tabulation of SHA healthcare functions and SHA financing schemes. The relevant classifications can be found in the SHA Handbook⁴⁵.

It is proposed that this indicator is used for all stages of the healthcare path (preventative, primary, secondary, long-term).

Calculating this indicator by healthcare stage requires more detailed expenditure data. These are available at national level but not at SHA level. For the treatment of the more detailed national administrative data, the manual and supplementary OECD guidelines contain numerous methodological details which are not always followed exactly by the countries. This results in lack of comparability of the detailed data. This is one of the reasons for aggregation in the SHA.

For example, the supplementary guidelines specify cases which cross the boundaries of top-level categories. One such case is expenditure on immunisation (HC.6.2 – see Figure 5.7), which includes the cost for the consultation and the cost of the vaccine itself but complications arise when taking into account the path followed by a patient. In another case, when a patient is referred by his/her doctor for mammography, the expenses are recorded under ‘early disease detection’ (HC.6.3), but the direct use of laboratory and imaging services during an independent contact with the health system is recorded under the ‘ancillary services’ category (HC.4) as the purpose (cure, rehabilitation, etc.) is typically not identified.

Figure 5.7 Second-level categories in healthcare function, Preventative care

Current health expenditure	
HC.1	Curative care
HC.2	Rehabilitative care
HC.3	Long-term care (health)
HC.4	Ancillary services (non-specified by function)
HC.5	Medical goods (non-specified by function)
HC.6	Preventive care
HC.6.1	Information, education and counselling programmes
HC.6.2	Immunisation programmes
HC.6.3	Early disease detection programmes
HC.6.4	Healthy condition monitoring programmes
HC.6.5	Epidemiological surveillance and risk and disease control programmes
HC.6.6	Preparing for disaster and emergency response programmes
HC.7	Governance and health system and financing administration
HC.0	Other health care services not elsewhere classified (n.e.c.)
Memorandum items: health care related	
HCR.1	Long-term care (social)
HCR.2	Health promotion with a multi-sectoral approach

Source: OECD

The difficulties of precise allocation to care stages are obvious. There are many differences between countries in their allocation of expenditures in the SHA tables and in their accounting practices.

Such a precise allocation into care stages would be possible by matching the data with beneficiary characteristics such as disease, sex and age, and following standards such as the International Classification of Primary Care (ICPC-2). There are two relevant observations here:

- Several countries participating in the data collection already have their own disease accounts and aggregate these results to report to the SHA.
- Eurostat is investigating the issue of health expenditure by disease and condition. This was the aim of the HEDIC project⁴⁶, the pilot for which showed that the incorporation of such information is feasible.

⁴⁵ OECD, Eurostat, WHO, 2011. *A System of Health Accounts*, OECD Publishing. doi: 10.1787/c9789264116016-en

⁴⁶ <http://ec.europa.eu/eurostat/web/products-statistical-working-papers/-/KS-TC-16-008>

It is necessary to follow-up with Eurostat on further developments in the linking of SHA with disease-specific data in order to develop an alternative set of indicators disaggregating SHA functions into stages.

PROPOSALS FOR THIS SUB-NODE

10. Proposed indicator: Depth of basic coverage score (all stages of healthcare) - see [indicator fiche AF4](#).
11. Proposal to follow-up the developments of Eurostat work on the linking of SHA with disease-specific data, in order to produce stage-specific indicators.

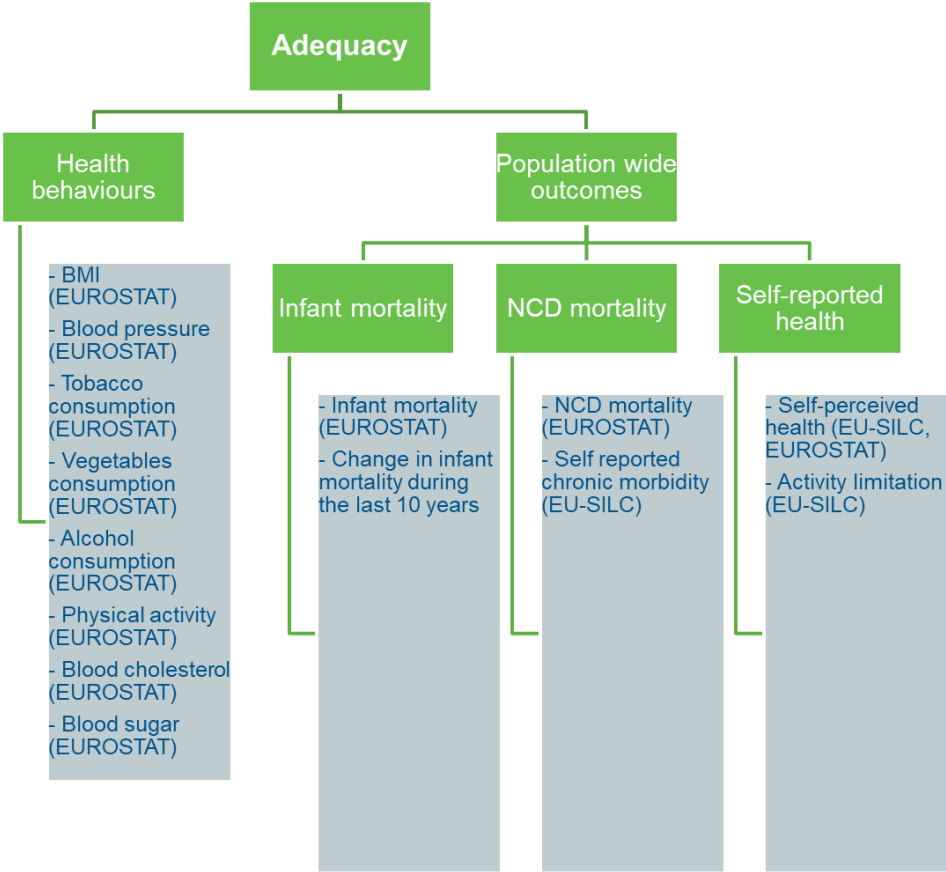
5.2.3 Adequacy

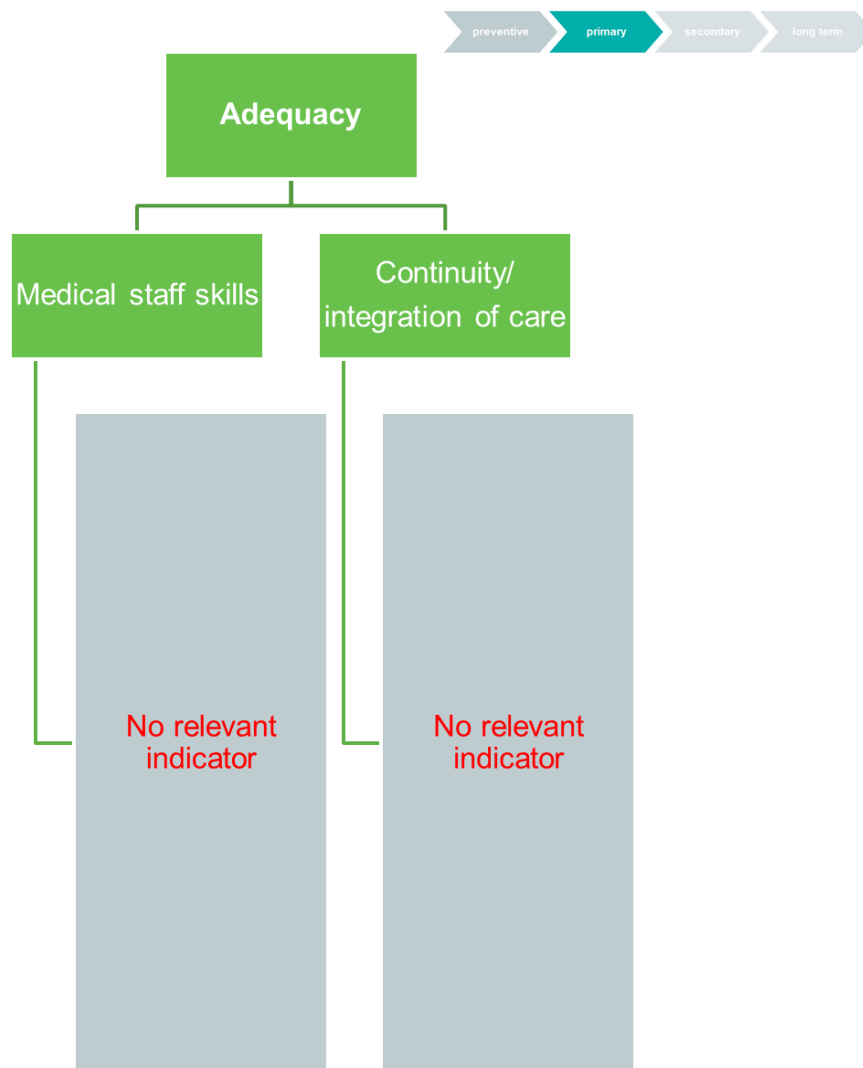
Figure 5.8 shows the indicators in the Adequacy dimension. The nodes which are not covered are:

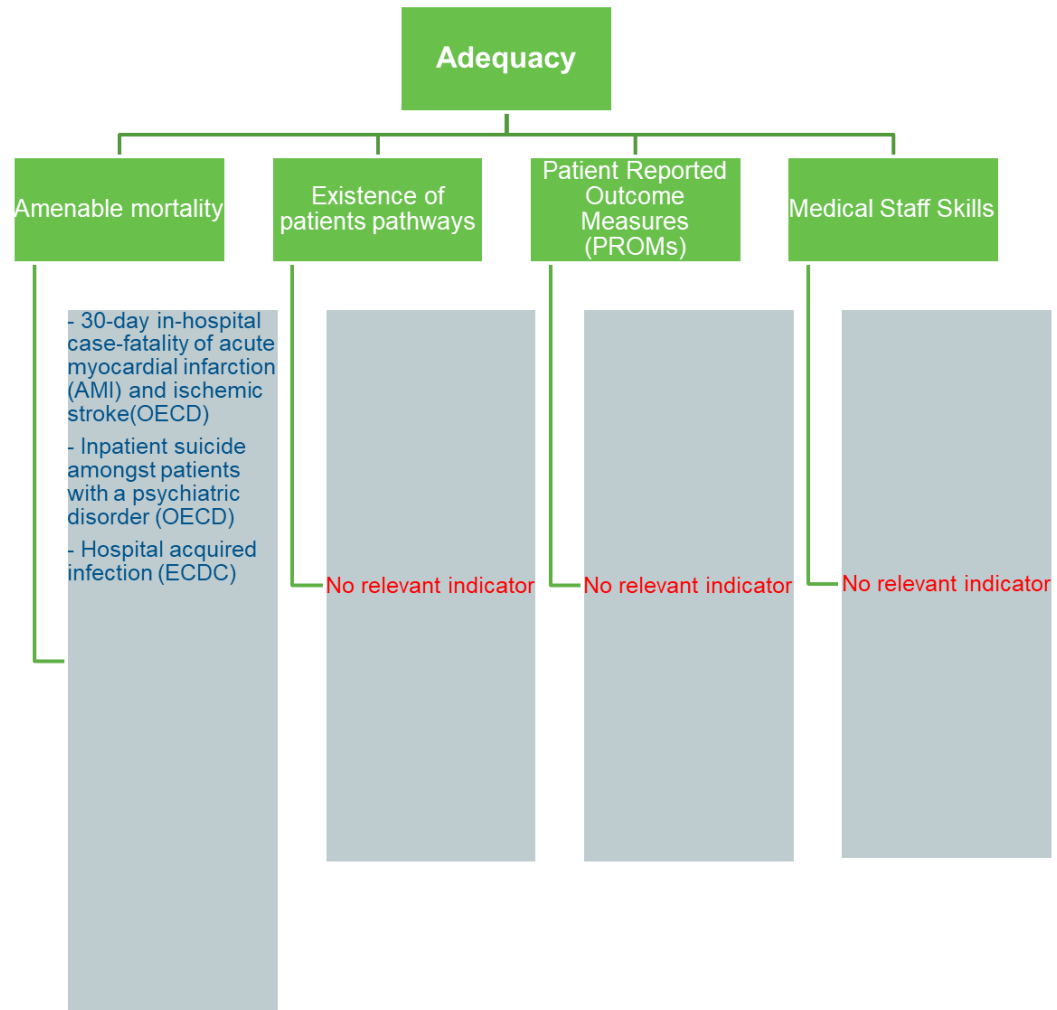
- Medical staff skills in primary and secondary care;
- Continuity/integration of care in primary care;
- Existence of patients' pathways in secondary care;
- Relevance of treatments (or treatments adequacy) in long-term care;
- Patient Reported Outcome Measures (PROMs) in secondary and long-term care.

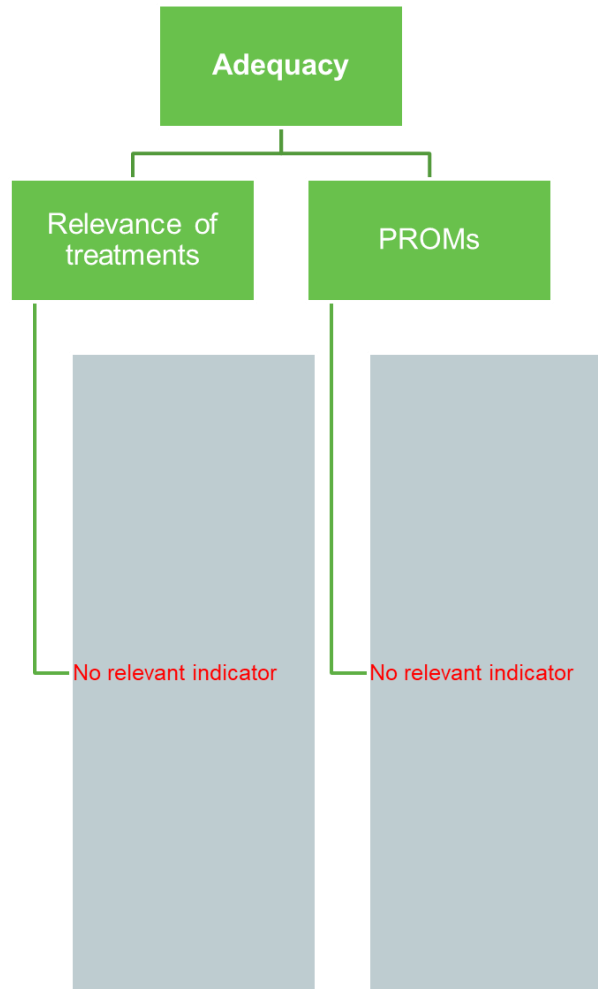
The proposal addresses a comment from the discussion of the draft final report, on the need to consider the epidemiological angle in long-term care.

Figure 5.8 Proposed indicators for the Adequacy dimension









5.2.3.2 Health behaviours

- ▶ Issue: None.

PROPOSALS FOR THIS SUB-NODE

No additional indicator or change to existing indicators is proposed.

5.2.3.3 Population-wide outcomes

- ▶ Issue: None.

PROPOSALS FOR THIS SUB-NODE

No additional indicator or change to existing indicators is proposed.

5.2.3.4 Medical staff skills

- ▶ Issue: The relevant nodes in primary and secondary care are not covered.

Proposed approach:

Two indicators are proposed. The first focuses on communication and interpersonal skills of medical staff. The second concerns technical skills and addresses a comment by DG SANTE after the second workshop, on the *'fundamental role of practice of doctors in primary care to achieve better health outcomes, prevent diseases... which calls for a need of indicators demonstrating the use of contextual and clinical evidence, adherence to prevention guidelines, etc.'*

With regard to *communication and interpersonal skills*, the Eurofound/EQoL survey⁴⁷ was examined as a suitable source for primary care, as it includes perceptions of the services provided by GPs, family doctors and health centre services:

- Expertise and professionalism of staff;
- Personal attention given, including staff attitude and time devoted;
- Information given and the quality of consultation.

The answers are given on a scale from 1 ('very dissatisfied') to 10 ('very satisfied') and can be averaged if a single indicator is preferred.

Similar and more detailed questions, suitable for both primary and secondary care, can be found in the EPF survey⁴⁸. This includes the following questions in the section on adequacy of healthcare:

- I am adequately informed by healthcare providers about my treatment options;
- I am involved in decisions regarding my care by my healthcare providers;
- My healthcare providers give me the information I need about the safety of my treatment;
- My healthcare providers adapt my care according to my changing needs;
- My healthcare providers are capturing my feedback on quality of care provided (through satisfaction survey or other means).

⁴⁷ <https://www.eurofound.europa.eu/surveys/european-quality-of-life-surveys>

⁴⁸ The 2016 EPF survey questionnaire can be found at: <http://www.eu-patient.eu/contentassets/57ff12722f7644cebc2ff7229d240767/epf-survey-on-access-to-healthcare.pdf>

As pointed out by Commission representatives during the discussion of the draft final report, the EPF instrument is not as methodologically sound as the EQoL survey.

The proposal is to expand the EQoL survey with questions from the EPF survey. In particular, question Q64d in EQoL 'how satisfied or dissatisfied you were with ... Being informed or consulted about your care' could be replaced by the EPF questions. Details are given in [indicator fiche AD1](#).

Concerning *technical skills*, these cannot be based on perceptions of the recipients of healthcare services but must instead come from objective measurements of adherence to best practice.

A suitable approach can be found in the work by the National Institute for Health and Care Excellence (NICE)⁴⁹ in the UK. Working together with an independent Indicator Advisor Committee, NICE has developed a Quality and Outcomes Framework (QOF)⁵⁰. GPs and other health professionals receive QOF points indicating achievements in three domains: 'clinical' (e.g. cardiovascular, high dependency and other long-term conditions, mental health and neurology, respiratory, musculoskeletal), 'public health' (cardiovascular, lifestyle) and 'public health – additional services' (fertility, obstetrics and gynaecology). The QOF indicators are based on an economic analysis and delivery costs and benefits in terms of quality-adjusted life years (QALYs). For example, the group 'Cardiovascular heart disease', sub-group 'Secondary prevention of cardiovascular heart disease' uses the following indicators:

- The contractor [i.e. GP or other health professional] establishes and maintains a register of patients with coronary heart disease;
- The percentage of patients with coronary heart disease for whom the last blood pressure reading (measured in the preceding 12 months) was 150/90 mmHg or less;
- The percentage of patients with coronary heart disease with a record of taking, in the preceding 12 months, aspirin, an alternative anti-platelet therapy, or an anti-coagulant;
- The percentage of patients with coronary heart disease who have had influenza immunisation in the preceding 1 August to 31 March.

Numerous conditions are being monitored this way and determine a GP's score.

The study team proposes selecting some of these indicators and including them in a survey addressed to GPs. A detailed proposal is given in [indicator fiche AD2](#) (based on the suggestion made by DG SANTE after the second workshop), suggesting a focus on the four main disease causes for disability, namely mental illness, cardiovascular, cancer and musculoskeletal diseases.

For reasons of completeness, a second approach to measuring the skills healthcare personnel skills was carried out. This is the approach in the USAID Health Finance and Governance (HFG) project⁵¹. The relevant indicators on health workforce development include measurements of:

- Pre-service education;
- In-service training and continuing education;
- Regulation;

⁴⁹ <https://www.nice.org.uk/>

⁵⁰ <https://digital.nhs.uk/data-and-information/publications/statistical/quality-and-outcomes-framework-achievement-prevalence-and-exceptions-data/quality-and-outcomes-framework-qof-2016-17>

⁵¹ <https://www.hfgproject.org/human-resources-health-indicators/>

However, this approach is over-reliant on formal education at the expense of technical skills acquired through practice and self-study. Nor does it measure the use of best practice.

For medical skills in secondary care, it is proposed to leave only the indicator for the measurement of communication and interpersonal skills.

PROPOSALS FOR THIS SUB-NODE

12. Proposed indicator: Communication and interpersonal skills (for both primary and secondary care) – see [indicator fiche AD1](#).
13. Proposed indicator: Technical skills (primary care) – see [indicator fiche AD2](#).

5.2.3.5 Continuity/ Integration of care

- ▶ Issue: The relevant node in primary care is not covered.

Proposed approach:

Continuity of care has always been at the heart of general practice. Patients who receive continuous care have better healthcare outcomes and higher satisfaction rates, and the healthcare they receive is more cost-effective⁵². Possible approaches to measuring continuity of care were discussed during the second workshop, including the work of the Canadian Institute for Health Information⁵³. This work proposes indicators directly measuring organisational and other aspects based on patients' experiences and providers' reporting.

Numerous articles in the literature link continuity of care as perceived and experienced by patients with chronic conditions, especially diabetes, chronic obstructive pulmonary disease (COPD), cancer and mental health problems. A typical approach is to ask patients if they have a personal physician or a long-term relationship with a care provider and to then measure re-admissions and complications (which are generally fewer in the presence of lasting relationships with healthcare providers). Other studies attempt to introduce more organisational aspects⁵⁴.

From a more practical point of view, the most interesting practices were found in Canada. The Manitoba Centre for Health Policy reports a number of indicators used for continuity of care⁵⁵, such as:

- The Continuity of Care Index (COCI) which is calculated as $\frac{\sum_{j=1}^M n_j^2 - N}{N(N-1)}$, where N is the total number of ambulatory care visits, n_j the number of visits to provider j and M the total number of providers. COCI is widely used in the literature.
- Simpler measures, such as the proportion of visits made to the most frequently seen provider compared to other providers.
- More complex measures, taking into account sequential visits.

⁵² Jeffers H. & Baker, M., 2016. Continuity of care: still important in modern-day general practice. *The British Journal of General Practice*. 66(649). Pp. 396-397. doi:10.3399/bjgp16X686185.

⁵³ https://www.cihi.ca/en/pdf_phc_indi_report1vol1fin_en.pdf

⁵⁴ See, for example, Longo, F., Salvatore, D., Tasselli, S., & Petracca, F., 2017. Organisational correlates of continuity of care: A pendulum swing between differentiation and integration. *International Journal of Care Coordination*, 20(3), pp. 76-86.

⁵⁵ http://mchp-appserv.cpe.umanitoba.ca/viewConcept.php?printer=Y&conceptID=1443#a_references

- Approaches focused on the physician, such as the proportion of ambulatory care visits provided by primary care physicians to a patient by any one particular physician.

A simple indicator used by the Winnipeg Regional Health Authority is proposed for the current framework: the percentage of residents receiving at least 50% of their ambulatory visits in a two-year period from the same physician. These data could be collected from any existing survey. This indicator is simple enough to identify a close relationship with a general practitioner (GP) or family practitioner (FP) and still allows for a change of GP/FP over the years. It can also be applied to children if paediatricians are included, and to older people, including internal medicine specialists. Details are provided in [indicator fiche AD3](#).

The study team examined the possible use of indicators on the incidence of common adverse outcomes related to lack of integration and continuity. For example, three relevant OECD indicators involving chronic conditions and avoidable outcomes are COPD hospital admissions, diabetes hospital admissions, and patient-based diabetes lower extremity amputations. The detailed definitions for these indicators are included in the OECD Definitions for Health Care Quality Indicators, 2016-2017 HCQI Data Collection⁵⁶. However, such indicators are weakly related to the concept of continuity and integration of care, as several other factors taken together can determine the occurrence or prevention of such outcomes.

The EPF survey asks a relevant question: ‘I’m satisfied with continuity in my care over time’. This is, however, a subjective opinion by a non-expert and may, in reality, measure any number of specific experiences, from medical to social. Given the complexity of the issue, it was not deemed suitable for inclusion in the framework.

- ▶ Issue: During the discussion of the draft final report, DG SANTE suggested that the project team examine its latest report on integrated care⁵⁷ for ideas on additional indicators more related to organisational aspects of healthcare systems.

Integrated care is defined here as ‘[a set of] initiatives seeking to improve outcomes of care by overcoming issues of fragmentation through linkage or coordination of services of providers along the continuum of care’. The report contains a comprehensive survey of national and international practices related to the measurement of integrated care. A useful source is the authors’ adaptation of strategies and concepts from a relevant WHO publication⁵⁸. Some of these measures are proposed for use in the domain of organisational process and system characteristics, in particular care transitions, care planning, medication management and care coordination. These indicators could complement the simple COCI and offer insights into the organisational aspects of the delivery of care. The following are proposed:

- Two specific indicators measuring timeliness and integration of care transitions (see [indicator fiche AD4](#)):
 - Percentage of patients discharged to home or other site of care, accompanied by a complete transition record.

⁵⁶ <http://www.oecd.org/els/health-systems/Definitions-of-Health-Care-Quality-Indicators.pdf>

⁵⁷ Tools and methodologies to assess integrated care in Europe, 2017. Report by the Expert Group on Health Systems Performance Assessment, EC/ Health and Food Safety Directorate-General.

⁵⁸ World Health Organization, 2015. WHO global strategy on people-centred and integrated health services: interim report.

- Percentage of complete transition records (as above), transmitted within 24 hours of discharge.
- One specific indicator measuring proper medication management (medication reconciliation, see [indicator fiche AD5](#)):
 - Medication reconciliation: percentage of discharges of patients aged 65 years or more from any inpatient facility for which the discharge medication list was reconciled with the current medication list in the outpatient medical record.
- One more general indicator measuring care coordination, calculated from scores on (see [indicator fiche AD6](#)):
 - Use of standard procedures and protocols in primary healthcare organisations;
 - Use of quality of care processes based on best practice guidelines;
 - Assurance of quality of clinical integration or coordination in multi-professional teams.

PROPOSALS FOR THIS SUB-NODE

14. Proposed indicator: Continuity / Integration of care indicator – see [indicator fiche AD3](#).
15. Proposed indicators: Care transitions indicators – see [indicator fiche AD4](#).
16. Proposed indicator: Medication reconciliation indicator – see [indicator fiche AD5](#).
17. Proposed indicator: Care coordination score – see [indicator fiche AD6](#).

5.2.3.6 Existence of patients' pathways – secondary care

- ▶ Issue: The relevant node in secondary care is not covered.

Proposed approach:

The initial proposal was to link the concept to the use of evidence-based medicine in a healthcare system. Use of evidence-based medicine could be measured by selecting a number of sentinel conditions for which standards of care are clearly defined and then monitoring patient outcomes for those conditions. The second expert workshop suggested that the research team look at diabetes indicators as evidence of good quality care. In general, type 1 diabetes and tuberculosis are recommended diseases to observe when estimating the existence of patient pathways to adequately treat these conditions. For example, when poorly managed, type 1 diabetes can lead to medical complications, such as cardiovascular disease, blindness and lower-limb amputation. Indicators that are relevant in estimating the existence of patient pathways to adequately treat this condition can be found in the International Diabetes Federation (IDF) database⁵⁹. These are:

- Estimated percentage of undiagnosed diabetes;
- Estimated diabetes-related mortality.

The latest data are available in the 2017 IDF Diabetes Atlas (8th edition).

⁵⁹ <http://www.diabetesatlas.org/>

However, several factors that are unrelated to the existence of patient pathways can affect these measurements.

With regard to tuberculosis, most of the literature concerns the management of the interrelations in the healthcare system and the flow of information for efficient treatment and containment⁶⁰. In general, the literature on pathways examines the use of registries and ICT systems for the efficient coordination and decision-making.

Given that the existence of patient pathways is most important in the presence of multiple diseases, and that HIV-associated tuberculosis incidence is increasing in Europe, the WHO webpage on 'Integrating collaborative tuberculosis and HIV services within a comprehensive package of care for people who inject drugs (consolidated guidelines)' was identified as a source of information. Measurements of countries' adherence to these guidelines could, in principle, be used to construct indicators. The population is too specific, however.

The proposal in this section is based on the observation that the existence of registries and electronic patient/health records (EPR/ EHR) provides evidence for the existence of clear patient pathways. For example, advanced EHR adoption has been associated with fewer patients with prolonged length of stay and seven-day re-admissions⁶¹. There are some relevant indicators from the WHO Global eHealth survey⁶² and its dedicated section on EHR (see Section 10.1 'WHO Global eHealth survey – the section on EHR' in Annex 4). The relevant questions on the existence of an EHR system and its use in secondary and tertiary care can be used to construct an indicator (see [indicator fiche AD7](#)).

PROPOSALS FOR THIS SUB-NODE

18. Proposed indicator: Patient pathways indicator (efficiency of information flow) – see [indicator fiche AD7](#).

5.2.3.7 Epidemiology – long-term care

- Issue: There is a need to consider the epidemiological angle in long-term care. The indicators should consider at least the four main disease causes for disability i.e. mental diseases (dementia), cardiovascular, cancer and musculoskeletal diseases.

⁶⁰ See, for example, European Centre for Prevention and Disease Control, 2013. Investigation and control of tuberculosis incidents affecting children in congregate settings.

⁶¹ Hessels, A., Flynn, L., Cimiotti, J. P., Bakken, S., & Gershon, R., 2015. Impact of health information technology on the quality of patient care. *Online journal of nursing informatics*, 19.

⁶² <http://www.who.int/goe/survey/2015survey/en/>

Proposed approach:

It is proposed to add a new sub-node 'Epidemiology' in long-term care. Several articles conclude that dementia, urinary incontinence, chronic stroke and cardiac insufficiency are both highly prevalent and also present large differences in prevalence between long-term care and non-long-term care⁶³. The data needed are partially available from the EHIS, in the table 'Persons reporting a chronic disease, by disease, sex, age and level of activity limitation' (hlth_ehis_cd1d).

To use these data and to approximate the long-term care recipient population to the greatest extent possible, the data should be filtered by age (using the conventional threshold ≥ 65 years) and by activity limitation (only excluding 'None'). Relevant available disease codes can be grouped as follows:

	Diseases covered in the dataset
Cancer	-
Cardiovascular	Heart attack or chronic consequences of heart attack; Coronary heart disease or angina pectoris
Dementia	-
Mskkeletal disease	Arthrosis; Lower back disorder or other chronic back defect; Neck disorder or other chronic neck defect
Stroke	Stroke or chronic consequences of stroke
Urinary incontinence	Urinary incontinence, problems in controlling the bladder

Dementia prevalence data for 2015 are available for the EU Member States, in the OECD report, 'Health at a Glance 2017'⁶⁴. Cancer incidence or prevalence rates are not useful indicators because they are not necessarily associated with long-term care. No proper indicators were found.

Morbidity statistics in the ESS remain at the level of a pilot study⁶⁵.

⁶³ See, for example, Heinen, I., Koller, D., Wiese, B., Hansen, H., Schäfer, I., Scherer, M., & Schön, G., 2014. The epidemiology of chronic diseases and long-term care: results of a claims data-based study. *Zeitschrift für Gerontologie und Geriatrie*, 47(5), pp. 403-409.

⁶⁴ https://www.oecd-ilibrary.org/social-issues-migration-health/health-at-a-glance-2017/prevalence-of-dementia-across-all-oecd-countries-by-age-group-2017_health_glance-2017-graph196-en

⁶⁵ The latest report contains the results of the pilot tests in 16 Member States. See: Eurostat, 2014. Morbidity statistics in the EU - Report on pilot studies. Eurostat statistical working papers.

PROPOSALS FOR THIS NEW SUB-NODE

19. Proposal to add a new node with label 'Epidemiology' with existing indicators on the prevalence of cardiovascular disease, dementia, musculoskeletal disease, stroke and urinary incontinence in older people with at least some degree of activity limitation.

5.2.3.8 Treatment adequacy (or relevance of treatment) – long-term care

- Issue: The relevant node in long-term care is not covered.

Proposed approach:

The proposal here is based on the literature and best practice in assessing the quality of long-term care. Data on treatment and assessment of its adequacy or relevance are very difficult to collect, thus an assessment of process inefficiencies is proposed, which is the closest approximation of quality aspects.

Deficiencies in the provision of long-term care in nursing homes are of interest here. Several potential indicators were proposed after the analysis of the results of the European Services and Health for Elderly in Long TERM Care (SHELTER) project⁶⁶. Many of these indicators are difficult to evaluate by non-experts (e.g. polypharmacy, unnecessary use of antipsychotics or antidepressants). A presentation by Health Canada also offers suggestions⁶⁷. Three indicators appear to be the most objectively measurable - the incidence rates in nursing homes of:

- Pressure ulcers;
- Urinary tract infections;
- Physical restraints use.

These are recorded in the inspections of nursing homes by Medicare in the US. A recent presentation by OECD on patient-reported indicators⁶⁸ notes that national information infrastructures for the long-term care sector are poorly developed in most countries, although Canada is an exception: *'In the long-term care sector the application of InterRAI allows the monitoring of falls, pressure ulcers, infections, antipsychotic prescribing and restraint use from around 1,300 long-term care facilities. Although there is limited coverage in some provinces, the data cover about 70% of the system.'*

The relevant data collection would be based on similar inspections in the Member States (see [indicator fiche AD8](#)).

PROPOSALS FOR THIS SUB-NODE

20. Proposed indicator: Quality of care in nursing homes – see [indicator fiche AD8](#).

⁶⁶ Frijters, D. H., van der Roest, H. G., Carpenter, I. G., Finne-Soveri, H., Henrard, J. C., Chetrit, A. & Bernabei, R., 2013. The calculation of quality indicators for long-term care facilities in eight countries (SHELTER project). *BMC health services research*, 13(1), p. 138.

⁶⁷ <http://www.oecd.org/els/health-systems/1960045.pdf>

⁶⁸ https://ec.europa.eu/health/sites/health/files/indicators/docs/ev_20170608_co05_en.pdf

5.2.3.9 Patient Reported Outcome Measures (PROMs) – secondary and long-term care

- ▶ Issue: The relevant nodes in secondary and long-term care are not covered.

Proposed approach:

Patient experiences are collected regularly and published by the OECD. These describe overall satisfaction rather than patient-reported outcomes. Across Europe, some clinical registries have started using PROMs indicators, e.g. the Netherlands and Sweden. However, the examples found are limited and not easily transferrable to the entire EU. For example, the booklet on the OECD Patient-Reported Indicators Survey initiative (PaRIS)⁶⁹ mentions that '*patient-reported outcome measures are in use for some conditions, such as hip and knee surgery but different measures in different countries make international comparisons difficult*'. These different measures arise from the variety of research methodologies followed in each country to ensure that patient reporting is as close as possible to medically objective outcomes (and from the selection of clinical evidence used to assess the actual outcomes). This variety of approaches is evident from the wealth of review articles in the literature. For instance, one article reviews 32 measures proposed for patients undergoing hip and knee arthroplasty⁷⁰.

The PaRIS⁷¹ initiative will address PROMS-related information gaps. This work is ongoing and the first real results will not appear before 2021. The objectives of this initiative are to:

- Support countries in their work towards the improvement of indicators in areas where patient-reported outcomes are already measured, and the development of validated, standardised, internationally-comparable indicators. Here, international working groups are discussing approaches for *specific conditions* such as breast cancer, hip and knee replacements and mental health.
- Develop a new international survey addressing the need to understand the outcomes and experiences of patients with one or more chronic conditions, in primary/ambulatory care settings. This survey would close gaps in complex needs.

An OECD graphic reproduced below illustrates the work in progress⁷².

⁶⁹ <http://www.oecd.org/health/health-systems/PaRIS-Booklet.pdf>

⁷⁰ Harris, K., Dawson, J., Gibbons, E., Lim, C. R., Beard, D. J., Fitzpatrick, R., & Price, A. J., 2016. Systematic review of measurement properties of patient-reported outcome measures used in patients undergoing hip and knee arthroplasty. *Patient related outcome measures*, 7, p. 101.

⁷¹ <http://www.oecd.org/health/paris.htm>

⁷² https://ec.europa.eu/health/sites/health/files/indicators/docs/ev_20170608_co05_en.pdf

Figure 5.9 Outline of the work carried out in the design of the PaRIS survey



Source: OECD

The first workstream is of interest for PROMs indicators in secondary and long-term care. Although not collected through an international survey, it is expected that these national indicators for adults will be gathered by the OECD and Eurostat. They will then be used to analyse:

- Disease-specific PROMs and their impact on the function of the specific conditions;
- Differences in these PROMs by background characteristics such as age group, sex, health-risk behaviours, disease status, etc.

PROMs relate to quality of life, in particular Health-Related Quality of Life, and many studies address the issue by using quality of life instruments⁷³. However, the PaRIS indicators should offer a much more comprehensive instrument and it is worth waiting for the pilot questionnaires.

PROPOSALS FOR THIS SUB-NODE

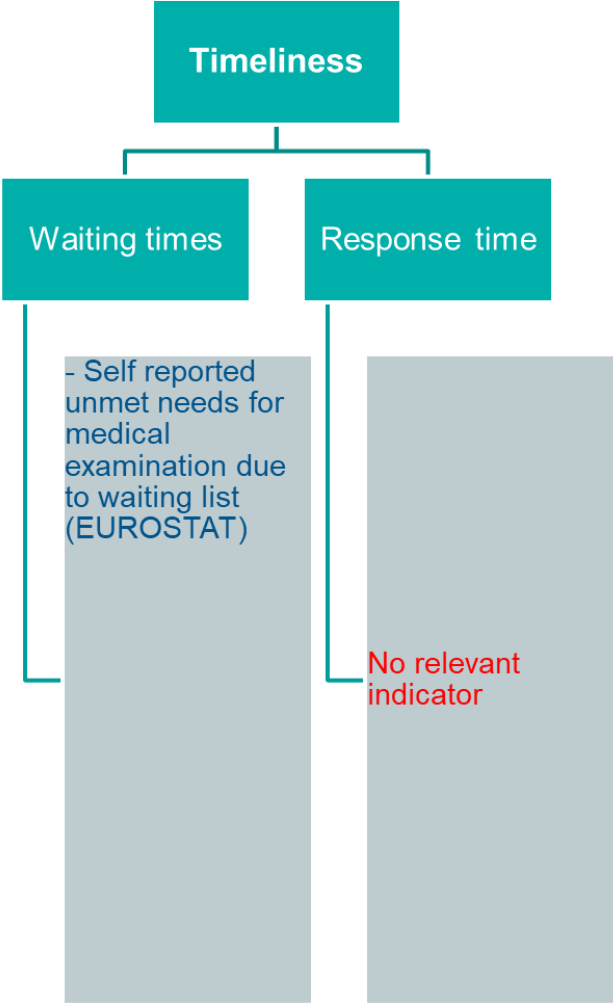
21. Proposal to wait for the pilot questionnaires in the OECD Patient-Reported Indicators Survey (PaRIS), given the more advanced work that the OECD is conducting for this survey.

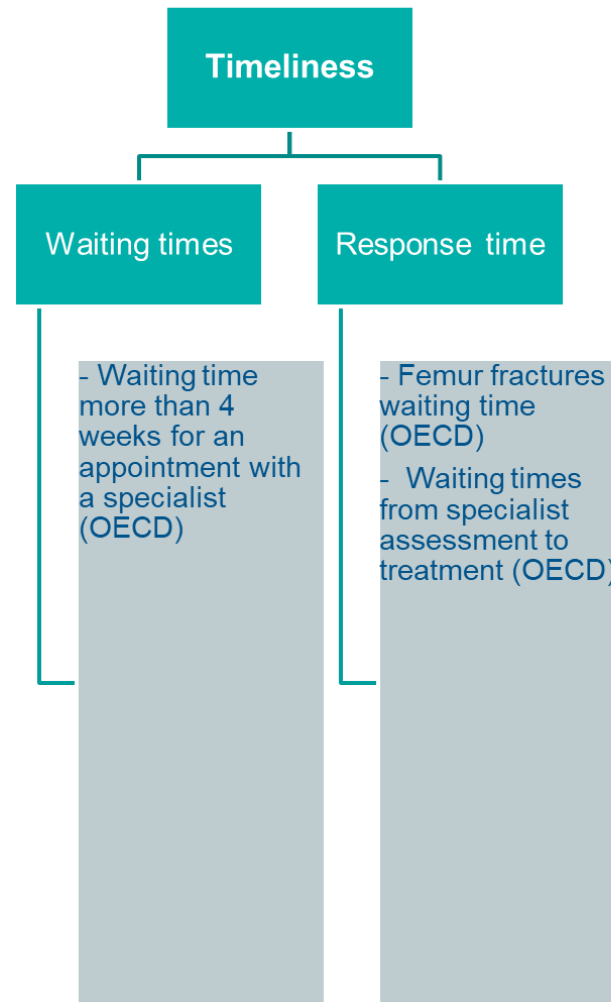
5.2.4 Timeliness

Figure 5.10 shows the indicators in the Timeliness dimension. The only node which is not covered concerns response times in primary care, and room for improvement is noted in the node for response times in secondary care.

⁷³ See, for example, Cella, D. F., Hahn, E. A., Jensen, S. E., Butt, Z., Nowinski, C. J., Rothrock, N., & Lohr, K. N., 2015. *Patient-reported outcomes in performance measurement* (Vol. 97). Research Triangle Park, NC: RTI Press.

Figure 5.10 Proposed indicators for the Timeliness dimension





5.2.4.2 Waiting time

- ▶ Issue: None.

PROPOSALS FOR THIS SUB-NODE

No additional indicator or change to existing indicators is proposed.

5.2.4.3 Response times

- ▶ Issue: The relevant node in primary care is not covered.

Proposed approach:

No directly relevant indicator of response time could be identified for primary care. It is not possible to distinguish unmet need for first contact and for subsequent care⁷⁴ from the EU-SILC data on unmet need due to waiting time. Methodologically, it is difficult to identify the time to initiation of a treatment by a GP. The closest measure would be waiting time for appointments in GP or primary healthcare clinics, but this indicator is already placed under the waiting time sub-node. The Response time node in primary care was thus removed.

- ▶ Issue: There is room for improvement in the relevant node in secondary care, as femur fracture waiting time is a too restricted choice.

Proposed approach:

The current framework includes two indicators, both from the OECD:

- Femur fracture waiting time;
- Waiting time from specialist assessment to treatment.

Condition-specific waiting times are poorly represented, with femur fracture the only one used. The search for best practice identified the Canadian Institute for Health Information, which is mandated to collect waiting time information and monitor progress in meeting benchmarks⁷⁵, with a particular focus on:

- Joint replacements - hips and knees;
- Sight restoration - cataract surgery (high-risk);
- Heart - coronary artery bypass grafts (CABG);
- Cancer – with a focus on radiation therapy (although surgery and chemotherapy are included);
- Diagnostic imaging – magnetic resonance imaging (MRI) and computed tomography (CT).

The relevant indicators can be found at <http://waittimes.cihi.ca/>. Cataract, CABG, knee replacement and hip replacement are reported to the OECD. The latest OECD report on waiting times for elective surgeries⁷⁶ cites the Canadian experience as a

⁷⁴ Expert Panel on effective ways of investing in Health (EXPH), 2018. Report on Benchmarking Access to Healthcare in the EU.

⁷⁵ http://www.oecd.org/els/health-systems/HDMMeeting_Item9-1_Wait-times-Canada_CIHI.pdf

⁷⁶ Siciliani, L., Borowitz, M. & Moran, V. (eds.), 2013. *Waiting Time Policies in the Health Sector: What Works?*, OECD Health Policy Studies, OECD Publishing, Paris, <https://doi.org/10.1787/9789264179080-en>.

best practice case with regard to the harmonisation of the relevant definitions, as there are some methodological subtleties in the measurement of waiting time^{77 78}.

The proposal is to enrich this node by adding indicators reported by the OECD and judged useful in practice by the Canadian Institute for Health Information:

- Cataract surgery;
- Coronary bypass;
- Hip replacement (total and partial, including the revision of hip replacement);
- Knee replacement.

These data are available in the OECD topic 'Healthcare utilisation/Waiting time'.

PROPOSALS FOR THIS SUB-NODE

22. Proposal to remove the response time node in primary care.
23. Proposal to enrich the response time node in secondary care by adding the OECD waiting time indicators for cataract surgery, coronary bypass, hip replacement and knee replacement.

5.2.5 Accessibility

Figure 5.11 present the indicators in the Accessibility dimension. The only node which is not covered concerns facilities access in primary and secondary care. Improvements are also needed in:

- Health literacy in preventative care, where the indicators on the use of social media for information on health issues and on the promotion of health messages are quite limited in scope and do not necessarily reflect health literacy;
- Transport availability in primary and secondary care, as the indicators (unmet need due to travel distance) do not allow for varying degrees of physical accessibility.

⁷⁷ First examined in Siciliani, L., 2008. A note on the dynamic interaction between waiting times and waiting lists. *Health Economics*, 17(5), pp. 639-647.

⁷⁸ Interestingly, other measurements used in this report are waiting time by speciality.

Figure 5.11 Proposed indicators for the Accessibility dimension

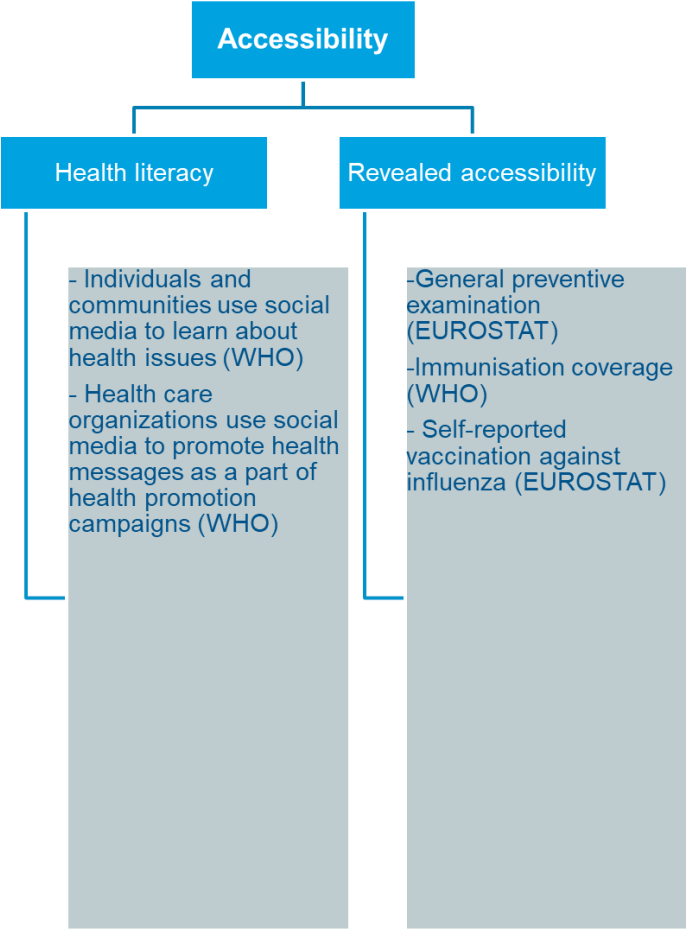
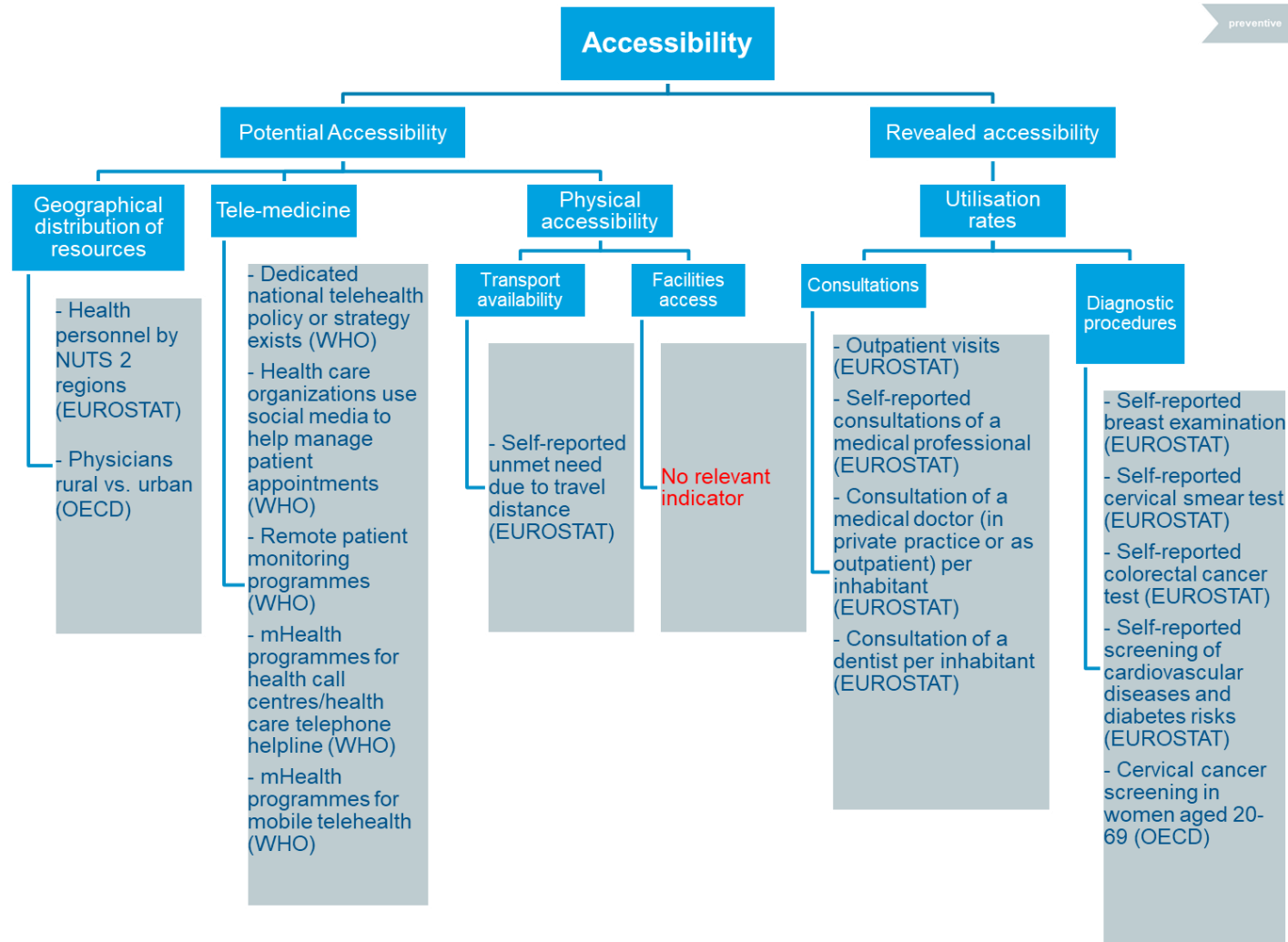
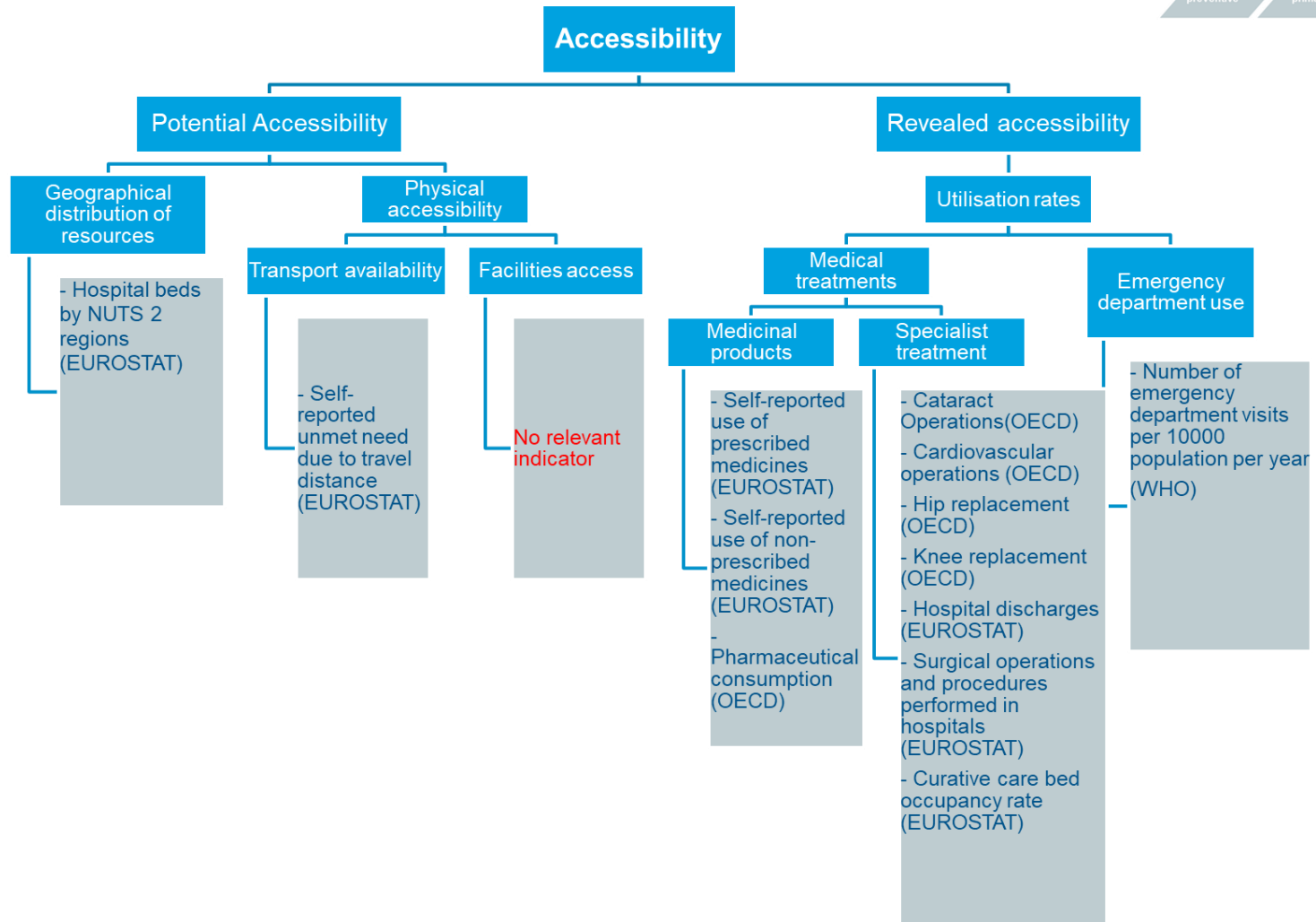


Figure 5.12





Accessibility

Revealed
accessibility

- Self-reported use
of home care
services
(EUROSTAT)



5.2.5.2 Health literacy

- Issue: The indicators proposed are from the WHO and concern the use of social media for the provision of information on health issues and the promotion of health. These are limited in scope. After the second workshop, DG SANTE commented that proposals on the existence of health promotion activities and online health information services should be removed as they will not directly inform on the impact of these activities and services on health literacy. The same is true for an indicator proposed during the discussion on the draft final report, which was to be based on a survey question on the ICT use in households and by individuals: 'Individuals using the Internet to seek health-related information'.

Proposed approach:

A much more comprehensive approach was followed in the European Health Literacy (HLS-EU) project, which took place between 2009-2012 and was carried out according to Eurobarometer standards. The relevant questionnaire was named HLS-EU-Q. The original version has 47 items (HLS-EU-Q47). A short version was also produced as a result of the analysis of the survey data (HLS-EU-Q16). These 16 questions are shown below⁷⁹ and are also presented in [Annex 4.2](#). They are all on a Likert scale of four categories ('On a scale from very easy to very difficult, how easy would you say it is to: ...').

Figure 5.13 Set of questions from HLS-EU-Q

Health Literacy (16 of 47)	Obtain/Access information (4 of 13)	Understand information (6 of 11)	Process/Appraise information (3 of 12)	Apply/use information (3 of 11)
Health Care (7 of 16)	Q1...find information on the treatments of illnesses that concern you?	Q3...understand what your doctor says to you?	Q5...judge when you may need to get a second opinion from another doctor? (1 of 4)	Q6...use information the doctor gives you to make decisions about your illness?
	Q2...find out where to get professional help when you are ill? (2 of 4)	Q4...understand your doctor's or pharmacist's instruction on how to take a prescribed medicine? (2 of 4)		Q7...follow instructions from your doctor or pharmacist? (2 of 4)
Disease Prevention (5 of 15)	Q8...find information on how to manage mental health problems like stress or depression? (1 of 4)	Q9...understand warnings about behaviour such as smoking, low physical activity and drinking too much? (2 of 3)	Q11...judge if the information on health risks in the media is reliable? (1 of 5)	Q12...decide how you can protect yourself from illness based on information in the media? (1 of 3)
		Q10...understand why you need health screenings? (2 of 3)		
Health Promotion (4 of 16)	Q13...find out about activities that are good for your mental well-being? (1 of 5)	Q14...understand advice on health from family members or friends? Q15...understand information in the media on how to get healthier? (2 of 4)	Q16...judge which everyday behaviour is related to your health? (1 of 3)	<i>No adequate items identified!</i> (0 of 4)

Source: Pelikan, J.M., Röthlin, F. & Ganahl, K., 2014. Measuring comprehensive health literacy in general populations: validation of instrument, indices and scales of the HLS-EU study. 6th Annual Health Literacy Research Conference, November 3-4, 2014, Bethesda, Maryland

This set of 16 questions captured most of the variability of the original questionnaire (an even shorter form produced with only six questions was also shown to be quite

⁷⁹ Pelikan, J.M., Röthlin, F. & Ganahl, K., 2014. Measuring comprehensive health literacy in general populations: validation of instrument, indices and scales of the HLS-EU study. 6th Annual Health Literacy Research Conference, November 3-4, 2014, Bethesda, Maryland. Available at <https://www.bumc.bu.edu/healthliteracyconference/files/2014/06/Pelikan-et-al-HARC-2014-fin.pdf>

representative of the content of the original instrument, although lacking considerably in its representation of the underlying conceptual model)⁸⁰.

The results of the HLS-EU project initiated further research into issues of health literacy⁸¹. The project was followed up with the Health Literacy Europe initiative⁸², although the survey is not active.

The proposal is to incorporate these questions into any survey or to conduct this survey in collaboration with the Health Literacy Europe Initiative. For details on the proposed indicator, see [indicator fiche AC1](#).

An alternative proposal is to use some of the determinants of health literacy (as found in this survey) as proxies. Other studies have found educational attainment to be important here^{83 84}, and there are ample data on such indicators from the EU-LFS and other sources.

PROPOSALS FOR THIS SUB-NODE

24. Proposed indicator: Health literacy – see [indicator fiche AC1](#).
25. Alternative proposed indicator: Use educational attainment from EU-LFS data as a proxy.

5.2.5.3 Physical Accessibility

- ▶ Issue: The closest existing indicator for transport availability is the ‘Self-reported unmet need due to travel distance’ (Eurostat). During the second workshop it was suggested that a good approach to physical accessibility would be to look at indicators used in other sectors, such as accessibility of public transport for people with disabilities or, in particular, the visually impaired.

Proposed approach:

During the discussion of the draft final report, with regard to the possible use of barriers to transport from data collected through the EHIS survey (Disabled people by sex, age and life area where a barrier is reported - hlth_dsi090), it was noted that barriers to transport imply barriers to transport for health purposes. The main problem is that this was a standalone survey and will not be repeated.

The UK demonstrates a comprehensive approach to quantifying the availability of transportation satisfying the requirements of accessibility of public transport for a variety of groups. It publishes very detailed statistics on the ‘*Availability of transport to key services or work, among users*’⁸⁵. The following screenshot shows the detailed information available (transport mode, estimates for groups of special interest).

⁸⁰ *Ibid.*

⁸¹ An indicative paper is: Sørensen, K., Pelikan, J. M., Röthlin, F., Ganahl, K., Slonska, Z., Doyle, G. & Falcon, M., 2015. Health literacy in Europe: comparative results of the European health literacy survey (HLS-EU). *European journal of public health*, 25(6), pp. 1053-1058.

⁸² <https://www.healthliteracyeurope.net/hls-eu>

⁸³ Hahn, R.A., & Truman, B.I.. 2015. ‘Education improves public health and promotes health equity’. *International Journal of Health Services* 45, no. 4 (2015), pp. 657-678.

⁸⁴ Baciu, A., Thompson, D. & Alper, J. (eds.), 2015. *Exploring Opportunities for Collaboration Between Health and Education to Improve Population Health*. Roundtable on Population Health Improvement, Board on Population Health and Public Health Practice, Institute of Medicine. Workshop Summary. National Academies Press. Available at: <https://www.ncbi.nlm.nih.gov/books/NBK316096/>

⁸⁵ <https://www.gov.uk/government/statistical-data-sets/acs02-availability-of-transport-to-key-services-or-work-among-users#table-acs0201>

Figure 5.14 Transport availability indicators by transport mode and group in the UK

Number / Percentage

		Key services															
Year	Mode	Employment		Primary school		Secondary school		Further Education		GP		Hospital		Food store		Town Centres	
		Users ²	At risk users ³	Users ²	At risk users ³	Users ²	At risk users ³	Users ²	At risk users ³	Users ²	At risk users ³	Users ²	At risk users ³	Users ²	At risk users ³	Users ²	At risk users ³
Number of people with reasonable access																	
2007	Public Transport / Walking	29,825,700	595,300	1,483,500	266,600	1,473,500	229,300	1,636,700	..	12,585,300	3,578,300	7,633,800	2,272,700	11,015,900	3,123,500	..	..
	Cycle	21,168,300	435,400	1,973,100	340,400	1,469,100	233,700	1,207,400	..	11,811,400	3,343,000	7,562,200	2,319,500	12,325,300	3,436,100	..	..
	Car	32,993,600	643,900	1,967,500	333,700	2,216,400	328,000	2,230,200	..	15,976,100	4,291,000	15,524,200	4,221,300	14,092,800	3,786,400	..	..
2008	Public Transport / Walking	30,510,300	747,600	1,464,400	258,700	1,439,700	220,600	1,659,100	..	12,560,300	3,569,200	7,566,200	2,252,300	11,008,300	3,116,000	..	..
	Cycle	21,789,000	546,000	1,949,700	330,800	1,658,300	263,300	1,223,700	..	11,807,500	3,339,600	7,554,300	2,315,200	12,330,600	3,434,200	..	..
	Car	33,523,300	810,200	1,943,400	324,300	2,177,800	318,200	2,271,300	..	15,971,800	4,286,900	15,382,400	4,190,700	14,073,700	3,780,700	..	..
2009	Public Transport / Walking	30,799,000	1,008,400	1,456,300	262,800	1,451,100	227,500	1,677,100	..	13,706,000	3,860,100	7,485,300	2,247,200	11,666,500	3,300,800	7,456,600	2,201,400
	Cycle	21,740,100	730,300	1,926,400	335,700	1,421,400	228,500	1,207,800	..	12,687,700	3,560,800	6,926,300	2,164,200	12,942,600	3,615,900	9,116,400	2,748,600
	Car	33,793,400	1,091,900	1,925,800	329,800	2,160,200	321,900	2,272,500	..	16,846,400	4,525,600	16,096,500	4,404,600	14,845,200	3,991,700	14,483,900	3,939,400
2010	Public Transport / Walking	31,064,200	894,100	1,452,200	283,400	1,432,600	237,900	1,674,100	..	13,513,200	3,792,400	6,943,000	2,090,400	12,034,800	#####	7,497,400	2,216,300
	Cycle	22,309,300	655,500	1,960,000	367,500	1,482,100	249,600	1,283,100	..	13,065,600	3,626,000	7,115,000	2,223,400	13,183,300	#####	9,826,900	2,935,200
	Car	34,051,500	964,900	1,929,100	358,400	2,147,700	338,700	2,267,300	..	16,812,400	4,515,000	16,001,600	4,379,600	14,825,100	#####	14,514,100	3,939,200
	Car (new method) ⁵	33,973,400	963,400	1,928,000	357,900	2,115,400	335,500	2,225,200	..	16,764,100	4,506,900	14,406,700	3,979,900	14,747,800	#####	13,187,800	3,641,000
2011	Public Transport / Walking	30,334,300	744,900	1,444,900	282,700	1,412,100	235,400	1,639,800	..	13,416,900	3,783,500	6,495,000	1,976,600	12,156,200	#####	7,426,800	2,207,300
	Public Transport / Walking ⁷ (revised)	31,207,000	764,800	1,688,400	327,000	1,576,400	262,300	1,742,300	..	14,612,900	4,108,500	7,375,700	2,238,900	13,287,200	#####	8,224,200	2,450,400
	Cycle	21,905,200	547,800	1,983,400	368,600	1,479,300	249,100	1,269,300	..	13,269,600	3,674,300	6,755,200	2,119,800	13,339,800	#####	9,930,500	2,966,600
	Car (new method) ⁵	33,406,500	808,100	1,924,700	357,700	2,118,800	336,000	2,195,600	..	16,904,900	4,549,700	14,127,600	3,911,200	14,908,200	#####	13,543,100	3,738,000

Source: UK Department of Transport statistics

The journey time calculations are carried out using a commercially available software package called TRACC⁸⁶. TRACC is a desktop application that uses public transport and highway data to create journey times from origins to destinations. The results change whenever major changes are made which affect these journey times (construction of new roads, facilities, changes in routes, etc.)

The study team proposes a similar approach, while recognising that the EU-level extension of this methodology cannot be done directly and is a project by itself. The relevant proposal is to carry out a feasibility study outside the current project.

- Issue: Facilities access in primary and secondary care does not have associated indicators.

Proposed approach:

Although no indicator could be found on specific elements of the accessibility of facilities (existence of ramps, etc.), the Quality of Life Survey⁸⁷ offers an alternative, through its questions on the 'Quality of the facilities (building, room, equipment)'. The answers are given on a scale from 1 ('very dissatisfied') to 10 ('very satisfied') and are given separately for:

- GP, family doctor or health centre service;
- Hospital or medical specialist service;
- Long-term care service.

It is proposed to use the average scores of the responses in the first two questions to determine access to facilities in primary and secondary care, respectively. These responses are readily available as values in the range 1-10.

⁸⁶ The detailed methodology is described at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/710493/notes-and-definitions.pdf

⁸⁷ See the latest questionnaire at: https://www.eurofound.europa.eu/sites/default/files/ef_survey/field_ef_documents/4th_eqls_final_master_source_questionnaire_12_june_2017_-_updated_07_september_2017.pdf

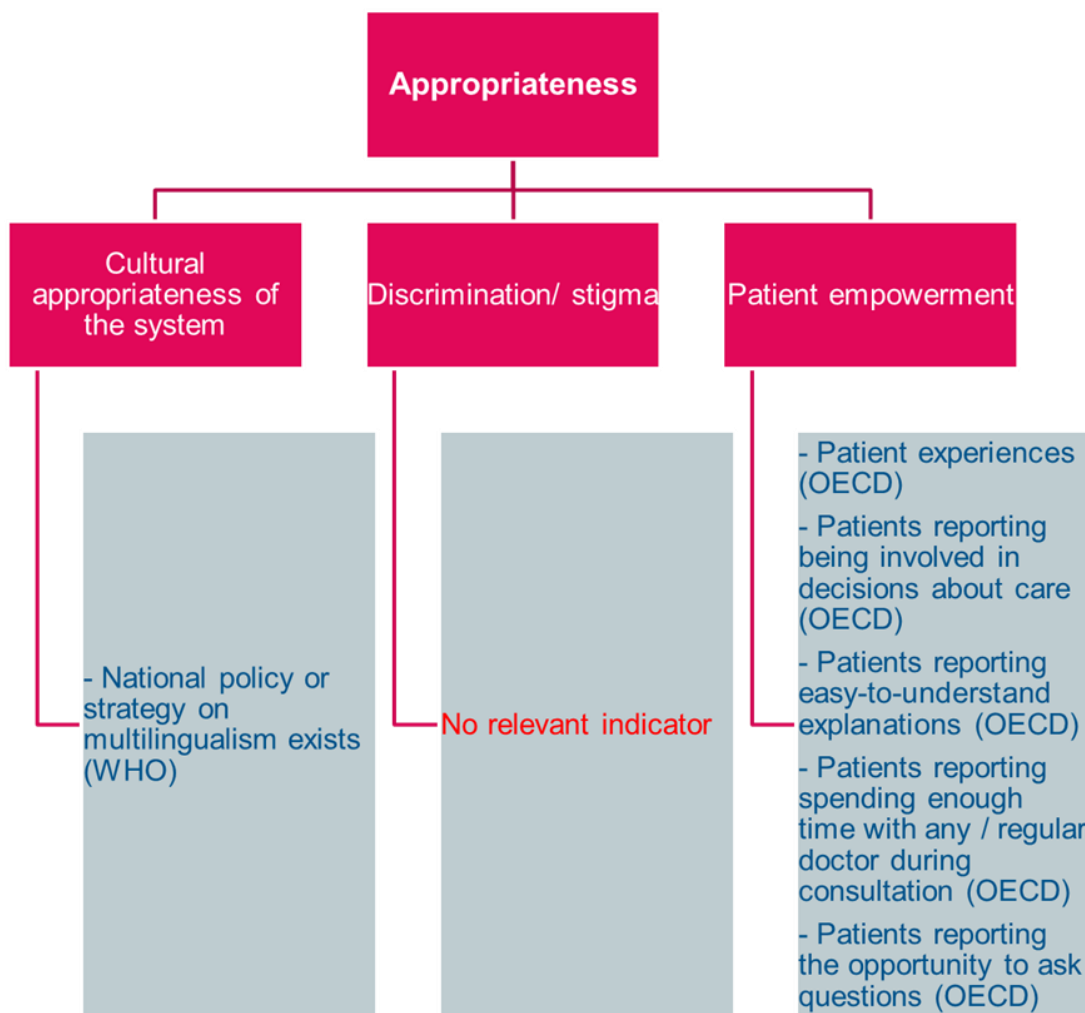
PROPOSALS FOR THIS SUB-NODE

26. Proposal to examine the feasibility of adopting an approach similar to that of the UK for transport availability indicators and statistics.
27. Proposal to compute average scores from the responses to two questions from the EQoL survey, on the quality of medical facilities in primary and secondary care, respectively.

5.2.6 Appropriateness

Figure 5.15 shows the indicators in the Appropriateness dimension.

Figure 5.15 Proposed indicators for the Appropriateness dimension



5.2.6.2 Discrimination / stigma

- Issue: The discrimination / stigma sub-node is empty.

Proposed approach:

Some questions on discrimination and stigma actually used in a survey are those of the EPF, which collects responses on the following:

- 'Have you ever felt stigmatised when seeking or receiving healthcare because of [list of reasons, multiple choice]'.
- Another question on the experienced type of stigma or discrimination.

However, these questions do not give much information. The same is true of the question/statement 'All people are treated equally in these services in my area' in the Eurofound/ EQoL survey (question 63).

Other suggestions arising from the second expert workshop included looking at the availability of culturally relevant dietary choices for meals in hospitals and long-term care facilities, primarily to assess the extent to which dietary options adapt to the needs of different cultures, such as provision of halal or vegetarian food options. An investigation of this issue did not lead to suitable measurements, however.

It was also suggested during the second workshop to look at the European Union Agency for Fundamental Rights (FRA) database, for data on the Roma population and their access to healthcare, for example. Such data would offer insights into discrimination/stigma in the healthcare system based on the experiences of a particular population group. For the same reason, PROMs associated with certain groups, such as Roma, could indicate discrimination. Comparing the indicators for specific disease types by population group, such as diabetes or HIV could also be used to assess whether or not discrimination varies according to disease groups.

The FRA database provided a wealth of useful information. FRA surveys undertaken in 2008 and 2012 found that prejudice, intolerance and discrimination affected a large proportion of Roma living in the Member States, most of whom are EU citizens. The situation (not specific to Roma) was described in detail in a 2013 FRA report based on qualitative social research, legal analysis and fieldwork, 'Inequalities and multiple discrimination in access to and quality of healthcare'⁸⁸.

Suitable indicators can be based on the European Union Minorities and Discrimination Survey carried out by FRA within the framework of the EU-MIDIS project⁸⁹. The first survey took place in 2008 and the second in 2015-2016 (EU-MIDIS II). The questions relating to discrimination in healthcare included:

- When using healthcare services in the past five years in [country] (or since you have been in [country]), have you ever felt discriminated against for any of the following reasons? [list of reasons];
- When was the last time you felt discriminated against because of your: [tailored to target group categories; ethnic or immigrant background/Roma background/ethnic minority background] when using healthcare services?
- Number of experiences of discrimination when using healthcare services in the past 12 months;

⁸⁸ Available at: <http://fra.europa.eu/en/publication/2013/inequalities-discrimination-healthcare>

⁸⁹ <http://fra.europa.eu/en/publication/2017/eumidis-ii-main-results>

- Last time you felt discriminated against because of your [tailored to target group categories; ethnic or immigrant background/Roma background/ethnic minority background] when using healthcare services, in your opinion, what were the main reasons for this? [list of reasons].

Given the policy priorities in the EU against discrimination, it is likely that these surveys will continue.

The proposal is therefore to use the results of these surveys and to construct an indicator counting the percentage of persons with immigrant/ethnic minority or other category of interest background who had contact with the healthcare system and faced unfair treatment or discrimination (see [indicator fiche AP1](#)).

It is not possible to incorporate these questions into an existing survey in the ESS, as there are no precise definitions of persons in minorities (unlike the definition of persons with disabilities, for example).

The Special Eurobarometer 393 should also be mentioned here, as it addressed discrimination in the EU in 2012. As outlined earlier, a survey weakness was the small number of relevant cases arising in this specific general population survey.

PROPOSALS FOR THIS SUB-NODE

28. Proposed indicator: Discrimination / stigma indicator – see [indicator fiche AP1](#).

5.2.7 General issues

- ▶ Issue: Incorporation of personal characteristics aspects into the framework.

During the discussion of the draft final report, DG SANTE emphasised the need to enrich the framework with some personal characteristics aspects in order to allow the identification of access differences across various groups.

Status of employment is considered to be of particular interest. However, it is recognized that the EXPH (2016, p.21) highlighted a wide range of personal characteristics that determine feelings of acceptability in respect of healthcare services, including 'beliefs about health, levels of health literacy, coping and communication skills, other psychosocial factors and access to different resources'^{1xxvii}. Future development of the indicator framework or use in specific contexts may therefore explore whether other characteristics should be considered using additional relevant, context-specific indicators,.

Proposed approach:

All indicators collected from EU-SILC are available disaggregated by employment status and by income quintile. Some indicators drawn from EHIS data are also provided by labour status or (more usually) by income quintile. The examples below are from existing indicators:

In the Affordability dimension:

Measurement of access to healthcare

- Self-reported unmet need for medical examination due to cost, from EU-SILC data (Self-reported unmet need for medical examination by sex, age, main reason declared and labour status - hlth_silc_13; and Self-reported unmet need for medical examination by sex, age, main reason declared and income quintile - hlth_silc_08).

In the Adequacy dimension:

- Self-reported chronic morbidity in population-wide outcomes/ non-communicable disease (NCD) mortality, from EU-SILC data (People with a long-standing illness or health problem, by sex, age and labour status - hlth_silc_04; and People with a long-standing illness or health problem, by sex, age and income quintile - hlth_silc_11);
- As above but with data from EHIS for the disaggregation by income quintile (Persons reporting a chronic disease, by disease, sex, age and income quintile - hlth_ehis_cd1i);
- Self-perceived health in population-wide outcomes/self-reported health, from EU-SILC data (Self-perceived health by sex, age and labour status - hlth_silc_01 and Self-perceived health by sex, age and income quintile - hlth_silc_10).

In the Timeliness dimension:

- Self-reported unmet need for medical examination due to waiting list, from EU-SILC data (Self-reported unmet need for medical examination by sex, age, main reason declared and labour status - hlth_silc_13; and Self-reported unmet need for medical examination by sex, age, main reason declared and income quintile - hlth_silc_08).

The proposal is to add these disaggregations. However, it should be noted that the level of detail in the coding of employment status does not allow the identification of persons employed with atypical contracts, for example. The classification used in EU-SILC distinguishes between solely employees and other employed persons, while that of the EHIS simply has the category 'Employed persons'.

PROPOSALS FOR THE GENERAL ISSUES

29. Proposal to incorporate the use of breakdowns of indicators by employment status and/or by income quintile.

5.2.8 Summary of the proposals

<p>Availability</p>	<p>Personnel</p> <ul style="list-style-type: none"> - Proposal to enrich the node by adding the Eurostat indicators with the number of physicians broken down by sex and age groups to the currently placed indicators, in all preventative, primary and secondary care stages. <p>Facilities</p> <ul style="list-style-type: none"> - Proposal to remove the Facilities / preventative care node. <p>Equipment and medical products</p> <ul style="list-style-type: none"> - No proposal. DG SANTE will conduct a future study to examine in greater depth how to measure availability of medical products in the EU. <p>Services</p> <ul style="list-style-type: none"> - Proposed indicator: The ratio of the number of informal caregivers to the number of recipients of long-term care and the annual (or compound) change rate of this ratio - see indicator fiche AV1. - Alternative proposed indicator: the ratio of the number of formal to informal caregivers and the annual (or compound) change rate of this ratio - see indicator fiche AV2.
<p>Affordability</p>	<p>Healthcare expenditure</p> <ul style="list-style-type: none"> - Proposed indicator: Capacity to conduct health technology assessment (HTA) – see indicator fiche AF1. <p>OOP expenditure</p> <ul style="list-style-type: none"> - Proposed indicator: Share of recommended vaccines not fully funded – see indicator fiche AF2. - Proposal to keep the OOP expenditure indicator for long-term care but exclude it from the framework until the methodological issues are resolved. - Proposed indicator: Level of informal payments in healthcare (secondary care) - see indicator fiche AF3. - Proposal to use the already placed indicator of OOP expenditure in primary and secondary care until the methodological work by Eurostat on the linking of SHA with disease-specific data is complete and more accurate estimates by stage can be obtained. <p>Health insurance eligibility / coverage</p> <ul style="list-style-type: none"> - Proposed indicator: Depth of basic coverage score (all stages of healthcare) - see indicator fiche AF4. - Proposal to follow-up the developments of Eurostat work on linking SHA with disease-specific data in order to produce stage-specific indicators.

<p>Adequacy</p>	<p>Medical staff skills – primary care and secondary care</p> <ul style="list-style-type: none"> - Proposed indicator: Communication and interpersonal skills (for both primary and secondary care) – see indicator fiche AD1. - Proposed indicator: Technical skills (primary care) – see indicator fiche AD2. <p>Continuity/ Integration of care</p> <ul style="list-style-type: none"> - Proposed indicator: Continuity/ Integration of care indicator – see indicator fiche AD3. - Proposed indicators: Care transitions indicator – see indicator fiche AD4. - Proposed indicator: Medication reconciliation indicator – see indicator fiche AD5. - Proposed indicator: Medication reconciliation indicator – see indicator fiche AD6. <p>Existence of patient pathways – secondary care</p> <ul style="list-style-type: none"> - Proposed indicator: Patient pathways indicator (efficiency of information flow) – see indicator fiche AD7. <p>Epidemiology – long-term care</p> <p>Proposal to add this new sub-node with existing indicators on the prevalence of cardiovascular disease, dementia, musculoskeletal diseases, and stroke and urinary incontinence in older people with at least some degree of activity limitation.</p> <p>Treatment adequacy (or relevance of treatment) – long-term care.</p> <ul style="list-style-type: none"> - Proposed indicator: Quality of care in nursing homes – see indicator fiche AD8. <p>Patient Reported Outcome Measures (PROMs) – secondary and long-term care.</p> <ul style="list-style-type: none"> - Proposal to wait for the pilot questionnaires in the OECD Patient-Reported Indicators Survey (PaRIS), given the more advanced work that the OECD is conducting for this survey.
<p>Timeliness</p>	<p>Response time</p> <ul style="list-style-type: none"> - Proposal to remove the response time node in primary care. - Proposal to enrich the response time node in secondary care by adding the OECD waiting time indicators for cataract surgery, coronary bypass, hip replacement and knee replacement.
<p>Accessibility</p>	<p>Health literacy – preventative care</p> <ul style="list-style-type: none"> - Proposed indicator: Health literacy – see indicator fiche AC1. - Alternative proposed indicator: Use educational attainment from EU-LFS data as a proxy.

Measurement of access to healthcare

	<p>Physical accessibility</p> <ul style="list-style-type: none">- Proposal to examine the feasibility of adopting an approach similar to that of the UK for transport availability indicators and statistics.- Proposal to use two questions from the Eurofound/EQoL survey, on the quality of medical facilities in primary and secondary care, respectively.
Appropriateness	<p>Discrimination/ stigma</p> <ul style="list-style-type: none">- Proposed indicator: Discrimination/ stigma indicator – see indicator fiche AP1.
General issues	<ul style="list-style-type: none">- Proposal to add the use of breakdowns of indicators by employment status and/or by income quintile in the existing indicators drawn from EU-SILC or EHIS data.

6 Pilot testing of the proposed indicators

The project ‘Towards a fairer and more effective measurement of access to healthcare across the EU’ has proposed an indicator framework for measuring access to healthcare. A retrospective pilot study was conducted to test this framework in four Member States. The objective was to assess how well the framework captures access to healthcare and how it compares with current methods of measuring access.

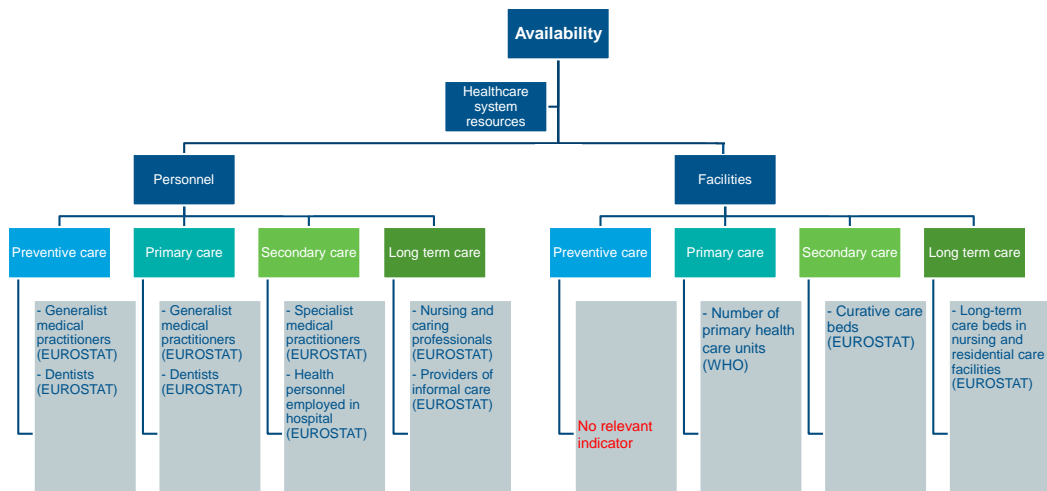
Germany, Greece, Portugal and Slovenia were selected for the pilot study and the analysis was carried out for the reference period 2005-2016. Data were collected from relevant dissemination websites and available publications.

This section presents the results of the pilot study. It contains six sub-sections, each dedicated to one access dimension. It includes information about the dimension and the corresponding indicators, presents the statistical findings and discusses any challenges in data collection and analysis.

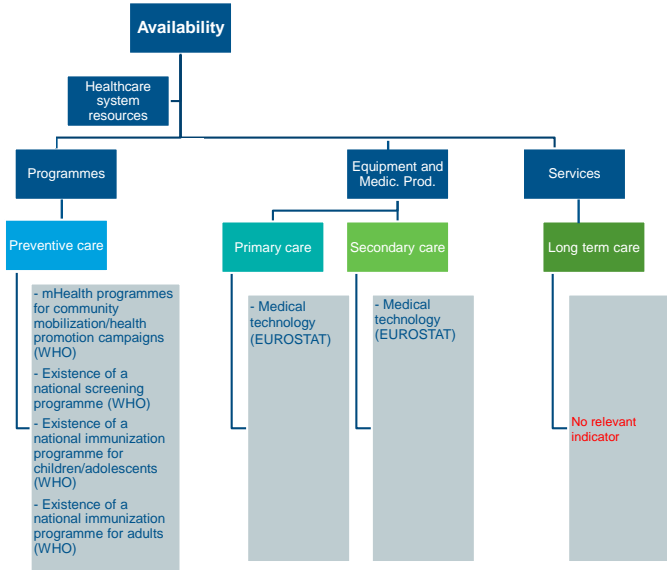
6.1 Availability

Figure 6.1 below shows the current indicators in the Availability dimension in the latest version of the conceptual framework.

Figure 6.1 Indicators in the Availability dimension



Measurement of access to healthcare

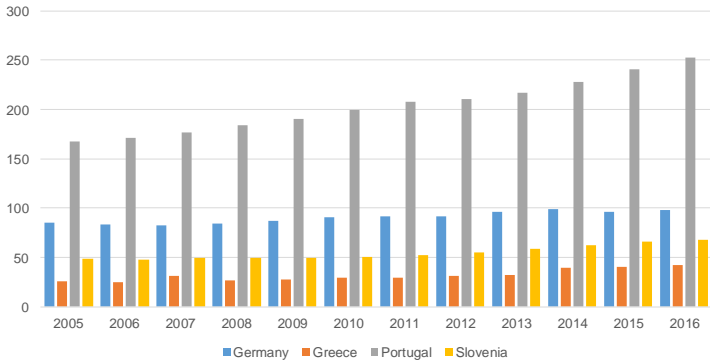


6.1.2 Personnel

Preventative and primary care

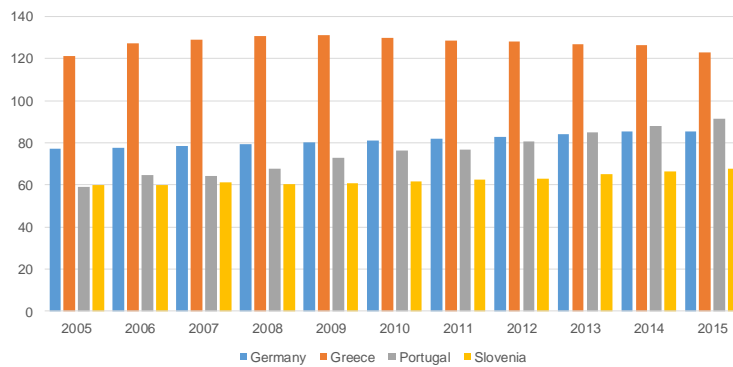
The personnel indicators already placed in the framework for preventative and primary care represent the numbers of generalist medical practitioners and dentists (per hundred thousand inhabitants). It should be noted that the Eurostat indicators on health personnel employed in hospitals in secondary care are broken down by category of personnel. Of primary interest here are medical doctors and nursing professionals and midwives. Figures 6.2 and 6.3 show the values of these indicators in the four selected countries, from 2005 to the latest available year.

Figure 6.2 Generalist medical practitioners per hundred thousand inhabitants



Eurostat, Physicians by medical speciality [hlth_rs_spec]

Figure 6.3 Dentists per hundred thousand inhabitants



Eurostat, Health personnel by NUTS 2 regions [hlth_rs_prsrg]

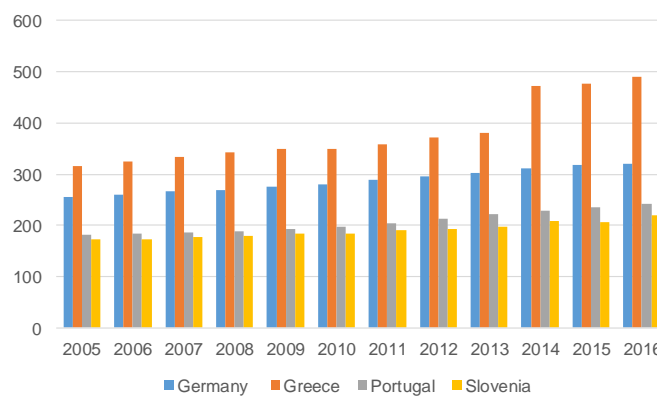
It is evident that there are more generalist medical practitioners in Portugal (exceeding 250 per 100,000 inhabitants in 2016) and fewer in Greece (below 50 per 100,000 inhabitants). Portugal sees the increase in the number of GPs.

By contrast, there are consistently more than 120 dentists per 100,000 inhabitants in Greece, compared to an average of 73 per 100,000 in the other countries.

Secondary care

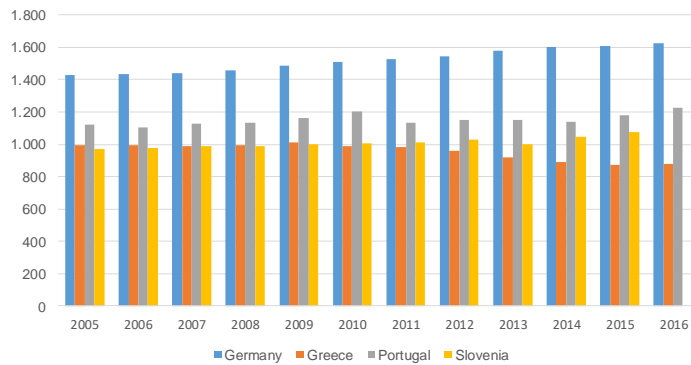
The personnel indicators in secondary care concern the numbers of specialist medical practitioners and the health personnel employed in hospitals, both from Eurostat data. Figures 6.4 and 6.5 provide more detail.

Figure 6.4 Specialist medical practitioners per hundred thousand inhabitants



Eurostat, Physicians by medical speciality [hlth_rs_spec]

Figure 6.5 Hospital employment - headcount per hundred thousand inhabitants



Eurostat, Health personnel employed in hospital [hlth_rs_prshp1]

Greater numbers of specialist medical practitioners are observed in Greece and Germany. There is a break in the series for Greece at 2014, due to a change in the methodology for the data collection.

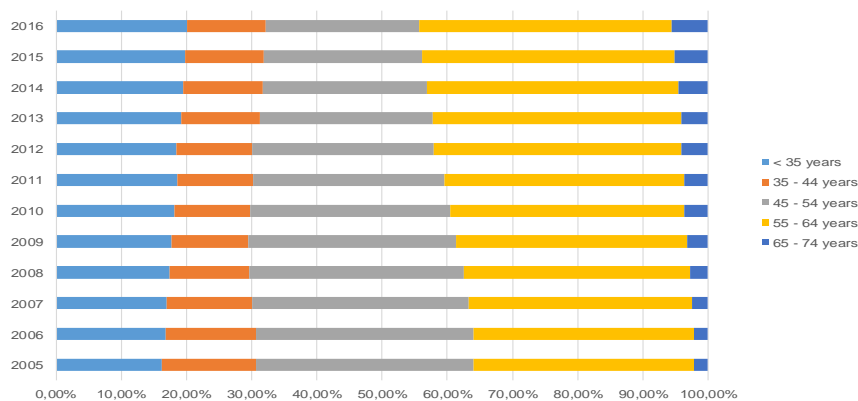
Significantly higher hospital employment is seen in Germany (around 1,500 per 100,000 persons on average).

Proposed enrichment of the personnel sub-node (all stages)

It was proposed to enrich the personnel sub-node in all healthcare stages by adding the numbers of physicians by sex and age groups.

Due to missing data, Figure 6.6. shows only the distribution of physicians by age group in Germany.

Figure 6.6 Distribution of physicians by age group in Germany



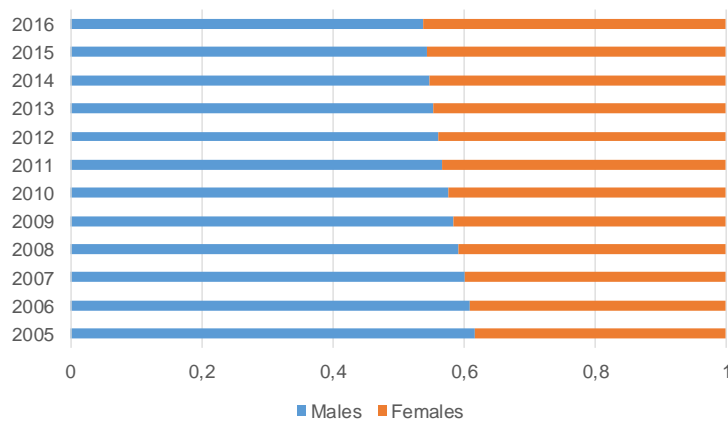
Eurostat, Physicians by sex and age [hlth_rs_phys]

Measurement of access to healthcare

The figure above shows a decreasing participation in the 35-44 and 45-54 years age groups. This would need to be compared with the whole population structure before any conclusions could be drawn.

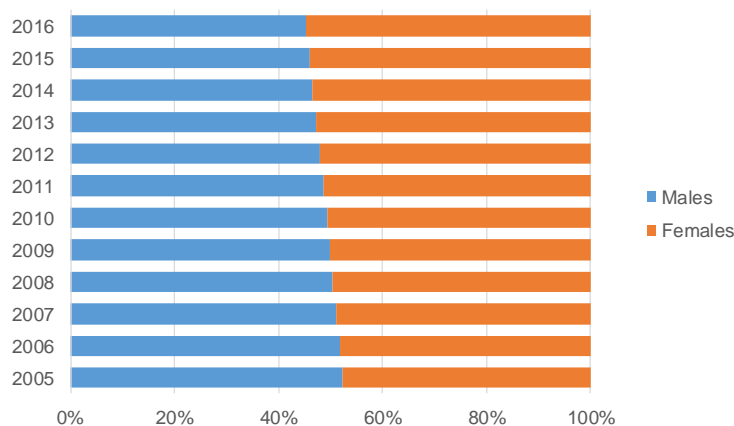
As for possible differentiations by sex, the distribution in Greece is almost steady at 60% male, 40% female. Interestingly, the reverse happens in Slovenia (40% male, 60% female). In Germany and Portugal, the share of males seems to be decreasing, as shown in Figures 6.7 and 6.8. Again, comparisons with the population distributions in these countries are needed before any conclusions can be reached.

Figure 6.7 Distribution of physicians by sex in Germany



Eurostat, Physicians by sex and age [hlth_rs_phys]

Figure 6.8 Distribution of physicians by sex in Portugal



Eurostat, Physicians by sex and age [hlth_rs_phys]

Long-term care

The indicators here are the numbers of nursing and caring professionals and the numbers of providers of informal care, both from Eurostat. Figure 6.9 shows the values for the first indicator.

Figure 6.9 Practising nurses, midwives, healthcare assistants and home-based personal care workers per hundred thousand inhabitants

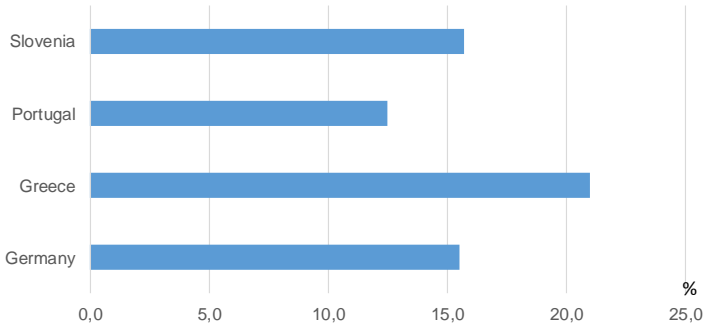


Eurostat, Nursing and caring professionals [hlth_rs_prsns]

There were too many missing data in the values for licensed or professionally active personnel, making it preferable to use the number of *practising* nursing and caring professionals. The German figures are much higher (reaching 1,750 per 100,000 persons in 2015), with Slovenia coming second, and much lower numbers shown for Greece (around 400 per 100,000 persons). There were no data for Portugal.

Figure 6.10 shows the estimated shares of persons among the population, aged 15 and over, providing informal care or assistance at least once a week. Data were only available for 2014. The largest value is observed in Greece, at 21%, and the lowest in Portugal, at 12.5%.

Figure 6.10 Share of persons providing informal care or assistance at least once a week, 2014



Eurostat, Persons providing informal care or assistance at least once a week by sex, age and degree of urbanisation [hlth_ehis_ic1u]

6.1.3 Facilities

Preventative care

It was proposed to delete this node from the framework.

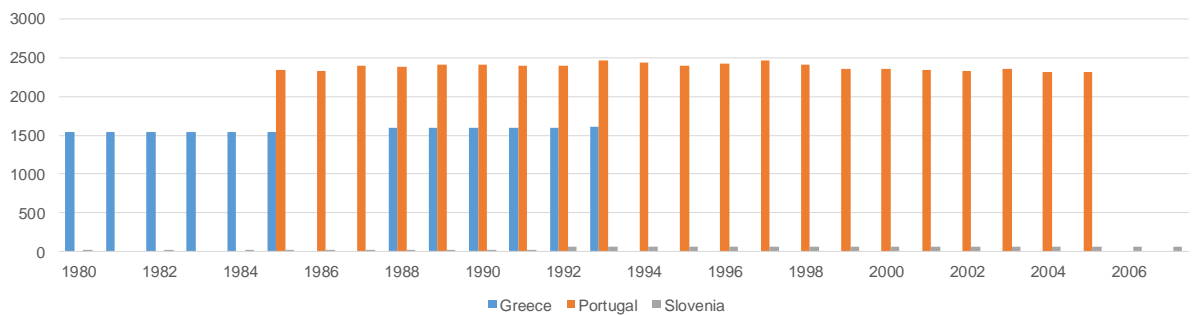
Primary care



Measurement of access to healthcare

The selected indicator in this node is the number of primary healthcare units, as measured by the WHO. The available data are rather old and do not include Germany (see Figure 6.11). The time series shows all available data. The values for Slovenia are significantly smaller than those for Greece and Portugal, in a range below 100 (presumably due to some methodological difference), and cannot be shown easily on this chart.

Figure 6.11 Number of primary healthcare units

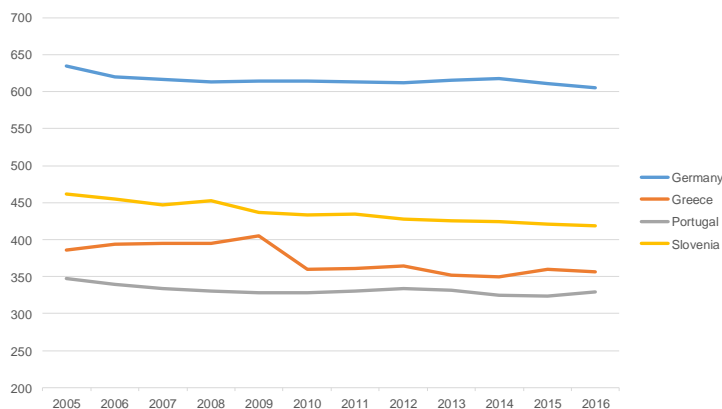


WHO, Indicator code: E275206.T

Secondary care

In secondary care, the selected indicator is the number of curative care beds, from Eurostat data.

Figure 6.12 Curative care beds in hospitals, per hundred thousand inhabitants



Eurostat, Hospital beds by type of care [hlth_rs_bds]

The figure above shows the relevant values per 100,000 inhabitants. The highest values are observed in Germany, with over 600 beds per 100,000 persons. Slovenia comes second, and the lowest values are seen in Portugal, with fewer than 350 beds per 100,000 persons.

Long-term care

Measurement of access to healthcare

Data on the available beds in nursing and residential care facilities were available only for Germany and Greece, and these two series were at quite different scales, indicating methodological discrepancies. No chart could be described.

Figure 6.13 Large differences in the available beds in nursing and residential care facilities (per hundred thousand inhabitants)

Long-term care beds in nursing and residential care facilities by NUTS 2 regions [hlth_rs_bdsns]
Last update: 03-07-2017
Table Customization [show](#)

TIME GEO Unit of measure
+ Health facility
+ Available beds in nursing and residential care facilities (HP):

	2009	2010	2011	2012	2013	2014	2015	2016
Germany (until 1990 former f	1,031.73 ⁽⁹⁾	:	1,070.38	:	1,109.27	:	1,137.20	:
Greece	:	13.29	14.08	14.92	17.49	16.26	16.75	:

6.1.4 Programmes

Preventative care

The indicators in programmes are in preventative care, all with data from the WHO:

- mHealth programmes for community mobilisation/health promotion campaigns;
- Existence of a national screening programme;
- Existence of a national immunisation programme for children/adolescents;
- Existence of a national immunisation programme for adults.

As far as the first indicator is concerned - mHealth programmes for community mobilisation/health promotion campaigns - only Portugal had a valid response. The data was not available for the other countries (no participation/no response). Portugal reported an established campaign at national level.

As far as the existence of a national screening programme is concerned, selected indicators concern cervical and breast cancer screening. The data is obtained for the primary and secondary prevention of cancer though the country responses to the following questions:

- i. Existence of national HPV vaccination programme;
- ii. Existence of national screening programme for cervical cancer;
- iii. Type of national cervical cancer screening programme;
- iv. Most widely used screening method in national cervical cancer screening programme;
- v. Coverage of national cervical cancer screening programme (%);
- vi. Existence of national screening programme for breast cancer.

Table 6.1 WHO, Global Health Observatory data repository, primary and secondary prevention of cancer

	(i) Existence of national HPV vaccination programme		(ii) Existence of national screening program for cervical cancer		(iii) Type of national cervical cancer screening program		(iv) Most widely used screening method in national cervical cancer screening program		(v) Coverage of national cervical cancer screening program (%)		(vi) Existence of national screening program for breast cancer	
	2015	2017	2015	2017	2015	2017	2015	2017	2015	2017	2015	2017
Germany	Yes	Yes	Yes	Yes	Organized population-based screening	Opportunistic screening	PAP smear	HPV test	70 or more	No response	Yes	Yes
Greece	Yes	Yes	Yes	Yes	Opportunistic screening	Opportunistic screening	PAP smear	PAP smear	Don't know	Don't know	Yes	Yes
Portugal	Yes	Yes	Yes	Yes	Organized population-based screening	Organized population-based screening	PAP smear	PAP smear	more than 50 but less than 70	70 or more	Yes	Yes
Slovenia	Yes	Yes	Yes	Yes	Organized population-based screening	Organized population-based screening	PAP smear	PAP smear	70 or more	70 or more	Yes	Yes

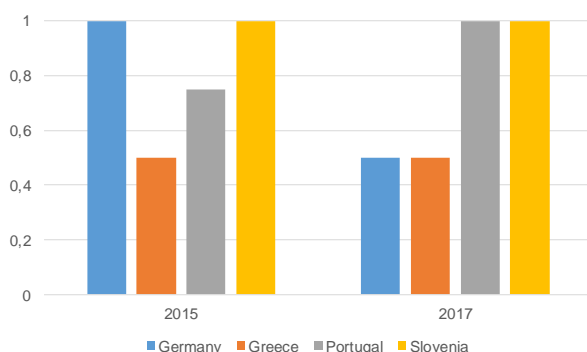
Alternative composite indicator

To calculate an alternative composite indicator from the data above, questions (i) and (iv) were first excluded (i.e. the greyed columns). One point was then added (items in bold):

- For a 'Yes' answer in (ii) - existence of national screening programme for cervical cancer;
- For an 'organised population-based screening' in (iii) - type of national cervical cancer screening programme;
- For a '70% or more' in (v) - coverage of national cervical cancer screening programme (%);
- For a 'Yes' answer in (vi) - Existence of national screening programme for breast cancer.

The sums were then divided by 4 to obtain a score in the 0-1 range. The results are shown in Figure 6.14 below.

Figure 6.14 Primary and secondary prevention of cancer score



Study calculations based on data from the WHO NCD Country Capacity Survey.

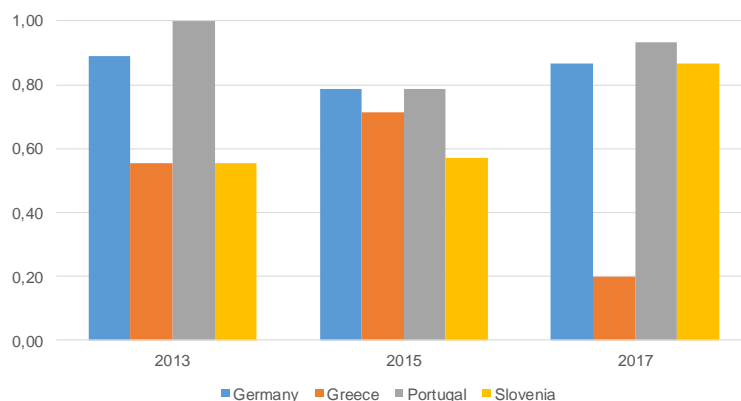
Measurement of access to healthcare

There is also the possibility of assessing the country policies, strategies and action plans for the prevention of NCDs, based on the WHO NCD Country Capacity Survey. The questions here are much more general and not restricted to screening:

- Existence of an operational, multisectoral national NCD policy, strategy or action plan that integrates several NCDs and their risk factors;
- Existence of a set of time-bound national targets based on WHO guidance;
- Existence of any policies on marketing of foods to children;
- Existence of any policies to reduce population salt consumption;
- Existence of national policies on saturated fatty acids/trans-fats;
- Implementation of physical activity public awareness programme;
- Existence of operational policy/strategy/action plan for cancer;
- Existence of operational policy/strategy/action plan for cardiovascular disease;
- Existence of operational policy/strategy/action plan for chronic respiratory disease;
- Existence of operational policy/strategy/action plan for diabetes;
- Existence of operational policy/strategy/action plan to decrease tobacco use;
- Existence of operational policy/strategy/action plan to reduce physical inactivity;
- Existence of operational policy/strategy/action plan to reduce the harmful use of alcohol;
- Existence of operational policy/strategy/action plan to reduce unhealthy diet related to NCDs;
- Existence of operational policy/strategy/action plan for oral health.

A similar procedure was followed below, with one point added for each 'Yes' response and the sum then divided by the number of questions asked in each of the 2013, 2015 and 2017 surveys. The resulting scores are shown in Figure 6.15 below.

Figure 6.15 Policies, strategies and action plans for the prevention of NCSs



Study calculations based on data from the WHO NCD Country Capacity Survey

The resulting indicator seems to be more relevant, given that there are more questions, which relate better to one another. The large drop in Greece from 2015 to 2017 may be partly due to a methodological inconsistency.

As far as national immunisation programmes for children/adolescents and adults are concerned, detailed information on national vaccine schedules is available on the

Measurement of access to healthcare

ECDC website⁹⁰ and also in the WHO monitoring system for vaccine-preventable diseases⁹¹.

Table 6.2 shows the vaccines included in the immunisation schedules of the four countries, according to the WHO monitoring system⁹² (2017 or latest year with available data). This system also provides details on the schedule for each vaccine, whether or not it covers the entire country, and the specific conditions and/or risks in the administration of each vaccine.

Table 6.2 Availability of vaccines

Vaccine	Germany	Greece	Portugal	Slovenia
BCG		✓	✓	✓
DTaP	✓	✓		
DTaPHibHepBIPV	✓		✓	✓
DTaPHibHepIPV	✓			
DTaPHibIPV	✓		✓	✓
DTaPIPV	✓		✓	
HepA_Adult		✓	✓	✓
HepA_Pediatric		✓	✓	✓
HepAHepB				✓
HepB_Adult		✓	✓	✓
HepB_Pediatric	✓	✓	✓	✓
Hib		✓		✓
HPV	✓	✓	✓	✓
Influenza_Adult	✓	✓	✓	✓
Influenza_Pediatric	✓	✓	✓	✓
IPV		✓	✓	✓
Measles				✓
MenACWY-135 conj		✓		✓
MenB			✓	✓
MenC_conj	✓	✓	✓	✓
MMR	✓	✓	✓	✓
MMRV	✓	✓		
Pneumo_conj	✓	✓	✓	✓
Pneumo_ps	✓	✓	✓	✓
Rabies			✓	✓
Rotavirus	✓	✓		

⁹⁰ <https://vaccine-schedule.ecdc.europa.eu/>

⁹¹ http://apps.who.int/immunization_monitoring/globalsummary

⁹² http://apps.who.int/immunization_monitoring/globalsummary/indicators

Measurement of access to healthcare

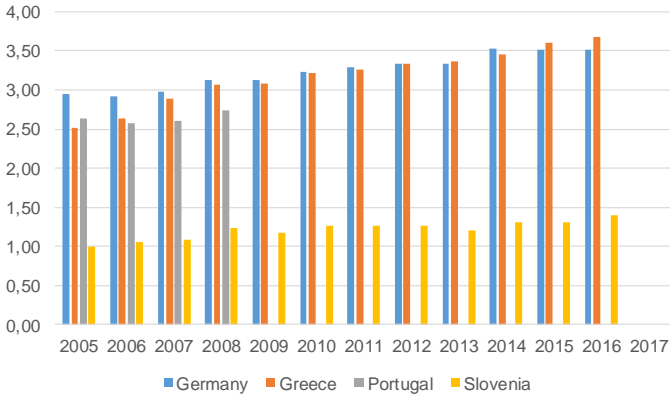
TBE				✓
Td		✓	✓	✓
Tdap	✓	✓	✓	✓
TdaPIPv	✓	✓		
TdIPV		✓		
TT				✓
Typhoid			✓	✓
Varicella	✓	✓		✓
YF			✓	

6.1.5 Equipment and medical products

Primary and secondary care

The indicators for equipment and medical products concern primary and secondary care. Existing indicators are those on medical technology, from Eurostat. The figures below show only the relevant charts for CT scanners and MRI units, for which Germany provided values.

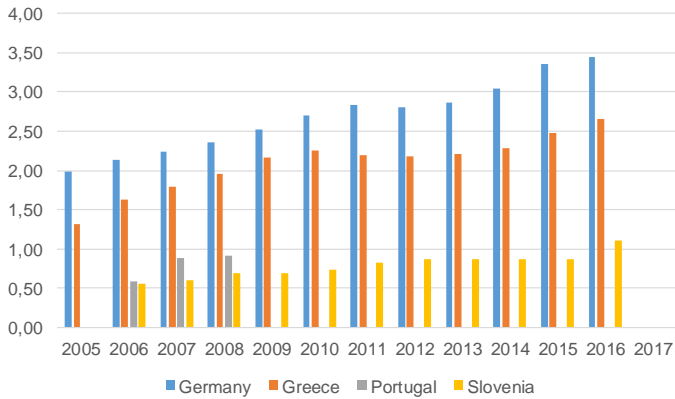
Figure 6.16 CT scanners per hundred thousand inhabitants



Eurostat, Medical technology [hlth_rs equip]

Measurement of access to healthcare

Figure 6.17 MRI units per hundred thousand inhabitants



Eurostat, Medical technology [hlth_rs equip]

Similar numbers of CT scanners are shown in Germany, Greece and Portugal, with much lower numbers in Slovenia. In MRI units, the highest numbers are in Germany and Greece. Slovenia and Portugal report much lower numbers.

As far as the medical products are concerned, no indicators have yet been selected pending the results of the further research planned by DG SANTE.

6.1.6 Services

Long-term care

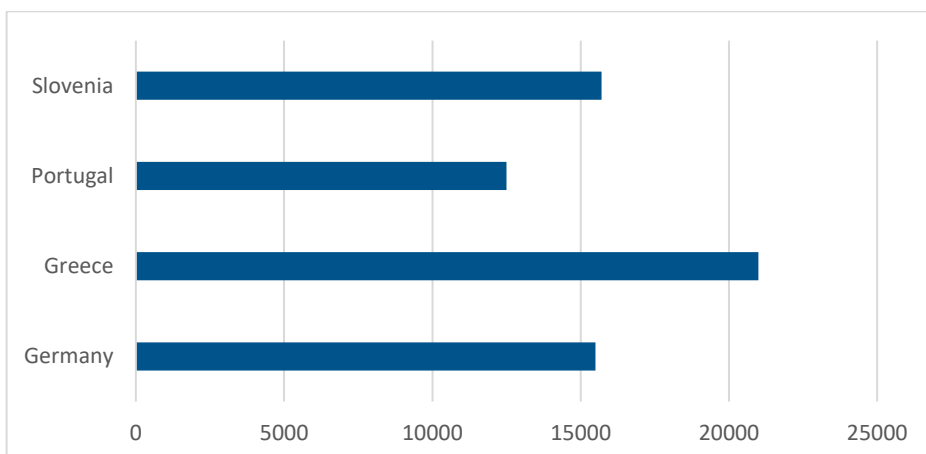


This node is currently empty. The proposals put forward the following indicators:

- Ratio of the number of informal caregivers to the number of recipients of the long-term care and the annual (or compound) change rate of this ratio.
- Ratio of formal to informal caregivers and the annual (or compound) change rate of this ratio.

As far as the first indicator is concerned, the numbers of informal caregivers (persons providing assistance to persons suffering from some age problem, chronic health condition or infirmity, at least once a week) can be obtained from the EHIS⁹³ from Eurostat data. The corresponding numbers for informal caregivers per hundred thousand inhabitants were 15,500 for Germany, 21,000 for Greece, 12,500 for Portugal and 15,700 for Slovenia (see Figure 6.18).

Figure 6.18 Persons aged 16 and over providing informal care or assistance at least once a week per hundred thousand inhabitants in 2014



Study calculations from Eurostat data: Persons providing informal care or assistance at least once a week by sex, age and degree of urbanisation [hlth_ehis_ic1u] and Population on 1 January by age group and sex [demo_pjangroup]

Estimates for the numbers of long-term care recipients can be collected from OECD data, in its database Health/ Long-Term Care Resources and Utilisation. For the number of long-term care recipients, data from the OECD were used, with the variables ‘Long-term care recipients at institutions (other than hospitals)’ and ‘Long-term care recipients at home’ totalled for 2014. These numbers were 2,738,260 for Germany, 48,299 for Portugal and 60,750 for Slovenia. There were no data available for Greece.

⁹³ Other sources of information on the number of informal caregivers are the EQoL survey and the rotating module of the ESS. However, EQoL has a relatively small sample size and the scheduling of the special module in the ESS is not fixed. The EHIS was thus preferred.

Measurement of access to healthcare

On the basis of the data the ratio of informal caregivers to recipients of long-term care was calculated:

- 4.0 for Germany;
- 23.0 for Portugal;
- 4.5 for Slovenia.

The ratio for Portugal is much higher than for Germany or Slovenia. This is because the number of long-term care recipients in Portugal is much lower than the number of informal caregivers, which might point at a methodological difference. Data on long-term care services are difficult to collect in many countries and their limitations of the figures. Data for some countries refer only to people receiving publicly funded care, while other countries include those who pay for their own care.

As far as the second indicator is concerned: the ratio of formal to informal caregivers, the OECD data for the number of formal long-term care workers were used, together with the estimates mentioned above. The corresponding ratios of formal to informal long-term care workers were:

- 0.31 (1:3.1) for Germany;
- 0.05 (1:18.8) for Portugal.

6.2 Affordability

Figures 6.19 to 6.22 present the nodes in this dimension, by healthcare stage.

Figure 6.19 Indicators in the Affordability dimension – preventative care

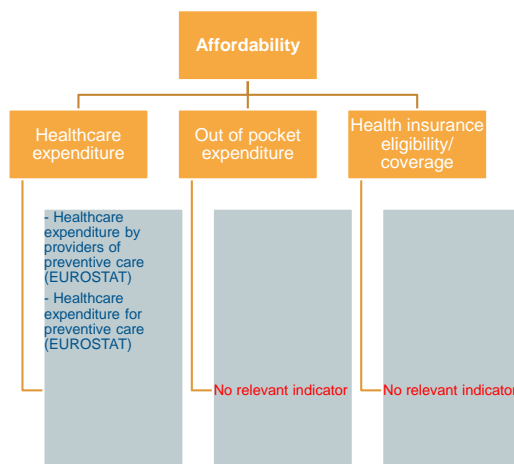


Figure 6.20 Indicators in the Affordability dimension – primary care

Measurement of access to healthcare

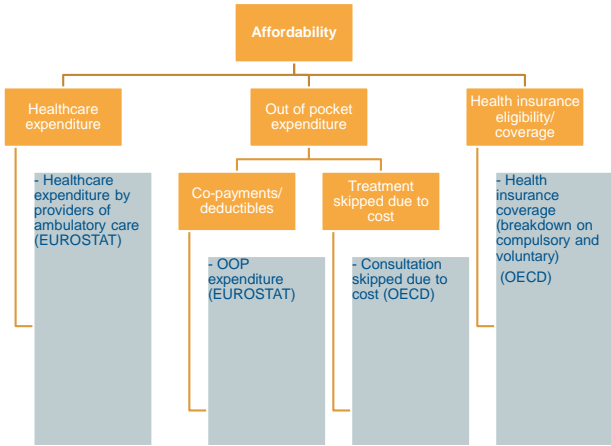


Figure 6.21 Indicators in the Affordability dimension – secondary care

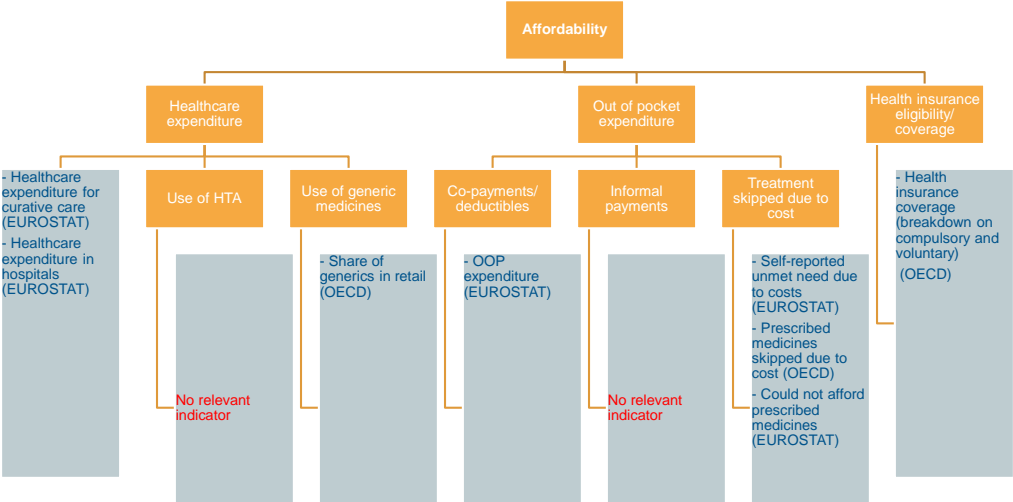
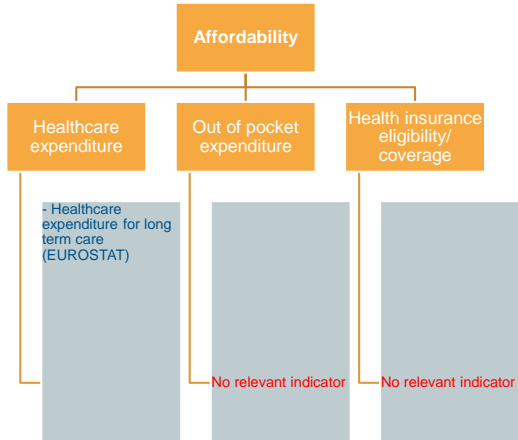


Figure 6.22 Indicators in the Affordability dimension – long-term care



6.2.2 Healthcare expenditure

Preventative care

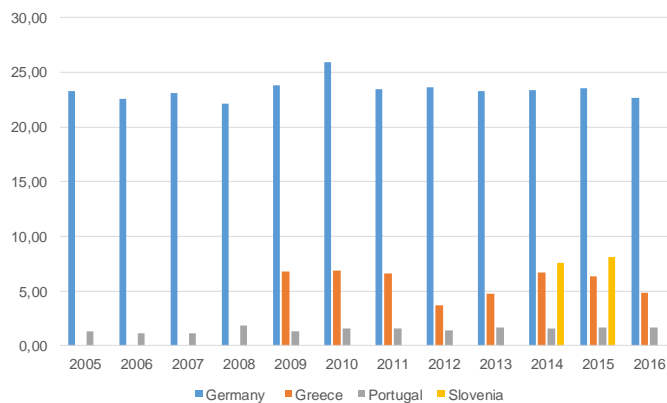
The two indicators here are both from Eurostat:

- Healthcare expenditure by providers of preventative care;
- Healthcare expenditure for preventative care.

The corresponding charts are included below. It seems that the first indicator underestimates the expenditure for preventative care (Figure 6.23) compared to the second indicator (Figure 6.24). This is because medical practices (which include GPs) and dentists are not included in the selection 'providers of preventative care' in the SHA. Nevertheless, the patterns in the two charts are quite similar, with Germany showing by far the largest expenditure per capita. At the other end, the per capita expenses in Slovenia are very small according to the first chart, presumably because of national SHA practices.

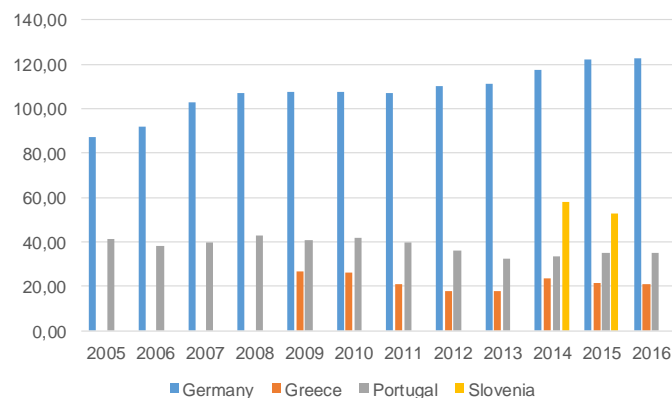
These levels are much smaller than the corresponding expenditures in primary, secondary and long-term care.

Figure 6.23 Healthcare expenditure in preventative care by providers of preventative care, in PPS per inhabitant



Eurostat, Healthcare expenditure by provider [hlth_sha11_hp]

Figure 6.24 Healthcare expenditure in preventative care, in PPS per inhabitant

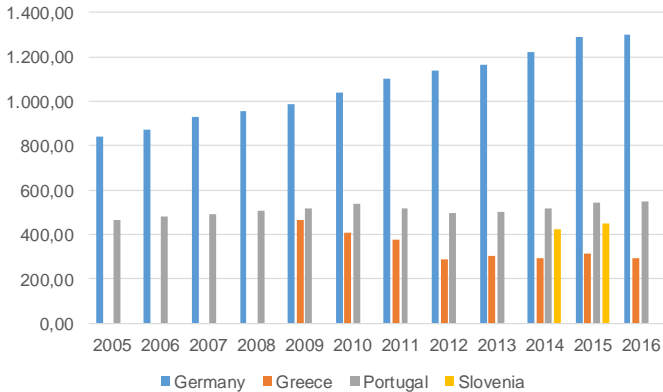


Eurostat, Healthcare expenditure by function [hlth_sha11_hc]

Primary care

The selected indicator in primary care is the expenditure by providers of ambulatory healthcare. The values in Germany are the highest and show an increasing trend. A decreasing trend is seen in Greece, presumably due to the financial crisis, although this stabilises somewhat after 2014. In general, the expenditure in primary care is about 10 times of preventative care.

Figure 6.25 Healthcare expenditure by providers of ambulatory care, in PPS per inhabitant

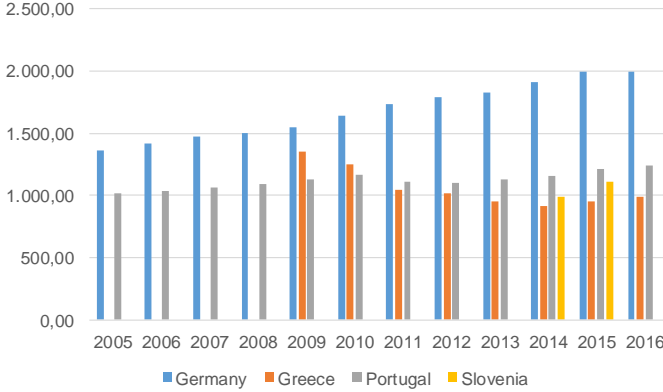


Eurostat, Healthcare expenditure by provider [hlth_sha11_hp]

Secondary care

Two selected indicators are: the expenditure by function (curative care) and the expenditure by provider (hospitals). The patterns observed are almost identical to those observed in primary care but at different scales (especially in the expenditure by function, where the expenditure in Germany reached 2,000 PPS per inhabitant in 2016).

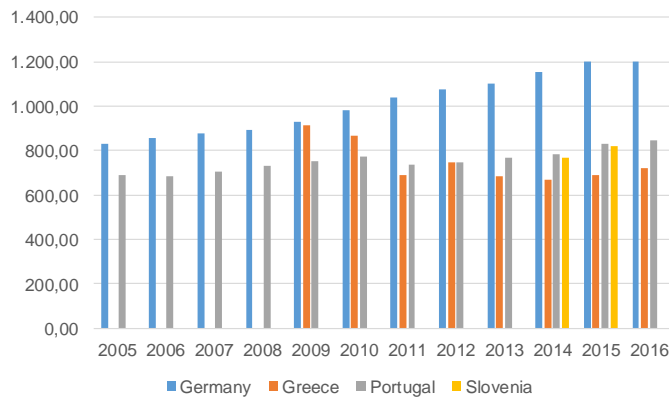
Figure 6.26 Healthcare expenditure in curative care, in PPS per inhabitant



Eurostat, Healthcare expenditure by function [hlth_sha11_hc]

Measurement of access to healthcare

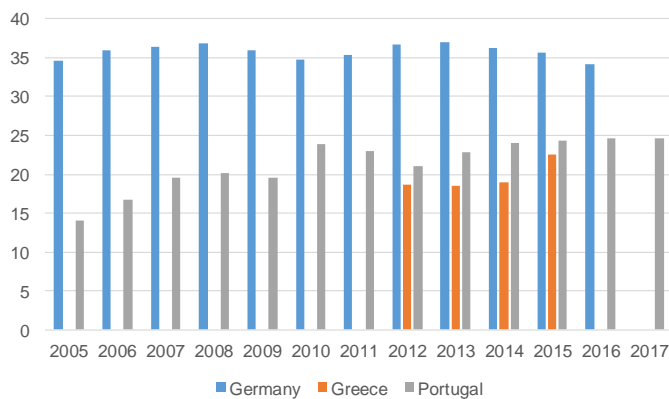
Figure 6.27 Healthcare expenditure in hospitals, in PPS per inhabitant



Eurostat, Healthcare expenditure by provider [hlth_sha11_hc]

Another indicator in healthcare expenditure in secondary care concerns the use of generic medicines in the community market (OECD). Instead of this indicator (for which no data are available except for Slovenia), the figures below show the data for the reimbursed pharmaceutical products.

Figure 6.28 Share of generics (% of value) in the reimbursed pharmaceutical market



OECD, dataset: Pharmaceutical Market

Germany has the highest rate, with around 34% of the total value in 2016. Greece and Portugal are each below 25%.



Proposed new indicator for health technology assessment (HTA)

The node for the use of HTA is empty. The proposal is to include an indicator measuring the capacity to conduct HTA using data from the 2015 Global Survey on

Health Technology Assessment, conducted by the WHO⁹⁴. The proposed approach is to use the survey responses in the five sections of the questionnaire:

- Use of HTA principles in public sector decision-making processes;
- Processes of HTA;
- Structures and capacity supporting HTA;
- Governance;
- Interests and impediments to strengthening capacity.

Each dimension (section in the questionnaire) can be scored from 1 'Very poor' to 10 'Very strong'. The indicator can then be calculated as the average of the five section scores.

As there were no data for the proposed new indicator, the test followed a somewhat simpler approach based on the HTA country reports found on the WHO website⁹⁵. These profiles contain country responses for HTA governance, purposes, process transparency and public communication. Greece did not participate in this survey. The answers for the other three countries are shown in Table 6.3 below, together with their scores per dimension.

Table 6.3 Use of HTA – dimensions scores⁹⁶

Dimension	Questions	Score
Governance	<p>National HTA organisation: Established national HTA organisations in Germany, Portugal; not yet established in Slovenia.</p> <p>Legislative requirement: In all three countries, results of HTA must be considered in decision-making process</p>	<p>Germany: Very strong (10)</p> <p>Portugal: Very strong (10)</p> <p>Slovenia: Fair (5)</p>
Purposes	<p>Purposes of HTA: Germany: pricing of health products, reimbursement/ package of benefits. Portugal: reimbursement/ package of benefits. Slovenia: planning and budgeting, pricing of health products, reimbursement/ package of benefits</p>	<p>Germany: Very strong (10)</p> <p>Portugal: Fair to strong (6)</p> <p>Slovenia: Strong (7.5)</p>

⁹⁴ <http://www.who.int/health-technology-assessment/HTASURVEY/en/>

⁹⁵ <http://www.who.int/health-technology-assessment/country-profile/en/>

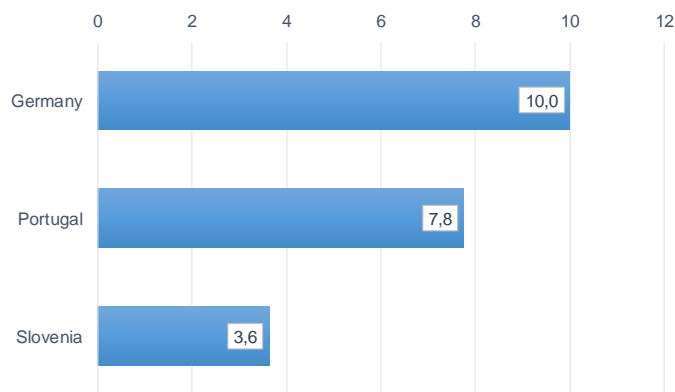
⁹⁶ The score calculation was based on the methodology described in the indicator fiches: Indicator AF1

	<p>How HTA is used in decision-making:</p> <p>Germany: mandatory, decision makers rely completely on the advice</p> <p>Portugal and Slovenia: advisory, decision makers rely partly on the advice</p>	
Process transparency	<p>Guidelines for preparing HTA:</p> <p>Publicly available in Germany and Portugal; not publicly available in Slovenia.</p> <p>Conflict of interest declaration:</p> <p>Declared for those involved in preparing HTA reports in Germany and Portugal; not declared for those involved in preparing HTA reports in Slovenia</p> <p>Civil society participation:</p> <p>Civil society has the opportunity to comment on recommendations in Germany and Portugal; no process to involve civil society in Slovenia</p>	<p>Germany: Very strong (10)</p> <p>Portugal: Very strong (10)</p> <p>Slovenia: Very poor (1)</p>
Public communication	<p>Are the conclusions of HTA reports publicly available?</p> <p>Yes in Germany and Portugal; no in Slovenia</p> <p>Do the policy outcomes based on HTA reports become publicly available?</p> <p>Yes in Germany; no in Portugal and Slovenia</p>	<p>Germany: Very strong (10)</p> <p>Portugal: Fair (5)</p> <p>Slovenia: Very poor (1)</p>

The resulting average scores are then shown in the following figure.

Measurement of access to healthcare

Figure 6.29 Testing of the proposed HTA indicator

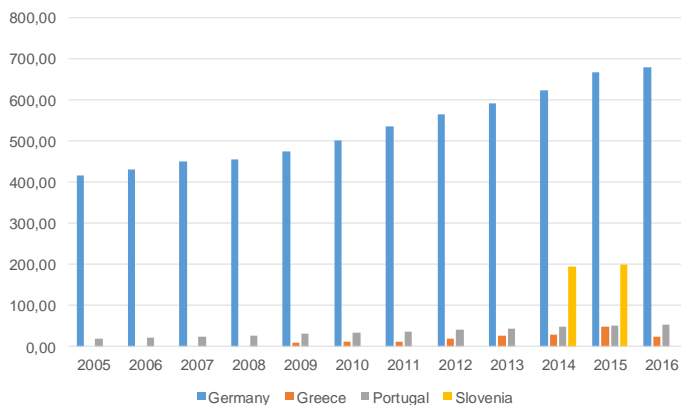


Study calculations based on data from the WHO 2015 Global Survey on Health Technology Assessment

Long-term care

The selected indicator is the healthcare expenditure on long-term care. The below figure shows significant differences between the values provided by Germany and those reported by the other countries. This difference seems to be partly due to under-reporting by these countries. More specifically, the financial component (function) named 'long-term (health)' was selected here. It appears that all of the countries except Germany allocate most of their long-term care expenditure to 'long-term (social)'.

Figure 6.30 Healthcare expenditure in long-term care, in PPS per inhabitant

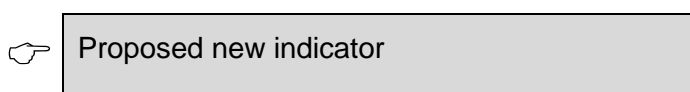


Eurostat, Healthcare expenditure by function [hlth_sha11_hc]

6.2.3 OOP expenditure

Preventative care

This node is currently empty and a new indicator has been proposed.



Measurement of access to healthcare

The proposal is for an indicator measuring which vaccines are recommended for UMV but not fully funded by the government or third parties. Figure 6.31 below⁹⁷ provides an overview of recommended childhood and adolescent UMV vaccines by country and funding level in 2017.

Figure 6.31 Recommended childhood and adolescent UMV vaccines by country and funding level in 2017

UMV[28]	AT	BE	BG	HR	FI	FR	DE	GR	IT	NL	PL	RO	SP	SE	CH	UK
BCG	*	*	✓	✓	*	*	*	*	*	*	✓	✓	*	*	*	*
Hepatitis B	✓	✓	✓	✓	*	✓	✓	✓	✓	✓	✓	✓	✓	*	✓	✓
Polio	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Diphtheria	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Tetanus	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Pertussis	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Hib	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Pneumococcal	✓	✓	✓	*	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Rotavirus	✓	✓	✓	*	✓	*	✓	✓	✓	*	✓	*	*	*	*	✓
Measles	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Mumps	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Rubella	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Hepatitis A	*	*	✓	*	*	*	*	✓	*	*	✓	*	*	*	*	*
Varicella	✓	*	*	*	✓	*	✓	✓	✓	*	*	*	✓	*	✓	*
HPV	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	*	✓	✓	✓	✓
MenC	✓	✓	✓	*	*	✓	✓	✓	✓	✓	✓	*	✓	*	✓	✓
MenACWY	✓	*	✓	*	*	*	*	✓	✓	*	✓	*	*	*	*	✓
MenB	✓	*	*	*	*	*	*	*	✓	*	✓	*	*	*	*§	✓
Influenza	✓	*	*	*	✓	✓	*	*	*	*	✓	*	*	*	*	✓
Legend	✓ Recommended for UMV								* Not recommended for UMV							
	Funded/reimbursed				Out-of-pocket (OOP)				Co-payment							
Abbreviations	AT: Austria, BE: Belgium, BG: Bulgaria, HR: Croatia, FI: Finland, FR: France, DE: Germany, GR: Greece, IT: Italy, NL: Netherlands, PL: Poland, RO: Romania; SP: Spain, SE: Sweden, CH: Switzerland§ (not licensed), UK: United Kingdom; BCG: Bacillus Calmette–Guérin; Hib: Haemophilus influenzae B; HPV: human papillomavirus; Men: meningitis; UMV: universal mass vaccination.															

For the weights used for these vaccines, the indicator would calculate the share $\left(\frac{\text{Expense for vaccine } j}{\text{Expenses for all recommended UMV vaccines}}\right)$ for each country and then take the average of these shares.

For ease of explanation, the median prices of these vaccines in Europe in 2013, as reported by the WHO⁹⁸, were used as weights. While these prices have changed

⁹⁷ Sheik, S., Biundo, E. et al., 2018. 'A report on the status of vaccination in Europe', *Vaccine* Vol 36, Issue 33, pp. 4979-4992, <https://doi.org/10.1016/j.vaccine.2018>

⁹⁸ http://www.euro.who.int/__data/assets/pdf_file/0009/284832/Review-vaccine-price-data.pdf?ua=1

considerably in the meantime, the idea here is simply to outline how such a calculation would work. These prices are shown in Table 6.4 below.

Table 6.4 Prices used as weights for the calculation of the depth of coverage of UMV

Median price per dose in USD, 2013	
BCG	0.39
Hepatitis B	3.41 (paediatric); 11.71 (adult)
Polio	7.21
Diphtheria	1.81
Tetanus	0.61
Pertussis	-
HiB	9.42
Pneumococcal	13.68
Rotavirus	2.73
Measles, Mumps, Rubella (MMR)	6.56
Hepatitis A	23.21
Varicella	41.17
HPV	41.38
MenC	19.19
MenACWY	14.21
MenB	-
Influenza	5.46 (paediatric); 4.62 (adult)

Where two prices were given (one for children and one for adults), these were averaged. Vaccines for which no price could be found were excluded. After converting the weights to take values within the range 0 to 1, so that their sum equals one, the following scores were calculated by adding those weights where the corresponding vaccines were fully covered:

- Germany: 0.779;
- Greece: 0.960

The difference is because Hepatitis A and MenACWY were not recommended in Germany and therefore their corresponding weights were equal to zero⁹⁹. This particular selection of vaccines is rather large, however it could be considered to include the newer generation of vaccines.

Primary care

The indicators here are:

- OOP expenditure, from Eurostat;

⁹⁹ It should be noted that the vaccines presented in the table are an indicative example of vaccines suggested by this specific study. From this specific example, it is obvious that vaccines which are not recommended in a particular country could affect the indicator value and thus lead to misleading results. The vaccines which will be used in the framework for this indicator should be carefully selected so that the indicator leads to meaningful results.

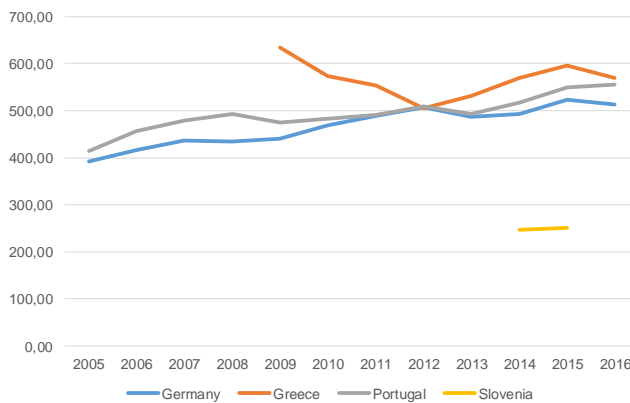
Measurement of access to healthcare

- Consultation skipped due to cost, from the OECD.

It was proposed to use the first indicator (which is the same in primary and secondary care) until the methodological work by Eurostat on linking SHA with disease-specific data is complete and more accurate estimates by stage can be obtained.

The relevant values are shown in Figure 6.32 below. It can be seen that these converged at around 550 PPS per inhabitant in 2016. The values reported by Slovenia in 2014 and 2015 are less than half of this amount.

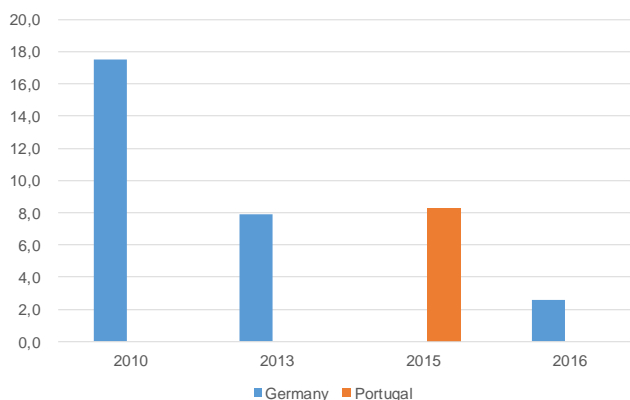
Figure 6.32 Household OOP payment, in PPS per inhabitant



Eurostat, Healthcare expenditure by financing scheme [hlth_sha11_hf]

As far as the consultations skipped due to cost are concerned (OECD), Figure 6.33 shows the data available. There is a very clear decreasing trend, from almost 18% to less than 3% in Germany between 2010 and 2016, although there must be a methodological issue between 2010 and 2013, given the unusual drop.

Figure 6.33 Consultations skipped due to cost, age-sex standardised rate per 100 patients



OECD, Healthcare Quality Indicators.

Secondary care

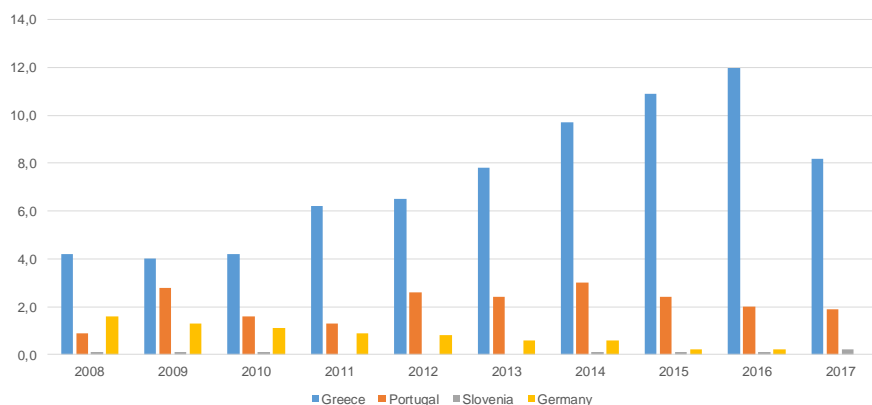
The indicators currently placed in the framework are the following:

- OOP expenditure, from Eurostat;
- Self-reported unmet need due to costs, from Eurostat;
- Prescribed medicines skipped due to cost, from the OECD;
- Could not afford prescribed medicines, from Eurostat.

The OOP expenditure indicator is the same as that used in primary care (see Figure 6.34). It is proposed to continue to use this indicator until the methodological work by Eurostat on linking SHA with disease-specific data is complete and more accurate estimates by stage can be obtained.

Figure 6.34 shows the percentage of the population with self-reported unmet need for medical care, from Eurostat. 'Medical care' here is actually meant as medical examination. There is a marked difference between Greece and the other countries, with Greece reaching a peak of 12% in 2016, while the values in the other countries do not exceed 3% in any year.

Figure 6.34 Percentage of population with self-reported unmet need for medical examination due to cost



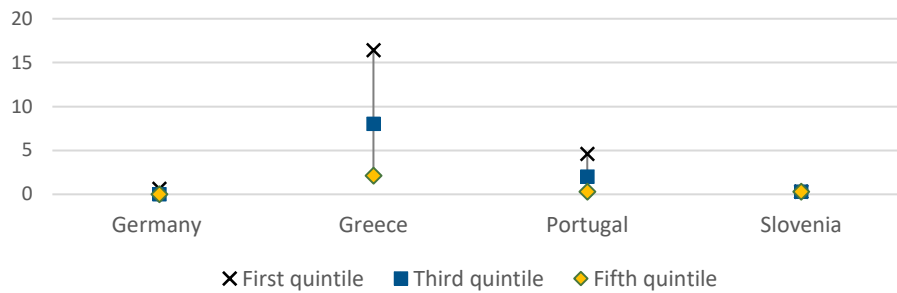
Eurostat, EU-SILC survey, table [hlth_silc_08]

In order to enrich this node with personal characteristics, the study analysed the percentage of the population with self-reported unmet need for medical care per income quintile and labour status for the year.

In Figure 6.35, all countries seem to have a similar pattern in self-reported unmet need for medical examination due to cost per income quintile: the lowest shares were recorded for the fifth income quintile group, showing that the frequency of reporting decreased with increasing income. Greece shows the largest difference between the first and fifth quintiles compared to the other countries. More specifically, in 2017, 16% of the population in the first income quintile group in Greece reported unmet need for medical examination due to cost, compared to 2.1% in the fifth quintile group.

Measurement of access to healthcare

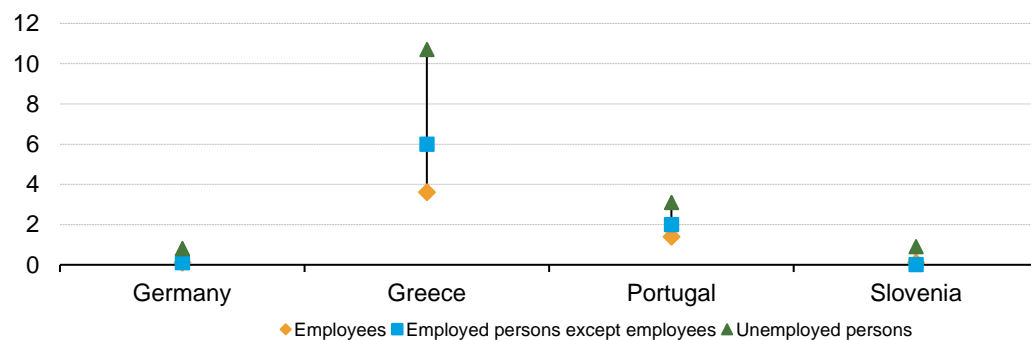
Figure 6.35 Share of persons aged 16 and over with self-reported unmet need for medical examination due to cost, by income quintile in 2017



Eurostat, EU-SILC survey, table [hlth_silc_08]

On self-reported unmet need for medical examination due to cost per labour status, in 2017, all countries seemed to have a similar pattern. Unemployed persons were more likely to report an unmet need for medical examination due to cost than employees or employed persons.

Figure 6.36 Share of persons aged 16 and over with self-reported unmet need for medical examination due to cost, by labour status in 2017



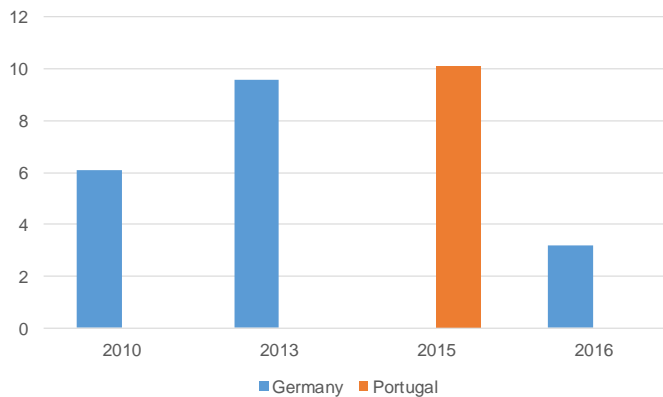
Eurostat, EU-SILC survey, table [hlth_silc_13]

In percentage point terms, the largest difference was reported for Greece, where shares of 11% for unemployed and 6% for employed persons except employees resulted in a difference of five percentage points.

The OECD indicators on medications skipped due to cost do not provide much data (see Figure 6.37). Reliable conclusions cannot be drawn.

Measurement of access to healthcare

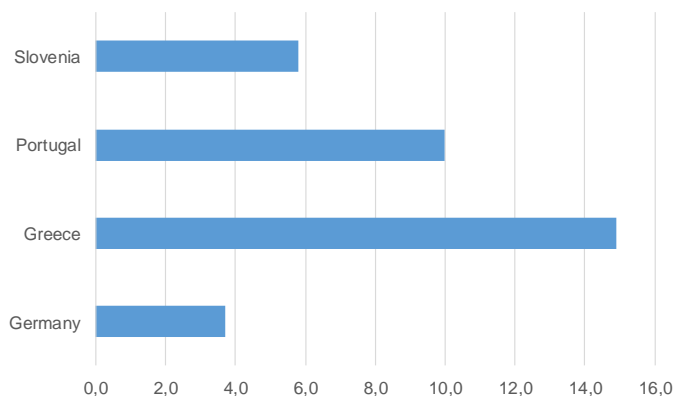
Figure 6.37 Prescribed medicines skipped due to costs, age-sex standardised rate per 100 patients



OECD, Healthcare Quality Indicators.

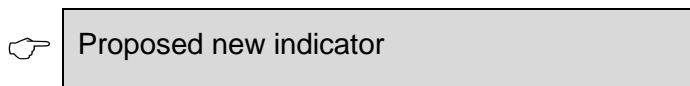
The corresponding statistics from Eurostat (see Figure 6.38) are available only for 2014. Greece presents the largest value (15%). A comparison of these values with those in Figure 6.37 shows a similar rate in Portugal but a much smaller value in Germany.

Figure 6.38 Percentage of population with self-reported prescribed medicines skipped due to cost, 2014.



Eurostat, EU-SILC survey, table [hlth_ehis_un2e]

The node on informal payments in secondary care is empty.



The proposal is to use questions similar to those in the 2017 Special Eurobarometer survey but to add them to a general population survey with a sufficiently large sample, such as the health module of the EU-SILC instrument. These questions are:

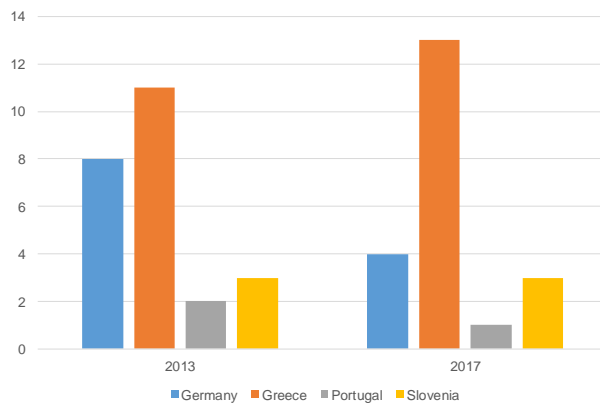
- Have you been to a public healthcare practitioner such as a GP (general practitioner) or a public healthcare institution such as a public hospital in the past 12 months?

Measurement of access to healthcare

- (if the respondent replies positively) 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?
- (if the respondent replies positively) What was the value of this extra payment, valuable gift or donation?

Figure 6.39 shows some results from the latest Eurobarometer survey on corruption.

Figure 6.39 Percentage of persons who visited public health practitioners and institutions and had to give an additional payment, valuable gift or make a hospital donation



Special Eurobarometer Survey on Corruption (470).

The difference between Greece and the other countries is evident. The incidence rate in Greece increased from 2013 to 2017, during which time it halved in Germany from 8% to 4%).

Long-term care

This node is empty. The proposal is to keep the OOP expenditure indicator in long-term care but exclude it from the framework until the methodological issues (the difficulties in allocating OOP expenditure to long-term care) are resolved.

6.2.4 Health insurance eligibility/ coverage

Preventative care

This node is currently empty.



Proposed new indicator

The proposal is to use the depth of basic coverage¹⁰⁰ for all stages of the healthcare path (preventative, primary, secondary, long-term care) based on the following functions:

- Acute inpatient care;
- Outpatient - primary care physicians;
- Outpatient – specialists;
- Clinical laboratory tests;
- Diagnostic imaging;
- Pharmaceuticals;
- Dental care;
- Dental prostheses.

For the financing schemes, the study selected government and compulsory contributory healthcare financing. In the absence of access to data at the most detailed level of classifications in the SHA, the selection was approximated with the following:

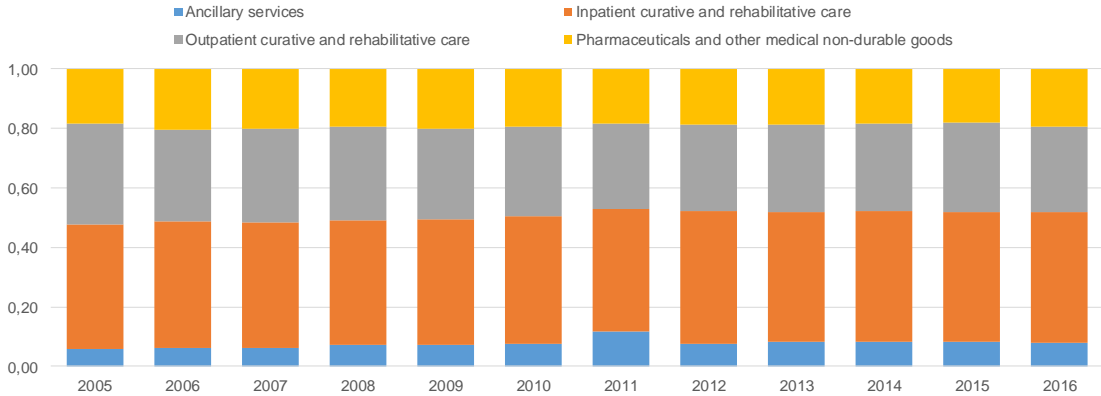
- Inpatient curative and rehabilitative care;
- Outpatient curative and rehabilitative care;
- Ancillary services;
- Pharmaceuticals and other medical non-durable goods.

Ancillary services include clinical laboratory tests and diagnostic imaging.

First, the weights for each function and year were calculated as the average over EU countries of the share of the expenditure in a country in the total expenditure in the country for all four selected functions. Figure 6.40 shows that these weights remained quite stable in the 2005-2016 period.

¹⁰⁰ Lorenzoni, L., Murin, F., Springare, L-S., Aaraaen, A. & Daniel, F., 2018. Which policies increase value for money in healthcare? OECD Health Working Paper No. 104.

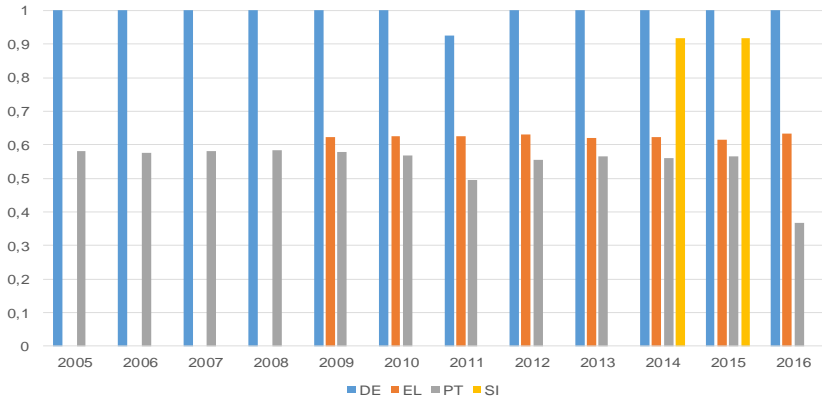
Figure 6.40 Weights calculated for the depth of basic coverage



Study calculations based on Eurostat data: Expenditure for selected healthcare functions by healthcare financing schemes [hlth_sha11_hchf]

The corresponding weight was then added whenever a country covered a function (with or without co-payments). As all countries report some expenditure in the selected functions, the weight was added whenever the corresponding per person expenditure was at least 80% of the average per person in all countries. Figure 6.41 shows the results of those calculations. Germany clearly leads, missing the maximum of one in only one year (0.92 in 2011). Slovenia follows, with values around 0.92 in 2014-2015. Portugal and Greece have much lower values, 0.55 and 0.62 on average, respectively.

Figure 6.41 Depth of basic coverage scores



Study calculations based on Eurostat data: Expenditure for selected healthcare functions by healthcare financing schemes [hlth_sha11_hchf]

For the calculation of stage-specific indicators, it was proposed to follow-up the developments of Eurostat work on linking SHA with disease-specific data.

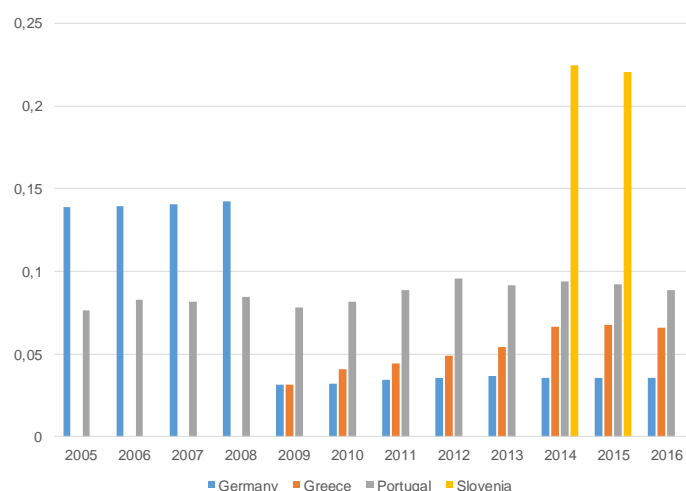
Primary care

This node currently contains the health insurance coverage (broken down by compulsory and voluntary), from OECD data. This indicator was criticised for not

Measurement of access to healthcare

being sufficiently informative, given the almost universal health coverage in the European Union. As a result, expenditure data were used instead. Figure 6.42 shows the ratio of private-voluntary to public-mandatory expenditure for all healthcare functions. The data are the same as those collected by Eurostat. In view of the lack of disease-specific data, no attempt was made to select functions mapped to primary care.

Figure 6.42 Ratio of expenditure financed by voluntary healthcare payment schemes to expenditure financed by government schemes and compulsory contributory healthcare financing schemes.



Eurostat, expenditure for selected healthcare functions by healthcare financing schemes [hlth_sha11_hchf]

Slovenia presents the largest values (above 0.2), followed by Portugal (slightly below 0.1), Greece and Germany, the latter with values around 0.03 after 2009. The high values in Germany before 2009 must be due to a methodological change. It has been proposed to add the depth of basic coverage to this node (as discussed in primary care).

Secondary care

This node has the same indicator as that in primary care. Again, the proposal is to add the depth of basic coverage to this node.

Long-term care

This node is currently empty. The proposal is to use the depth of basic coverage here as well.

6.3 Adequacy

Figures 6.43 to 6.46 present the currently placed indicators in the Adequacy dimension.

Figure 6.43 Indicators in the Adequacy dimension – preventative care

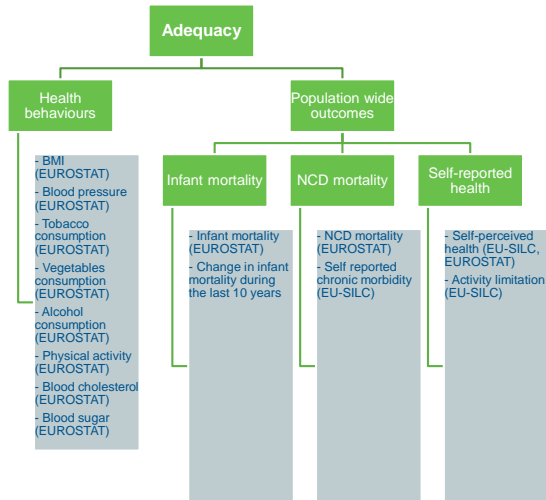


Figure 6.44 Indicators in the Adequacy dimension – primary care

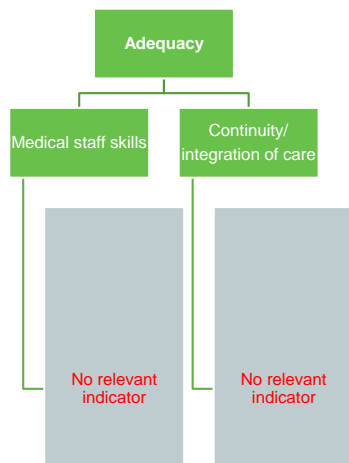


Figure 6.45 Indicators in the Adequacy dimension – secondary care

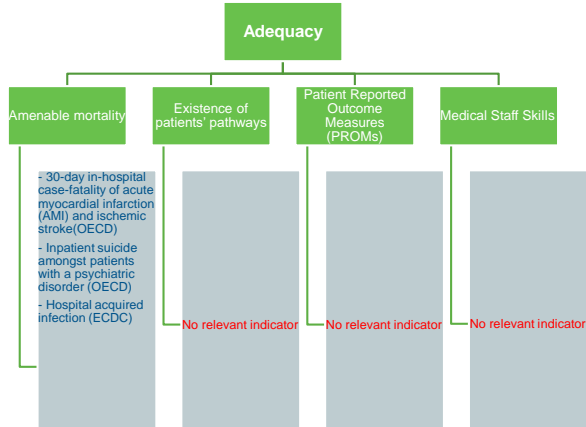
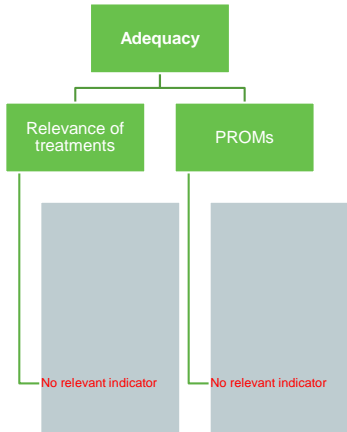


Figure 6.46 Indicators in the Adequacy dimension – long-term care



6.3.2 Health behaviours

The indicators in this node are in preventative care and concern the following:

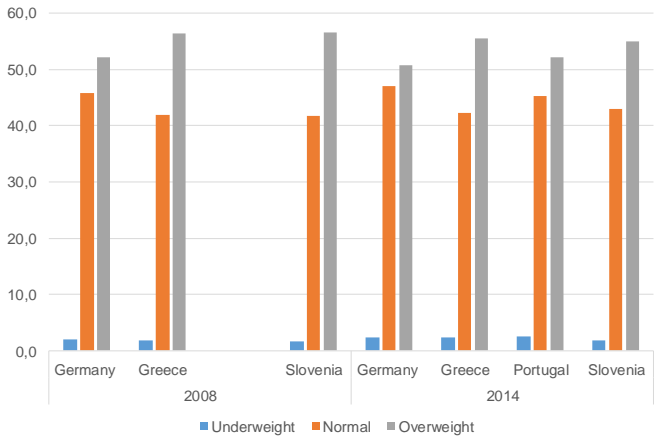
- Body mass index (BMI);
- Blood pressure;
- Tobacco consumption;
- Vegetable consumption;
- Alcohol consumption;
- Physical activity;
- Blood cholesterol;
- Blood sugar.

There was no proposal for additional indicators or change to existing indicators. All data are taken from Eurostat. These indicators are presented in the following figures.

The percentages of BMI modalities are taken from the two waves of the EHIS and are available for 2008 and 2014. These are shown in Figure 6.47 below.

Measurement of access to healthcare

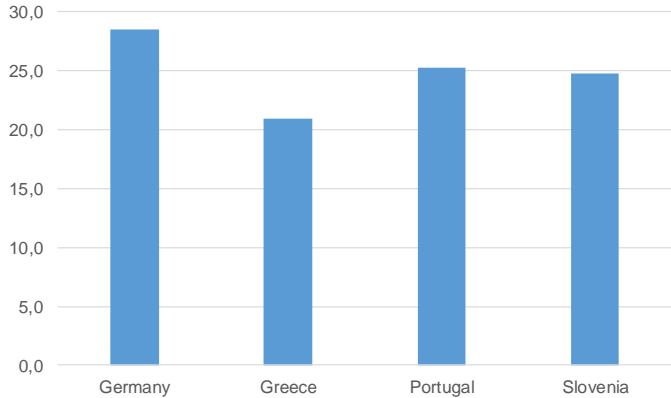
Figure 6.47 Percentage of BMI modalities, 2008 and 2014



Eurostat, BMI by sex, age and educational attainment level [hlth_ehis_bm1e and hlth_ehis_de1]

Self-reported high blood pressure data are only available for 2014. The lowest value was observed in Greece (21%) and the highest in Germany (28.5%).

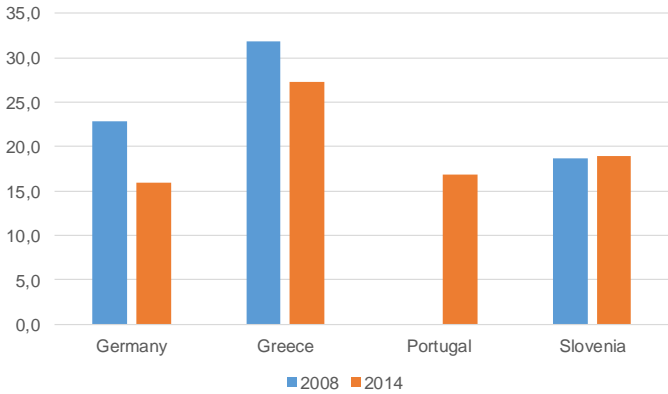
Figure 6.48 Percentage of self-reported high blood pressure, 2014.



Eurostat, Persons reporting a chronic disease, by disease, sex, age and educational attainment level [hlth_ehis_cd1e]

Daily smoking is much higher in Greece, although it decreased by 4.5% from 2008 to 2014. In the same period, the largest decrease was observed in Germany (almost 7% lower than the 2008 level).

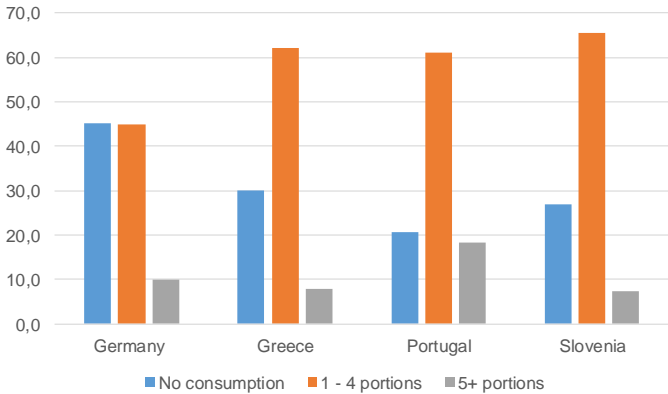
Figure 6.49 Percentage of daily smokers, 2008 and 2014



Eurostat, Daily smokers of cigarettes by sex, age and educational attainment level (%) [hlth_ehis_de3] and smoking of tobacco products by sex, age and educational attainment level [hlth_ehis_sk1e]

As far as consumption of fruit and vegetables is concerned, Figure 6.50 shows the values for 2014, from the EHIS. Values from the first wave (2008) are not shown because the indicators were separate for fruits and vegetables and are thus not comparable. Germany has the highest percentage of no consumption at all (45%). Similarly, the percentage of Germans in the 1-4 portions category is much lower than the corresponding percentages in the other countries.

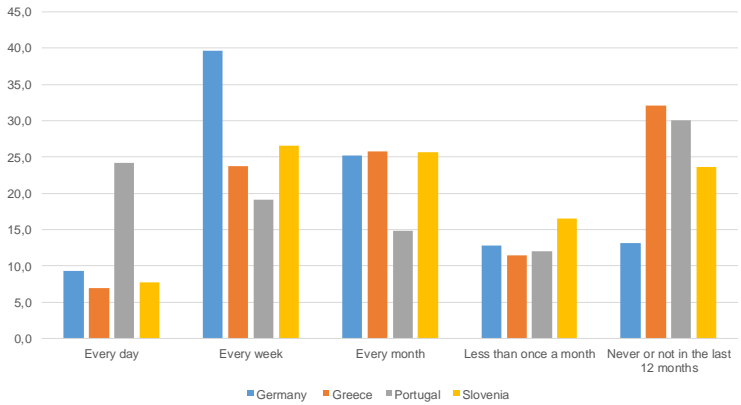
Figure 6.50 Daily consumption of fruit and vegetables, 2014



Eurostat, Daily consumption of fruit and vegetables by sex, age and educational attainment level [hlth_ehis_fv3e]

The 2014 values on alcohol consumption are shown in Figure 6.51. The most frequent case is 'weekly' in Germany, which at almost 40% is much higher than that of the other countries. Similarly, Germany has the lowest percentage in 'never or not in the last 12 months' (13%). Also notable is the high daily consumption rate in Portugal, at almost 25%.

Figure 6.51 Alcohol consumption, 2014

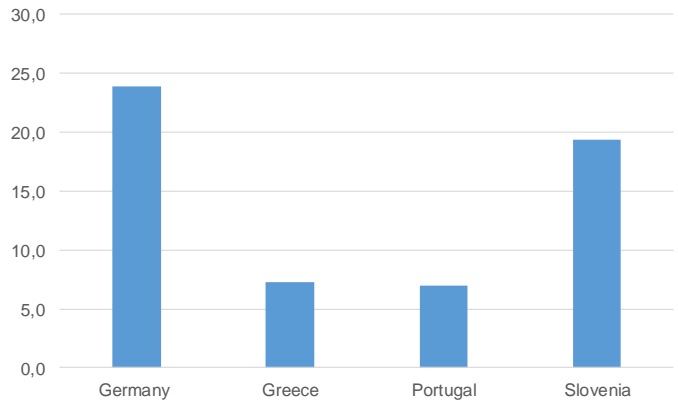


Eurostat, Frequency of alcohol consumption by sex, age and educational attainment level [hlth_ehis_al1e]

The categories for 2008 are not comparable and are only available for Greece and Slovenia. They are not shown here, nor are any statistics on heavy episode drinking (or binge drinking, as it was called in the first EHIS wave).

Performing health-enhancing physical activity is higher in Germany (24%) and Slovenia (19%) (see Figure 6.52). Values for 2008 are not comparable and are only available for Greece.

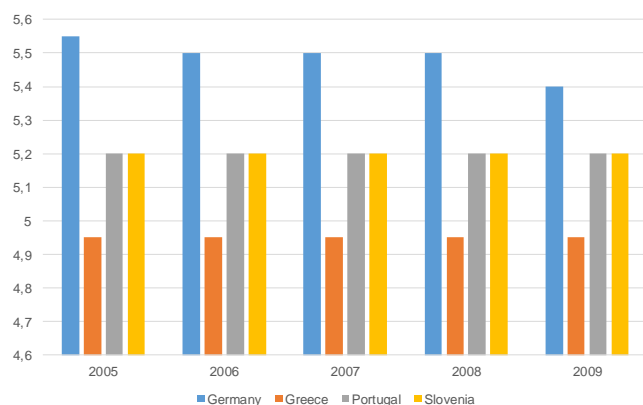
Figure 6.52 Aerobic and muscle-strengthening activities, 2014



Eurostat, Performing health-enhancing physical activity by sex, age and educational attainment level [hlth_ehis_pe9e]

No indicators on blood cholesterol were found in Eurostat. Figure 6.53 shows some rather old data from WHO, which recently featured in the European Cardiovascular Disease Statistics, 2017 edition.

Figure 6.53 Blood cholesterol levels, age-standardised estimates



WHO, Global Health Observatory data repository.

Similarly, no recent data were found on blood sugar.

6.3.3 Population-wide outcomes

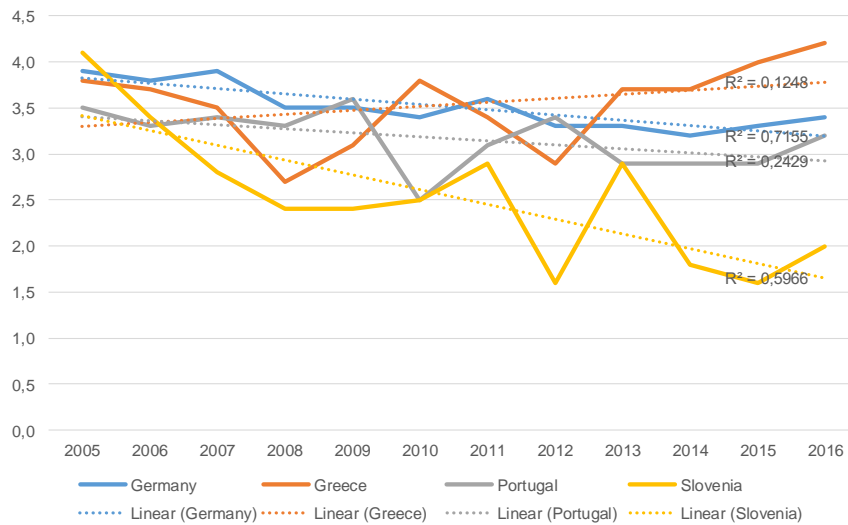
This is the second sub-node in preventative care, and includes the following lower-level nodes:

- Infant mortality, with indicators from Eurostat: infant mortality and change in infant mortality during the last 10 years;
- NCD mortality, with NCD mortality from Eurostat;
- Self-reported health, with indicators from the EU-SILC survey: self-perceived health and activity limitation.

The infant mortality rates are shown in Figure 6.54. Linear trend lines and the resulting R^2 coefficients were added. The clearest decrease (although with fluctuations) is observed in Slovenia, equivalent to 0.16 units (i.e. deaths per 100,000 persons) per year. Another relatively consistently decreasing trend can be seen in Germany, at 0.06 units per year.

Measurement of access to healthcare

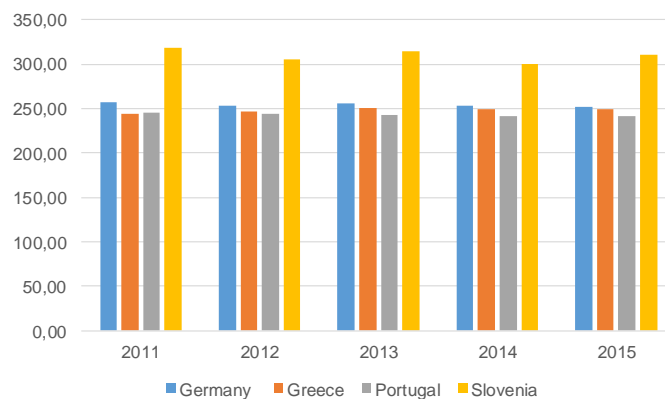
Figure 6.54 Infant mortality rates, in deaths per 100,000 inhabitants



Eurostat, Infant mortality rates [demo_minfind]

With regard to NCD mortality, Figure 6.55 to Figure 6.59 show indicators on five of the most common causes of death in the EU: all cancers, lung cancer, mental and behavioural disorders, ischaemic heart disease and cerebrovascular disease.

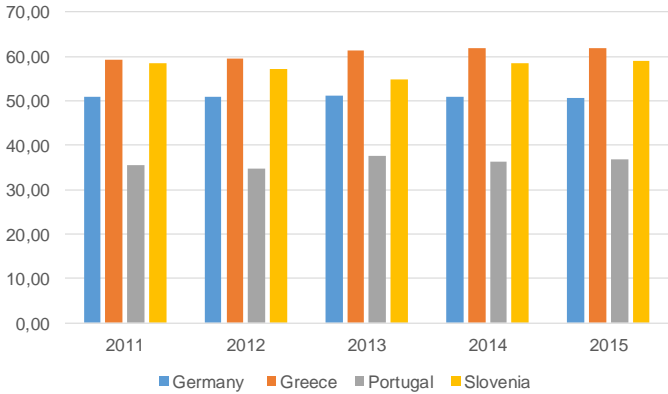
Figure 6.55 Standardised death rate from cancer, in deaths per 100,000 inhabitants



Eurostat, Causes of death - standardised death rate by residence [hlth_cd_asdr2]

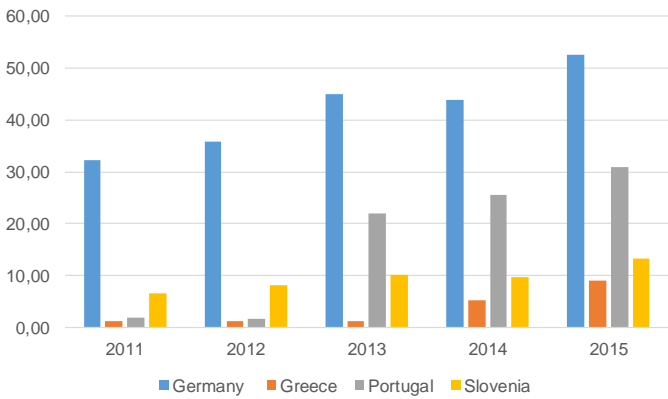
Measurement of access to healthcare

Figure 6.56 Standardised death rate from lung cancer, in deaths per 100,000 inhabitants



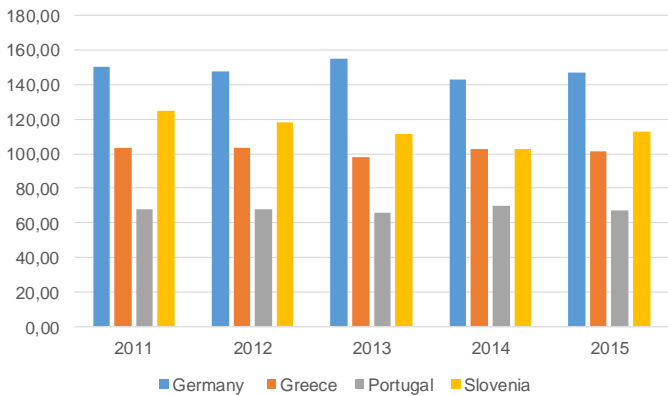
Eurostat, Causes of death - standardised death rate by residence [hlth_cd_asdr2]

Figure 6.57 Standardised death rate from mental and behavioural illness, in deaths per 100,000 inhabitants



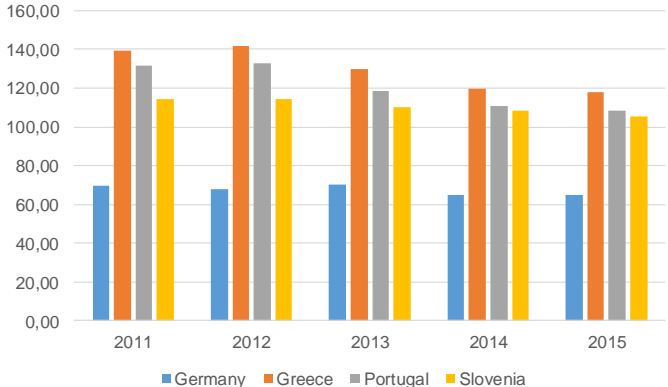
Eurostat, Causes of death - standardised death rate by residence [hlth_cd_asdr2]

Figure 6.58 Standardised death rate from ischaemic heart disease, in deaths per 100,000 inhabitants



Eurostat, Causes of death - standardised death rate by residence [hlth_cd_asdr2]

Figure 6.59 Standardised death rate from cerebrovascular disease, in deaths per 100,000 inhabitants



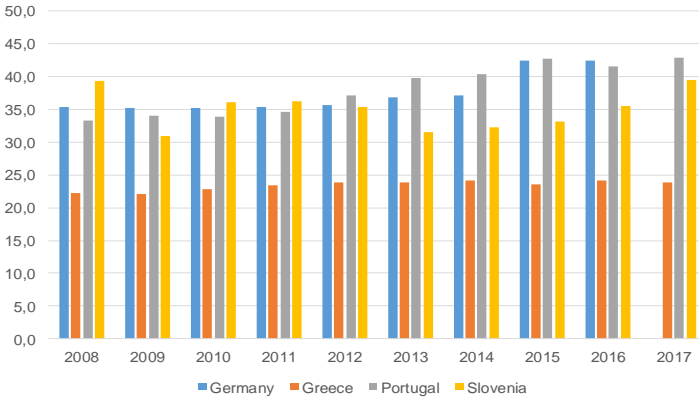
Eurostat, Causes of death - standardised death rate by residence [hlth_cd_asdr2]

Main observations are:

- High mortality rates from cancers in Slovenia (around 50 per 100,000 inhabitants more than in the other countries);
- Low rates of mortality from lung cancer in Portugal;
- Significantly higher rates of death from mental and behavioural illness in Germany, and the very low rates observed in Greece and Slovenia;
- Higher rates of deaths from ischaemic heart disease in Germany, and the low rates observed in Portugal;
- Much lower death rates from cerebrovascular disease in Germany.

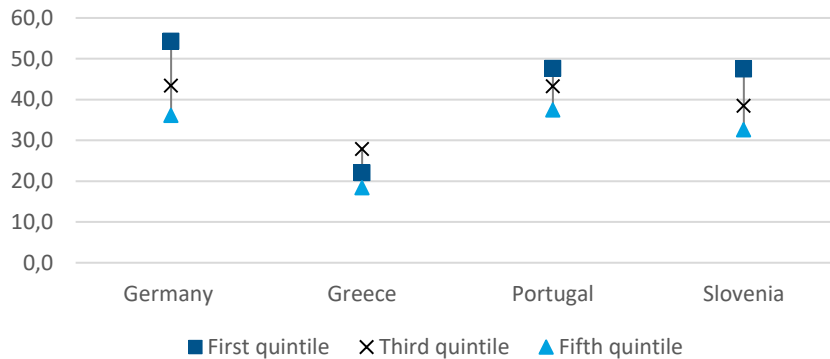
As far as the self-reported chronic morbidity indicator from the EU-SILC survey is concerned (see Figure 6.60), Germany and Portugal follow a similar pattern. The lowest values are observed in Greece, almost steady between 22% and 24%. The values from Slovenia showed a drop in 2013 and are now approaching the percentages observed in Germany and Portugal.

Figure 6.60 Self-reported long-standing illness or health problem, percentage of population aged 16+



Eurostat, People with a long-standing illness or health problem, by sex, age and labour status [hlth_silc_04]

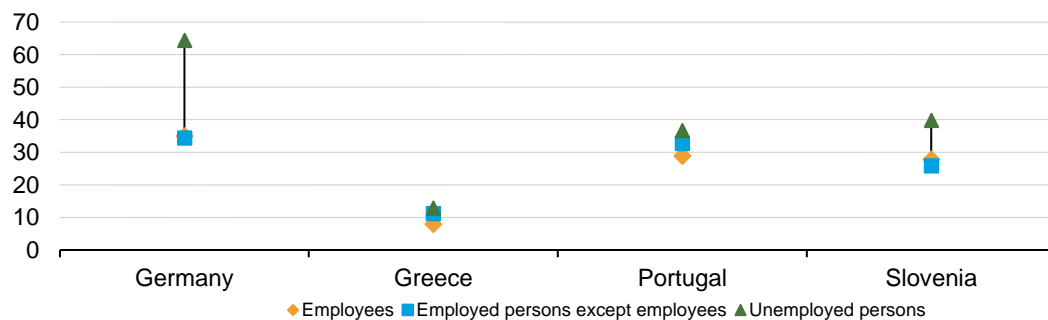
Figure 6.61 Self-reported long-standing illness or health problem per income quintile in 2017, percentage of population aged 16+



People with a long-standing illness or health problem, by sex, age and income quintile [hlth_silc_11]

Figure 6.61 shows that, in 2017, all countries seemed to have a similar pattern of self-reported long-standing illness or health problem per income quintile: the lowest shares were recorded for the fifth income quintile group and the highest for the first quintile (apart from Greece). In all countries, more than 20% of the population in the first income quintile group reported having a long-standing illness or health problem. Additionally, employees and employed persons were less likely to have reported long-standing health problems than unemployed persons in all countries (see Eurostat).

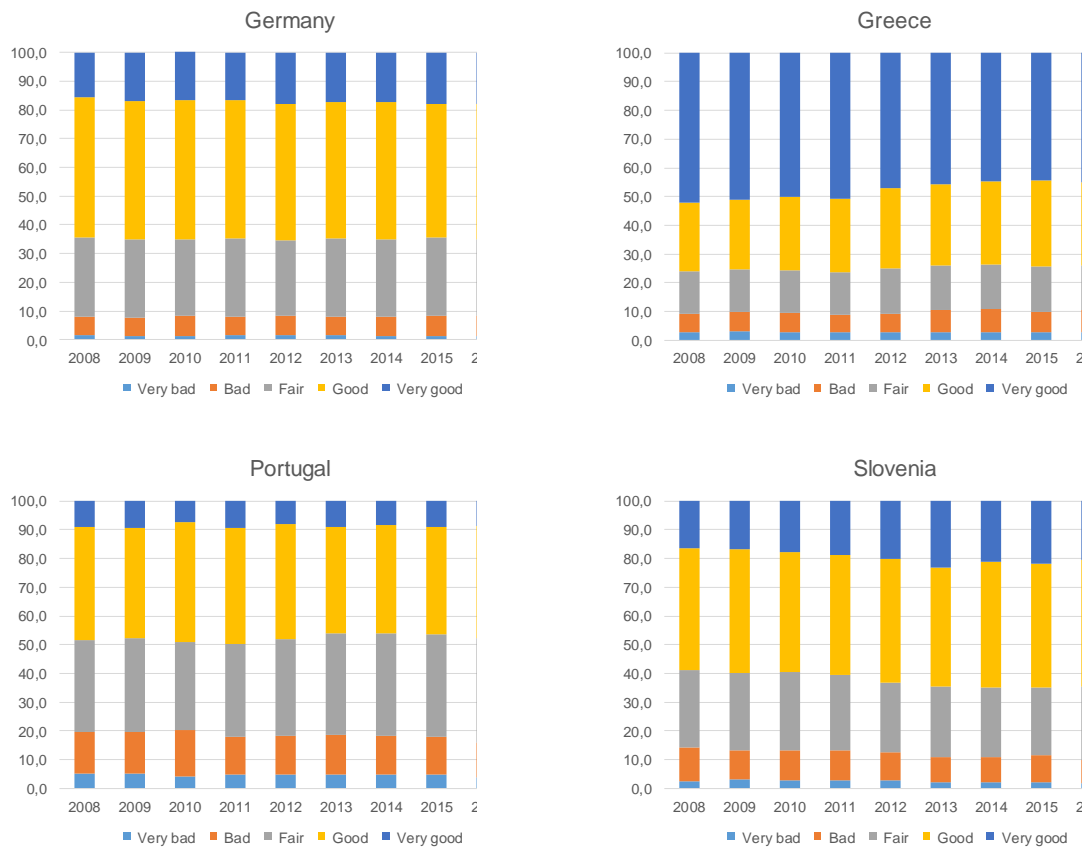
Figure 6.62 Self-reported long-standing illness or health problem by labour status in 2017, percentage of population aged 16+



Eurostat, People with a long-standing illness or health problem, by sex, age and labour status [hlth_silc_04]

Finally, the self-reported health node includes the self-perceived health indicators from EU-SILC and activity limitation indicators. The self-reported health status is presented in Figure 6.62. Greeks more frequently report 'Very good' (48% on average) and 'Good' (27%). The Portuguese report 'Good' or 'Very good' less frequently than the other countries (48% in total).

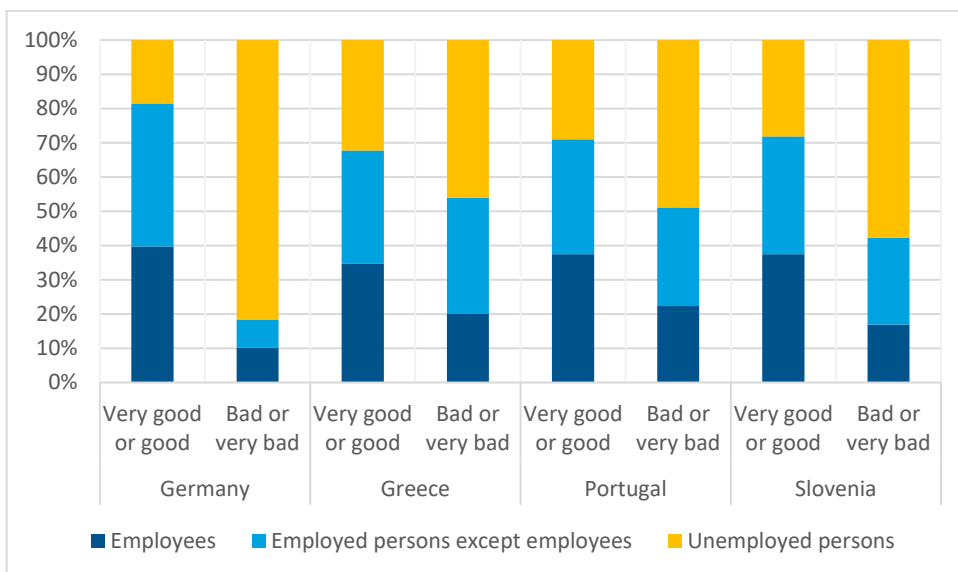
Figure 6.63 Self-perceived health status



Eurostat, Self-perceived health by sex, age and labour status [hlth_silc_01]

With respect to socioeconomic conditions, in all countries self-perceived health seems to have a similar relationship to labour status, with fewer people who are unemployed rating their health as being 'very good or good' than persons who are employed. The share reporting 'bad or very bad' health increased for unemployed persons (see Eurostat, and Figure 6.64).

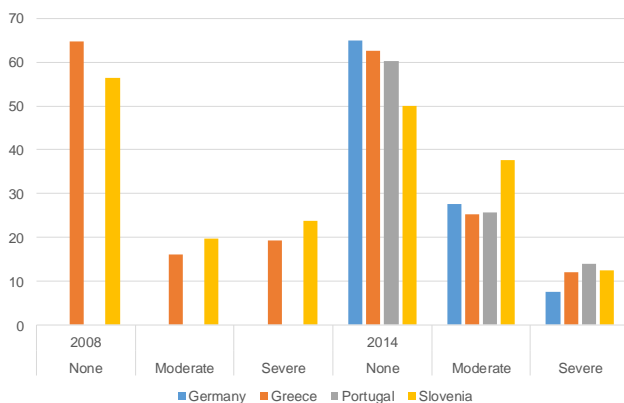
Figure 6.64 Self-perceived health status by labour status in 2017



Eurostat, Self-perceived health by sex, age and labour status [hlth_silc_01]

With regard to activity limitations, the data were collected from the two EHIS waves, in 2008 and 2014. Figure 6.65 below shows a difference between Slovenia and the other countries, with fewer persons without limitations and more with moderate limitations.

Figure 6.65 Activity limitations, 2008 and 2014




Eurostat, Physical and sensory functional limitations by sex, age and educational attainment level [hlth_ehis_pl1e] and [hlth_ehis_st9]

6.3.4 Medical staff skills

Primary care

The study proposes to add indicators to measure: a) communication and interpersonal skills, and b) technical skills, with the same indicators for primary and secondary care.

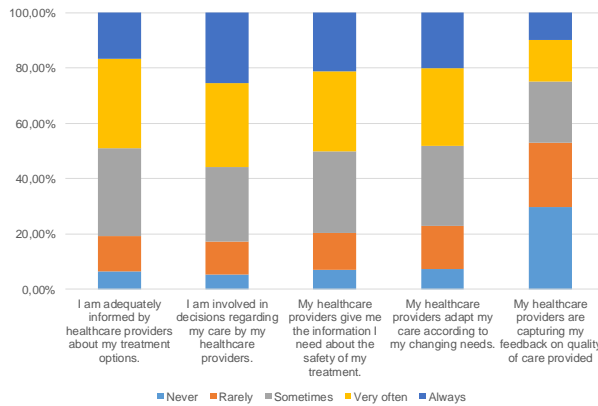
 Proposed new indicator

The proposal for the communication and interpersonal skills is to add some questions from the EPF survey to the Eurofound/EQoL survey. The EPF survey questions are:

- I am adequately informed by healthcare providers about my treatment options;
- I am involved in decisions regarding my care by my healthcare providers;
- My healthcare providers give me the information I need about the safety of my treatment.
- My healthcare providers adapt my care according to my changing needs;
- My healthcare providers are capturing my feedback on quality of care provided (through satisfaction survey or other means).

In the absence of access to the EPF survey’s microdata, Figure 6.66 presents the relevant answers from all respondents from the 28 Member States who participated in the survey.

Figure 6.66 Patients’ communication with medical staff



2016 EPF Survey

There is a striking difference in the last question, where more than half of the answers are ‘Never’ or ‘Rarely’. A score can be calculated from these results by finding the percentages reporting ‘Very often’ or ‘Always’ and taking their average. In this case, the calculated score is 45.6% (or 0.456 in the range 0-1).



On the measurement of technical skills, the proposal is to select from among the indicators designed by the UK NICE and used in the country's QOF. Table 6.5 below presents an example from the indicators' group on the secondary prevention of coronary heart disease. The maximum QOF points which can be received by the participating physicians are shown in the final column and are essentially used as weights for the calculation of a single score.

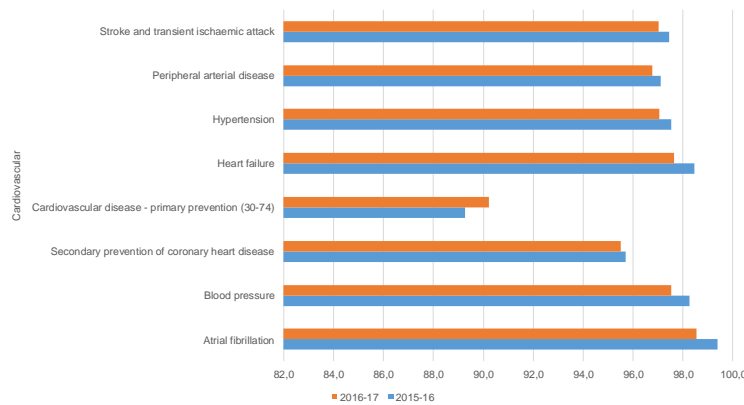
Table 6.5 QOF points in the cardiovascular domain¹⁰¹

Domain	Group	Code	Indicator description	QOF points
Cardiovascular	Secondary prevention of coronary heart disease	CHD001	The contractor establishes and maintains a register of patients with coronary heart disease	4
		CHD002	The percentage of patients with coronary heart disease for whom the last blood pressure reading (measured in the preceding 12 months) was 150/90 mmHg or less	17
		CHD005	The percentage of patients with coronary heart disease with a record of taking, in the preceding 12 months, aspirin, an alternative anti-platelet therapy, or an anti-coagulant	7
		CHD007	The percentage of patients with coronary heart disease who have had influenza immunisation in the preceding 1 August to 31 March	7

Figure 6.67 presents some statistics on the scores of medical practitioners in the whole cardiovascular group (calculated as percentages of the maximum points).

¹⁰¹ This example only focuses on the cardiovascular domain. A detailed proposal is given in [indicator fiche AD2](#) for the four main disease causes for disability i.e. mental diseases, cardiovascular, cancer and musculoskeletal diseases.

Figure 6.67 Proportion of QOF points achieved in the cardiovascular group



NHS Digital QOF

The group with the lowest score is the primary prevention of cardiovascular disease. This includes only one measurement, the percentage of patients with a new diagnosis of hypertension aged 30-75 (excluding those with pre-existing cardiovascular heart disease, diabetes, stroke and/or transient ischaemic attack), who have a recorded cardiovascular disease risk assessment score¹⁰² ≥ 20% in the preceding 12 months and are currently treated with statins.

6.3.5 Continuity/ Integration of care

This is the second sub-node in Adequacy, in primary care. The study team proposed a simple indicator showing the percentage of persons reporting that at least half of their ambulatory visits are to the same physician, together with indicators of measures in the domain of organisational process and system characteristics.



Table 6.6 presents an assessment of several aspects of primary care – one of which is continuity of care - from a relevant study¹⁰³. The Continuity of care is considered strong in Germany, medium in Portugal and weak in Greece and Slovenia.

¹⁰² Using an assessment tool agreed with the NHS Commissioning Board.

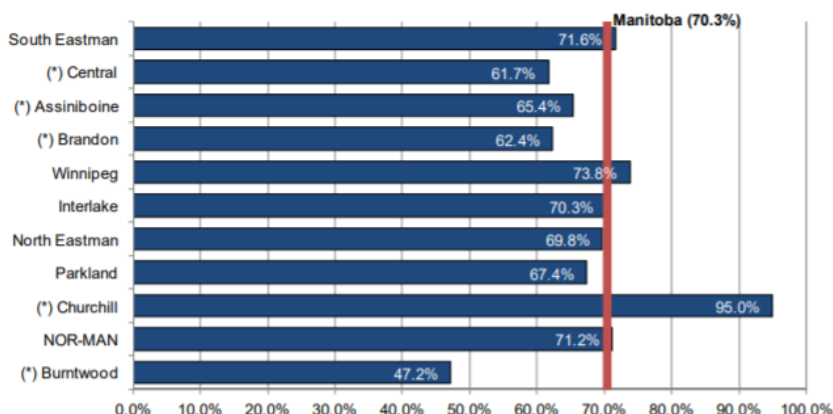
¹⁰³ Kringos, D., Boerma, W., Bourgueil, Y., Cartier, T., Dedeu, T., Hasvold, T. & Svab, I., 2013. The strength of primary care in Europe: an international comparative study. *Br J Gen Pract*, 63(616), e742-e750.

Table 6.6 Assessment of continuity of care in primary care

Country	The structure of primary care			The service-delivery process of primary care				Overall primary care system strength
	Primary care governance	Economic conditions of primary care	Primary care workforce development	Access to primary care	Continuity of primary care	Co-ordination of primary care	Comprehensiveness of primary care	
Germany	Medium	Strong	Medium	Medium	Strong	Weak	Medium	Medium
Greece	Medium	Weak	Weak	Weak	Weak	Strong	Weak	Weak
Portugal	Strong	Medium	Strong	Strong	Medium	Medium	Strong	Strong
Slovenia	Strong	Strong	Strong	Strong	Weak	Strong	Weak	Strong

Possibilities to use quantitative indicators to measure the continuity of care are limited. Figure 6.68, from Manitoba, Canada presents an example of the use of quantitative statistics.

Figure 6.68 Age and sex-adjusted percentage of residents with more than 50% of ambulatory visits to the same physician in Manitoba, Canada, 2010-2011



Manitoba Health/Health Information Management/Annual Statistics 2010-2011

A selection of some of measures in the domain of organisational process and system characteristics are proposed below, in particular those relating to care transitions, care planning, medication management and care coordination.

Two specific indicators measuring timeliness and integration of care transitions:

- Percentage of patients discharged to home or another site of care, accompanied by a complete transition record;
- Percentage of transition records as above, transmitted within 24 hours of discharge.

One specific indicator measuring proper medication management:

Measurement of access to healthcare

- Medication reconciliation: the percentage of discharges of patients aged 65 years or more from any inpatient facility for which the discharge medication list was reconciled with the current medication list in the outpatient medical record.

One more general indicator measuring care coordination, calculated from scores on:

- Use of standard procedures and protocols in primary healthcare organisations;
- Use of quality of care processes based on best practice guidelines;
- Ensuring quality of clinical integration or coordination in multi-professional teams.

No existing data were identified, however, to run the test in the selected Member States.

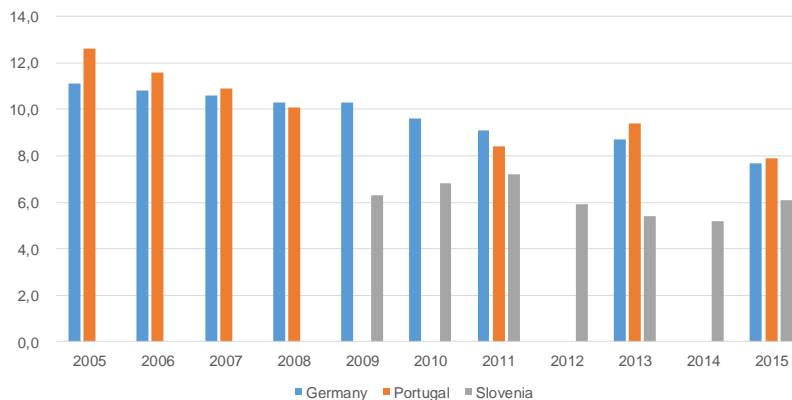
6.3.6 Amenable mortality

Amenable mortality indicators are in secondary care. They concern:

- 30-day in-hospital case-fatality of acute myocardial infarction (AMI) and ischemic stroke;
- In-patient suicide among patients with a psychiatric disorder;
- Hospital acquired infection (ECDC).

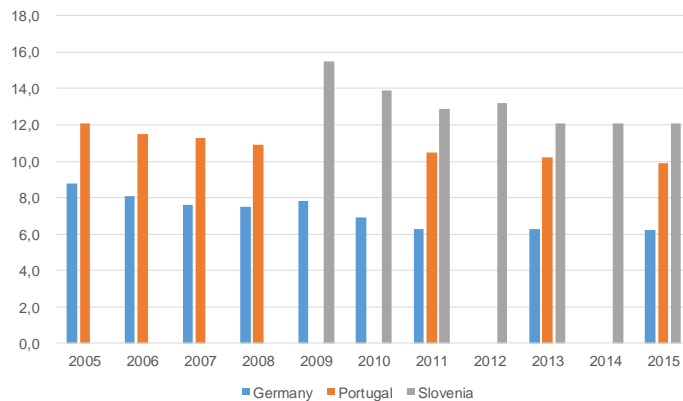
The first two indicators are from the OECD and are shown in the figures below.

Figure 6.69 30-day mortality after admission to hospital for AMI based on unlinked data, age group 45+ years



OECD, Healthcare Quality Indicators

Figure 6.70 30-day mortality after admission to hospital for ischemic stroke based on unlinked data, age group 45+ years

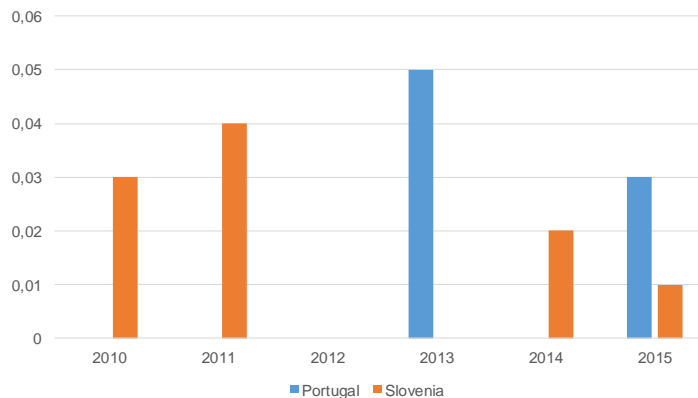


OECD, Healthcare Quality Indicators

30-day mortality from AMI is almost equal in Germany and Portugal and shows a clear decreasing trend, having fallen from 12% to 8% on average. The 30-day mortality after admission for ischemic stroke is higher in Slovenia and much smaller in Germany (12% and 6% in 2015, respectively).

The data for inpatient suicides are sparse, as shown in Figure 6.71.

Figure 6.71 In-patient suicide among patients diagnosed with a mental disorder



OECD, Healthcare Quality Indicators

6.3.7 Existence of patient pathways

This is a sub-node in secondary care and does not currently have any indicators.



The proposal was to measure the existence of registries and electronic patient/health records (EPR/EHR), which provide strong evidence for the operation of clear patient pathways. The relevant information can be taken from the WHO Global eHealth survey.

Measurement of access to healthcare

Greece and Slovenia reported that they do not have a national EHR system. The only country which has a non-zero value in the proposed indicator is Portugal. The national EHR system in this country is used:

- More than 75% in secondary care facilities;
- Less than 25% in tertiary care facilities.

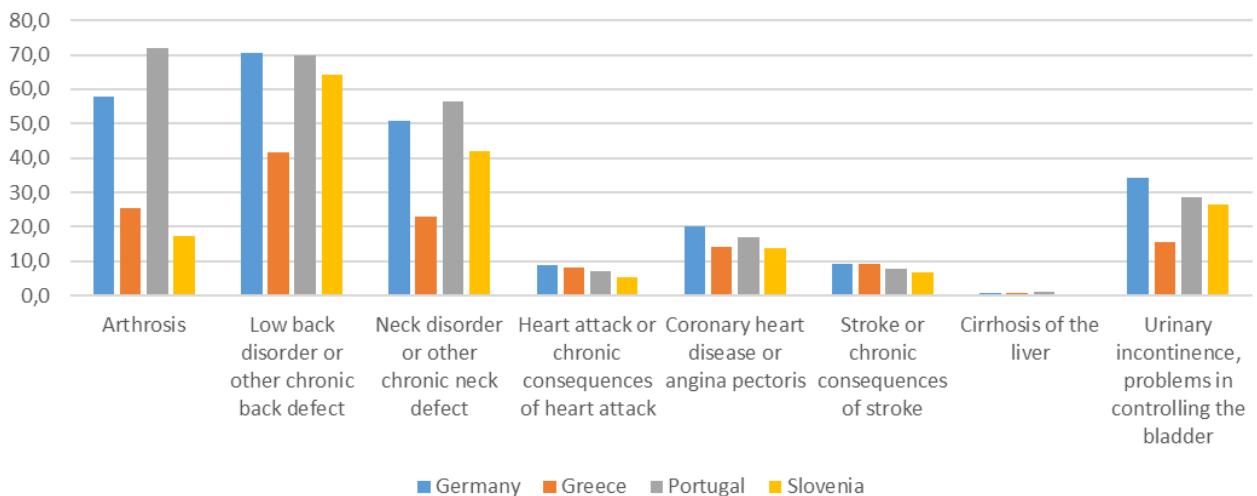
According to the draft specifications for this indicator, the value for Portugal is $(10+2)/2 = 6$ or 0.6 in the range 0-1. The very high usage in secondary care facilities obtains 10 points and the very low usage in tertiary care facilities obtains 2 points.

Germany did not participate in this survey.

6.3.8 Epidemiology – long-term care

It was proposed to add a new sub-node ‘Epidemiology’ in long-term care. The conclusions in several articles suggest that dementia, urinary incontinence, chronic stroke and cardiac insufficiency are highly prevalent and present considerable differences in prevalence between long-term care and non-long-term care. The data used are presented in Figure 6.72. In order to use these data and approximate the long-term care recipient population to the greatest extent possible, the data were filtered by age (using the conventional threshold ≥ 65 years) and also by activity limitation (only excluding ‘None’). According to the figure, the most common chronic diseases in 2014 were lower back and neck disorders in all countries, although less so in Greece. Arthrosis comes second, especially in Germany and Portugal.

Figure 6.72 Percentage of persons aged 65 and over, by chronic diseases in 2014



Eurostat, Persons reporting a chronic disease, by disease, sex, age and educational attainment level [hlth_ehis_cd1e]

6.3.9 Treatment adequacy (or relevance of treatment) – long-term care

This node is empty.



The proposal made was to build an indicator based on inspections of nursing homes and the measurement of incidence rates of:

- Pressure ulcers;
- Urinary tract infections;
- Use of physical restraints.

These measures are used for example in the US by Medicare and Medicaid to score the services of nursing homes, but they very frequently referred to and assessed in the literature.

No directly comparable indicators were identified to run a test, however, as such outcomes are usually graded based on their distribution in all nursing homes and then incorporated into overall assessment scores (e.g. in 'stars' systems).

6.3.10 Patient Reported Outcome Measures (PROMs) – secondary and long-term care

These are two nodes without indicators. It was proposed to wait for the pilot questionnaires which are being developed in the OECD Patient-Reported Indicators Survey (PaRIS).

6.4 Timelines

Figures below show indicators proposed in the Timeliness dimension.

Figure 6.73 Indicators in the Timeliness dimension – primary care

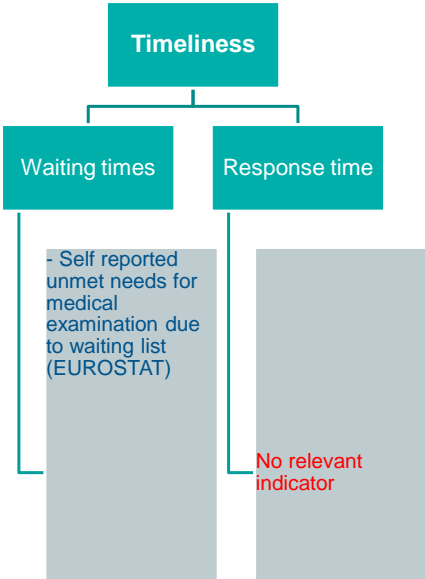
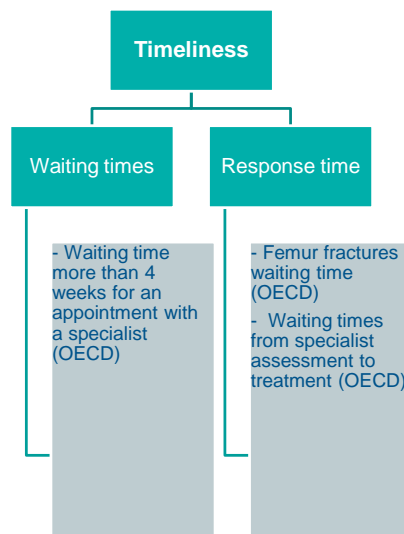


Figure 6.74 Indicators in the Timeliness dimension – secondary care

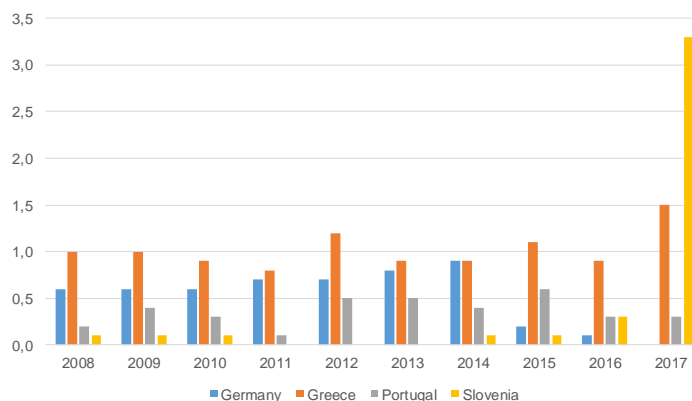


6.4.2 Waiting time

Primary care

The relevant indicator in primary care is the unmet need for medical examination due to waiting lists, from Eurostat (EU-SILC) survey. Figure 6.75 below shows the percentages per year. The values are small because they refer to the whole population (16+ years). The high increase in Slovenia in 2017 is likely due to a methodological deviation. In the other countries, the largest percentages are noted in Greece, where the latest value reached 1.5%. The percentages in the other countries do not exceed 0.9%. Figures 6.76 and 6.77 present self-reported unmet need for medical examination due to waiting list per income quintile and labour status, respectively.

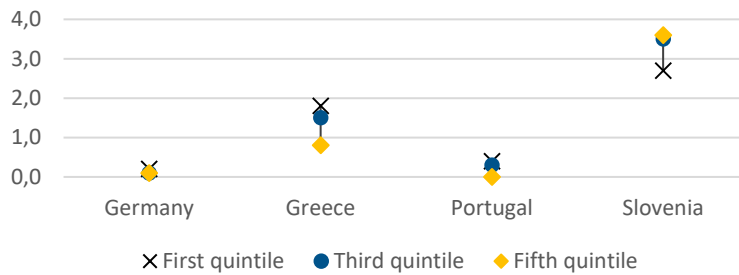
Figure 6.75 Self-reported unmet need for medical examination due to waiting list



Self-reported unmet need for medical examination by sex, age, main reason declared and income quintile [hlth_silc_08]

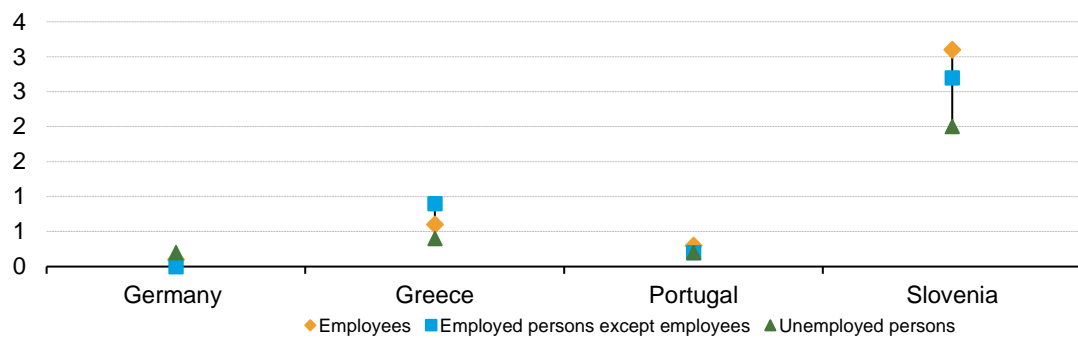
Measurement of access to healthcare

Figure 6.76 Self-reported unmet need for medical examination due to waiting list per income quintile in 2017



Self-reported unmet need for medical examination by sex, age, main reason declared and income quintile [hlth_silc_08]

Figure 6.77 Self-reported unmet need for medical examination due to waiting list per labour status in 2017

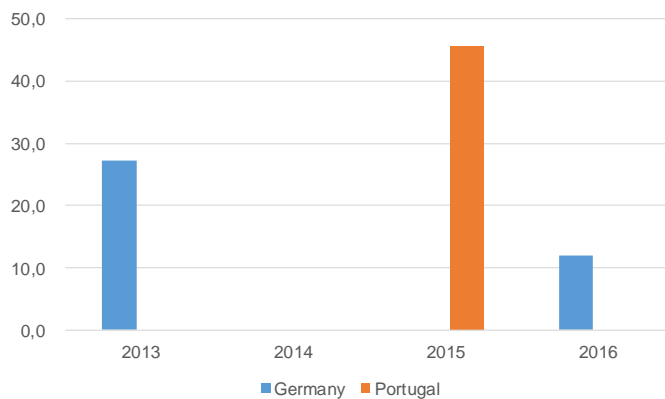


Self-reported unmet need for medical examination by sex, age, main reason declared and labour status [hlth_silc_13]

Secondary care

The proposed indicator is the occurrence of waiting time of more than four weeks for an appointment with a specialist. The only available data are shown in Figure 6.78 below. The highest value is for Portugal in 2015 (46%).

Figure 6.78 Waiting more than four weeks for an appointment with a specialist, age-sex standardised rate per 100 patients



OECD, Healthcare Quality Indicators

6.4.3 Response times

Primary care

It was proposed to remove this node, because it is difficult to capture response rates in primary care.

Secondary care

This node currently has the following indicators:

- Femur fracture waiting time, from the OECD;
- Waiting time from specialist assessment to treatment, also from the OECD.



Proposed additional indicators

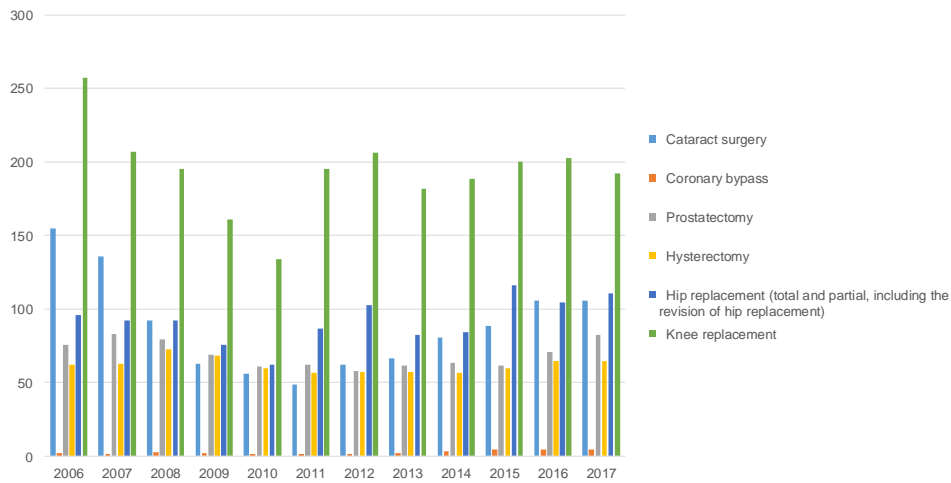
It was proposed to enrich this node with condition-specific waiting times, and to add the following waiting times from the OECD:

- Cataract surgery;
- Coronary bypass;
- Hip replacement (total and partial, including the revision of hip replacement);
- Knee replacement.

OECD data for waiting time from specialist assessment to treatment are available only for Portugal and are shown below in Figure 6.79. The graph shows that waiting time for knee replacement is significant.

Measurement of access to healthcare

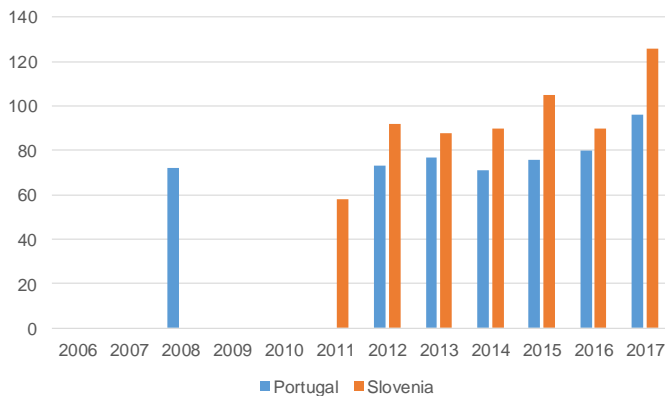
Figure 6.79 Waiting time from specialist assessment to treatment (median days) in Portugal



OECD, Healthcare Utilisation

The following figures present waiting times of patients on lists for the four surgeries outlined above. These data are available for Portugal and Slovenia. The waiting times are larger for Slovenia, especially in hip and knee replacement.

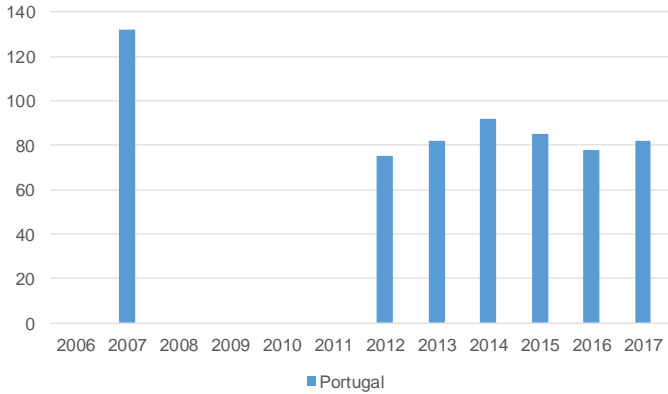
Figure 6.80 Waiting times of patients on the list for cataract surgery (median days)



OECD, Healthcare Utilisation

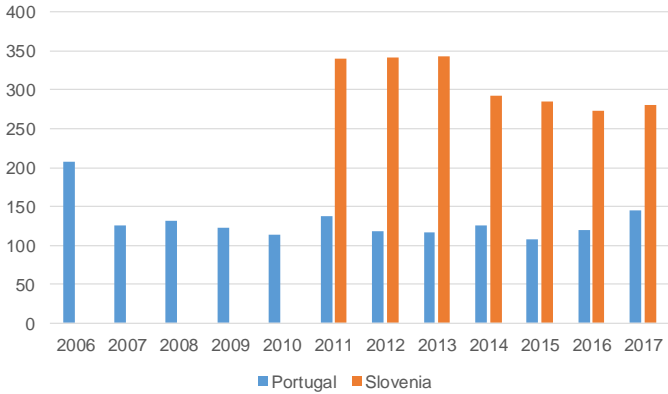
Measurement of access to healthcare

Figure 6.81 Waiting times of patients on the list for coronary bypass (median days) in Portugal



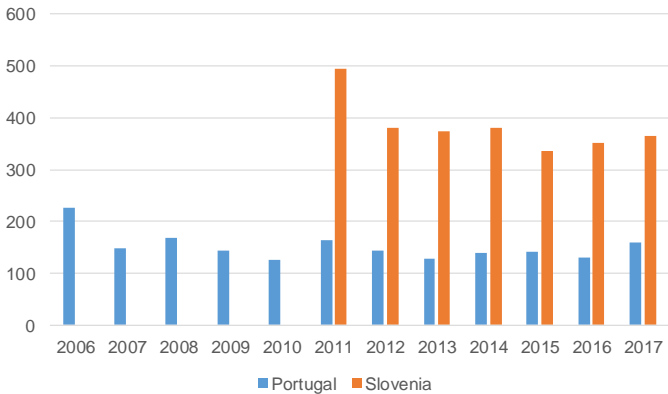
OECD, Healthcare Utilisation

Figure 6.82 Waiting times of patients on the list for hip replacement (median days).



OECD, Healthcare Utilisation

Figure 6.83 Waiting times of patients on the list for knee replacement (median days)



OECD, Healthcare Utilisation

6.5 Accessibility

Figure 6.84 Indicators in the Accessibility dimension – preventative care

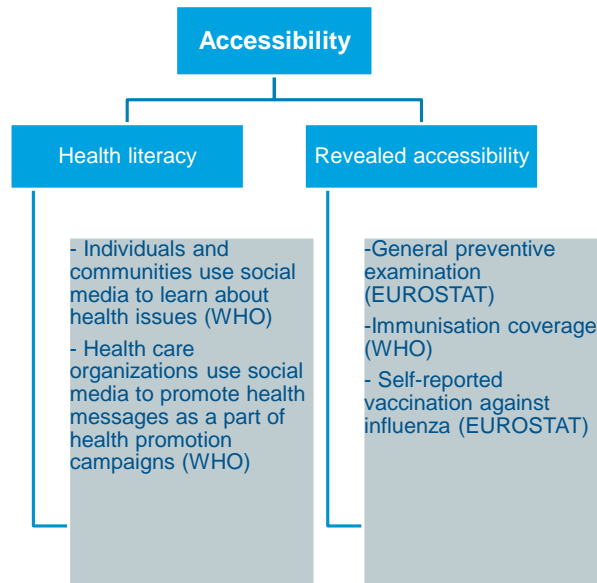


Figure 6.85 Indicators in the Accessibility dimension – primary care

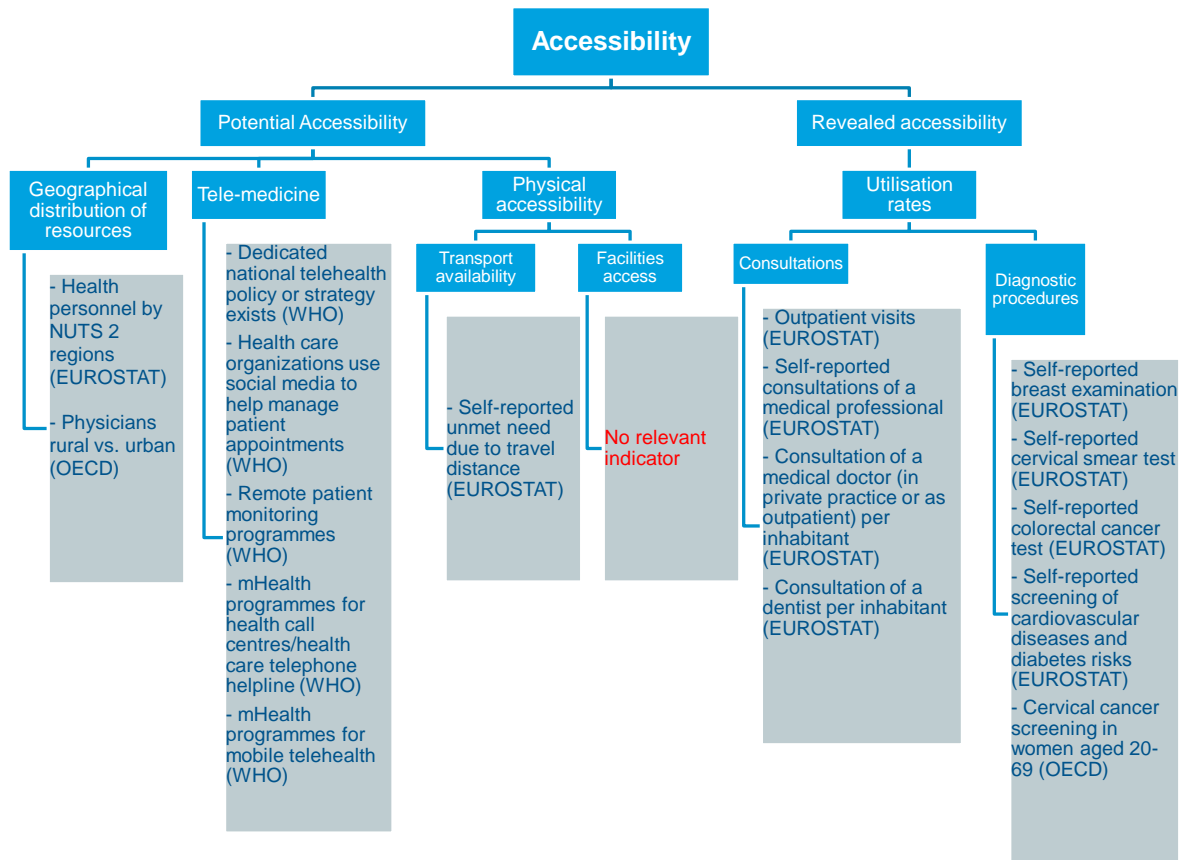


Figure 6.86 Indicators in the Accessibility dimension – secondary care

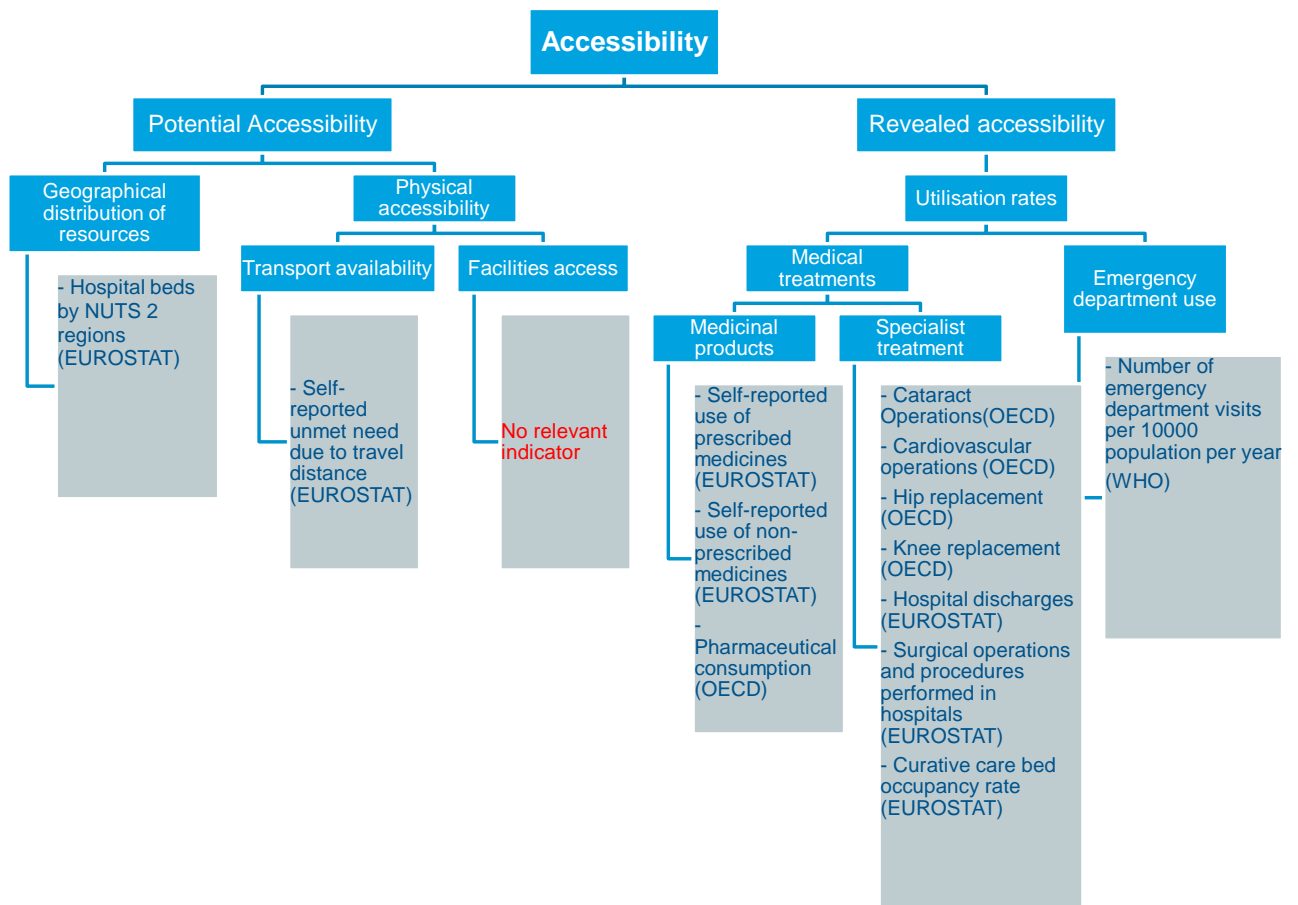


Figure 6.87 Indicators in the Accessibility dimension – long-term care



6.5.2 Health literacy

This sub-node concerns primary care and is currently populated by indicators from the WHO:

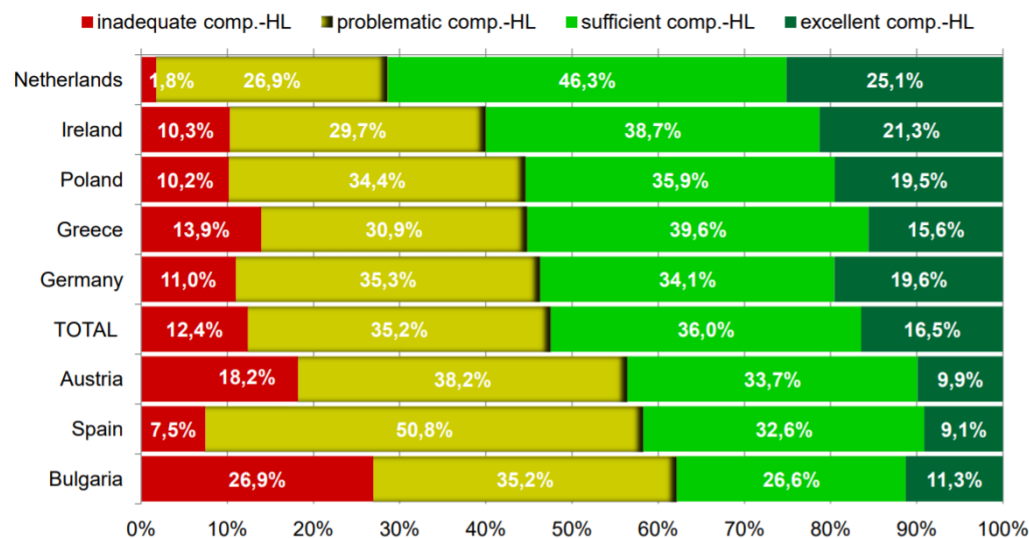
- Individuals and communities use social media to learn about health issues;
- Healthcare organisations use social media to promote health messages as part of health promotion campaigns.

The latest report from the Global Observatory for eHealth¹⁰⁴ has responses to these questions from Greece, Portugal and Slovenia. All responded 'yes'.



The previous indicators were considered not sufficiently informative, and a proposal was made to incorporate indicators built on the European Health Literacy Survey (HLS-EU) project. The following chart, taken from a presentation of the methodology of this survey, shows that the percentage of persons with excellent comprehension is higher in Germany than in Greece (19.6% and 15.6%, respectively). The next category however (sufficient comprehension) is larger in Greece.

Figure 6.88 Health literacy in some European countries, 2011



HLS-EU project

6.5.3 Potential Accessibility - geographical distribution of resources

Primary care

For the geographical distribution of resources, the set of indicators for primary care includes:

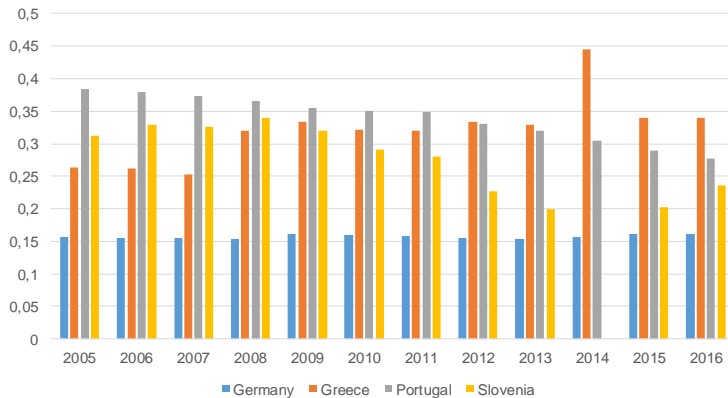
- Health personnel by NUTS 2 regions, with data from Eurostat;
- Rural vs. urban physicians, from the OECD.

¹⁰⁴ Atlas of eHealth country profiles, 2015. The use of eHealth in support of universal health coverage.

Measurement of access to healthcare

In the health personnel by NUTS 2 regions, the variability across regions is of greater interest than the average values of personnel in these regions. This variability is presented in Figure 6.89 below, which shows the coefficient of variance of the geographical density of physicians (in persons per 100,000 inhabitants) from 2005-2015.

Figure 6.89 Medical doctors in number per 100,000 inhabitants: coefficient of variance of regional data

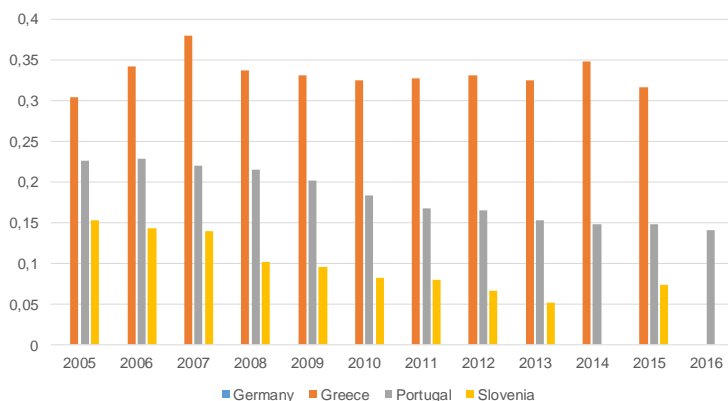


Eurostat, Health personnel by NUTS 2 regions [hlth_rs_prsrg]

The geographical variability in Germany appears (misleadingly) low, as the data available refer to NUTS 1 regions (states). In the other countries, Greece and Portugal have the larger values, indicative of high concentrations in the cities.

The corresponding chart for nurses and midwives shows even greater variability in Greece, with Portugal coming a distant second.

Figure 6.90 Nurses and midwives in number per 100,000 inhabitants: coefficient of variance of regional data

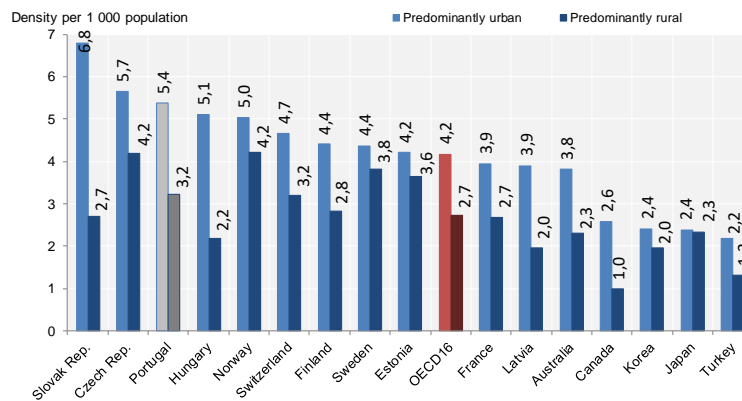


Eurostat, Health personnel by NUTS 2 regions [hlth_rs_prsrg]

The available OECD data for the density of physicians in rural and urban areas include only Portugal, with 5.4 physicians per 1,000 residents in predominantly urban areas and 3.2 in predominantly rural ones. This is shown in Figure 6.91 below, taken from OECD Health at a Glance 2017.

Measurement of access to healthcare

Figure 6.91 Physician density, rural vs. urban areas, 2015 (or nearest year)

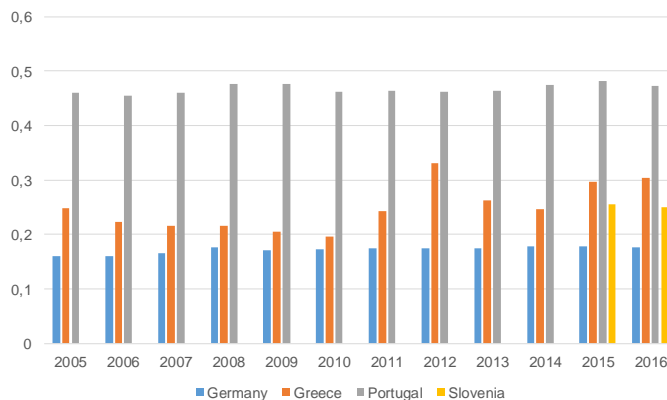


OECD Statistics Database 2017.

Secondary care

The selected indicator for secondary care is hospital beds by NUTS 2 regions, from Eurostat. As with the number of health personnel, the coefficient of variation was calculated.

Figure 6.92 Available hospital beds in number per 100,000 inhabitants: coefficient of variation of regional data



Eurostat, Hospital beds by NUTS 2 regions [hlth_rs_bdsrg]

The geographical variability is much higher in Portugal, almost steady at 0.46-0.48. Greece follows, with an increasing difference from the other countries in recent years.

6.5.4 Potential Accessibility – use of tele-medicine

Primary care

A set of WHO indicators in primary care related to the use of tele-medicine includes:

- Dedicated national telehealth policy or strategy exists;
- Healthcare organisations use social media to help to manage patient appointments;
- Remote patient monitoring programmes;

Measurement of access to healthcare

- mHealth programmes for health call centres/healthcare telephone helpline;
- mHealth programmes for mobile telehealth.

The data come from the WHO eHealth survey and the national responses are shown in the following table.

Table 6.7 Use of tele-medicine – questions from the WHO eHealth survey

	Germany	Greece	Portugal	Slovenia
Dedicated national telehealth policy or strategy exists	Did not participate in survey	No – telehealth in national eHealth policy or strategy	Yes	No
Healthcare organisations use social media to help to manage patient appointments		No	Yes	No
Remote patient monitoring programmes		National (pilot)	National (pilot)	Local (pilot)
mHealth programmes for health call centres/healthcare telephone helpline		Local (pilot)	National (established)	No response
mHealth programmes for mobile telehealth		Intermediate (established)	No response	No response

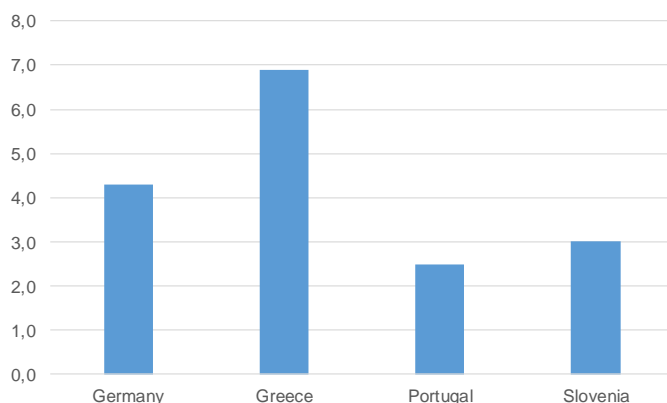
Germany did not participate in the survey. Of the other countries, Portugal is the most advanced in its use of tele-medicine.

6.5.5 Potential Accessibility - physical accessibility

Primary care

For physical accessibility, and in particular transport availability, the selected indicator in primary care is the self-reported unmet need due to travel distance, from Eurostat. The data come from the EHIS survey and are only available for 2014. Greece presents the highest percentage, at almost 7%. The lowest value is observed in Portugal, at 2.5%.

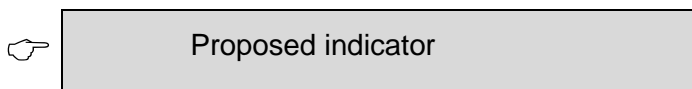
Figure 6.93 Percentage of population with self-reported unmet need for healthcare due to transportation or distance, 2014



Eurostat, Self-reported unmet need for healthcare by sex, age, specific reasons and educational attainment level [hlth_ehis_un1e]

A proposal has also been made to follow a similar approach to the UK, which publishes detailed statistics on the '*Availability of transport to key services or work, among users*'¹⁰⁵. This would, however, require a separate investigation, beginning with a feasibility study.

Another node in physical accessibility in primary care concerns facilities access. This does not currently have any indicator.



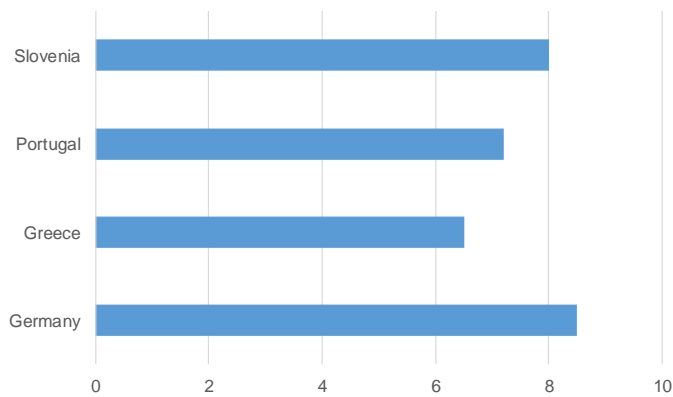
It was proposed to use one question from the EQoL survey¹⁰⁶, on the quality of the facilities (building, room, equipment) of GPs, family doctors or health centre services.

The mean responses, on a scale from 1 ('very dissatisfied') to 10 ('very satisfied') are shown below. The degree of satisfaction is greatest in Germany (8.5/10) and smallest in Greece (6.5/10).

¹⁰⁵ <https://www.gov.uk/government/statistical-data-sets/acs02-availability-of-transport-to-key-services-or-work-among-users#table-acs0201>

¹⁰⁶ See the latest questionnaire at: https://www.eurofound.europa.eu/sites/default/files/ef_survey/field_ef_documents/4th_eqls_final_master_source_questionnaire_12_june_2017_-_updated_07_september_2017.pdf

Figure 6.94 Average satisfaction with GP facilities



EQoL 2016

Secondary care

The nodes in physical accessibility/secondary care mirror those in primary care, i.e. transport availability and facilities access.

For transport availability, the proposal is the same as that for primary care, i.e. adoption of the UK system of transport availability statistics.

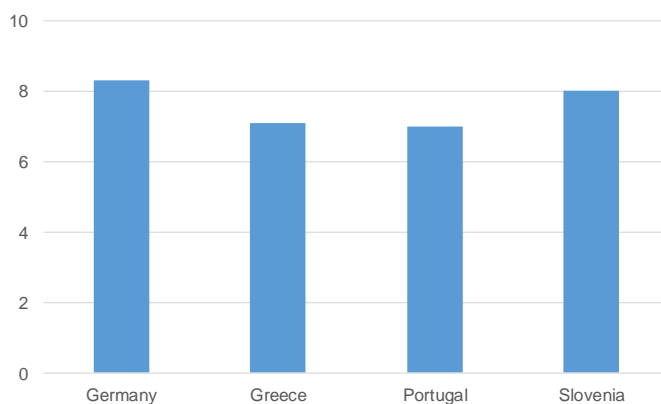


Proposed indicator

For access to facilities, the proposal is also the same as that for primary care, i.e. the use of the EQoL survey, but involving the question on the quality of facilities in hospitals or medical specialist services.

The mean responses, again on a scale from 1 ('very dissatisfied') to 10 ('very satisfied'), are presented in Figure 6.95 below. The satisfaction is almost equally high in Germany and Slovenia (8.3/10 and 8/10, respectively). Greece again comes last, together with Portugal (7/10).

Figure 6.95 Average satisfaction with hospital facilities



EQoL 2016

6.5.6 Revealed Accessibility

Preventative care

The revealed accessibility indicators in preventative care are the following:

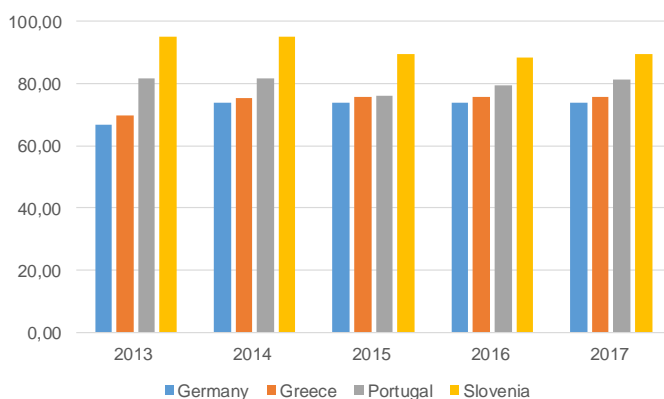
- General preventative examination, from Eurostat;
- Immunisation coverage, from the WHO;
- Self-reported vaccination against influenza, from Eurostat.

The preventative services indicators from Eurostat are not presented here, as they are the same as those used in primary care for diagnostic procedures (self-reported breast examination, cervical smear test, colorectal cancer test, screening of cardiovascular diseases and diabetes risk). These indicators are presented in the primary care section of the report.

With regard to immunisation coverage, Figure 6.96 below is indicative, showing the average coverage of 12 vaccines (BCG, DTP1, DTP3, HepB3, HepB_BD, Hib3, MCV1, MCV2, PCV3, Pol3, RCV1, RotaC) in the countries examined, as estimated by the WHO and UNICEF. This particular selection of vaccines was the set found for the countries examined in the WHO country profiles¹⁰⁷.

The chart should be interpreted with caution, as it does not reflect policies on vaccination. For example, Germany has opted to stop its universal BCG vaccination, which reduces the average coverage rates.

Figure 6.96 Average coverage of 12 vaccines (WHO-UNICEF estimates)

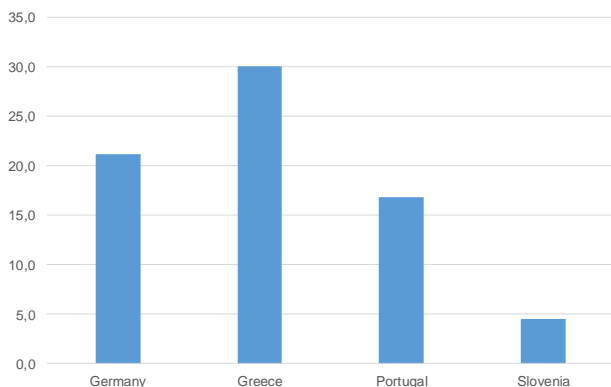


Study calculations, based on WHO-UNICEF estimates from the WHO vaccine-preventable diseases monitoring system

Figure 6.97 shows the percentages of self-reported vaccinations against influenza in 2014, from the EHIS. Values from the first wave in 2008 are not shown because of breaks in the series and incomparabilities. The percentage is high in Greece (30%) and very low in Slovenia (below 5%).

¹⁰⁷ http://www.who.int/immunization/monitoring_surveillance/data/en/

Figure 6.97 Self-reported vaccination against influenza, percentage of persons aged 15+ years, 2014



Eurostat, Self-reported vaccination against influenza by sex, age and educational attainment level [hlth_ehis_pa1e]

Primary care

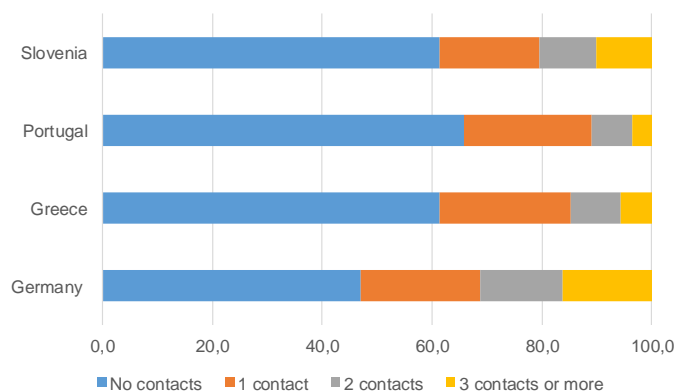
The following indicators represent utilisation rates, in particular consultations in primary care, all based on Eurostat data:

- Outpatient visits;
- Self-reported consultations of a medical professional;
- Consultation of a medical doctor (in private practice or as outpatient) per inhabitant;
- Consultation of a dentist per inhabitant.

Outpatient visits can be found by selecting generalist and specialist medical practitioners in hospitals in the register of consultations of medical doctors. However, values are only available for Portugal and include visits to specialists. The collection of this data was discontinued in 2015 and is therefore not presented here.

Figure 6.98 shows the frequency of consultations of medical doctors in 2014, from the EHIS. It is apparent that these consultations are much more frequent in Germany, with 31% reporting two or more contacts, compared to 11-20% in the other countries (11% in Portugal).

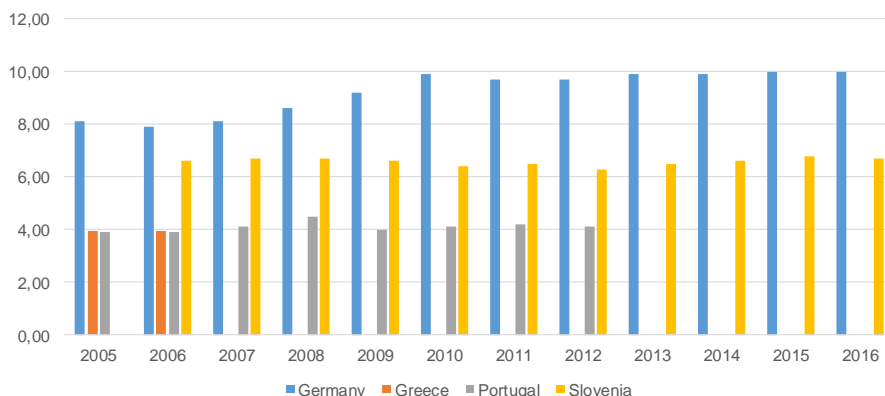
Figure 6.98 Frequency of consultation of medical doctors, 2014



Eurostat, Self-reported consultations of a medical professional by sex, age and degree of urbanisation [hlth_ehis_am2u]

The next chart shows the consultations of medical doctors in private practice per inhabitant. The data for the outpatient consultations is too scarce to show, being available for Portugal alone. The highest values are observed in Germany, stabilised at 10 visits per inhabitant in the recent years. Slovenia comes second, with seven visits per inhabitant, and Portugal presents the fewest visits, around four per inhabitant.

Figure 6.99 Consultations of medical doctors per inhabitant



Eurostat, Consultation of a medical doctor (in private practice or as outpatient) per inhabitant [hlth_hc_phys]

For the consultations of dentists, it is not possible to present data. Although available for Germany and Portugal, they present very large differences due to methodological particularities.

Figure 6.100 Difference in definitions of consultations of dentists

Consultation of a dentist per inhabitant [hlth_hc_den]

Last update: 21-08-2018

Table Customization [show](#)

TIME: [] GEO: [] International Standard Classification of Occupations 2008 (ISCO-08): [Dentists]

Unit of measure: [Number per inhabitant]

	2005	2006	2007	2008	2009	2010	2011	2012
Germany (until 1990 former territories of German Democratic Republic)	1.30	1.30	1.30	1.40	1.40	1.40	1.40	1.40
Portugal	0.04	0.04	0.04	0.05	0.05	0.05	0.05	0.05

Eurostat, Consultation of dentist per inhabitant, [hlth_hc_dent]

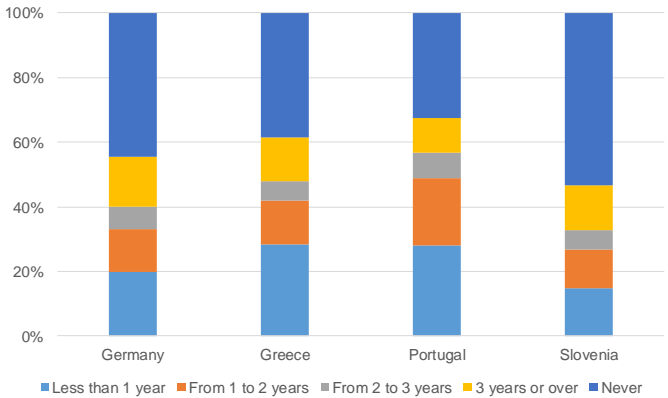
A second set of indicators in primary care concerns diagnostic procedures:

- Self-reported breast examination, from Eurostat;
- Self-reported cervical smear test, from Eurostat;
- Self-reported colorectal cancer test, from Eurostat;
- Self-reported screening of cardiovascular diseases and diabetes risk, from Eurostat;
- Cervical cancer screening in women aged 20-69, from the OECD.

Figure 6.101 below shows the distribution of time since last breast examination among women, in 2014, taken from the EHIS. The percentages in the category 'less than 1 year' are higher and almost equal in Greece and Portugal (28%). The lowest percentage in this category is in Slovenia (15%).

Measurement of access to healthcare

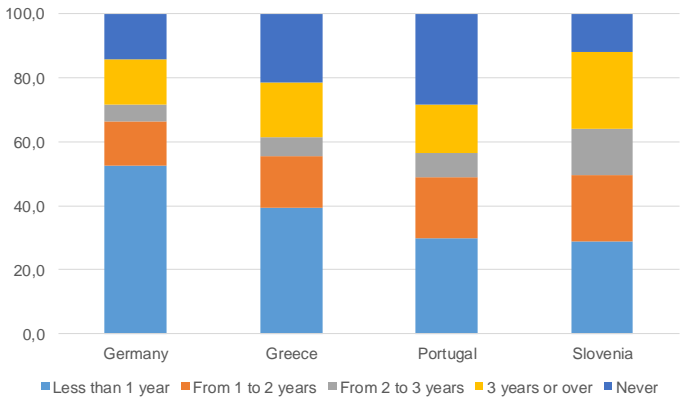
Figure 6.101 Distribution of time since last breast examination, 2014



Eurostat, Self-reported last breast examination by X-ray among women by age and educational attainment level [hlth_ehis_pa7e]

Figure 6.102 below shows the corresponding chart for the last cervical smear test. Here, the percentage in the category 'less than 1 year' is by significantly larger in Germany (53%), with Greece following, at 39%.

Figure 6.102 Distribution of time since last cervical smear test, 2014

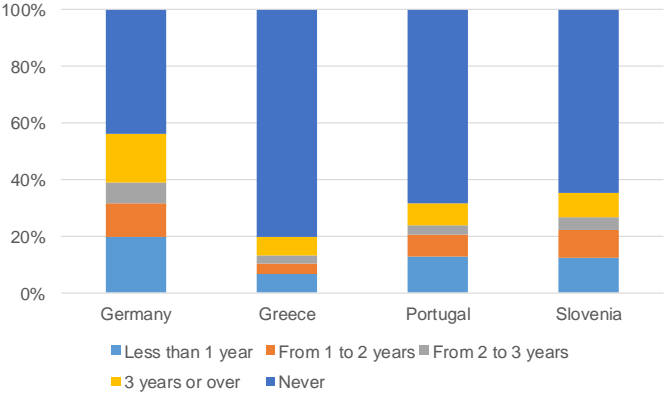


Eurostat, Self-reported last cervical smear test among women by age and educational attainment level [hlth_ehis_pa8e]

The values for the colorectal cancer screening test show very large percentages in the 'Never' response, much larger than for the previous tests. The percentage in 'Less than 1 year' is highest in Germany (20%) and lowest in Greece (7%).

Figure 6.103 Distribution of time since last colorectal cancer screening test, 2014

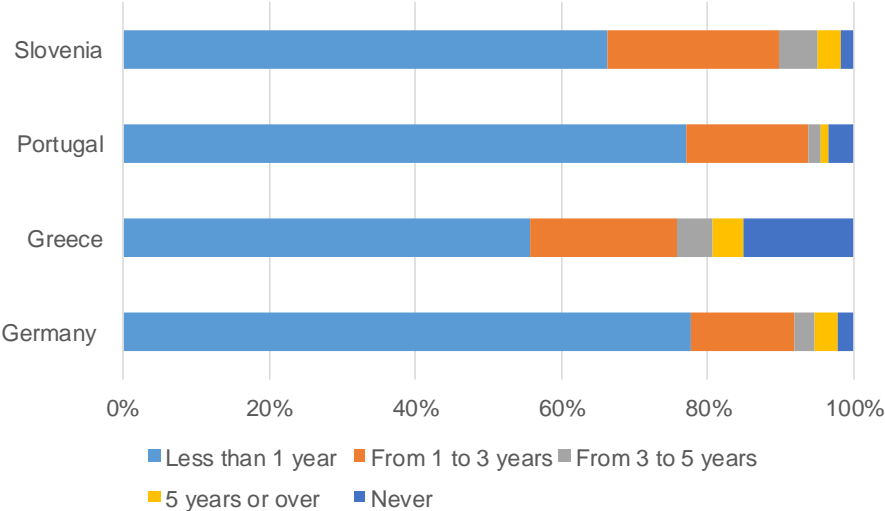
Measurement of access to healthcare



Eurostat, Self-reported last colorectal cancer screening test by sex, age and educational attainment level [hlth_ehis_pa5e]

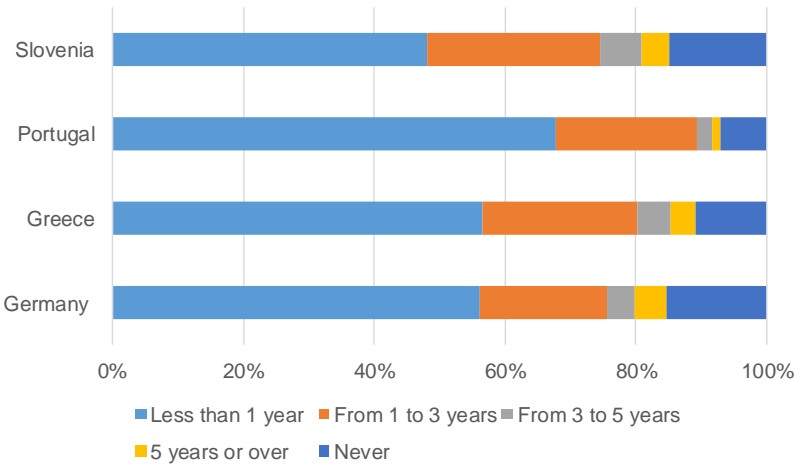
Figure 6.104 - Figure 6.106 concern self-reported screening of cardiovascular disease and diabetes risk. In blood pressure measurement (Figure 6.104), the 'less than 1 year' responses are higher in Germany and Portugal (77-78%) and lower in Greece (56%). In blood cholesterol measurement (Figure 6.105, Portugal comes first (68%) and Slovenia last (48%). The values for blood sugar measurement (Figure 6.106) for less than 1 year are similar to those for blood cholesterol.

Figure 6.104 Distribution of time since last blood pressure measurement, 2014



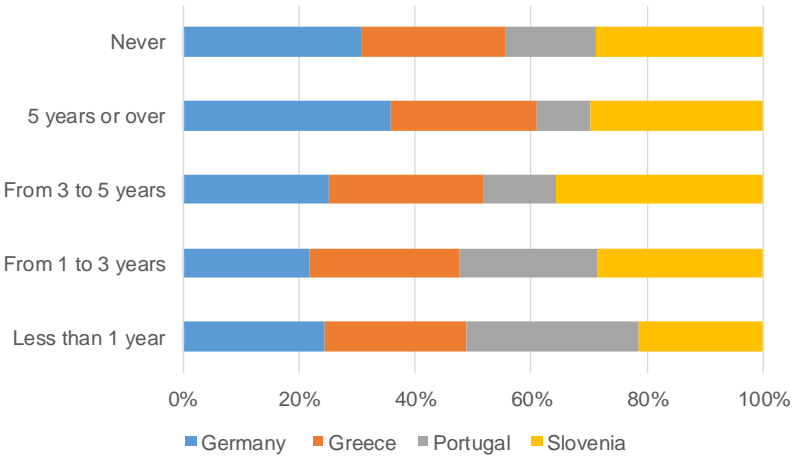
Eurostat, Self-reported screening of cardiovascular disease and diabetes risk by sex, age and educational attainment level [hlth_ehis_pa2e]

Figure 6.105 Distribution of time since last blood cholesterol measurement, 2014



Eurostat, Self-reported screening of cardiovascular disease and diabetes risk by sex, age and educational attainment level [hlth_ehis_pa2e]

Figure 6.106 Distribution of time since last blood sugar measurement, 2014

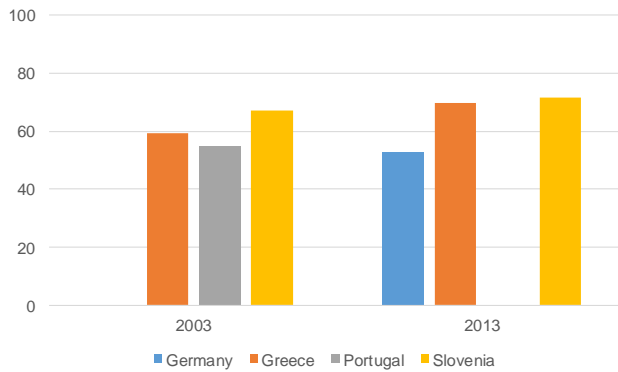


Eurostat, Self-reported screening of cardiovascular disease and diabetes risk by sex, age and educational attainment level [hlth_ehis_pa2e]

Finally, Figure 6.107 shows the percentages of cervical cancer screening in women aged 20-69, in two years. Greece and Slovenia are present for both years and an increase of 11 percentage points can be seen in Greece (from 59% to 70%). The 2013 percentage in Germany is low (53%) compared to the values for the other countries.

Figure 6.107 Cervical cancer screening in women aged 20-69, 2003 and 2013 (or latest nearest years)

Measurement of access to healthcare



OECD, Health at a glance 2015, 8. Quality of care, Screening, survival and mortality for cervical cancer

Secondary care

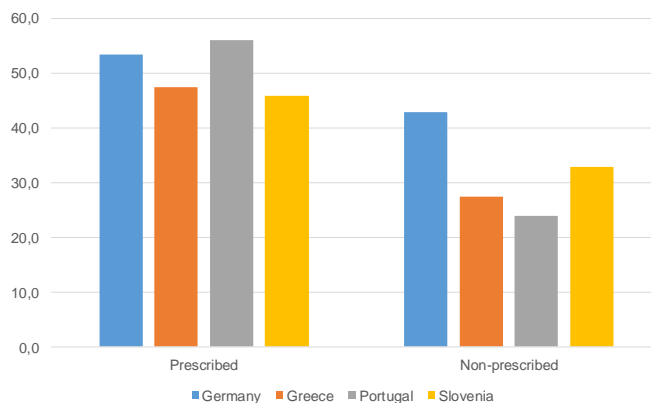
The first set of indicators in secondary care concerns medical treatments, i.e. (use of) medical products and specialist treatments.

The current indicators for medical products are:

- Self-reported use of prescribed medicines, from Eurostat;
- Self-reported use of non-prescribed medicines, from Eurostat;
- Pharmaceutical consumption, from the OECD.

The use of prescribed and non-prescribed medicines is shown in Figure 6.108 below. The highest percentage for prescribed medicines is in Portugal (56%). The use of non-prescribed medicines is generally lower, with the highest value observed in Germany (43%).

Figure 6.108 Percentage of persons reporting using medicines prescribed or not prescribed by a doctor in the past two weeks, 2014



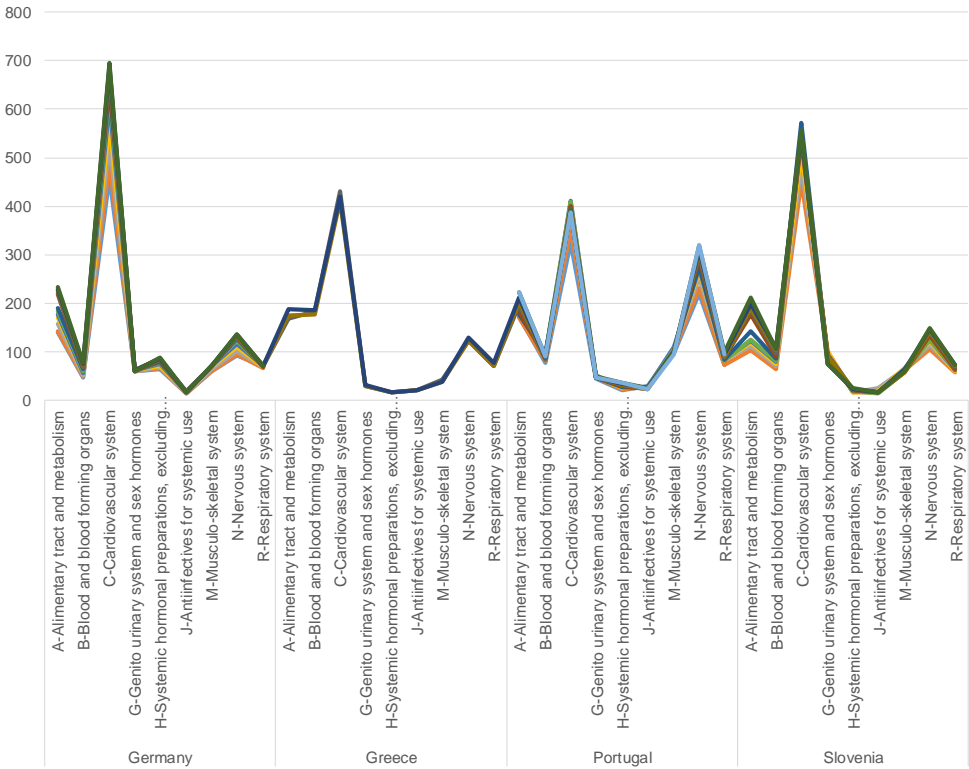
Eurostat, Self-reported use of prescribed medicines by sex, age and educational attainment level [hlth_ehis_md1e]; Self-reported use of non-prescribed medicines by sex, age and educational attainment level [hlth_ehis_md2e]

Figure 6.109 shows the pharmaceutical consumption in daily dosage per 1,000 inhabitants in the years 2005-2017. The highest consumption is in medicines for the cardiovascular system and this is largest in Germany and Slovenia (latest values

Measurement of access to healthcare

equal to 696 and 556 defined daily doses (DDDs)¹⁰⁸, respectively). This is increasing in Germany, as shown in Figure 6.110. The second largest consumption varies by country. In Germany and Slovenia, this is for drugs for the alimentary tract and metabolism, while in Portugal it is medicines for the nervous system. There are methodological differences in Greece.

Figure 6.109 Defined daily dose per 1,000 inhabitants per day for groups of medicines

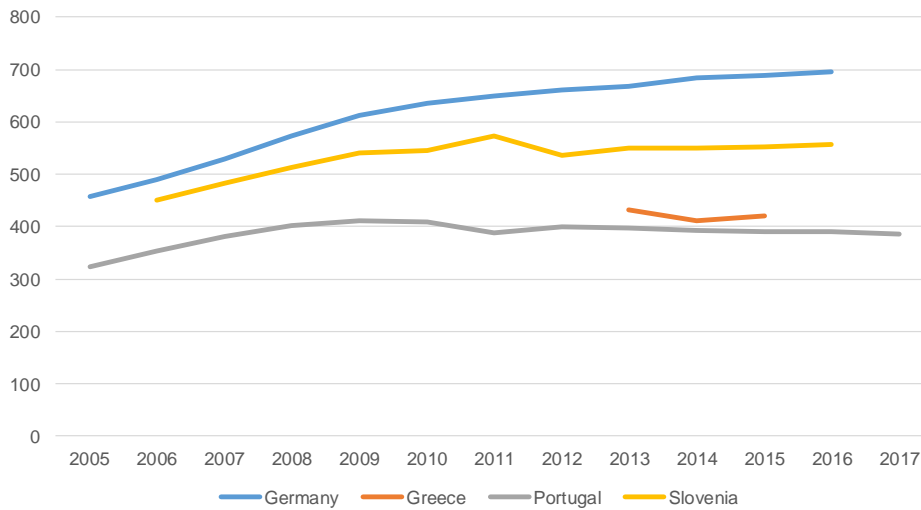


OECD, dataset: Pharmaceutical Market

¹⁰⁸ Defined daily dose per 1,000 inhabitants per day. The DDD is the assumed average maintenance dose per day for a drug used for its main indication in adults.

Measurement of access to healthcare

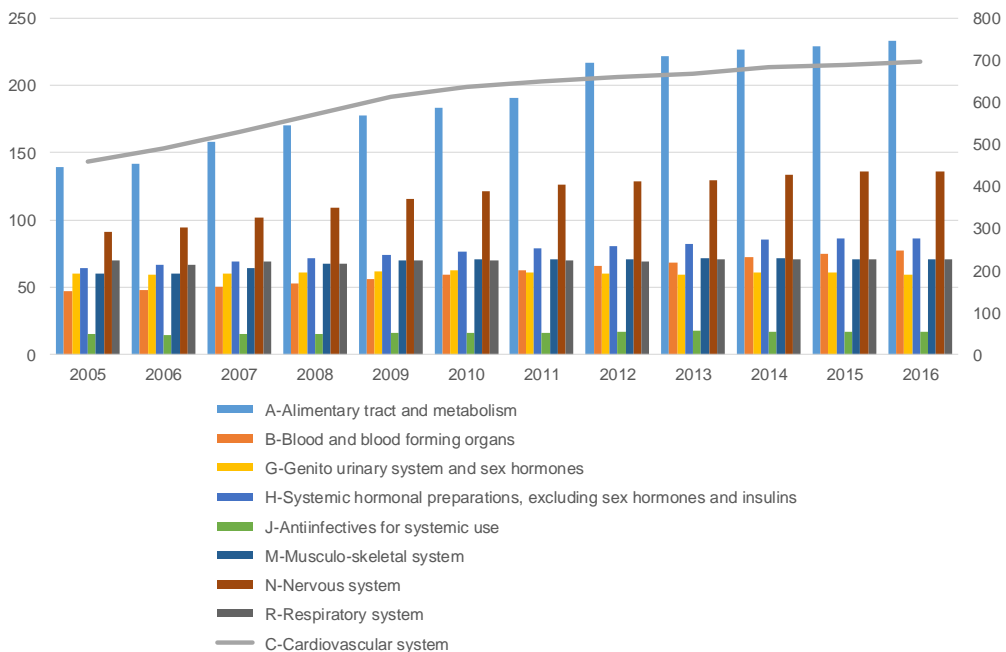
Figure 6.110 Defined daily dose per 1,000 inhabitants per day for medicines for the cardiovascular system



OECD, dataset: Pharmaceutical Market

The following figures present these pharmaceutical consumption values per country. The values for medicines for the cardiovascular system are shown as grey lines on the right axis.

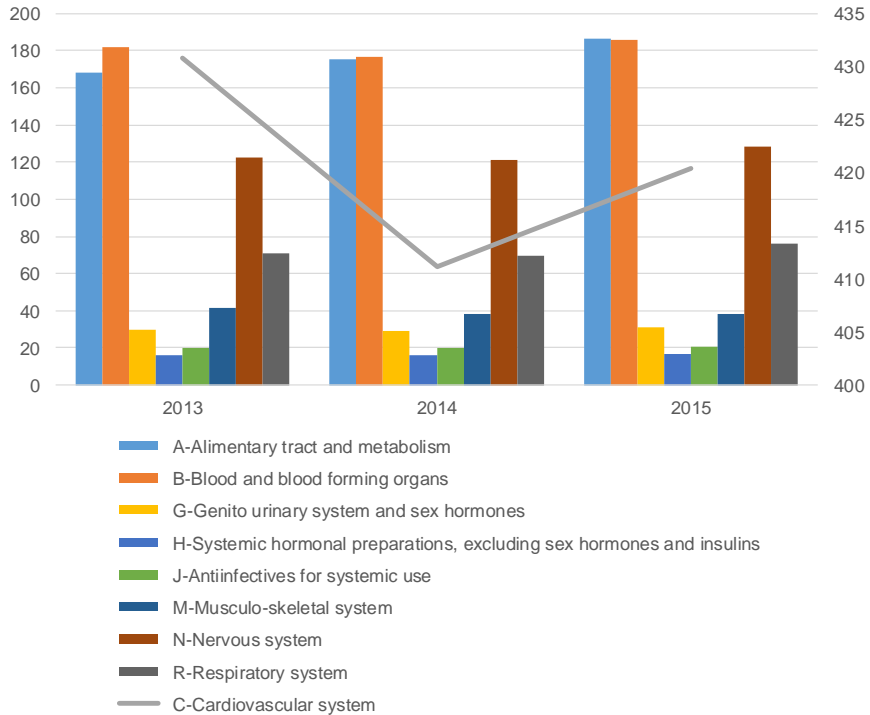
Figure 6.111 Defined daily dose per 1,000 inhabitants per day for groups of medicines, Germany



OECD, dataset: Pharmaceutical Market

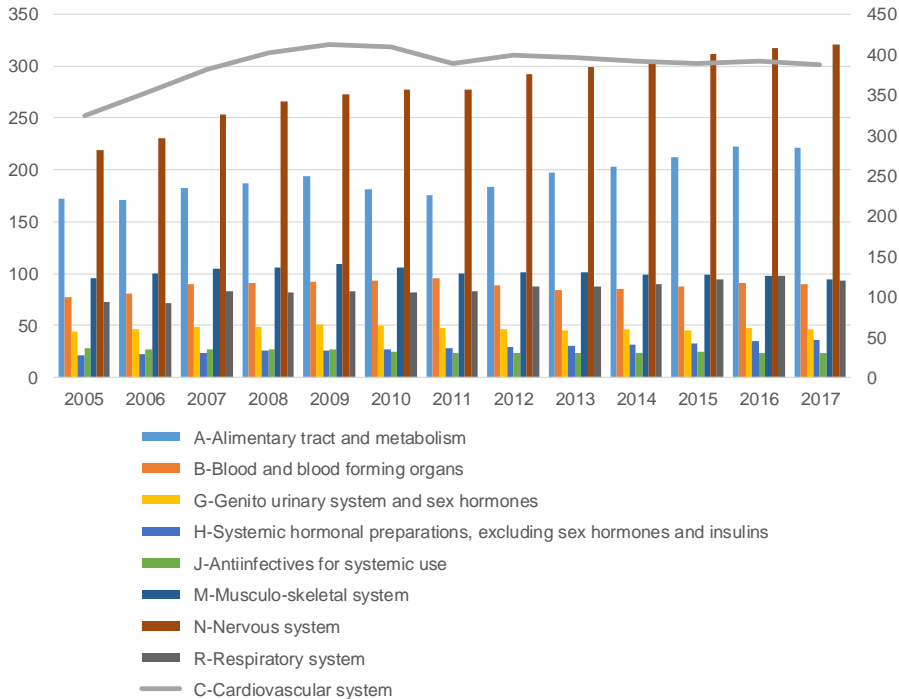
Measurement of access to healthcare

Figure 6.112 Defined daily dose per 1,000 inhabitants per day for groups of medicines, Greece



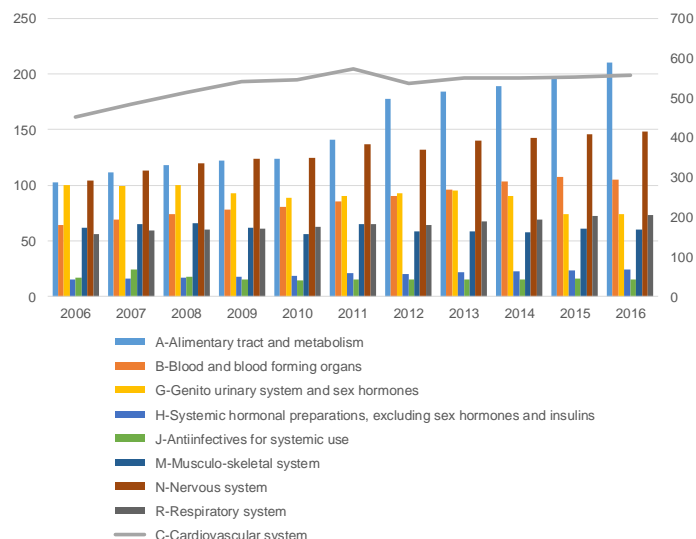
OECD, dataset: Pharmaceutical Market

Figure 6.113 Defined daily dose per 1,000 inhabitants per day for groups of medicines, Portugal



OECD, dataset: Pharmaceutical Market

Figure 6.114 Defined daily dose per 1,000 inhabitants per day for groups of medicines, Slovenia.



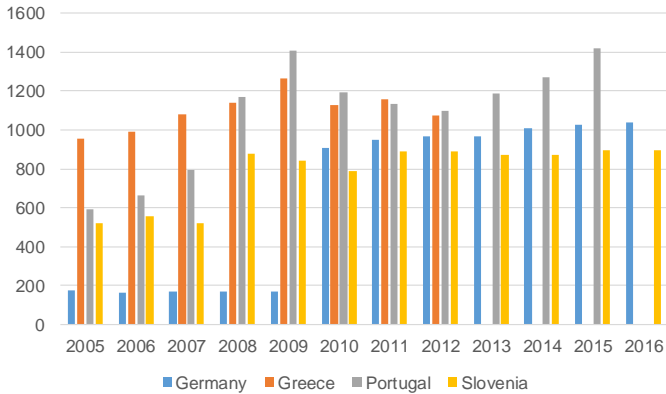
OECD, dataset: Pharmaceutical Market

The indicators for specialist treatments are:

- Cataract operations, from the OECD;
- Cardiovascular operations, from the OECD;
- Hip replacement, from the OECD;
- Knee replacement, from the OECD;
- Hospital discharges, from Eurostat;
- Surgical operations and procedures performed in hospitals, from Eurostat;
- Curative care bed occupancy rate, from Eurostat.

Figure 6.115 shows the number of cataract surgeries per 100,000 inhabitants. There is a break in the series from Germany due to a change in the methodology of data collection. The highest values in recent years are seen in Portugal (1,420 per 100,000 persons in 2015). The lowest values are observed in Slovenia (less than 900 per 100,000 persons).

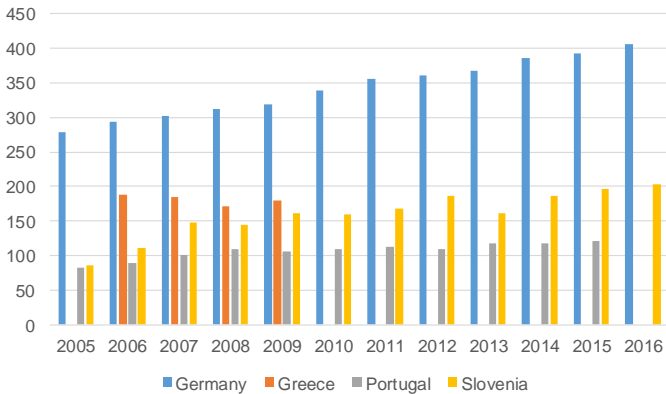
Figure 6.115 Cataract surgeries per 100,000 inhabitants



OECD, dataset: Healthcare Utilisation

On cardiovascular operations, the two figures below present values for transluminal coronary angioplasty and coronary artery bypass graft, respectively. The first are much more frequent (and increasing) in Germany, exceeding 400 per 100,000 persons in 2016. The second country, Slovenia, has almost half this value.

Figure 6.116 Transluminal coronary angioplasty operations per 100,000 inhabitants

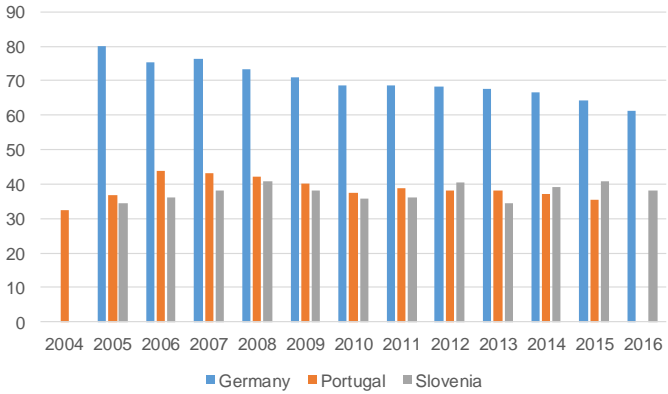


OECD, dataset: Healthcare Utilisation

A similarly significant difference is observed in coronary artery bypass graft operations, with Germany showing more than 60 operations per 100,000 persons in 2016, compared to Portugal and Slovenia with around 40 apiece. The trend in Germany is decreasing here, however.

Measurement of access to healthcare

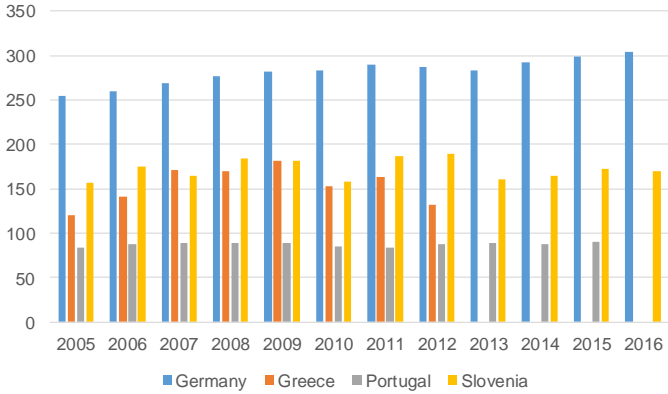
Figure 6.117 Coronary artery bypass graft operations per 100,000 inhabitants



OECD, dataset: Healthcare Utilisation

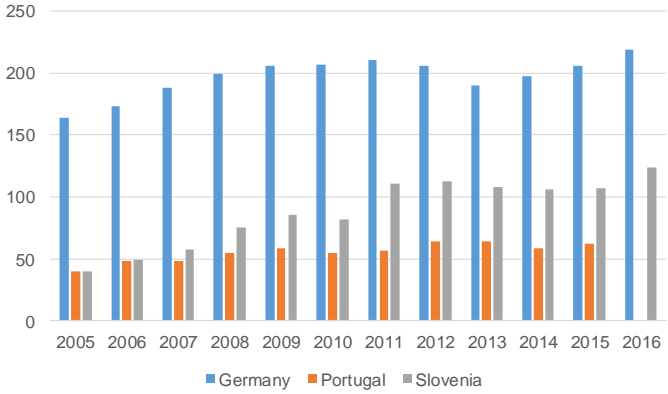
The values for hip and knee replacement operations are shown in Figures 6.118 and 6.119. The patterns mirror those seen earlier, with Germany showing the highest number of operations, at a rate almost double that of the next highest country.

Figure 6.118 Hip replacement operations per 100,000 inhabitants



OECD, dataset: Healthcare Utilisation

Figure 6.119 Total knee replacement operations per 100,000 inhabitants.

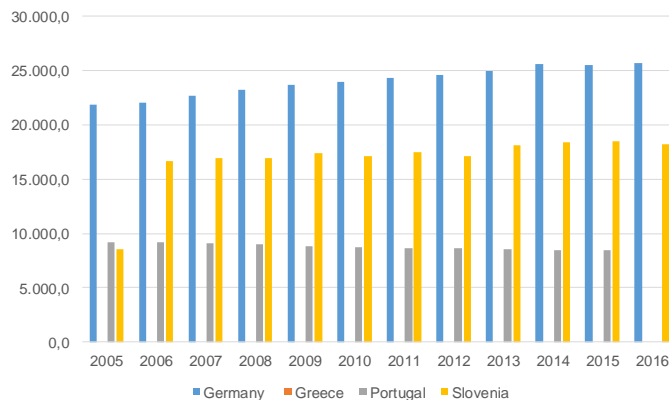


Measurement of access to healthcare

OECD, dataset: Healthcare Utilisation

For hospital discharges, totals for all causes of disease are not available for Greece. In the values per 100,000 inhabitants shown below, Germany has the highest, followed by Slovenia. Portugal has the fewest discharges.

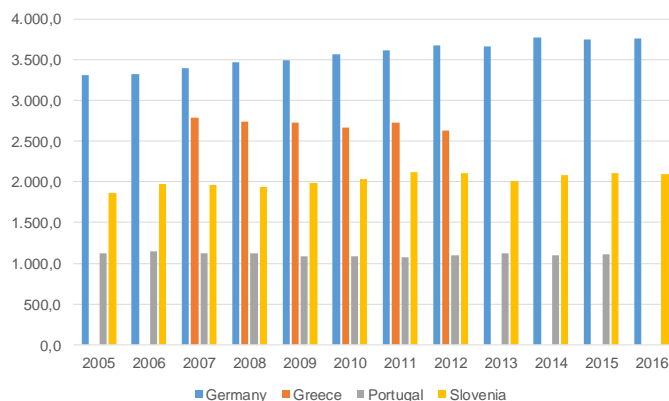
Figure 6.120 Hospital discharges per 100,000 inhabitants



Eurostat, Hospital discharges by diagnosis, in-patient, per 100,000 inhabitants [hlth_co_disch2]

The most common diseases in these discharges are those of the circulatory system. The relevant values are shown in Figure 6.121 below. The pattern is similar to that observed for the total discharges, but with Greece placing between Germany and Slovenia.

Figure 6.121 Hospital discharges per 100,000 inhabitants, diseases of the circulatory system



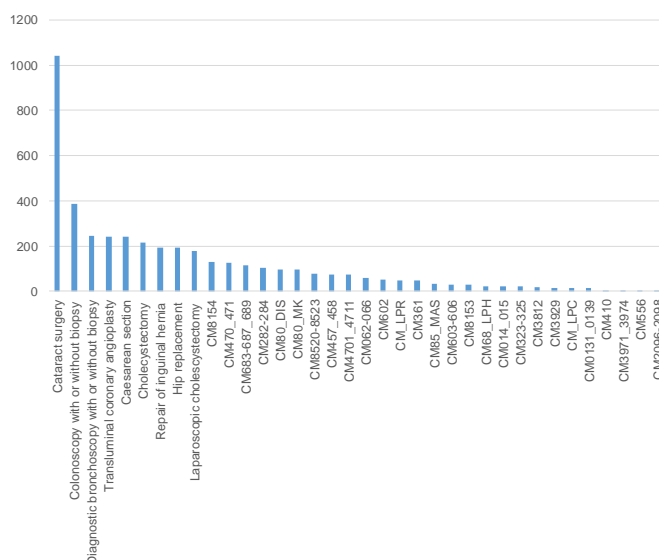
Eurostat, Hospital discharges by diagnosis, in-patients, per 100 000 inhabitants [hlth_co_disch2]

Eurostat data cover surgical operations according to the International Classification of Diseases (ICD) - clinical modification (ICD-9-CM). Figure 6.122 below shows the average number of operations per 100,000 inhabitants in the four countries in 2013-2016, per surgical procedure. The most common operation is cataract surgery. Other common procedures are:

Measurement of access to healthcare

- Colonoscopy with or without biopsy;
- Diagnostic bronchoscopy with or without biopsy;
- Transluminal coronary angioplasty;
- Caesarean section;
- Cholecystectomy;
- Repair of inguinal hernia;
- Hip replacement;
- Laparoscopic cholecystectomy.

Figure 6.122 Average number of surgical operations per 100,000 inhabitants in 2013-2016, per type of operation

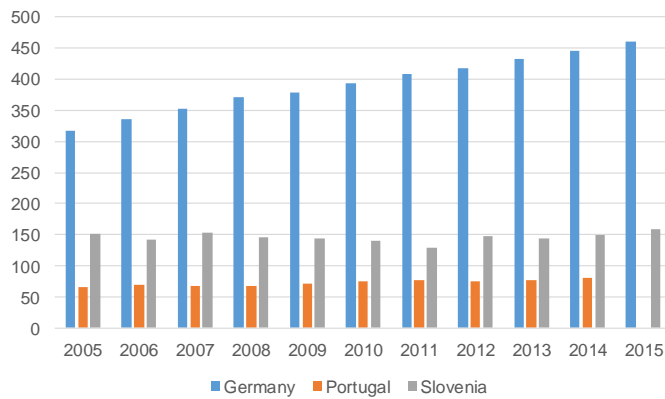


Eurostat, Surgical operations and procedures performed in hospitals by ICD-9-CM [hlth_co_proc2]

The next three figures show indicative values from three of these common procedures. Diagnostic bronchoscopies are higher in Germany, and are on the rise, exceeding 450 operations per 100,000 residents, while the next highest, Slovenia, shows around 150 per 100,000. This difference is even larger for colonoscopies, where Germany shows over 800 operations per 100,000 persons and the other countries are each well below 200. Caesarean sections are higher and increasing in Germany, but the difference from Slovenia is not that marked.

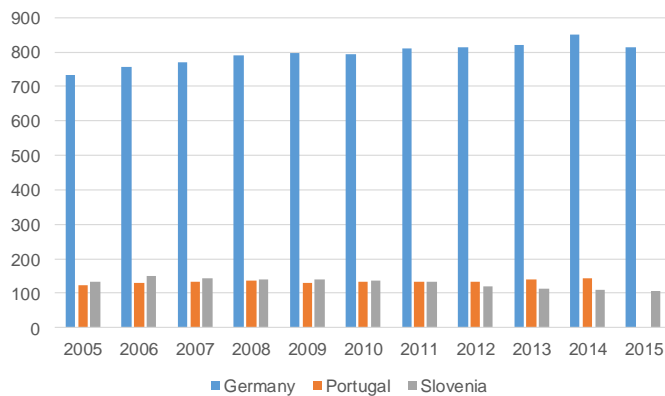
Measurement of access to healthcare

Figure 6.123 Diagnostic bronchoscopies with or without biopsy per 100,000 inhabitants



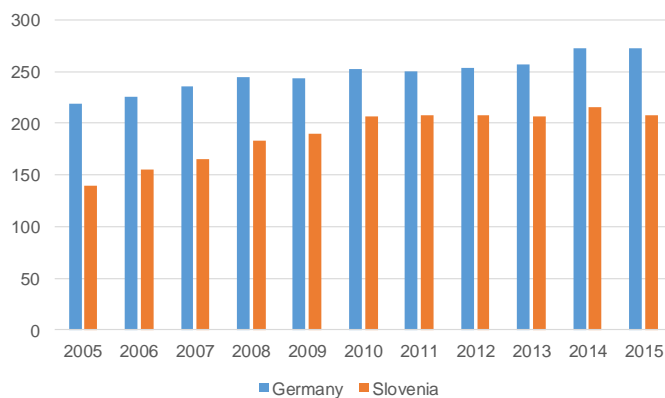
Eurostat, Surgical operations and procedures performed in hospitals by ICD-9-CM [hlth_co_proc2]

Figure 6.124 Colonoscopies with or without biopsy per 100,000 inhabitants.



Eurostat, Surgical operations and procedures performed in hospitals by ICD-9-CM [hlth_co_proc2]

Figure 6.125 Caesarean sections per 100,000 inhabitants

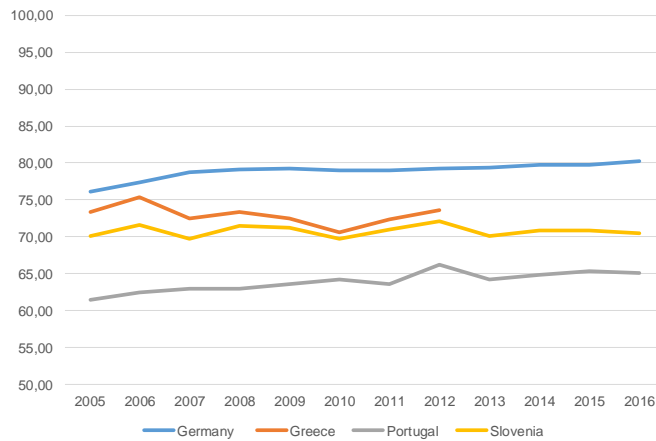


Eurostat, Surgical operations and procedures performed in hospitals by ICD-9-CM [hlth_co_proc2]

Measurement of access to healthcare

Finally, occupancy rates in curative beds are consistently higher in Germany (reaching 80% in 2016). Greece and Slovenia are in the middle, with occupancy rates between 70-75% and Portugal presents the lowest rates, at around 65% in recent years.

Figure 6.126 Curative care beds occupancy rates (%)



Eurostat, Curative care bed occupancy rate [hlth_co_bedoc]

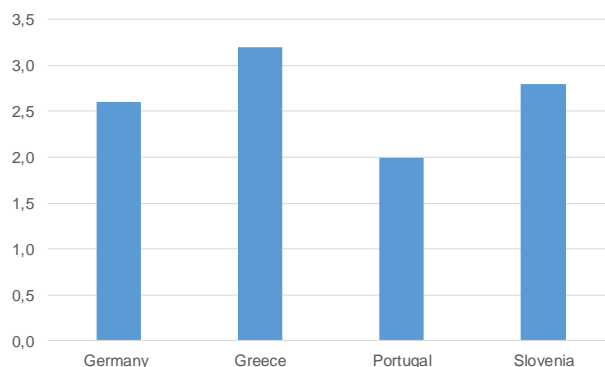
The last set of indicators in secondary care concerns emergency department use, with indicators from the WHO: the number of emergency department visits per 10,000 population per year. No relevant indicators could be found, however, either in the WHO or any other organisation.

Long-term care

The only node in long-term care contains the self-reported use of home care services, from Eurostat. This is shown in Figure 6.127.

The highest percentage is observed in Greece (above 3%) and the lowest in Portugal (2%).

Figure 6.127 Self-reported use of home care services, percentage of the population, 2014

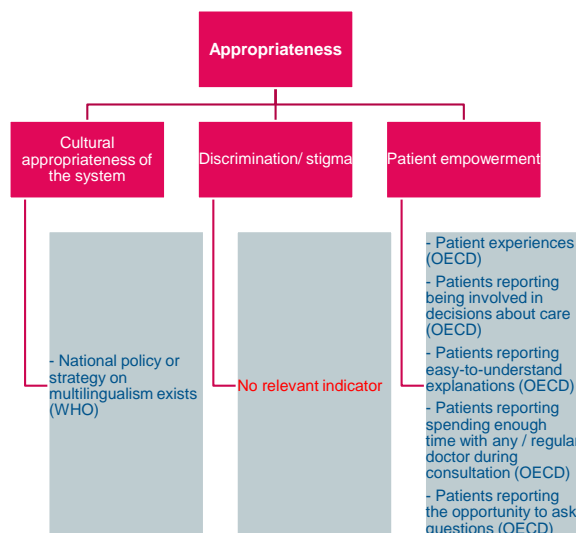


Eurostat, Self-reported use of home care services by sex, age and educational attainment level [hlth_ehis_am7e]

6.6 Appropriateness

The following figure shows the indicators in the Appropriateness dimension.

Figure 6.128 Indicators in the Appropriateness dimension



6.6.2 Cultural appropriateness of the system

The indicators in this sub-node concern the existence of a national policy or strategy on multilingualism, with data from the WHO eHealth survey. The results of the latest 2015 survey contain only one valid response, from Slovenia, which reports that such a national policy or strategy is in place. Greece reported 'Unknown' and Portugal 'Not applicable' (presumably because of the lack of a relevant need). Germany did not participate in the survey.

6.6.3 Discrimination / stigma

There are no indicators in this node, therefore a proposal was made to close this gap.



The proposal is to use the questions from the European Union Minorities and Discrimination Survey carried out by FRA in the framework of the EU-MIDIS project¹⁰⁹:

- When using healthcare services in the past five years in [country] (or since you have been in [country]), have you ever felt discriminated against for any of the following reasons? [list of reasons];
- When was the last time you felt discriminated against because of your: [tailored to target group categories; ethnic or immigrant background/Roma background/ethnic minority background] when using healthcare services?

¹⁰⁹ <http://fra.europa.eu/en/publication/2017/eumidis-ii-main-results>

Measurement of access to healthcare

- Number of experiences of discrimination when using healthcare services in the past 12 months;
- The last time you felt discriminated against because of your [tailored to target group categories; ethnic or immigrant background/Roma background/ethnic minority background] when using healthcare services, in your opinion, what were the main reasons for this? [list of reasons].

The indicator can be constructed by counting the percentage of people with immigrant/ethnic minority or other category of interest background who had a contact with the healthcare system and faced unfair treatment or discrimination.

This study did not have access to the EU-MIDIS survey microdata. The survey report mentions, however, that Greece is among the countries with the highest rates of discrimination against Roma (20% of respondents) and also against persons with a South Asian background (9%).

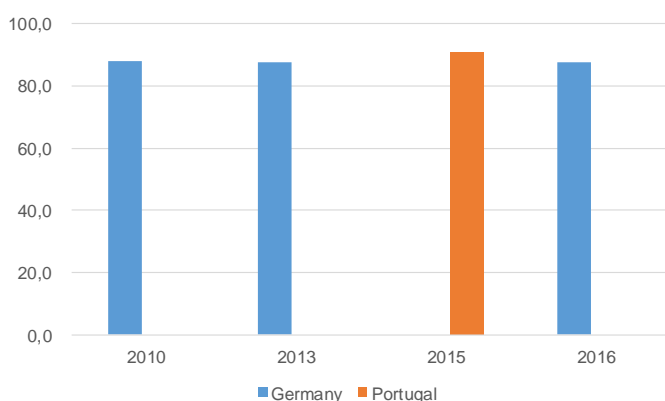
6.6.4 Patient empowerment

The indicators in the patient empowerment sub-node contain indicators from the OECD data on patient experiences:

- Patients reporting being involved in decisions about care;
- Patients reporting easy-to-understand explanations;
- Patients reporting spending enough time with any/regular doctor during consultation;
- Patients reporting the opportunity to ask questions.

Figures 6.129 to 6.130 below show the available data. In the pairs of questions which referred to any doctor and the regular doctor, the former contained answers only for Portugal in 2015 (all above 90%) and are not shown.

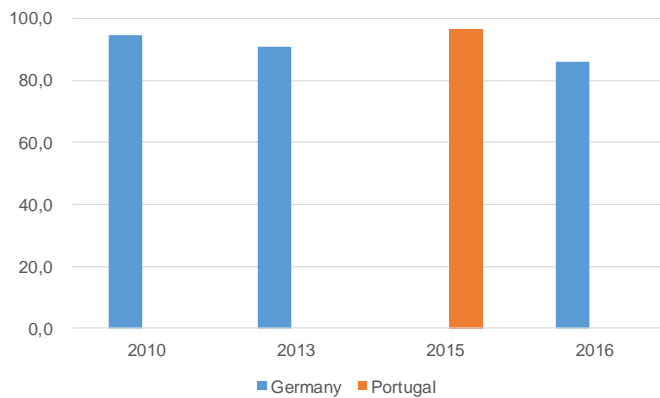
Figure 6.129 Patients reporting having been involved in decisions about care or treatment by their regular doctor (%)



OECD, Healthcare Quality Indicators

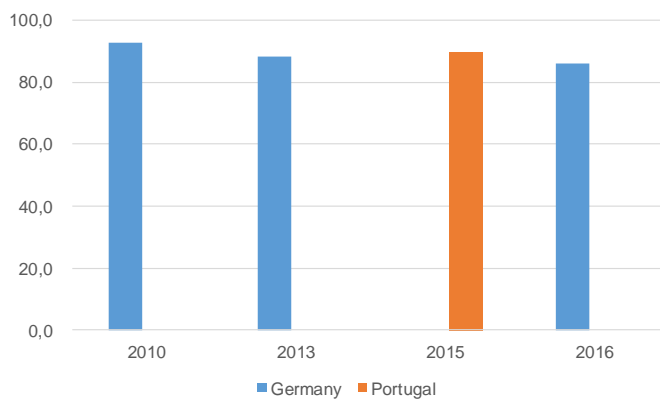
Measurement of access to healthcare

Figure 6.130 Patients reporting having received easy-to-understand explanations by their regular doctor (%)



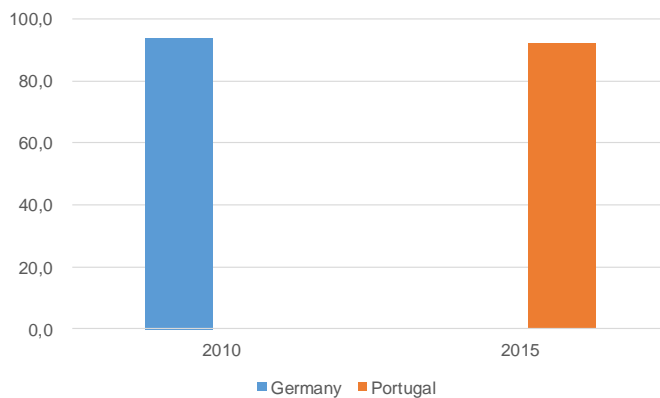
OECD, Healthcare Quality Indicators

Figure 6.131 Patients reporting having spent enough time with their regular doctor during the consultation (%)



OECD, Healthcare Quality Indicators

Figure 6.132 Patients reporting having the opportunity to ask questions or raise concerns with their regular doctor (%)



OECD, Healthcare Quality Indicators

7 Statistical comparison of access to healthcare in four countries

This section provides the statistical analysis of the test carried out for the four countries included in the pilot study (Greece, Germany, Portugal, and Slovenia), including . The analysis of indicators needs to be put in the broader context to avoid the mechanistic approach which can lead to wrong conclusions. Therefore the section presents for each of the four countries, important contextual information, including an explanation of the way in which the healthcare system is organised and funded; information on accessing healthcare, which includes available evidence on differences for groups of people and regions; information on healthcare outcomes; and, a section on future prospects which captures important policy reforms and trends which will impact on different aspects of healthcare in the future. The statistical analysis carried out on the basis of the pilot described in the previous chapter follows the contextual information and is structured around sectors of healthcare.

7.1 Greece

7.1.1 Country context

This section provides country context, potentially explaining some of the issues identified in the data analysis.

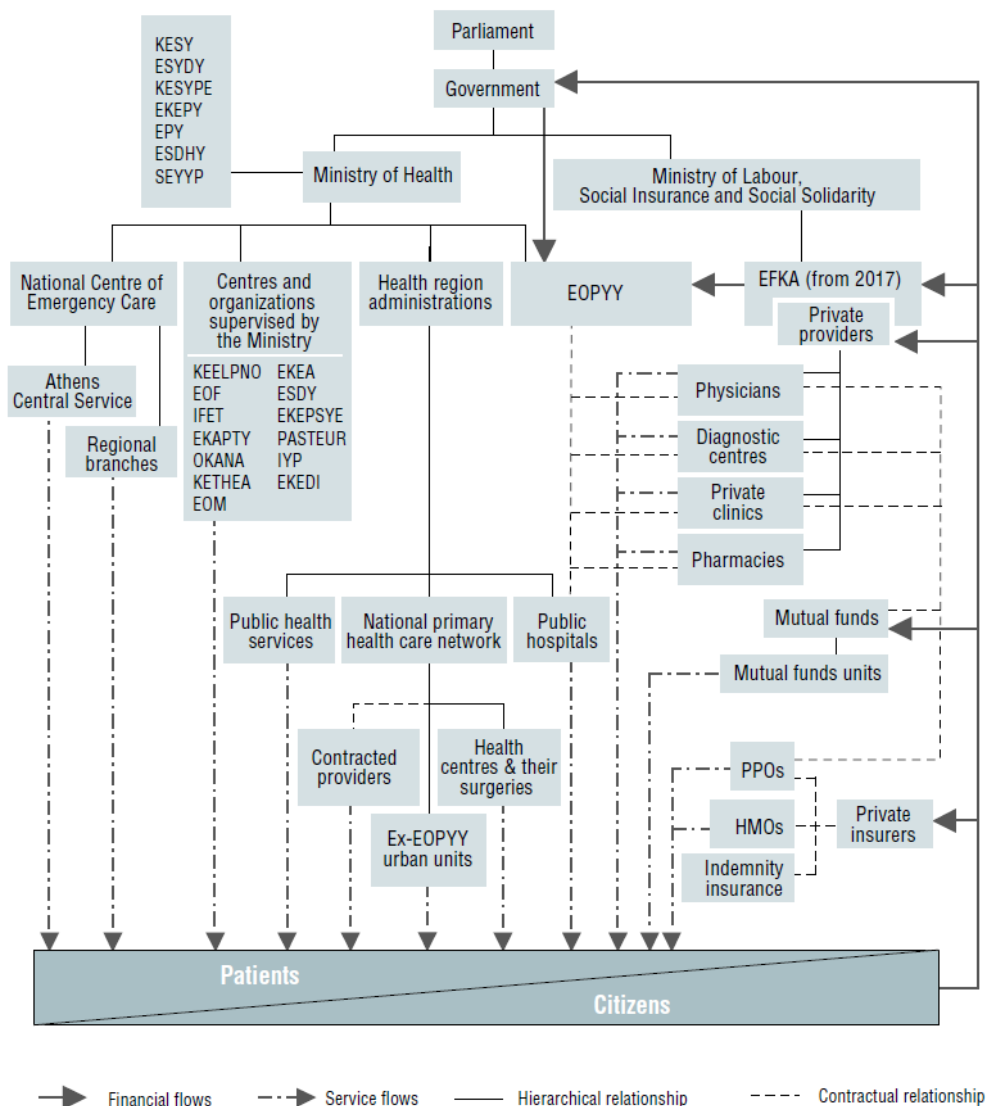
7.1.1.1 Organisation and financing

In its review of the Greek healthcare system, the European Observatory on Health Systems and Policies found it to be highly centralised and regulated by the Ministry of Health, with combined elements of public and private sectors (Economou et al., 2017). Under the supervision of the Ministry of Health, the National Organisation for the Provision of Health Services (EOPYY), a self-governing public entity, has a monopoly over the purchase of healthcare services for patients covered by all of the SHI funds from the publicly financed national health system (ESY) and the private sector. The EOPYY also strictly controls activities of third-party payers and providers of services, the purchasing process and the levels of prices and reimbursement within the ESY. The private sector, on the other hand, includes profit-earning hospitals, diagnostic centres and independent practices. A large section of the private sector provides primary/ambulatory care for the insured population, under contract to the EOPYY.

While regional health authorities (YPEs) have existed since 2001, the power to carry out healthcare planning, organisation and provision remains chiefly under the control of the central government. However, several reforms are underway to decentralise and transfer the responsibility of all public primary care facilities, health centres and rural surgeries under YPE jurisdiction. Figure 7.1 below illustrates the features of the system.

Figure 7.1 Organisation of the healthcare system in Greece

Measurement of access to healthcare



Source: Economou et al., 2017. *Health systems in transition, Greece health system review, European Observatory on Health Systems and Policies, 19(5)*

Health financing in Greece is exercised through a combination of public and private resources, including social health insurance (SHI, approx. 29%), tax (approx. 30%) private spending by users (36%), and private health insurers and other sources (approx. 4%). Healthcare professionals such as doctors and nurses employed by ESY in primary care facilities and hospitals are paid salaries, while those contracted through EOPYY are paid on a fee-for-service basis. Since 2012, both public and private hospitals are compensated under diagnosis-related groups, aimed at rationalising the use of resources.

7.1.1.2 Accessibility

According to the European Commission's country health profile on Greece (2017), the significant variation between income groups is the major cause of increases in self-reported unmet need for medical care due to cost, distance or waiting time. This rate has tripled in the last decade and is now considerably higher than the EU average (12.3% and 3.3%,

respectively). Citations of cost as the most frequently reported cause for unmet need have more than doubled between 2010 and 2015.

The high level of OOP spending in Greece (reportedly the highest in the EU) may also threaten the accessibility of healthcare. While direct OOP spending constitutes the highest share of private expenditure on health, co-payments are often added onto diagnostic and laboratory tests, outpatient medicines and visits to private providers. Long waiting lists, extra billing, monthly limits to physician consultations, fragmented public services, oversupply of private physicians and OOP fees for 'afternoon clinics' (where patients can consult hospital doctors in an approved setting) all contribute to the high prevalence of direct payments.

In addition, geographical inequities and staff shortages affect accessibility to healthcare. Despite offering financial incentives to doctors to practice in rural areas, there remains a large rural/urban variation in physicians' density. According to 2014 figures, it varied from 2.9 (per 1,000 population) in Western Macedonia and Central Greece to 8.6 (per 1,000 population) in the Attica region (including Athens).

High unemployment and emigration among doctors between 2009 and 2015 led to understaffed public facilities. Additionally, a shortage of nursing personnel has been exacerbated by the hiring freeze on all public-sector personnel, including healthcare professionals. (It should be noted that the hiring freeze was a major cause of medical understaffing as well.) The doctors who emigrated are mainly young graduates who sought specialist training positions in other EU countries, often the UK and Germany

Various administrative thresholds on physicians' activity impacts access to publicly funded healthcare. These include limits on the number of visits conducted by EOPYY contracted doctors, the number of referrals for diagnostic and laboratory tests, and a monthly ceiling on the value of pharmaceutical prescriptions issued by doctors.

The economic crisis saw the loss of health insurance care coverage of an estimated 2.5 million people due to spiralling unemployment and the inability of self-employed professionals to pay their SHI contributions. This was probably the largest proportion of the newly uninsured, in a country where SHI funds had previously covered essentially 100% of the population.

This factor, along with other barriers to accessible healthcare led to new legislation in 2016, which made access to healthcare a right for all Greek citizens, as well as irregular migrants and refugees (although it should be noted that the loss of insurance coverage means that the same people will be treated in the hospital sector; it will translate to denial of care in a small minority of cases only). Additionally, an innovative project co-financed by the EU, the National Telemedicine Network, aims to increase access to healthcare for those in remote locations.

7.1.1.3 Outcomes

Quality assurance strategies, including standard quality indicators to assess the quality of acute hospital care are not available for Greece (European Commission, 2017, Greece country health profile). The absence of standardised quality indicators makes quality committees in public hospitals ineffective. High rates of hospital-acquired infections and resistance to antibiotics have become a growing concern. Finally, a weak primary care system leads to over-reliance on specialists and in-patient care.

Despite concerns about the effectiveness of the health system, amenable (preventable) mortality has decreased steadily over the last decade, to reach just below the EU average (125 per 100,000 population, compared to an EU rate of 126), with striking variations between the rate for men and women. For treatable types of cancer, such as colorectal, breast and prostate cancers, incidence rates are two to three times lower than the EU average, with similar

mortality rates. Although there are no systematic screening programmes, the addition of a new set of diagnostic tests to reimbursable examinations will contribute to timely prevention and treatment.

Looking at causes of preventable deaths, Greece is characterised by high levels of smoking and road fatalities and low levels of alcohol consumption. Lung cancer is one of the leading causes of death for both women and men in Greece and is currently higher than the EU average (62 per 100,000 population, compared to 54 in 2014). Although there is legislation to ban smoking from the workplace and all public areas, the ban has largely been ignored, due to weak enforcement efforts. By contrast, road fatalities have decreased steadily as a result of better police enforcement of road safety measures, particularly those countering speeding and drink driving. In Greece, deaths from alcohol-related causes (5.1 per 100,000 population) are the lowest in the EU.

Overall, the Greek health system provides good vaccination coverage. For example, childhood vaccination rates at 12 months are above 96%, although there are delays in obtaining boosters and low coverage of vaccination for adolescents and specific groups, such as children in Greek Roma communities.

7.1.1.4 Future prospects

As reported in the European Commission's country health profile on Greece (2017), the Greek health system is characterised by severe fiscal constraints and declining revenues due to contracting household budgets, high unemployment and part-time employment, as well as falling wages. Additionally, the prevalence of an informal economy means that some of those in work are not paying SHI contributions. At the same time, the national health system budget, which is the other main public source of health system funding (accounting for approx. 30%) is strictly limited by imposed fiscal sustainability targets.

In terms of health system reform, various initiatives undertaken since 2013 have yielded mixed results. While the effort to reduce numbers of beds, clinics and specialist units had limited implementation, attempts to improve transparency, reduce cost of supplies and change the hospital payment system were more successful. Together, these reforms helped hospitals to rationalise their levels of spending.

Despite efforts to reduce public spending from over EUR 5 billion (2009) to under EUR 2 billion annually in 2015-17 through the Economic Adjustment Programme, current spending on prescribed and over-the-counter medicine makes up over 26% of all healthcare spending in Greece. In addition, pharmaceutical expenditure in Greece is among the highest in the EU. By contrast, there has been considerable success in reducing expenditure on purchasing of services and a decrease in the overuse of MRI and CT scans.

The Greek government is carrying out further reforms, with technical assistance from the WHO on three focused areas: universal access to quality care; transparent modern and efficient health system administration; and fair and sustainable financing to improve health system performance. There is also an increased focus on reliable information systems and monitoring tools to achieve transparency of resources and increase accountability.

The following sub-sections analyse data for preventative care, primary care, secondary care and long-term care. Where the EU average is available, this is provided. Where the EU average is not available, comparison with other countries included in the pilot is included where data are available.

7.1.2 Statistical analysis of indicators on access to preventative care

Availability

In terms of personnel, the number of GPs is lower than the EU rate per 100,000 inhabitants, with Greece at a rate of 41.95, compared to the EU rate of 104.58. It should be noted, however, that GPs are a recently introduced separate speciality, with preventative previously supplied by many providers other than GPs. For example, Greece has a higher than average total number of physicians per population, (see Section 7.2.3), some of whom are internal medicine or paediatric specialists working in primary care, thus compensating for the small number of specialist GPs. By contrast, the number of dentists in Greece per 100,000 inhabitants in 2015 outstripped the EU average, at 122.92 and 70.17, respectively.

Affordability

Healthcare expenditure on providers of preventative care (adjusted for Purchase Power Parity, or PPP, per inhabitant)¹¹⁰ was 4.84 in 2016, compared to an EU average of 24.61. Healthcare expenditure for preventative care (PPP per inhabitant) was 20.97 in 2016, compared to an EU average of 66.44. It may be that some preventative services are covered in other expenditure but it may also be that this type of expenditure was most impacted by austerity measures in recent years.

Adequacy

In terms of health behaviours, BMI data for 2014 show that Greece is slightly lower than the EU average for both the share of the population that are underweight and the share of the population considered to be normal weight. A higher share of the population in Greece is overweight (55.5%), compared to the EU average (50.2%).

A similar percentage of the population (20.9%) report high blood pressure compared to the EU average (21%). However, tobacco consumption in Greece is higher (27.3%) than the EU average (19.2%).

The percentage of the population that do not consume vegetables is 30.1%, lower than the EU average of 34.4%. However, the share of the population consuming 5+ portions of vegetables per day is lower in Greece (7.8%) than the EU average of 14.3%. Alcohol consumption in Greece is lower than the EU average, with 6.9% consuming alcohol every day, compared to the EU average of 9.2%. However, the physical activity rate in Greece (7.3%) is lower than the EU average of 12.6%.

With respect to population-wide outcomes, the infant mortality rate in Greece was 4.2 deaths per 100,000 inhabitants in 2016, compared to the EU average rate of 3.6 deaths per 100,000 inhabitants.

2015 NCD mortality data shows that there were 249.99 deaths per 100,000 inhabitants from all types of cancers, compared to an EU average of 260.60 deaths per 100,000 inhabitants. The rate for lung cancer (61.77) is higher than the EU average (53.98).

The rate of mental and behavioural illnesses in Greece (9.09 per 100,000 inhabitants) is significantly lower than the EU average (43.44 per 100,000 inhabitants); the ischaemic heart disease mortality rate is also lower than the EU average (101.2 per 100,000 inhabitants in

¹¹⁰ Purchasing power parities (PPPs) are indicators of price level differences across countries. They indicate how many currency units a particular quantity of goods and services costs in different countries.

Measurement of access to healthcare

Greece, compared to the EU average of 127.39). By contrast the mortality rate for cerebrovascular diseases in Greece is higher (117.6) than the mortality rate for the EU (85.05).

Data for 2014 show that, in Greece, the percentage of the population reporting the following ailments are all below the EU average: arthrosis; low back disorder or other chronic back defect; neck disorder or other chronic neck defect; high blood pressure; urinary incontinence, problems with bladder control; allergies; and chronic depression.

The only condition for which Greece is above the EU average is diabetes (9.20% in Greece, compared to the EU average of 6.90%).

In terms of self-reported health, data for 2016 show that 73.9% of people in Greece report their health as good or very good. By contrast, 10.4% of people report their health to be bad or very bad (15.7% report their health as fair).

Self-reported activity limitation data for 2014 show that, in Greece, 62.7% of people reported no limitations (the EU average is not available but the rate in Germany is higher than Greece, at 64.9. By contrast, both Portugal, at 60.30% and Slovenia, at 50% have lower rates). In Greece, 25.3% reported moderate limitations and 12% reported severe limitations.

Accessibility

Considering immunisation coverage, data for 2017 estimate immunisation coverage in Greece at 75.58%. In 2014, the percentage of self-reported vaccination against influenza in Greece is 30% in 2014, compared to an EU average of 17.7%.

7.1.3 Statistical analysis of indicators on access to primary care

Availability

For equipment and medical products, the number of CT scanners per 100,000 inhabitants in Greece (3.67) is higher than the rate for the EU (2.30). Similarly, the rate of MRI units per 100,000 inhabitants in Greece (2.66) is higher than the EU average (1.44).

Affordability

In terms of healthcare expenditure, data for 2016 show that expenditure for providers of ambulatory care in Greece, adjusted for PPP, is 294.24, compared to an EU average of 578.25. Whilst it cannot be accurately quantified, it is possible that this expenditure is low due to relatively high rate of OOP and private expenditure in Greece.

Regarding OOP expenditure, in Greece the level of co-payment/deductibles per inhabitant is 569.98, higher than the EU average of 479.03.

Timeliness

Waiting time data for 2017 in Greece show the share of respondent self-reporting unmet need for medical examination due to waiting lists at 1.5%. This is higher than the rates for Germany (0.1%) and Portugal (0.3%), but lower than the rate for Slovenia (3.3%).

Accessibility

Potential accessibility

Measurement of access to healthcare

In terms of the geographical distribution of resources, data in 2016 on the rate of generalist and specialist medical practitioners per 100,000 inhabitants shows Greece at 0.34%, which is higher than the rate for Germany (0.16), Portugal (0.28) and Slovenia (0.24). Some of this difference may be attributed to problems in accessing care in islands and isolated mountain communities in Greece.

On the available hospital beds per 100,000 inhabitants, the rate in Greece is 0.30, lower than Portugal (0.47) but higher than for Germany (0.18) and Slovenia (0.25).

On tele-medicine indicators in Greece, in 2015:

- There was no telehealth in national eHealth policy or strategy;
- No healthcare organisations used social media to help to manage patient appointments;
- There was a national pilot programme for remote patient monitoring programmes;
- There were local pilot mHealth programmes for health call centres/healthcare telephone helpline;
- There were also intermediate mHealth programmes for mobile telehealth.

In terms of transport availability, the percentage self-reported unmet need due to travel distance in Greece was 6.9% in 2014, far higher than the EU average of 3.6%. On access to facilities, the average satisfaction with GP facilities reported in 2016 in Greece was 6.5%, lower than Germany (8.5%), Portugal (7.2%), and Slovenia (8%).

Revealed accessibility

Data for 2014 on self-reported consultations of a medical professional for Greece showed that 61.3% had no contact, compared to an EU average of 58.1%, while 24% had one contact, compared to an EU average of 21.9%. There were 9.1% with two contacts, compared to an EU average of 11.0%. In Greece, 5.7% had three or more contacts, compared to the EU average of 9.1%. However, it should be noted that Greece is in the midst of a reform to generalise family doctors in the role of gatekeepers. Statistics during the transition phase may be inaccurate.

In 2016, the share of inhabitants of Greece that reported consultation of a medical doctor (in private practice or as an outpatient) was 3.95%. This is lower than the EU average of 6.62%.

In terms of diagnostic procedures, the data for Greece in 2014 show that:

- 28.2% had self-reported breast examinations less than one year ago, compared to an EU average of 38%. Similarly, 38.4% had never self-reported for a breast examination, far higher than the EU average of 11.3%.
- 39.3% had self-reported for a cervical smear test less than one year ago, compared to an EU average of 30.5%, while 21.3% of respondents had never self-reported for a cervical smear test, compared to an EU average of 20.1%.
- 6.6% had self-reported for a colorectal cancer test less than one year ago, compared to an EU average of 10.4%. Similarly, 80.1% had never self-reported for a colorectal cancer test, compared to an EU average of 70.2%.

In terms of self-reported screening of cardiovascular disease and diabetes risk, the data for Greece in 2014 show that:

- 55.7% of respondents reported that it was less than one year since their last blood pressure measurement, compared to an EU average of 66.9%. In Greece, 15.1% of

Measurement of access to healthcare

respondents reported that they had never had a blood pressure measurement, which is higher than the EU average (5.7%).

- 56.7% of respondents reported that it was less than one year since their last blood cholesterol measurement, compared to a lower EU average of 50.4%. 11% reported never having had a blood cholesterol measurement, compared to an EU average of 18.2%.
- On blood sugar measurement, 56.3% of respondents reported having had such a test less than one year ago. The EU average was 51%. 12% of respondents stated that they had never had such a test, compared with an EU average of 16.9%.

7.1.4 Statistical analysis of indicators on access to secondary care

Availability

Data for 2016 show that there were 490.34 medical practitioners per 100,000 inhabitants, far higher than the EU rate of 255.02. However, the rate of health personnel employed in hospitals per 100,000 inhabitants is lower in Greece than across the EU, at 879.56 and 1317.95, respectively.

For facilities, data for 2016 show Greece to have 357 curative care beds per 100,000 inhabitants, lower than the EU average (395.34).

Affordability

In Greece, the analysis of data on the level of expenditure on healthcare for curative care (PPS per inhabitant) in 2016 was 990.96, lower than the EU at 1098.27¹¹¹.

The PPS for health expenditure in hospitals in 2016 was also lower in Greece (719.73) than the EU average (907.84).

In terms of treatment skipped due to costs, there are three relevant indicators.

Firstly, data for 2016 show that the percentage of people that self-reported unmet need due to costs was 12%, significantly higher than the EU average of 0.2% (2015). Secondly, data on the rate of patients that skipped prescribed medicines due to cost was not available for Greece. Lastly, in 2014, the percentage of those reporting that they could not afford prescribed medicines in Greece was 14.9%, again significantly higher than the EU average of 4.6% (2015).

Potential accessibility

On the geographical distribution of resources, in 2016, the rate per 100,000 inhabitants was 0.30 in Greece, 0.18 in Germany, 0.47 in Portugal and 0.25 in Slovenia. The EU average was not available.

For physical accessibility, in terms of transport availability, data for 2014 show that in Greece, the rate of self-reported unmet need due to travel distance was 6.9%. The EU average was 3.6%.

¹¹¹ In this respect, it should be noted that a perennial problem in healthcare data is the existence of arrears and unpaid bills by the State, leading to expenditure on a cash basis being lower than that on accrual. Good accrual data would be best here, but this is harder to obtain.

Measurement of access to healthcare

In 2016, Greece's mean average response (on a scale from 1 ('very dissatisfied') to 10 ('very satisfied')) on average satisfaction with GP facilities was 6.5. Although the EU average was not available, the rates for Germany (8.5), Portugal (7.2) and Slovenia (8) were all higher.

Revealed accessibility

The 2014 rate for self-reported use of prescribed medicines was 47.4%, lower than the EU average of 48.6%. The rate for self-reported use of non-prescribed medicines in Greece was 27.5%, lower than the EU average of 34.6%.

Data on special treatment in Greece show the following:

- For cataract operations there were 1074.9 (2012) procedures per 100,000 population. For Germany, this was 1040.8 (2016), for Portugal it was 1418.8 (2015), and for Slovenia it was 893.3 (2016). The EU average was not available.
- For cardiovascular operations, in Greece there were 179.8 transluminal coronary angioplasty operations per 100,000 population in 2009. This is a lower rate than Germany (406.2 in 2016) and Slovenia (202.5 in 2016), but a higher rate than Portugal (121.3 in 2015). No data were available on coronary artery bypass operations in Greece.
- There were 131.6 (2012) hip replacement operations per 100,000 population in Greece, a lower rate than that of Germany (304.4 in 2016) and Slovenia (169.8 in 2016), but higher than that of Portugal (90.6 in 2015).
- No data were available on knee replacement operations in Greece.

There were no data available on the rate of discharges for in-patients.

In Greece, the 2016 curative care bed occupancy rate was 73.6% (2012). Although the EU average is not available, this rate is lower than that of Germany (80.2 in 2016), but higher than Portugal (65.1 in 2016) or Slovenia (70.5 in 2016).

7.1.5 Statistical analysis of indicators on access to long-term care

Availability

Data for 2016 show that there were 404.11 nursing and care professionals per 100,000 inhabitants, which is far lower than the rate for Germany and Slovenia for 2015 (the EU average is not available). By contrast, the rate of providers of informal care (per 100,000 inhabitants) is higher in Greece than Germany and Slovenia (the EU average is not available). When considering these data, it should be noted that the nature of the market in Greece is quite different to other countries, being a substantial and largely undocumented private market. There is also undercounting in public provision.

Data for 2015 show that the long-term care beds in nursing and residential care facilities per 100,000 inhabitants in Greece was 16.75, significantly lower than Germany (1137.2). As noted above, there is a wide distribution in data between countries (this may be because there are no agreed definitions of 'nursing and residential care facilities' and because the social organisation of long-term care differs considerably between countries). As a result, the EU average was not calculated.

Affordability

2016 data for Greece show healthcare expenditure for long-term care (PPS) at 23.08, significantly lower than the EU average of 318.52. OOP expenditure (PPS) is 569.98, slightly lower than the EU rate of 578.25.

Accessibility

Revealed accessibility

In Greece in 2014, the self-reported rate of use of home care services was 3.2%. This is lower than the EU average of 4%. The rate for Germany was 2.6%, for Portugal it was 2%, and for Slovenia the rate was 2.8%.

7.2 Germany

7.2.1 Country context

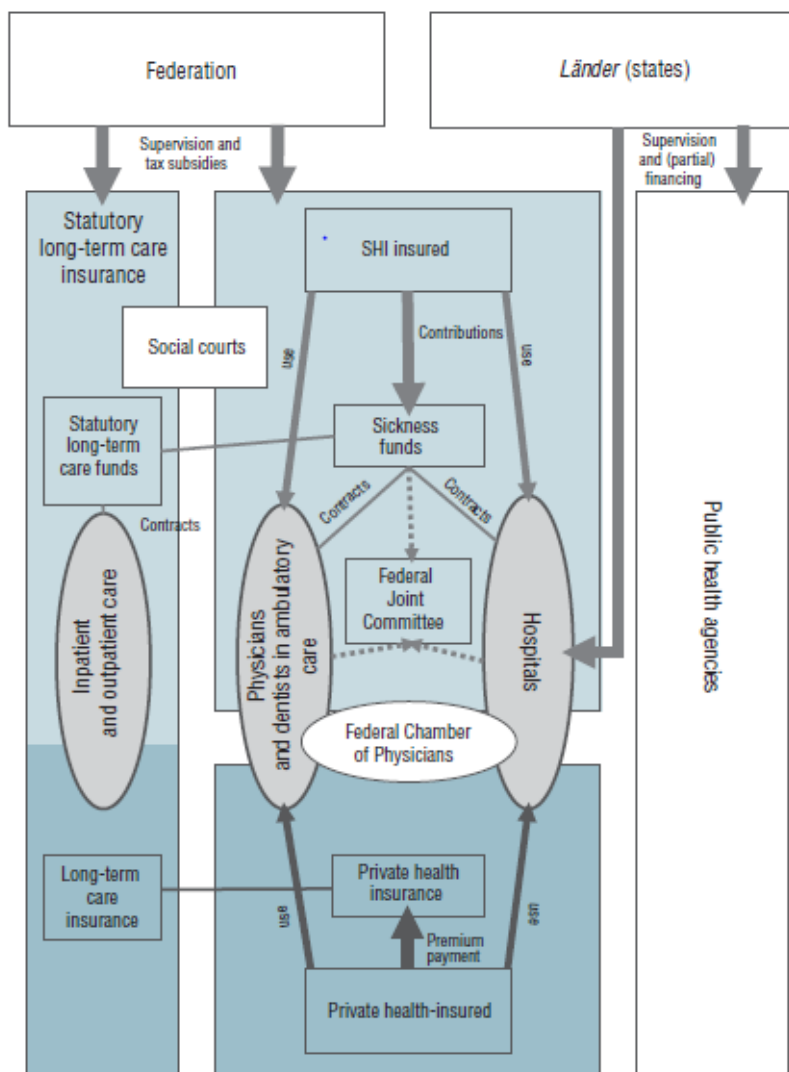
This section provides country context, potentially explaining some of the issues identified in the data analysis.

7.2.1.1 Organisation and financing

The German health system review (Busse & Blumel, 2014) found that decision-making powers are shared between national (federal) and state (Land) levels. The legal framework of the health system is defined at the federal level, with regulatory details specified by the Federal Joint Committee, composed of representatives of sickness funds, physicians/dentists, hospitals and three independent members (European Commission German country health profile, 2017). Governments traditionally delegate competence to membership-based, self-regulated organisations of payers and providers. Since 2009, health insurance has been mandatory for all citizens and permanent residents, through either statutory or private health insurance.

The German system strictly separates the ambulatory care sector (dominated by office-based, often single-operator physicians and regional associations of SHI physicians) and the hospital sector, which still concentrates on in-patient care. Figure 7.2 **Error! Reference source not found.** illustrates the features of the system.

Figure 7.2 Organisational relationship between SHI and private health insurance (PHI) for long-term care and the public health system in Germany



Source: Busse, R. & Blumel, M., 2014. Health systems in transition, Germany health system review, European Observatory on Health Systems and Policies, 16(2)

SHI (Gesetzliche Krankenversicherung) is the major source of finance for healthcare, covering 70 million people or 85% of the population in 2012. The insured population is made up of 35% mandatory members (without pensioners), 18% dependents of mandatory members, 21% pensioners, 2% dependents of pensioners, 5% voluntary members and 4% dependents of voluntary members (Bundesministerium für Gesundheit, 2013a).

Private health insurance (PHI) is mandatory for certain professional groups (e.g. civil servants), while for others it is, under certain conditions, an alternative to SHI (self-employed and employees above a set income threshold). In 2012, around 8.9 million people (10.9% of the population) were covered by substitutive PHI. While SHI and PHI use the same providers, the provider payment under PHI is higher than that of SHI. Also, the two follow different rules for funding: contributions to SHI, for example, are wage-related, while PHI contributions depend on individual health risks (European Commission Germany country health profile, 2017).

7.2.1.2 Accessibility

Germany provides near universal health coverage (99.9%), afforded by a combination of SHI, PHI and special schemes. Those insured by SHI receive a wide range of benefits, which, alongside individual funds, includes dental care and alternative medicine such as homeopathy and acupuncture, as well as all licensed prescription medicine.

The OOP expenditure in Germany (13% of total health expenditure) is below the EU average (15%). OOP spending accounts for only 1.8% of total household consumption. The largest amount of OOP spending in Germany is related to medical goods, accounting for 37% in 2015. Long-term care also accounts for a large proportion of OOP expenditure (33%) in addition to dental care (15%).

The high density of physicians, nurses and hospitals in Germany contributes to good service availability. About half of the population can reach a hospital within a 10-minute car ride and 99% within half an hour. GPs are also readily available, even in rural areas, where about 90% of the population live less than five kilometres away from the closest GP. The density of hospital beds and physicians is above, or close to, the average of most other EU countries. Readily available healthcare services contribute to low waiting time. Data from the 2016 Commonwealth Fund International Health Policy Survey show that only 3% of survey respondents waited two months or longer for a specialist appointment. The self-reported unmet needs are also low, amounting to 0.5% of the population who report having forgone needed care due to costs, distance to travel or waiting time.

Recent data show that self-reported unmet needs in Germany are more frequent among lower income groups than higher income groups, which may be related to the overlapping co-existence of SHI and PHI. In 2015, an estimated 0.1% of the population (79,000 people) did not have insurance due to administrative burden, problems in paying SHI premiums or PHI contributions. Asylum seekers, refugees and irregular migrants during the first 15 months of their stay in Germany faced particular problems in accessing healthcare, due to language barriers and legal hurdles.

Over the years, several reforms have taken place to improve accessibility of healthcare. The 2013 Law on Removing Social Hardship encouraged people to re-insure by cancelling their health insurance debts and lowering interest rates on payment arrears. The 2015 Healthcare Strengthening Act enabled municipalities to set up health centres and allowed hospitals in under-served areas to provide outpatient care. Physicians working in under-served areas also received financial incentives.

7.2.1.3 Outcomes

Based on the European Commission country health profile of Germany (2017), the country's health system is effective in tackling amenable mortality (e.g. deaths from breast cancer), which is lower here than the EU average for both men and women. While about 87,000 deaths (10% of all deaths) in Germany in 2014 were preventable with healthcare, this was a decrease from 12% in 2009.

Germany is among the top 10 countries with high cancer survival rates for breast, cervical and colorectal cancer. Based on self-reported data from the EHIS survey in 2014, 80.4% of women aged 20-69 reported having been screened for cervical cancer in the previous three years, while 73.5% of women aged 50-69 reported having been screened for breast cancer in the past two years. These rates have remained relatively stable over time or have improved slightly since 2000.

Preventable deaths related to alcohol, tobacco or road traffic accidents have reduced considerably in recent years. In 2014, deaths from road traffic accidents were at 4.6 (per 100,000), below the EU average of 5.8, with more men (7.3) dying from road traffic accidents than women (2.1). By contrast, alcohol-related mortality in Germany (19.4) is above the EU average (15.7). Immunisation coverage rates against measles have remained stable since about 2004, at 97%, which is close to the EU average. However, in recent years there have been occasional cases of measles outbreaks due to objections against vaccination. While in-patient mortality rates were relatively low for stroke, mortality rates were high for patients with acute myocardial infarction (based on 2017 OECD data), due to a lack of human resources and technical equipment, such as CT scanners and intensive care units.

The admission rates for COPD, congestive heart failure and diabetes are higher in Germany than the EU average. As these are generally treatable in ambulatory care, hospital admissions for these conditions should be avoidable. Despite high-level provision of disease management programmes and other forms of integrated care, the existing separation between ambulatory and hospital care has resulted in these problems, as well as affecting continuity and coordination of service provided.

Recent reforms (including through the Institute for Quality Assurance and Transparency in health Care, IQTiG) aim to harmonise existing separate programmes for quality assurance in ambulatory and hospital care.

7.2.1.4 Future prospects

The German health system is well equipped to counter potential revenue shortfalls, due to an accumulation of financial reserves of EUR 25 billion by the end of 2016 (European Commission German country health profile, 2017). Also, recent Long-Term Care Strengthening Acts and an increase in insurance contribution rates by 0.5% have been used for the future sustainability of long-term care. However, the over-provision of services, in both in-patient and outpatient care, raises concerns about the system's allocation efficiency. Germany not only has the highest rate of hip replacement surgeries (50% above average), it also provides the highest number of MRI tests per capita (70% above average) in the EU. Per capita spending on retail pharmaceuticals is also the highest in Europe. The consumption of prescribed DDDs increased by 50% between 2004 and 2015.

A shortage of specialised healthcare providers and health workers in rural areas has increased reliance on foreign doctors and nurses. Despite a high - and increasing - number of physicians and nurses in Germany, 11% of all practicing physicians in 2015 (up from 4% in 2000) and 30% of all newly registered physicians, were from outside Germany. While numbers of nursing graduates increased by one-third since 2000, approximately 12% of all active nurses are foreign-born.

Service provision is comparatively efficient in Germany, as costs per in-patient case are relatively low and have remained stable since 2005. In addition, the cost of ambulatory care for every SHI physician-patient contact is, on average, less than EUR 30, which is significant considering these contacts are with specialists. Germany successfully shifted almost 80% of prescribed pharmaceutical consumption to generics. However, the overall efficiency of the health system has room for improvement. High levels of in-patient activity for procedures such as tonsillectomies, regional variation in in-patient service provision, and discrepancies in ambulatory care spending per capita, suggest that resources could be more carefully allocated.

Governance of the health system in Germany is characterised by limited state control, in addition to a strong reliance on self-governing structures of sickness funds and care providers. The highest self-governing body, the Federal Joint Committee, defines rules for access to

benefit coverage, coordination of care, quality and efficiency. While this leads to efficiency in daily management, this structure often neglects the interests of patients and the public. Struggle over competence between the federal level and the states may prevent meaningful reform to achieve more integrated service provision, reduce over-supply of inpatient services, restructure capacities and assure equal access to healthcare in rural areas.

The following subsections analyse data for preventative care, primary care, secondary care and long-term care. Where the EU average is available this is provided. Where the EU average is not available, a comparison with the other countries included in the pilot is included.

7.2.2 Statistical analysis of indicators on access to preventative care

Availability

The number of GPs has increased in the last five years, from 92 GP per 100,000 inhabitants in 2011 to 97.8 in 2016. Similarly, the number of dentists increased from 81.9 per 100,000 inhabitants in 2011 to 85.5 in 2015.

On the availability of national screening programmes, using HPV as an example, Germany moved from organised population-based screening in 2015 to opportunistic screening in 2017. The country has an operational, multisector national NCD policy, strategy or action plan that integrates several NCDs and their risk factors.

Affordability

Healthcare expenditure on providers of preventative care (PPP per inhabitant) has fluctuated over the last 10 years, with the 2016 value (22.7) being equal to that of 2006 (the EU average in 2016 was 24.61). Healthcare expenditure for preventative care (PPP per inhabitant) has increased from 91.8 in 2006 to 122.7 in 2016, compared to an EU average of 66.44 in 2016.

Adequacy

In terms of health behaviours, BMI data show that Germany is close to the EU average for the percentage of the population that are underweight, normal weight, and overweight. However, the percentage with high blood pressure (28.5%) is higher than the EU average (21%).

Data for 2014 show a number of negative aspects. The percentage of the population not consuming vegetables was 45.2%, noticeably higher than the EU average of 34.4%. The share of the population consuming 5+ portions of vegetables per day was lower in Germany (9.9%) than the EU average of 14.3%. Alcohol consumption in Germany was slightly higher than the EU average, with 9.3% consuming alcohol every day, compared to the EU average of 9.2%. In addition, 39.6% of the German population consume alcohol every week, compared to the EU average of 29.6%. Despite these rather negative health behaviours, the physical activity rate in Germany (23.9%) is higher than the EU average (12.6%).

Population-wide outcomes are positive overall. In 2016, the infant mortality rate in the country was relatively stable, with a slight decrease in the last 10 years, from 3.8 deaths per 100,000 inhabitants in 2006 to 3.4 in 2016. Data for 2015 show that the NCD mortality rate for all cancers was 252.05 deaths per 100,000 inhabitants, compared to an EU average rate of 260.60. Interestingly, however, the rate of mental and behavioural disorders in Germany (52.6 per 100,000 inhabitants) is higher than the EU average (43.44 per 100,000 inhabitants). The same is true for ischaemic heart disease (rate of 147 per 100,000 inhabitants in Germany, compared to the EU average of 127.39).

Measurement of access to healthcare

Data for 2014 show that, in Germany, the percentage of the population reporting the following are all above the EU average: lower back disorder or other chronic back defect; neck disorder or other chronic neck defect; high blood pressure; urinary incontinence, bladder control problems; diabetes; allergies; and chronic depression. The only condition for which Germany is below the EU average is arthrosis.

In terms of self-reported health, data for 2016 show that 65.2% of people in Germany report their health as good or very good. By contrast, 8.3% of people report their health to be bad or very bad (26.5% report their health as fair).

Self-reported activity limitation data for 2014 show that, in Germany, 64.9% of people reported no limitations (the EU average is not available but the rate in Germany is higher than Greece, at 62.7%, Portugal, at 60.3% and Slovenia, at 50%). In Germany, 27.6% reported moderate limitations, and 7.5% reported severe limitations (lower than the rate of severe limitations in Greece (12%), Portugal (13.9%) and Slovenia (12.4%)).

Accessibility

Considering immunisation coverage, data for 2017 estimate immunisation coverage in Germany to be 73.75%.

In 2014, the percentage of self-reported vaccination against influenza in Germany was 21.2%, compared to an EU average of 17.7%.

7.2.3 Statistical analysis of indicators on access to primary care

Availability

On equipment and medical products, the number of CT scanners per 100,000 inhabitants in Germany (3.52) is higher than the rate for the EU (2.30). Similarly, the rate of MRI units per 100,000 inhabitants is higher in Germany (3.45) than the EU average (1.44).

Affordability

In terms of healthcare expenditure on providers of ambulatory care, data for 2016 show that expenditure in Germany, adjusted for PPP, is 1302.47, compared to an EU rate of 578.25.

For OOP expenditure, in Germany the level of co-payment/deductibles per inhabitant is 512.36, compared to an EU average of 479.03. The reported rate of treatment skipped due to cost was 2.6, compared to a rate of 8.3 (2015) in Portugal.

Timeliness

Waiting time data for 2016 show the share of respondents self-reporting unmet need for medical examination due to waiting lists at 0.1%. This is lower than the rate for Greece (1.5%), Portugal (0.3%) and Slovenia (3.3%) in 2017.

Accessibility

Potential accessibility

In terms of the geographical distribution of resources, data for 2016 on the numbers of generalist and specialist medical practitioners show 0.16 per 100,000 inhabitants in Germany. This is lower than the rate for Greece (0.34), Portugal (0.28) and Slovenia (0.24).

Measurement of access to healthcare

On the available hospital beds per 100,000 inhabitants, Germany's rate is 0.18, lower than the rate for Greece (0.30), Portugal (0.47) and Slovenia (0.25).

Germany did not participate in the WHO survey on tele-medicine therefore it is not possible to compare its situation with other countries, based on that source.

In terms of transport availability, the percentage of self-reported unmet need due to travel distance in Germany was 4.3% in 2014, slightly higher than the EU average of 3.6%.

Regarding access to facilities, the average satisfaction with GP facilities reported in 2016 in Germany was 8.5%, higher than Slovenia (8.0%), Portugal (7.2%) and Greece (6.5%).

Revealed accessibility

Data for 2014 showing self-reported consultations of a medical professional for Germany showed that 46.9% had no contact, compared to an EU average of 58.1%, while 21.8% had one contact compared to an EU average of 21.9%. There were 15.1% with two contacts, compared to an EU average of 11.0%, and 16.2% had three or more contacts, compared to the EU average of 9.1%.

In 2016, the share of German inhabitants that reported consultation of a medical doctor (in private practice or as outpatient) was 10%. This is compared to the EU average of 6.62%.

In terms of diagnostic procedures, the data for Germany in 2014 show that:

- 19.8% had self-reported breast examinations less than one year ago, compared to an EU average of 38.0%. 44.5% had never self-reported for a breast examination, compared to an EU average of 11.3%.
- 52.7% had self-reported for a cervical smear test less than one year ago, compared to an EU average of 30.5%. 14.1% had never self-reported for a cervical smear test, compared to an EU average of 20.1%.
- 19.7% had self-reported for a colorectal cancer test less than one year ago, compared to an EU average of 10.4%. 43.9% had never self-reported for a colorectal cancer test, compared to an EU average of 70.2%.

For self-reported screening of cardiovascular disease and diabetes risk, the data for Germany in 2014 show that:

- 77.6% of respondents reported that it was less than one year since their last blood pressure measurement, compared to an EU average of 66.9%. 2.3% of respondents reported never having had a blood pressure measurement. The EU average was 5.7%.
- 56.1% of respondents reported that it was less than one year since their last blood cholesterol measurement, while the EU average was 50.4%. 15.4% reported never having had a blood cholesterol measurement undertaken. The EU average was 18.2%.
- For blood sugar measurement, 55.8% of respondents reported that they had such a test less than one year ago. The EU average was 51%. 14.9% stated that they had never had such a test, compared with an EU average of 16.9%.

7.2.4 Statistical analysis of indicators on access to secondary care

Availability

Data for 2016 show that there were 321 specialist medical practitioners per 100,000 inhabitants, far higher than the EU average of 255. Similarly, the number of health personnel employed in hospitals per 100,000 inhabitants is also higher in Germany than across the EU (1,626 in Germany compared to the EU average of 1,318).

Measurement of access to healthcare

For facilities, data for 2016 on the number of curative care beds per 100,000 inhabitants show that the rate for Germany (605.62) is far higher than the rate for the EU (395.34).

Affordability

In terms of healthcare expenditure, data for Germany in 2016 show the level of expenditure on healthcare for curative care (PPS) was 1999.35, greater than the EU rate of 1098.27.

The PPS for health expenditure in hospitals in 2016 was also higher in Germany (1202.14) compared to the EU average (907.84). In terms of treatment skipped due to costs, there are three relevant indicators.

- Data for 2016 show that the percentage of people that self-reported unmet need due to costs was 0.2%, the same as the EU average of 0.2% (2015).
- Data from 2016 show the rate per 100 patients for those that skipped prescribed medicines due to cost was 3.2, lower than the rate for Portugal of 10.1 (2015). The EU average is not available.
- In 2014, the percentage of those reporting that they could not afford prescribed medicines in Germany was 3.7% (2014), lower than the EU average of 4.6% (2015).

Adequacy

With respect to amenable mortality, data for 2015 in Germany show the following:

- The 30-day mortality after admission to hospital for AMI based on unlinked data, for those aged 45+ years is 7.70 per 100 patients. Although the EU average is not available, the rate is lower than that of Portugal, at 7.90 per 100 patients, but higher than Slovenia, at 6.10 per 100 patients.
- The 30-day mortality after admission to hospital for ischemic stroke based on unlinked data, age group 45+ years is 6.20 per 100 patients. Although the EU average is not available, the rate is lower than that of Portugal, at 9.90 per 100 patients, and Slovenia, at 12.10 per 100 patients.

Accessibility

Potential accessibility

In 2016 in Germany, the geographical distribution of resources per 100,000 inhabitants was 0.18, compared to 0.30 in Greece, 0.47 in Portugal and 0.25 in Slovenia. The EU average is not available.

For physical accessibility, in terms of transport availability, data for 2014 show that, in Germany, the rate of self-reported unmet need due to travel distance was 4.3%. The EU average was 3.6%.

In 2016, the mean average satisfaction with GP facilities, on a scale from 1 ('very dissatisfied') to 10 ('very satisfied'), was 8.5. The EU average was not available but the rate for Greece (6.5) and Portugal (7.2) were both lower. By contrast, the rate in Slovenia was higher (8.0).

Revealed accessibility

In Germany, the 2014 rate for self-reported use of prescribed medicines was 53.4%, higher than the EU average of 48.6%. Similarly, the rate for self-reported use of non-prescribed medicines in Germany was also higher than the EU average (42.9% and 34.6%, respectively).

Regarding special treatment, a wide range of data are available for 2016. These data show the following:

- For cataract operations, there were 1040.8 total procedures per 100,000 population. For Greece, the rate was 1074.9 (2012), for Portugal it was 1418.8 (2015) and for Slovenia it was 893.3. The EU average was not available.
- For cardiovascular operations, Germany had 406.2 transluminal coronary angioplasty operations per 100,000 population. This is higher than Greece (179.8 in 2009), Portugal (121.3 in 2015) or Slovenia (202.5). In Germany, there were 61.4 coronary artery bypass graft operations per 100,000 population, higher than either Portugal (35.4 in 2015) or Slovenia (38.3). No data were available for Greece.
- In terms of hip replacement operations, there were 304.4 procedures per 100,000 population in Germany. This is considerably higher than Greece (131.6 in 2012), Portugal (90.6 in 2015) or Slovenia (169.8).
- For knee replacement operations, there were 218.6 procedures per 100,000 population in Germany. Data were not available for Greece but this is a higher rate than that of Portugal (62.2 in 2015) or Slovenia (124.1).

In 2016, the rate of discharge for in-patients (per 100,000 inhabitants) was 25,685.6, compared to an EU average of 17,495.9.

In Germany, the curative care bed occupancy rate was 80.2% in 2016. The EU average is not available but this rate is greater than that of Greece (73.6 in 2012), Portugal (65.1) or Slovenia (70.5).

7.2.5 Statistical analysis of indicators on access to long-term care

Availability

Data for 2015 show that there were 1,747 nursing and care professionals per 100,000 inhabitants. This is higher than the numbers in Greece and Slovenia (the EU average is not available). The rate of providers of informal care (per 100,000 inhabitants) is lower in Germany (15.5 in 2014) compared to Greece and Slovenia (the EU average is not available).

Data for 2015 show that the long-term care beds in nursing and residential care facilities per 100,000 inhabitants in Germany was 1,137.2. There is a broad distribution among countries for which these data can be obtained. The EU average is not available but the rate in Germany is notably higher than that of Greece (16.75).

Affordability

For Germany, 2016 data show healthcare expenditure for long-term care (PPS) at 679.97, significantly higher than the EU average of 318.52. OOP expenditure (PPS) is 512.36, lower than the EU average of 578.25.

Accessibility

Revealed accessibility

In Germany in 2014, the self-reported rate of use of home care services was 2.6%, lower than the EU average of 4%. The rate for Greece was 3.2%, for Portugal it was 2%, and for Slovenia the rate was 2.8%.

7.3 Portugal

7.3.1 Country context

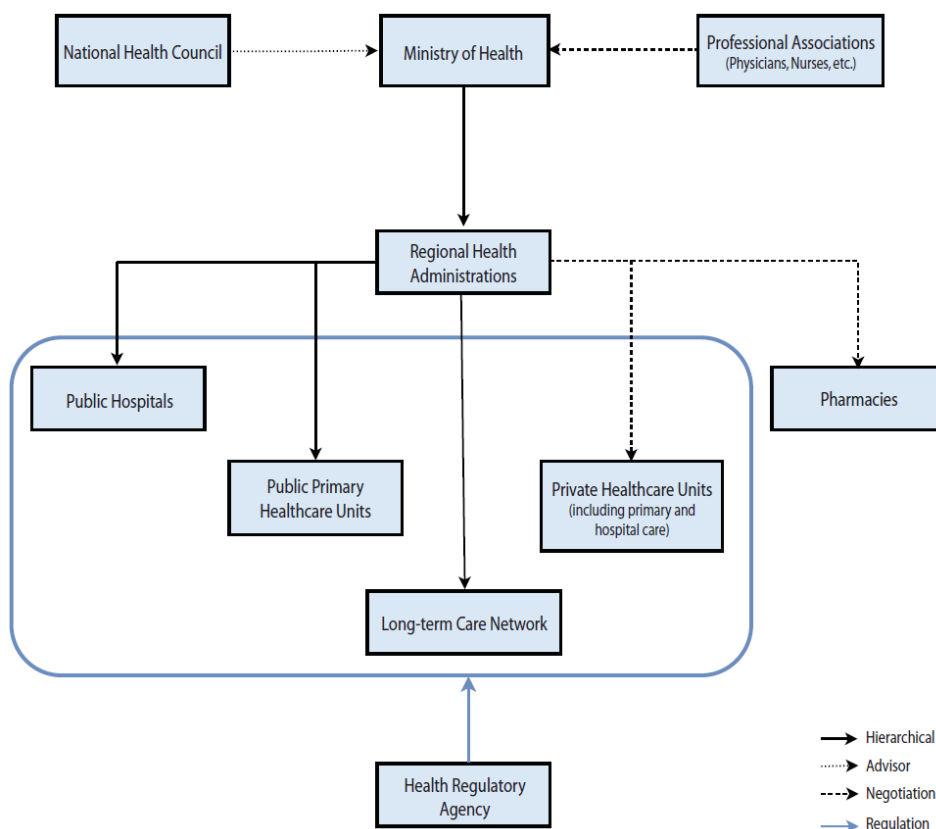
This section provides country context, potentially explaining some of the issues identified in the data analysis.

7.3.1.1 Organisation and financing

According to the European Commission's country health profile on Portugal (2017), the country's health system is composed of three co-existing systems. The national health service (NHS), financed mostly through taxation, is comprehensive and almost free at the point of delivery. NHS coverage extends to all residents, irrespective of their socioeconomic, employment or legal status. Special health insurance schemes, on the other hand, cover particular professions or sectors. These schemes, called 'health subsystems', can be either public or private. In contrast, private voluntary health insurance (VHI) is supplementary and speeds up access to elective hospital treatment and ambulatory consultations, and increases the choice of provider.

Planning and regulation of the Portuguese health system is centralised through the Ministry of Health and its institutions. The NHS is managed regionally through five regional health administrations (RHAs). According to the European Observatory on Health Systems and Policies review of the Portuguese health system (Simões et al., 2017), each RHA has a health administration board accountable to the Minister of Health and responsible for strategic management of population health, supervision and control of hospitals, management of the NHS primary care centres, and implementation of national health policy objectives. The figure below illustrates the features of the system.

Figure 7.3 Organisation of the healthcare system in Portugal



Source: Simões et al., 2017. *Health systems in transition, Portugal health system review, European Observatory on Health Systems and Policies, 19(2)*

Health services in Portugal are delivered through a mix of public and private providers (European Commission country health profile on Portugal, 2017). Primary care, for example, includes primary care units integrated within the NHS, private sector clinics (both profit and non-profit) and groups of professionals in private offices. Secondary and tertiary care is mainly provided in hospitals, while some primary care centres employ specialists to provide ambulatory (or outpatient) services. NHS doctors act as gatekeepers and refer patients for specialist care. The provision of care in the private sector includes dental consultations, diagnostic services, renal dialysis and rehabilitation services.

Recent health sector reforms through Portugal’s Economic Adjustment Programme (EAP) included reductions in pharmaceutical spending and increased use of co-payments. They also required the removal of some generous compensation schemes for health staff and promoted the use of family doctors.

7.3.1.2 Accessibility

While all residents in Portugal are covered by the NHS, administrative complexities limit access for many irregular migrants (WHO, 2014). The European Commission's country health profile on Portugal (2017) also pointed to an imbalance in the provision of care, whereby hospitals located outside metropolitan areas do not provide all specialist services. However, the high levels of investment in regional facilities in recent years seek to counteract these imbalances. Although the reported unmet medical care need due to cost, distance or waiting time (3% in 2015; equal to the EU average) is low, there is a considerable income-based disparity, with

the rate 10 times higher for the lowest income group (6.4) than for the highest income group (0.6) in 2015.

In addition to uneven geographical distribution of facilities, waiting time poses the biggest barrier to accessing healthcare in the country. Although lower than the EU average of 1.1%, 0.9% of the poorest population reported unmet need due to waiting lists/times in 2015.

While 5.4% of people from low-income households in Portugal reported an unmet need for medical examination for financial reasons in 2015 (above the EU average of 4.1% and much higher than the rate for the highest income group (0.4%)), equitable access to healthcare is achieved through exemptions on user charges. Further revisions of user charges in 2016 reduced their values and expanded the groups eligible for such exemptions.

Although the coverage of services provided by NHS is comprehensive, it does not include dental care. In 2008, the creation of dental pay cheques provided school-aged children, pregnant women and older people on social benefits with free access to dental care. Despite comprehensive coverage, OOP payments in the country represent 28% of total health expenditure (compared to an EU average of 15%). OOP payments represent 3.8% of final household consumption, compared to the EU average of 2.3%. A range of NHS services incur co-payments, although their values are typically small compared to the cost of the service. In practice, more than 55% of the population is exempt from cost-sharing in NHS provided services.

7.3.1.3 Outcomes

In Portugal, the amenable mortality reduced by 40% between 2000 and 2014, reaching below the EU average (European Commission country health profile on Portugal, 2017). However, there is a large gender difference, with much higher amenable mortality rates for men than women. Survival rates for some treatable cancers are relatively high, due to timeliness of treatment and effective screening, as well as advances in diagnosis and treatment.

By contrast, amenable mortality has room for improvement, as the current lack of inter-sectoral partnership has led to a shortage of health promotion and disease prevention initiatives. On a more positive note, tobacco control measures introduced in 2012 proved fruitful. The death rates for respiratory diseases have decreased over time, from 137 (per 100,000 population) in 2000 to 117 in 2014. Also, a recently extended National Health Plan (2012-2020) aims to reduce risk factors for non-communicable diseases, such as the use of and exposure to tobacco/smoke and the reduction of excess weight and obesity in the school-age population.

Data from the CONCORD programme (a cancer survival surveillance programme) show that the five-year survival rate for breast cancer was 87.6% (2010-2014), while the five-year survival rate for cervical cancer reached 66.2% in recent years. This can be attributed to the high screening rate (over 80%) for Portuguese women aged 50-69. Improved surgical techniques, radiation therapy and combined chemotherapy, together with increased access, also increased the survival rate of colorectal cancer to 61% in 2010-2014 (up from 57% in 2000-2004).

There is a high level of immunisation coverage in the country, due to free provision of vaccinations for all NHS users, in local primary care units. According to recent data, immunisation rates among girls born between 1992-2000 is up to 93%. The percentage of influenza vaccination among older people has also increased over time.

Recent data show that quality assurance and safety, steered by the National Strategy for Health Quality and the National Plan for Patient Safety, 2015–2020, have advanced in several areas. The in-hospital mortality rate per 100 patients for AMI has halved since 2000, reaching

7.9 in 2015. Portugal also has some of the lowest age and sex-standardised rates per 100,000 population for avoidable admissions due to asthma, COPD and congestive heart failure.

Similarly, a set of progressive strategies have promoted greater integration. For instance, the vertical integration of primary care has been implemented through the establishment of NHS Local Health Units (in 1999), followed by increases in numbers of Family Health Units (from 2007) and Primary Health Care Centre Groups (ACES) (from 2008). Horizontal integration between health and social care also took place, facilitated by the network of long-term care providers (RNCCI), established in 2006.

7.3.1.4 Future prospects

In light of the international economic crisis, the EAP in Portugal poses a challenge to ensuring NHS financial sustainability while improving underserved areas, such as dental care, mental health and palliative care. The European Commission country health profile on Portugal (2017) points to concern over projected increases in healthcare expenditure, from 6% in 2013 to 8.5% in 2060 as percentage of GDP (compared to a projected EU average of 7.8%). In the short-term, the NHS's financial sustainability is threatened by poor budget planning and implementation. A further challenge to the provision of care relates to the shortage of healthcare workers as a result of low wages. In recent years there has been a wave of emigration, particularly among nurses.

On a more positive note, recent developments point to improvements in value for money. Health gains and increased activity in the NHS were obtained without extra resources following the EAP, as the health system became cheaper and more productive. Various evidence-based changes also took place in the last decade to contain cost and maintain the quality of pharmaceuticals. These included changes to the reference price system and waves of administrative price reductions (in 2005, 2007 and 2010). An increase in economic evaluation for new products and changes to pharmaceutical co-payment rules and levels (2016) also contributed to this effort.

There have been several changes in Portugal's healthcare system to generate greater efficiency. These included shifting of resource allocation to a needs-based model for both primary and hospital care. Another way in which Portugal is driving towards greater efficiency is by rewarding targeted activities. Performance-related pay is currently being implemented in primary care and prospective budgets are being used for hospital care. Primary care providers are being targeted with incentives to monitor certain groups of the population, coordinate care and undertake additional activities, such as smoking cessation programmes.

Through the National Health Council (NHC) and a new NHS portal, Portugal is enhancing the transparency of the healthcare system. The NHC not only ensures NHS users participate in the policy-making process, it also works to promote system transparency and accountability to society. The NHS portal provides detailed and targeted information on the functioning of NHS facilities, publishing a wide range of indicators on NHS access, efficiency and quality.

The following subsections analyse data for preventative care, primary care, secondary care and long-term care. The EU average is provided where available. Where the EU average is not available, comparison with other countries included in the pilot is included.

7.3.2 Statistical analysis of indicators on access to preventative care

Availability

The number of general practitioners per 100,000 inhabitants is far higher in Portugal (252.77) than across the EU (104.58). Similarly, the number of dentists in Portugal per 100,000 inhabitants was 91.41 in 2015, compared to the EU rate of 70.17.

Affordability

Healthcare expenditure on providers of preventative care (PPP per inhabitant) was 1.69 in 2016, compared to an EU average of 24.61. Healthcare expenditure for preventative care (PPP per inhabitant) was 35.02 in 2016. The EU average that year was 66.44.

Adequacy

In terms of health behaviours, BMI data for 2014 show that Portugal is slightly lower than the EU average for the share of the population that are underweight (2.5% in Portugal compared to 2.8% in the EU) and also slightly lower than average for the share considered normal weight (45.3% in Portugal compared to 47% in the EU).

A higher share of the population in Portugal are overweight (52.2%) compared to the EU average (50.2%). In addition, a higher share of the population has high blood pressure (25.3% in Portugal compared to 21% EU average). However, tobacco consumption in Portugal is lower than the EU average, at 16.8% and 19.2%, respectively.

The percentage of the population that do not consume vegetables is 20.7%, which is significantly lower than the EU average of 34.4%. Similarly, the share of the population consuming 5+ portions of vegetables per day is higher in Portugal (18.2%) than the EU average of 14.3%.

Alcohol consumption in Portugal is far higher than the EU average, with 24.2% consuming alcohol every day, compared to the EU average of 9.2%. It is also noteworthy, however, that 30.0% of the population have never consumed alcohol or have not done so in the last 12 months, which is higher than the EU average of 23.9%

The physical activity rate in Portugal (7.0%) is lower than the EU average of 12.6%

Looking at population-wide outcomes, the infant mortality rate in Portugal was 3.2 deaths per 100,000 inhabitants in 2016, slightly lower than the EU average rate of 3.6 deaths per 100,000 inhabitants.

Data for 2015 show that the NCD mortality rate for all cancers was 241.63 deaths per 100,000 inhabitants, compared to an EU average rate of 260.6 deaths per 100,000 inhabitants. The rate for lung cancer (36.93) is lower than the EU average (53.98).

The rate of mental and behavioural disorders in Portugal (30.92 per 100,000 inhabitants) is lower than the EU average (43.44 per 100,000 inhabitants). The ischaemic heart disease mortality rate is significantly lower than the EU average, at 67.03 and 127.39, respectively. By contrast, the mortality rate for cerebrovascular disease in Portugal (108.31) is higher than that of the EU (85.05).

Data for 2014 show that, in Portugal, the percentage of the population reporting the following are all above the EU average: arthrosis; lower back disorder or other chronic back defect; neck disorder or other chronic neck defect; high blood pressure; urinary incontinence, bladder

Measurement of access to healthcare

control problems; diabetes; allergies; and chronic depression. There are no conditions for which Portugal is below the EU average.

In terms of self-reported health, data for 2016 show that 47.7% of people in Portugal report their health as good or very good. 15.9% of people report their health to be bad or very bad (36.4% report their health as fair).

Self-reported activity limitation data for 2014 show that, in Portugal, 60.3% of people reported no limitations. The EU average is not available but the rates in Germany (64.9%) and Greece (62.7%) are higher, while Slovenia has a lower rate (50%). In Portugal, 13.9% of people reported severe limitations, a higher rate than in Germany (7.5%), Greece (12.0%) and Slovenia (12.4%).

Accessibility

For immunisation coverage, data for 2017 estimate immunisation coverage in Portugal to be 81.25%.

In 2014, the percentage of self-reported vaccination against influenza was 16.8%, compared to an EU average of 17.7%.

7.3.3 Statistical analysis of indicators on access to primary care

Availability

On equipment and medical products, the number of CT scanners per 100,000 inhabitants is slightly higher in Portugal (2.74 in 2008) than in the EU generally (2.30 in 2016).

However, the rate of MRI units per 100,000 inhabitants is lower in Portugal (0.92 in 2008) than the EU average in 2016 (1.44).

Affordability

Data for 2016 show that healthcare expenditure in Portugal, adjusted for PPP, is 546.66, compared to an EU rate of 578.25.

For OOP expenditure, in Portugal the level of co-payment/deductibles per inhabitant is 555.64, higher than the EU average rate of 479.03. The reported rate of treatment skipped due to cost was 8.3, higher than the rate of 2.6 in Germany.

Timeliness

Waiting time data for Portugal in 2017 show the share of respondents self-reporting unmet need for medical examination due to waiting lists at 0.3%. This is higher than the rate for Germany (0.1% in 2016) but lower than the rate for Greece (1.5%) and Slovenia (3.3%).

Accessibility

Potential accessibility

Data on geographical distribution of resources for 2016 show that the rate of generalist and specialist medical practitioners per 100,000 inhabitants in Portugal was 0.28. This is higher than the rate for Germany (0.16) and Slovenia (0.24) but lower than the rate for Greece (0.34).

Measurement of access to healthcare

On available hospital beds per 100,000 inhabitants, in Portugal the rate is 0.47, which is higher than the rate for Germany (0.18), Greece (0.30) and Slovenia (0.25).

For tele-medicine indicators in Portugal, 2015 data show that:

- There was established telehealth in a national eHealth policy or strategy;
- Healthcare organisations were using social media to help to manage patient appointments;
- There was a national pilot programme for remote patient monitoring programmes;
- There were nationally established pilot mHealth programmes for health call centres/healthcare telephone helpline;
- There were no intermediate mHealth programmes for mobile telehealth.

In terms of transport availability, the percentage of self-reported unmet need due to travel distance in Portugal was 2.5 % in 2014, lower than the EU average of 3.6%.

Regarding access to facilities, the average satisfaction with GP facilities in 2016 in Portugal was 7.2%. This is higher than Greece (6.5%) but lower than Germany (8.5%) and Slovenia (8.0%)

Revealed accessibility

Data for 2014 showing self-reported consultations of a medical professional for Portugal showed that 65.9% had no contact, compared to an EU average of 58.1%, while 23.1% had one contact, compared to an EU average of 21.9%. 7.5% reported two contacts, compared to an EU average of 11.0%, and 3.5% had three or more contacts, compared to the EU average of 9.1%.

In 2012, the share of inhabitants in Portugal reporting consultation of a medical doctor (in private practice or as an outpatient) was 4.1%. This is lower than the EU average of 6.6% (2016).

In terms of diagnostic procedures, the data for Portugal in 2014 show that:

- 28.1% had self-reported breast examinations less than one year ago, compared to an EU average of 38.0%, while 32.5% had never self-reported for a breast examination, far higher than the EU average of 11.3%.
- 30.0% had self-reported for a cervical smear test less than one year ago. This is very close to the EU average of 30.5%. However, 28.5% had never self-reported for a cervical smear test, a higher rate than the EU average of 20.1%.
- 12.8% had self-reported for a colorectal cancer test less than one year ago, higher than the EU average of 10.4%. Also, 68.6% had never self-reported for a colorectal cancer test, compared to an EU average of 70.2%.

In terms of self-reported screening of cardiovascular disease and diabetes risk, the data for Portugal in 2014 show that:

- 77% of respondents in Portugal reported that it was less than one year since their last blood pressure measurement, compared to an EU average of 66.9%. 3.4% of respondents reported never having had had a blood pressure measurement, which is lower than the EU average (5.7%).
- 67.8% of respondents reported that it was less than one year since their last blood cholesterol measurement, the EU average was lower at 50.4%. 7% reported never

having had a blood cholesterol measurement undertaken. The EU average was higher, at 18.2%.

- For blood sugar measurement, 67.7% of respondents reported that they had a test less than one year ago, compared to a lower EU average of 51%. 7.6% of respondents stated that they had never had such a test, compared with an EU average of 16.9%.

In relation to cervical cancer screening in women aged 20-64, the 2013 rate in Portugal was 54.8%, higher than Germany (52.8%) but lower than Greece (69.7) and Slovenia (71.5%).

7.3.4 Statistical analysis of indicators on access to secondary care

Availability

Data for 2016 show that there were 241.2 medical practitioners per 100,000 inhabitants, compared to an EU average of 255. The number of health personnel employed in hospitals per 100,000 inhabitants is also higher in Portugal than across the EU generally (1,224.2 in Portugal compared to the EU average of 1,317.95).

On facilities, data for 2016 on the number of curative care beds per 100,000 inhabitants shows that Portugal had 329.19 beds, compared to the EU average of 395.34.

Affordability

Analysis of 2016 expenditure data for Portugal shows that the level of expenditure on healthcare for curative care (PPS) in 2016 was 1,244.9, compared to the EU expenditure of 1098.27.

However, the PPS for health expenditure in hospitals in 2016 was lower in Portugal (845.54) than the EU average (907.84).

In terms of treatment skipped due to costs, there are three relevant indicators for Portugal:

- 2016 data show that the percentage of people self-reporting unmet need due to costs was 2%. This is higher than the EU average of 0.2%;
- 2015 data on the rate of patients that skipped prescribed medicines in Portugal due to cost was 10.1%, higher than the rate of 3.2% in Germany;
- In 2014, the percentage of those reporting that they could not afford prescribed medicines in Portugal was 10%, higher than the EU average of 4.6%.

Adequacy

In Portugal, 2015 data on amenable mortality show the following:

- The 30-day mortality after admission to hospital for AMI based on unlinked data, for those aged 45+ years is 7.90 per 100 patients. Although the EU average is not available, the rate is slightly higher than Germany (7.70 per 100 patients) and Slovenia (6.10 per 100 patients).
- The 30-day mortality rate after admission to hospital for ischemic stroke based on unlinked data, age group 45+ years is 9.90 per 100 patients in Portugal. Although the EU average is not available, the rate is higher than that of Germany (6.20 per 100 patients) but lower than that of Slovenia (12.10 per 100 patients).

Accessibility

Potential accessibility

2016 data on the geographical distribution of resources in Portugal show that the rate of hospital beds in NUTS 2 regions per 100,000 inhabitants was 0.47, higher than the rate for Germany (0.18), Greece (0.30) and Slovenia (0.25). The EU average is not available.

For physical accessibility, in terms of transport availability, data for 2014 show that, in Portugal, the rate of self-reported unmet need due to travel distance was 2.5%, lower than the EU average of 3.6%.

In 2016 in Portugal, the mean average satisfaction with GP facilities, on a scale from 1 ('very dissatisfied') to 10 ('very satisfied'), was 7.2. Although the EU average was not available, the rate was higher for Germany (8.5) and Slovenia (8.0) and lower for Greece (6.5).

Revealed accessibility

In Portugal, the 2014 rate for self-reported use of prescribed medicines was 56.1%, higher than the EU average of 48.6%. The rate for self-reported use of non-prescribed medicines in Portugal was 23.9%, lower than the EU average of 34.6%

Regarding special treatment, the data for Portugal show the following:

- For cataract operations (total procedures per 100,000 population), there were 1,418.8 in 2015. For Germany the rate was 1,040.8 in 2016, for Greece the rate was 1,074.9 in 2012, and for Slovenia the rate was 893.3 in 2016. The EU average is not available.
- For cardiovascular operations, in 2015 Portugal had 121.3 transluminal coronary angioplasty operations per 100,000 population. This is a lower rate than Germany (406.2 in 2016), Slovenia (202.5 in 2016) and Greece (179.8 in 2009).
- For coronary artery bypass operations, there were 35.4 per 100,000 population in 2015, lower than the rate in Germany (61.4 in 2016) and Slovenia (38.3 in 2016). Data are not available for Greece.
- For hip replacement operations, in 2015 there were 90.6 procedures per 100,000 population, a lower rate than that of Germany (304.4 in 2016), Greece (131.6 in 2012) and Slovenia (169.8 in 2016).
- In 2015, there were 62.2 knee replacement operations per 100,000 population in Portugal. In 2016, there were 218.6 per 100,000 population in Germany and 124.1 in Slovenia.

The hospital discharge rate for in-patients, per 100,000 inhabitants, was 8,493 in Portugal in 2015. The rate for Germany in 2016 was 25,686. No figure is available for Greece.

In Portugal, the 2016 curative care bed occupancy rate 65.1%. This is lower than the rate for Germany (80.2) and Slovenia (70.5). The rate for Greece in 2012 was 73.6%. The EU average is not available.

7.3.5 Statistical analysis of indicators on access to long-term care

Availability

The rate of providers of informal care per 100,000 inhabitants in Portugal in 2014 (15.6) was very similar to that of Germany (15.5) and Slovenia (15.7). The EU average is not available.

Measurement of access to healthcare

Data are not available for analysis of long-term care beds in nursing and residential care facilities.

Affordability

For Portugal, 2016 data show healthcare expenditure for long-term care (PPS) at 52.21, significantly lower than the EU average of 318.52. OOP expenditure (PPS) in Portugal is 555.64, slightly lower than the EU rate of 578.25.

Accessibility

Revealed accessibility

In Portugal, the rate of self-reported use of home care services was 2% in 2014, compared to 2.6 in Germany, 3.2% in Greece and 2.8% in Slovenia. The EU average was 4%.

7.4 Slovenia

7.4.1 Country context

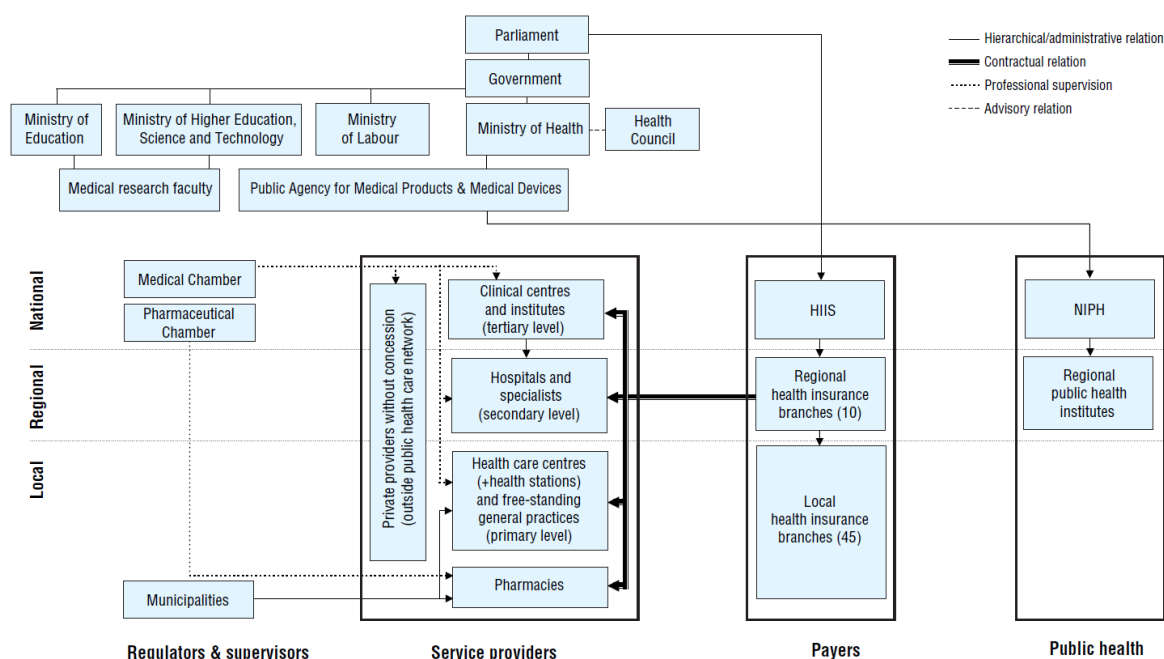
This section provides country context, potentially explaining some of the issues identified in the data analysis.

7.4.1.1 Organisation and financing

The country health profile on Slovenia (2017) published by the European Commission indicates that it operates a mandatory SHI system, through which it provides near universal coverage. The sole payer of the system is the independent Health Insurance Institute of Slovenia (HIIS). Governance and regulation of the system is centralised within the Ministry of Health, which owns all public hospitals and national institutes. By contrast, communities are responsible for the organisation of primary care, including capital investment in primary health centres and pharmacies.

The figure below illustrates the features of the system.

Figure 7.4 Organisation of the healthcare system in Slovenia



Source: Albreht et al., 2016. Health systems in transition, Slovenia health system review, *European Observatory on Health Systems and Policies*, 18(3)

Provision of insurance is based on employment status or a legally defined dependency status (limited to minors, unemployed spouses, registered unemployed people and individuals with no source of income) (Albreht et al., 2016).

Once centralised under the Ministry of Health, the system has been gradually transformed into a mixed system, where private sources of funding (particularly co-payments and complementary insurance) have become significant. Professional chambers now control qualifications, speciality of training and continuous education of health professionals. The growing share of private providers, mainly in primary and specialist care, has led to increasingly complex contracting arrangements. However, most care is still delivered by state-owned hospitals (outpatient specialist care and tertiary care) and municipality-owned (primary healthcare centres) providers.

7.4.1.2 Accessibility

Due to its near-universal health coverage, Slovenia has had one of the lowest levels of unmet need for medical care in the EU for more than a decade. According to the country health profile for Slovenia (European Commission, 2017), less than 1% of the population is not covered, chiefly those with unclear residence status. People in this category are, however, entitled to emergency medical services. Similarly, the insured population enjoys a broad range of benefits. Improvements are still possible. For example, more effective HTA could eliminate medically unnecessary or ineffective services from the benefit packages. Also, the inclusion of co-payments for even basic services (ranging from 10% to 90%) leads to high accumulation. As a result, 87% of the population purchased complementary VHI in 2015. While co-payments for low-income groups are covered through special mechanisms from the state budget, children and students up to the age of 26, as well as vulnerable groups, are exempt from all co-payments.

Measurement of access to healthcare

In order to counteract the effects of the economic crisis, co-payment levels were gradually increased. As a result, the cost of coverage for certain services was moved from compulsory health insurance to VHI to keep public spending sustainable. Due to this shift, overall private spending as a share of total health spending increased from 26% in 2008 to 28% in 2015. Nevertheless, OOP spending remains below the EU average and was stable throughout the last decade and during the economic crisis.

Long waiting lists present a challenge. Due to the fiscal consolidation measures, the share of people reporting waiting time increased from 6% in 2007 to 13% in 2015, particularly for outpatient (or ambulatory) specialist services. There are also challenges in access to healthcare due to the geographical distribution of primary care physicians. An increase of publicly financed residency places in family medicine and the development of the 'healthcare network', which sets specific need-based targets, partially mitigated this problem. Additionally, the national eHealth project, which includes e-appointments, e-waiting lists and e-referrals, together with a government initiative to analyse waiting time, has been implemented to reduce waiting time.

7.4.1.3 Outcomes

Based on the amenable mortality rate published in the European Commission's country health profile for Slovenia, the country performs the best among the newer Member States, with about 12% of deaths considered amenable to care, compared to the slightly lower EU average of 11%. However, there exists a gender difference, with Slovenian men lagging behind women in amenable mortality. The decrease in amenable mortality can be attributed to improved effectiveness of cancer prevention and treatment in Slovenia. According to recent data, the five-year survival rate of women with breast cancer reached 83.5% in 2010-2014 and there has also been an increase in survival rates of colorectal cancer. By contrast, there was a modest decrease in the five-year survival rate of cervical cancer between 2005-2009 and 2010-2014, reaching 65.5%.

In terms of preventable deaths, mortality related to alcohol abuse remains high, due to high level of alcohol consumption, especially among Slovenian men and adolescents. In addition, chronic liver disease among Slovenian men is the highest in the EU. There are also large regional differences in alcohol consumption and related deaths. While there are measures to limit the use of alcohol, such as a ban on selling alcohol to minors and high excise duty on beer, there is room for further action. Due to a large number of road traffic deaths related to alcohol abuse in 2010 (greater than one-third), stricter sanctions for drunk driving were introduced, resulting in a significant decrease in alcohol-related traffic accidents.

In addition, strong legislation enacted in 2007, restricting smoking in closed public spaces, decreased lung cancer mortality. More recently, 2017 legislation on tobacco control, as well as 2014 reform on family medicine practices, also strengthened prevention.

Immunisation levels in infants are high for diphtheria, tetanus and pertussis, and for Haemophilus influenzae type B (95% in 2014-2015). However, only 89% received the second dose. The vaccination coverage for influenza among people over 65 has continuously decreased over the last decade, from 35% in 2005 to 10% in 2015, at a considerable remove from the 75% target set by the WHO in the 2009 EU Council Recommendation.

In terms of quality management, the recommendations of the National Strategy on Health Quality have not been implemented effectively, with internal quality monitoring systems remaining very much fragmented. Data limitations and the lack of external verification have impeded the reliability of performance monitoring. Safety indicators (patient falls and Methicillin-resistant Staphylococcus aureus (MRSA) infection rates) are similarly unreliable.

With respect to the quality of acute care, Slovenia records relatively low levels of 30-day mortality after admission to hospital for AMI. By contrast, 30-day mortality rates for stroke (12.1 deaths per 100 patients in 2015) was one of the worst among countries with data available.

Primary care in Slovenia is managed effectively. The country has relatively low numbers of avoidable hospital admissions. Similarly, admissions for asthma, COPD, congestive heart failure and diabetes were all below the average for EU countries with data available. The 2011 update of family medicine practices is linked to the improvements in these areas, particularly with regard to the coordination and management of chronic disease. In 2017, Slovenia implemented model practices to overcome the fragmentation of service organisation and strengthen coordination between providers across different care levels.

7.4.1.4 Future prospects

A strong reliance on health insurance contributions makes Slovenia's health sector revenues vulnerable to labour market fluctuations. Diversification of resources and restructuring of expenditure is therefore required (European Commission country health report Slovenia, 2017). Sustaining the current and future expenditure levels remains particularly challenging for the country, as health and long-term care expenditure are expected to grow faster than elsewhere in the EU due to a rapidly ageing population and demand for new medical technologies.

The shift from bed-day payments to case-based payments, tariff reductions and rationalisation during the economic crisis, and the rise of day care (from 11.1% of all hospital cases in 2005 to 30% in 2013), resulted in a decrease in the number of acute hospital beds and the average length of stay since the early 2000s. By contrast, the low bed occupancy rate (below the EU average) suggests overcapacity. Despite increases in day care, a greater number of people could be treated in this setting. While cataract surgery has been a particular success, with one of the highest percentages of ambulatory cases in the EU in 2015, tonsillectomies continue to be performed exclusively in in-patient settings.

A shortage of medical doctors persists, even with additional medical faculty and provision for foreign doctors to practice in Slovenia. Also, despite the importance of primary care, specialists outnumber family medicine doctors.

Recent government initiatives, such as the public procurement system set up in 2017 to address the source of waste, targeted more efficient allocation of resources and enhanced transparency. HTA could potentially play a significant role here, not only for efficient resource allocation but also for determining the benefits that should be covered by the HHS. Progress has also been made in strengthening the country's health information infrastructure. In particular, the national e-health project, through its various systems such as the e-prescription system and e-registry of patient data, will greatly improve transparency in the health system.

Overall, there is a strong commitment to better governance. The NHP, for example, recognises the need to protect the public interest, decrease corruption and improve both the oversight of public-private partnerships and the governance of healthcare institutions. For its part, the Health Ministry is taking steps to address transparency and accountability.

The NHP plays a crucial role in the long-term future of the health system. Not only does it address fiscal sustainability through the proposed Health Care and Health Insurance Act (which will be crucial in making the system financially stable), it is also central to the reform of long-term care (which tackles the needs of the ageing population within existing budgetary constraints). Both policies await final adoption by the government, however.

The following sub-sections analyse data for preventative care, primary care, secondary care and long-term care. The EU average is provided where available. Where the EU average is not available, comparison with other countries included in the pilot is included.

7.4.2 Statistical analysis of indicators on access to preventative care

Availability

In Slovenia, the number of GPs per 100,000 inhabitants in 2016 was 68.04, compared to an EU average of 104.58. In 2015, the number of dentists was 67.46 per 100,000 inhabitants, compared to the EU average of 70.17.

Affordability

Healthcare expenditure on providers of preventative care (PPP per inhabitant) was 8.06 in 2015, compared to an EU average of 24.61 in 2016. Healthcare expenditure for preventative care (PPP per inhabitant) was 53.04 in 2015. The EU average in 2016 was 66.44.

Adequacy

In terms of health behaviours, BMI data for 2014 show that Slovenia is lower than the EU average for the share of the population that are underweight (1.9% in Slovenia compared to 2.8% in the EU) and also slightly lower than the average for the share considered to be normal weight (43% in Slovenia, compared to 47% in the EU).

A higher share of the population in Slovenia is overweight (55%), compared to the EU average (50.2%). Similarly, a higher share of the population in Slovenia have high blood pressure (24.8%, compared to 21% across the EU). Tobacco consumption in Slovenia (18.9%) is slightly lower than the EU average (19.2%).

The percentage of the population that do not consume vegetables is 27%, thus lower than the EU average of 34.4%. The share of the population consuming 5+ portions of vegetables per day is significantly lower in Slovenia (7.5%) than the EU average (14.3%).

Alcohol consumption in Slovenia is lower than the EU average, with 7.7% consuming alcohol every day, compared to the EU average of 9.2%. The physical activity rate in Slovenia, at 19.4%, is higher than the EU average of 12.6%.

Looking at population-wide outcomes, the infant mortality rate in Slovenia was 2.0 deaths per 100,000 inhabitants in 2016, lower than the EU average of 3.6 deaths per 100,000 inhabitants.

Data for 2015 show that the NCD mortality rate for all cancers was 310.52 deaths per 100,000 inhabitants, significantly higher than the EU average rate of 260.6 deaths per 100,000 inhabitants. The mortality rate for lung cancer in Slovenia (58.97) is higher than that of the EU (53.98).

The mortality rate for mental and behavioural disorders in Slovenia is notably lower than the EU average, at 13.26 per 100,000 inhabitants and 43.44 per 100,000 inhabitants, respectively. The ischaemic heart disease mortality rate is slightly lower than the EU average (113.08 in Slovenia compared to the EU average of 127.39). By contrast, the mortality rate for cerebrovascular disease in Slovenia is higher than the EU average, at 105.61 and 85.05, respectively.

Data for 2014 show that, in Slovenia, the percentage of the population reporting the following are all above the EU average: lower back disorder or other chronic back defect; neck disorder

Measurement of access to healthcare

or other chronic neck defect; high blood pressure; urinary incontinence and bladder control problems; and chronic depression.

The percentage of the population reporting diabetes and allergies is the same for Slovenia as the EU average, and the rate of arthrosis is notably lower (4.5 in Slovenia, compared to the EU rate of 14.10)

In terms of self-reported health, the data for 2016 show that 64.4% of people in Slovenia report their health as good or very good. By contrast, 9.9% of people report their health to be bad or very bad (25.6% report their health as fair).

Self-reported limitation data for 2014 show that, in Slovenia, 50% of people reported no limitations in activity. Although the EU average is not available, there are higher rates in Germany (64.9%), Greece (62.7%) and Portugal (60.3%).

Accessibility

Regarding immunisation coverage, the data for 2017 estimate immunisation coverage in Slovenia at 89.38%.

In 2014, the percentage of self-reported vaccinations against influenza in Slovenia was 4.5%, compared to an EU average of 17.7%.

7.4.3 Statistical analysis of indicators on access to primary care

Availability

On equipment and medical products, the number of CT scanners per 100,000 inhabitants in Slovenia (1.40) is lower than the rate for the EU (2.30).

Similarly, the rate of MRI units per 100,000 inhabitants in Slovenia (1.11) is lower than the EU average (1.44).

Affordability

In terms of healthcare expenditure for providers of ambulatory care, data for 2016 show that expenditure in Slovenia, adjusted for PPP, is 452.42, compared to an EU rate of 578.25. Regarding OOP expenditure, in Slovenia the level of co-payment/deductibles per inhabitant is 250.05, significantly lower than EU average rate of 479.03.

Timeliness

Waiting time data for 2017 in Slovenia show the share of respondents self-reporting unmet need for medical examination due to waiting lists at 3.3%. This is higher than the rates for Germany (0.1% in 2016), Greece (1.5%) and Portugal (0.3%).

Accessibility

Potential accessibility

On the geographical distribution of resources, 2016 data on the number of generalist and specialist medical practitioners per 100,000 inhabitants show a rate in Slovenia of 0.24, which is lower than the rate for Greece (0.34) and Portugal (0.28) but higher than the rate for Germany (0.16).

Measurement of access to healthcare

On the available hospital beds per 100,000 inhabitants, the rate in Slovenia is 0.25, which is higher than the rate for Germany (0.18) but lower than the rate for Portugal (0.47) and Greece (0.30).

2015 data on tele-medicine indicators in Slovenia show that:

- There was no established telehealth in a national eHealth policy or strategy;
- Healthcare organisations were not using social media to help to manage patient appointments;
- There were local pilot programme for remote patient monitoring programmes;
- It is not known (no response) whether there were any established pilot mHealth programmes for health call centres/healthcare telephone helpline;
- It is not known (no response) whether there were intermediate mHealth programmes for mobile telehealth.

In terms of transport availability, the percentage of self-reported unmet need due to travel distance in Slovenia was 3.0 % in 2014, lower than the EU average of 3.6%.

On access to facilities, the average satisfaction with GP facilities reported in 2016 in Slovenia was 8.0%. This is higher than Greece (6.5%) but lower than Germany (8.5%) and Portugal (7.2%)

Revealed accessibility

2014 data for Slovenia on self-reported consultations of a medical professional showed that 61.4% had no contact, compared to an EU average of 58.1%, while 18.1% had one contact compared to an EU average of 21.9%.

In 2016, the share of inhabitants of Slovenia that reported consultation of a medical doctor (in private practice or as outpatient) was 6.7%. This is slightly higher than the EU average of 6.6%.

In terms of diagnostic procedures, the data for Slovenia in 2014 show:

- 14.9% had self-reported breast examinations less than one year ago, far lower than the EU average of 38.0%. 53.5% had never self-reported for a breast examination, far higher than the EU average of 11.3%.
- 28.8% had self-reported for a cervical smear test less than one year ago, close to the EU average of 30.5%. 11.9% had never self-reported for a cervical smear test, a notably lower rate than the EU average of 20.1%.
- 12.5% had self-reported for a colorectal cancer test less than one year ago, higher than the EU average of 10.4%. 64.6% had never self-reported for a colorectal cancer test, lower than the EU average of 70.2%.

In terms of self-reported screening of cardiovascular diseases and diabetes risks, the data for Slovenia in 2014 show that:

- 66.2% of respondents reported that it was less than one year since their last blood pressure measurement, compared to an EU average of 66.9%. Only 1.7% of respondents reported never having had a blood pressure measurement, lower than the EU average (5.7%).
- 48.2% of respondents reported that it was less than one year since their last blood cholesterol measurement. The EU average was slightly higher at 50.4%. 14.9% reported never having had a blood cholesterol measurement undertaken, compared to an EU average of 18.2%.

Measurement of access to healthcare

- For blood sugar measurement, 49.5% of respondents reported that they had a test less than one year ago, while the EU average was lower, at 51.0%. 14% of respondents stated that they had never had such a test, a little lower compared to the EU average of 16.9%.

In relation to cervical cancer screening in women aged 20-64, the 2013 rate in Slovenia was 71.5%, a higher rate than that of Greece (69.7), Portugal (54.8%) and Germany (52.8%).

7.4.4 Statistical analysis of indicators on access to secondary care

Availability

Personnel data for Slovenia show that in 2016 there were 218.59 specialist medical practitioners per 100,000. This is lower than the EU average of 255.02 medical practitioners per 100,000.

The rate of health personnel employed in hospitals per 100,000 inhabitants was also lower in Slovenia (1,077.43) than across the EU (1,317.95).

On facilities, data for 2016 on the number of curative care beds per 100,000 inhabitants shows that the rate for Slovenia (418.88) is higher than the rate for the EU as a whole (395.34).

Affordability

Analysis of expenditure data for Slovenia (using 2016 data) shows the level of expenditure on healthcare for curative care (PPS) in 2016 was 1,113.78, slightly higher than the EU average of 1,098.27. However, the PPS for health expenditure in hospitals was lower in Slovenia (821.17) than across the EU (907.84).

In terms of treatment skipped due to costs, there are three relevant indicators.

- 2016 data show that the percentage of people self-reporting unmet need due to costs was 0.1%, lower than the EU average of 0.2%;
- No data were available on the rate of patients that skipped prescribed medicines due to cost;
- In 2014, the percentage of those reporting that they could not afford prescribed medicines in Slovenia was 5.8%, slightly higher than the EU average of 4.6%.

Adequacy

On amenable mortality, 2015 data for Slovenia show the following:

- The 30-day mortality after admission to hospital for AMI based on unlinked data, for those aged 45+ years is 6.10 per 100 patients. Although the EU average is not available, the rate is lower than Germany (7.70 per 100 patients) and Portugal (7.90 per 100 patients);
- The 30-day mortality rate after admission to hospital for ischemic stroke based on unlinked data, age group 45+ years is 12.10 per 100 patients in Slovenia. Although the EU average is not available, the rate is higher than that of Germany (6.20 per 100 patients) and Portugal (9.90 per 100 patients).

Accessibility

Potential accessibility

On the geographical distribution of resources, in 2016 in Slovenia, the number of hospital beds per 100,000 inhabitants was 0.25, higher than the rate for Germany (0.18) but lower than that of Greece (0.30) or Portugal (0.47). The EU average is not available.

For physical accessibility, in terms of transport availability, data for Slovenia in 2014 show that the rate of self-reported unmet need due to travel distance was 3.0%, lower than the EU average of 3.6%.

In 2016 in Slovenia, the mean average satisfaction with GP facilities, on a scale from 1 ('very dissatisfied') to 10 ('very satisfied'), was 8.0. While the EU average was not available, the rate for Germany was higher (8.5), while the rates were lower for Portugal (7.2) and Greece (6.5).

Revealed accessibility

In Slovenia, the 2014 rate for self-reported use of prescribed medicines was 45.8%, a little lower than the EU average of 48.6%. By contrast, the rate for self-reported use of non-prescribed medicines was 32.9%, a little higher than the EU average of 34.6%

Regarding special treatment, data for Slovenia show the following:

- For cataract operations (total procedures per 100,000 population), there were 893.3 such operations in 2016. For Germany the rate was 1,040.8 in 2016, for Greece the rate was 1,074.9 in 2012, and for Portugal the rate was 1,418.8 in 2015. The EU average is not available.
- In terms of cardiovascular operations, in Slovenia in 2016 there were 202.5 transluminal coronary angioplasty operations per 100,000 population. This is a lower rate than Germany (406.2 in 2016), Portugal (121.3 in 2015) and Greece (179.8 in 2009).
- In relation to coronary artery bypass operations, there were 38.3 per 100,000 population in Slovenia in 2016, lower than the rate in Germany (61.4 in 2016) but higher than the rate in Portugal (35.4 in 2015). Data are not available for Greece.
- In terms of hip replacement operations, Slovenia had 169.8 per 100,000 population in 2016. By comparison, Portugal had 90.6 procedures in 2015, Germany had 304.4 in 2016 and Greece had 131.6 in 2012.
- In 2016, there were 124.1 knee replacement operations per 100,000 population in Slovenia. This compares to 218.6 per 100,000 population in Germany in 2016 and 62.2 in Portugal in 2015.

On the hospital discharge rate for in-patients (per 100,000 inhabitants), in Slovenia in 2016 the rate was 18,258. The EU average was a little lower, at 17,495 in 2016.

In 2016, Slovenia's curative care bed occupancy rate was 70.5%. This is lower than the rate for Germany (80.2 in 2016) and Portugal (65.1 in 2016), and is also lower than the rate for Greece (73.6 in 2012). The EU average is not available.

7.4.5 Statistical analysis of indicators on access to long-term care

Availability

2015 data for Slovenia show that there were 1,069.77 nursing and care professionals per 100,000 inhabitants, higher than the rate for Greece (404.11 in 2016) but lower than the rate for Germany (1,747.41 in 2015). By contrast, the rate of providers of informal care (per 100,000 inhabitants) is lower than Greece but similar to that of Germany and Portugal. The EU average is not available.

Affordability

In Slovenia, 2015 data show healthcare expenditure for long-term care (PPS) at 198.62, lower than the EU average of 318.52. OOP expenditure (PPS) is 250.45, again significantly lower than the EU rate (578.25 in 2016).

Accessibility

Revealed accessibility

In Slovenia in 2014, the rate of self-reported use of home care services was 2.8%. The comparable rate for Portugal was 2%, for Germany it was 2.6, and Greece 3.2%. The EU average was 4%.

8 Indicator framework assessment

This section assesses the proposed indicator framework in terms of its data quality and coverage, based on the results of the pilot testing. Of the 1,432 indicators collected in the repository, 91 were initially used in the framework and 20 more were added as new indicators, totaling 111. The indicators based on existing data number 98, of which 61% are from Eurostat, 20% from the OECD, 16% from the WHO and 2% from other data sources. The Accessibility dimension has the largest number of indicators (38 out of 111) with Adequacy coming second (26 out of 111).

Dimension	No. of indicators (total)	No. of indicators (new)	No. of indicators with existing data	No. of indicators per data source			
				<i>Eurostat</i>	<i>OECD</i>	<i>WHO</i>	<i>Other</i>
Availability	18	4	18	13		5	
Affordability	18	2	16	13	3		
Adequacy	26	9	19	14	2	2	1 (ECDC)
Timeliness	5	1	5	1	4	-	
Accessibility	38	3	35	19	7	8	1 (HLS-EU)
Appropriateness	6	1	5	-	4	1	
Total	111	20	98	60	20	16	2

In general, no major weaknesses were identified for the majority of the indicators¹¹². Some indicators, however, may need to be improved. The main issues identified related to irregularity of collection: discontinued time series' and to methodological discrepancies. Detailed information on the issues found per indicator and dimension is presented in the following section.

¹¹² More information on data accuracy, completeness, reliability, relevance, etc. can be found in the indicator repository Excel file.

8.1 Weaknesses and gaps in the framework

This section provides an overview of the issues identified in the pilot testing on the gaps and weaknesses of the indicators included in the framework, along with the corresponding proposals. The information is presented by dimension.

8.1.1 Availability

Indicator: Providers of informal care (Eurostat) - long-term care

Issue: The results of the pilot show that data were available for only one year. According to Eurostat, the frequency of dissemination is every five years. The first data collection took place between 2006 and 2009 (2008 round) and the second round between 2013 and 2015 (2014 round). The next round (EHIS wave 3) is planned for 2019.

Proposal: There is no proposal for this indicator. It is mentioned solely to highlight its frequency of dissemination.

Indicator: Number of primary healthcare units (WHO) – primary care

Issue: The results of the pilot show that data were available for the period: 1970-2009. However, the time series seems to be discontinued. Some large differences in the values indicate methodological differences.

Proposal: Given the time series discontinuation, this indicator should be removed.

Indicator: Long-term care beds in nursing and residential care facilities (Eurostat) - long-term care

Issue: The pilot results indicated methodological differences. According to Eurostat, the comparability of the data between different countries is limited because the measurements depend on the organisation of healthcare provision in each country.

Proposal: These time series' should be interpreted cautiously, taking into account the methodological discrepancies between countries.

Indicator: Existence of a national screening programme (WHO) – preventative care

Issue: There is no issue related to this indicator, but, rather, than a suggestion for improvement. The WHO NCD Country Capacity Survey offers the possibility to assess the country policies, strategies and action plans for the prevention of NCDs.

Proposal: The indicator could be enriched by adding some general questions which are not restricted to screening and relate to country policies, strategies and action plans for the prevention of NCDs:

- Existence of an operational, multisectoral national NCD policy, strategy or action plan that integrates several NCDs and their risk factors;
- Existence of a set of time-bound national targets, based on WHO guidance;
- Existence of any policies on marketing of foods to children;
- Existence of any policies to reduce population salt consumption;
- Existence of national policies on saturated fatty acids/trans-fats;
- Implementation of physical activity public awareness programme;

- Existence of operational policy/strategy/action plan for cancer;
- Existence of operational policy/strategy/action plan for cardiovascular disease;
- Existence of operational policy/strategy/action plan for chronic respiratory disease;
- Existence of operational policy/strategy/action plan for diabetes;
- Existence of operational policy/strategy/action plan to decrease tobacco use;
- Existence of operational policy/strategy/action plan to reduce physical inactivity;
- Existence of operational policy/strategy/action plan to reduce the harmful use of alcohol;
- Existence of operational policy/strategy/action plan to reduce unhealthy diet related to NCDs;
- Existence of operational policy/strategy/action plan for oral health.

An indicative calculation is given in Section 6.1.3, where these questions were previously outlined.

Indicator: Medical technology (Eurostat) – primary and secondary care

Issue: Eurostat provides data for the following categories of medical technology: medical technology and technical resources in hospitals; CT scanners; MRI units; positron emission tomography (PET) scanners; gamma cameras; mammography x-ray machines; radiation therapy equipment; digital subtraction angiography units; and lithotripters. Some of these categories are considered better for the specific node, thus the categories with greater differentiating power across Member States should be selected.

Proposal: In line with suggestions from the workshop participants, the following categories are proposed: 'CT scanners' and 'MRI units'.

8.1.2 Affordability

Indicator: Healthcare expenditure in long-term care (Eurostat) – long-term care

Issue: The pilot results indicated methodological differences, which might be due to systematic under-reporting by countries. According to Eurostat, comparability is ensured by the application of common definitions and the use of the common framework SHA 2011. For those countries that provide only short time series', it is difficult to determine comparability over time.

Proposal: These time series' should be interpreted with caution, taking into account the methodological differences between countries.

Indicator: Share of recommended vaccines not fully funded (WHO) – preventative care

Issue: From the indicative example presented in the pilot, it is clear that vaccines which are not recommended in one country could affect the indicator value and thus lead to misleading results.

Proposal: The vaccines which will be used in the framework for this indicator could be those recommended for UMV in the majority of the countries, as well as the more expensive ones, such as modern combination vaccines.

Indicator: Consultations skipped due to cost (OECD) – primary care

Issue: The results of the pilot show that data were available for only two countries for four years. According to the OECD, data availability is very poor and varies among different breakdowns.

Proposal: It is proposed to replace this with a relevant indicators from Eurostat which is placed in secondary care, namely the self-reported unmet need for medical examination, from EU-SILC data. This is a better choice than the similar indicator in EHIS, which refers more generally to unmet need for medical care.

8.1.3 Adequacy

Indicator: Percentage of BMI modalities (Eurostat) - preventative care

Issue: The results of the pilot show that data were available for only two years. According to Eurostat, the dissemination frequency is every five years. The first data collection took place between 2006 and 2009 (2008 round) and the second round between 2013 and 2015 (2014 round). The next round (EHIS wave 3) is planned for 2019.

Proposal: There is no proposal for this indicator. It is mentioned solely to highlight its frequency of dissemination.

Indicator: Percentage of self-reported high blood pressure (Eurostat) - preventative care

Issue: The results of the pilot show that data were available for only one year. According to Eurostat, the dissemination frequency is every five years. The first data collection took place between 2006 and 2009 (2008 round) and the second round between 2013 and 2015 (2014 round). The next round (EHIS wave 3) is planned for 2019.

Proposal: There is no proposal for this indicator. It is mentioned solely to highlight its frequency of dissemination.

Indicator: Percentage of daily smokers (Eurostat) - preventative care

Issue: The results of the pilot show that data were available for only two years. According to Eurostat, the first data collection took place between 2006 and 2009

(2008 round) and the second round between 2013 and 2015 (2014 round). The next round (EHIS wave 3) is planned for 2019.

Proposal: There is no proposal for this indicator. It is mentioned solely to highlight its frequency of dissemination.

Indicator: Daily consumption of fruit and vegetables (Eurostat) - preventative care

Issue: The results of the pilot show that data were available for only one year. According to Eurostat, the dissemination frequency is every five years. The first data collection took place between 2006 and 2009 (2008 round) and the second round between 2013 and 2015 (2014 round). The next round (EHIS wave 3) is planned for 2019.

Proposal: There is no proposal for this indicator. It is mentioned solely to highlight its frequency of dissemination.

Indicator: Alcohol consumption (Eurostat) - preventative care

Issue: The results of the pilot show that data were available for only one year. According to Eurostat, the frequency of dissemination is every five years. The first data collection took place between 2006 and 2009 (2008 round) and the second round between 2013 and 2015 (2014 round). The next round (EHIS wave 3) is planned for 2019.

Proposal: There is no proposal for this indicator. It is mentioned solely to highlight its frequency of dissemination.

Indicator: Aerobic and muscle-strengthening activities (Eurostat) - preventative care

Issue: The results of the pilot show that data were available for only one year. According to Eurostat, the frequency of dissemination is every five years. The first data collection took place between 2006 and 2009 (2008 round) and the second round between 2013 and 2015 (2014 round). The next round (EHIS wave 3) is planned for 2019.

Proposal: There is no proposal for this indicator. It is mentioned solely to highlight its frequency of dissemination.

Indicator: Blood sugar (glucose) - preventive care

Issue: No data on blood sugar measurements could be located.

Proposal: This indicator should be removed.

Indicator: Blood cholesterol (WHO) - preventive care

Issue: The results of the pilot show that data are available for only one year (2009). However, the time series seems to be discontinued.

Proposal: Given the adequate number of indicators in this sub-node, this indicator should be removed.

Indicator: In-patient suicide among patients diagnosed with a mental disorder (OECD) – secondary care

Issue: The results of the pilot show that data on in-patient suicide are sparse.

Proposal: This indicator should be collected from administrative data in the EU.

8.1.4 Timeliness

Indicator: Waiting more than four weeks for an appointment with a specialist (OECD) – secondary care

Issue: The results of the pilot show that data were available for only two countries for three years. According to the OECD, the data quality is poor. Only 13 EU Member States have data available for the years 2005-2016.

Proposal: In the absence of other relevant indicators, this should continue to be used despite its limitations.

8.1.5 Accessibility

Indicator: Immunisation coverage (WHO) – preventative care

Issue: The vaccines selected for the pilot were indicative and were found in WHO country profiles. These vaccines were: BCG, DTP1, DTP3, HepB3, HepB_BD, Hib3, MCV1, MCV2, PCV3, Pol3, RCV1 and RotaC.

Proposal: The vaccines which will be used in this framework for this indicator could be those recommended for UMV in the majority of the countries, as well as the more expensive (e.g. combination) vaccines.

Indicator: Outpatient visits (Eurostat) – primary care

Issue: The results of the pilot show that data were available for only one country, and this data collection was discontinued in 2015.

Proposal: The other indicators in this sub-node (consultations) are sufficient, therefore this indicator should be removed.

Indicator: Percentage of population with self-reported unmet need for healthcare due to transportation or distance (Eurostat) – primary and secondary care

Issue: The results of the pilot show that data were available for only one year. According to Eurostat, the frequency of dissemination is every five years. The first data collection took place between 2006 and 2009 (2008 round) and the second round between 2013 and 2015 (2014 round). The next round (EHIS wave 3) is planned for 2019.

Proposal: There is no proposal for this indicator. It is mentioned solely to highlight its frequency of dissemination.

Indicator: Self-reported vaccination against influenza, percentage of persons aged 15+ years (Eurostat) – preventative care

Issue: The results of the pilot show that data were available for only one year. According to Eurostat, the frequency of dissemination is every five years. The first data collection took place between 2006 and 2009 (2008 round) and the second round between 2013 and 2015 (2014 round). The next round (EHIS wave 3) is planned for 2019.

Proposal: There is no proposal for this indicator. It is mentioned solely to highlight its frequency of dissemination.

Indicator: Consultation of a dentist per inhabitant (Eurostat) - primary care

Issue: The pilot testing revealed considerable differences due to methodological deviations. According to Eurostat, comparability of the data across different countries is limited because the measurements depend on the organisation of healthcare provision in each country.

Proposal: These time series' should be interpreted cautiously, taking into account methodological discrepancies between countries.

8.1.6 Appropriateness

The same proposal is put forward for the following group of indicators. This is outlined below.

Indicator: Patients reporting being involved in decisions about their care (OECD) – all stages

Issue: The results of the pilot show that data were available for only two countries for several years.

According to the OECD, the dissemination frequency is annual. Only eight EU Member States have data available for the years 2010-2016.

Indicator: Patients reporting easy-to-understand explanations

Issue: The results of the pilot show that data were available for only two countries for several years. According to the OECD, the dissemination frequency is annual. Only eight EU Member States have data available for the years 2008-2016.

Indicator: Patients reporting spending enough time with any/regular doctor during consultation

Issue: The results of the pilot show that data were available for only two countries for several years. According to the OECD, the dissemination frequency is annual. Only 8 EU Member States have data available for the years 2010-2016.

Measurement of access to healthcare

Indicator: Patients reporting the opportunity to ask questions

Issue: The results of the pilot show that data were available for only two countries for several years. According to the OECD, the dissemination frequency is annual. Only 8 EU Member States have data available for the years 2010-2016.

Proposal: For the above set of indicators, it is proposed to use the similar questions from the Adequacy dimension, sub-node 'Medical staff skills'/Communication and interpersonal skills'. As discussed elsewhere, these questions can be integrated into the EQoL survey.

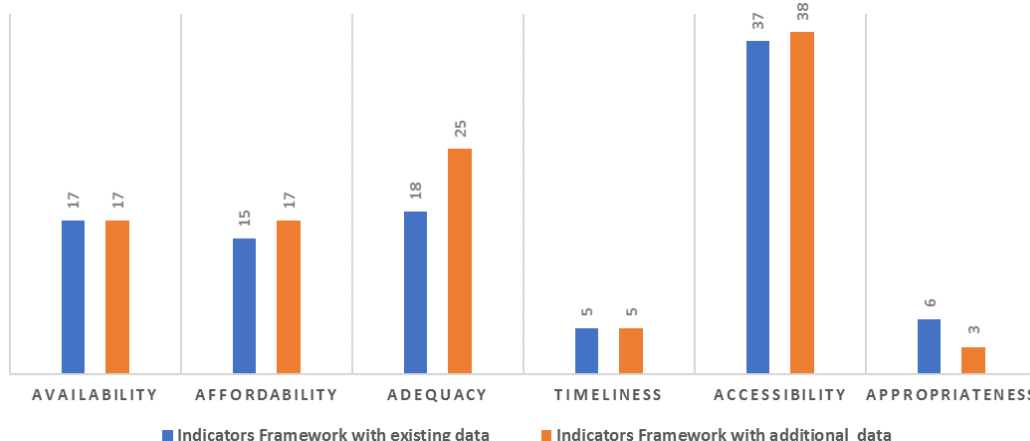
9 Proposed indicator framework

This section presents two indicator frameworks for measuring access to healthcare in the EU. The frameworks are: the ‘Indicator Framework with existing data’ and the ‘Indicator Framework with additional data’.

The first framework consists of indicators with input data available, while the second framework consists of both indicators with input data available and those with not-yet-available input data¹¹³. In developing the second framework, the study team took into account the results of the framework assessment described in Section 7 and removed or replaced the sub-optimal indicators identified by that assessment. The indicators for both frameworks were selected to cover the measurement needs stemming from the theoretical framework to the greatest extent possible.

The ‘Indicator Framework with existing data’ consists of 98 indicators, while the ‘Indicators Framework with additional data’ contains 105 indicators. Figure 9.1 below presents the number of indicators per dimension of each framework.

Figure 9.1 Number of indicators per dimension



The two frameworks are presented in Table 9.1 and Table 9.2 below. The indicators are presented by dimension. The rationale for the selection of the indicators and the data source of each indicator are also included.

¹¹³ The indicators with not-yet-available input data are the proposed new indicators described in Section 5.

Measurement of access to healthcare

Table 9.1 Indicators with existing data

Dimension	Aim	Indicator	Source
Availability	<i>To monitor the availability of healthcare personnel in preventative, primary, secondary and long-term care</i>	Generalist medical practitioners	EUROSTAT
		Dentists	EUROSTAT
		Physicians by sex and age groups	EUROSTAT
		Specialist medical practitioners	EUROSTAT
		Health personnel employed in hospitals	EUROSTAT
		Nursing and caring professionals	EUROSTAT
		Providers of informal care (1)	EUROSTAT
	<i>To monitor the availability of healthcare facilities in primary, secondary and long-term care</i>	Number of primary healthcare units	WHO
		Curative care beds	EUROSTAT
		Long-term care beds in nursing and residential care facilities (2)	EUROSTAT
	<i>To monitor the availability of healthcare programmes in preventative care</i>	mHealth programmes for community mobilisation/health promotion campaigns	WHO
		Existence of a national screening programme	WHO
		Existence of a national immunisation programme for children/adolescents	WHO
		Existence of a national immunisation programme for adults	WHO
	<i>To monitor the availability of equipment and medical products in primary and secondary care</i>	Medical technology (3)	EUROSTAT
	<i>To monitor the availability of healthcare services in long-term care</i>	Ratio of the number of informal caregivers to the number of recipients of long-term care	EUROSTAT/ OECD
Ratio of formal to informal caregivers		EUROSTAT/ OECD	
Affordability	<i>To monitor healthcare expenditure</i>	Healthcare expenditure by providers of preventative care	EUROSTAT
		Healthcare expenditure for preventative care	EUROSTAT

Measurement of access to healthcare

	Healthcare expenditure by providers of ambulatory care	EUROSTAT	
	Healthcare expenditure for curative care	EUROSTAT	
	Healthcare expenditure in hospitals	EUROSTAT	
	Share of generics in the total pharmaceutical market	OECD	
	Healthcare expenditure in long-term care (2)	EUROSTAT	
<i>To monitor affordability of services provided</i>	Share of vaccines recommended for UMV that are fully funded (4)	EUROSTAT	
	OOP expenditure	EUROSTAT	
	Consultation skipped due to cost	OECD	
	Self-reported unmet need due to cost, by labour status and income quintile	EUROSTAT	
	Prescribed medicines skipped due to cost	OECD	
	Could not afford prescribed medicines	EUROSTAT	
<i>To monitor the health insurance coverage</i>	Depth of basic coverage score	EUROSTAT	
	Health insurance coverage (breakdown by compulsory and voluntary)	OECD	
Adequacy	<i>To monitor health behaviours and population-wide outcomes</i>	BMI (1)	EUROSTAT
		Blood pressure (1)	EUROSTAT
		Tobacco consumption (1)	EUROSTAT
		Vegetable consumption (1)	EUROSTAT
		Alcohol consumption (1)	EUROSTAT
		Physical activity (1)	EUROSTAT
		Blood cholesterol	WHO
		Blood sugar	EUROSTAT
		Infant mortality	EUROSTAT

Measurement of access to healthcare

		Change in infant mortality during the last 10 years	EUROSTAT
		NCD mortality	EUROSTAT
		Self-reported chronic morbidity, by income quintile and labour status	EUROSTAT
		Self-perceived health, by labour status	EUROSTAT
		Activity limitation	EUROSTAT
	<i>To monitor the adequacy of services in primary and secondary care</i>	30-day in-patient case fatality of AMI and ischemic stroke	OECD
		In-patient suicide among patients with a psychiatric disorder	OECD
		Hospital-acquired infection	ECDC
	<i>To monitor the adequacy of services in long-term care</i>		
		Persons reporting a chronic disease, by disease	EUROSTAT
Timeliness	<i>To monitor the timely response of the healthcare system and the barriers to this timely response in primary and secondary care</i>	Self-reported unmet need for medical examination due to waiting list, by income quintile and labour status	EUROSTAT
		Waiting time more than four weeks for an appointment with a specialist	OECD
		Femur fracture waiting time	OECD
		Waiting time from specialist assessment to treatment	OECD
		Waiting time for cataract surgery, coronary bypass, hip and knee replacement	OECD
Accessibility	<i>To monitor the levels of health literacy</i>	Individuals and communities use social media to learn about health issues	WHO
		Healthcare organisations use social media to promote health messages as a part of health promotion campaigns	WHO
		Health literacy	HLS-EU
		Educational attainment as proxy	EUROSTAT
	<i>To monitor the unmet needs and utilisation rates of healthcare service or product in</i>	General preventative examination	EUROSTAT
		Immunisation coverage (4)	WHO

Measurement of access to healthcare

<i>preventative, primary, secondary and long-term care (revealed accessibility)</i>	Self-reported vaccination against influenza (1)	EUROSTAT
	Outpatient visits	EUROSTAT
	Self-reported consultations of a medical professional	EUROSTAT
	Consultation of a medical doctor (in private practice or as an outpatient), by inhabitant	EUROSTAT
	Consultation of a dentist, by inhabitant (1)	EUROSTAT
	Self-reported breast examination	EUROSTAT
	Self-reported cervical smear test	EUROSTAT
	Self-reported colorectal cancer test	EUROSTAT
	Self-reported screening of cardiovascular disease and diabetes risk	EUROSTAT
	Cervical cancer screening in women aged 20-69	OECD
	Self-reported use of prescribed medicines	EUROSTAT
	Self-reported use of non-prescribed medicines	EUROSTAT
	Pharmaceutical consumption	OECD
	Cataract operations	OECD
	Cardiovascular operations	OECD
	Hip replacement	OECD
	Knee replacement	OECD
	Hospital discharges	EUROSTAT
	Surgical operations and procedures performed in hospitals	EUROSTAT
	Curative care bed occupancy rate	EUROSTAT
Emergency department visits	WHO	

Measurement of access to healthcare

		Self-reported use of home care services	EUROSTAT
<i>To monitor the factors which facilitate and enhance access to primary and secondary care (physical accessibility)</i>		Health personnel by NUTS 2 regions	EUROSTAT
		Physicians, rural vs. urban	OECD
		Dedicated national telehealth policy or strategy in place	WHO
		Healthcare organisations use social media to help to manage patient appointments	WHO
		Remote patient monitoring programmes	WHO
		mHealth programmes for health call centres/healthcare telephone helpline	WHO
		mHealth programmes for mobile telehealth	WHO
		Self-reported unmet need due to travel distance (1)	EUROSTAT
		Hospital beds by NUTS 2 regions	EUROSTAT
	Appropriateness	<i>To monitor the appropriateness of the healthcare service or product regarding the beliefs and sensibilities of a patient/provider</i>	National policy or strategy on multilingualism in place	WHO
Discrimination/stigma indicator			EUROSTAT
Patients reporting being involved in decisions about their care			OECD
Patients reporting easy-to-understand explanations			OECD
Patients reporting spending enough time with any/regular doctor during consultation			OECD
Patients reporting the opportunity to ask questions			OECD

NOTES:

(1) According to Eurostat, the frequency of data dissemination is every five years. The next round (EHIS wave 3) is planned for 2019.

(2) These time series' should be interpreted cautiously, taking into account the methodological discrepancies between countries.

(3) The following categories are proposed to measure the indicator: 'CT scanners' and 'MRI units'.

(4) The vaccines which will be used for this indicator should be those recommended for UMV in the majority of the countries, as well as the more expensive (e.g. combination) vaccines.

Measurement of access to healthcare

Table 9.2 Indicator framework with existing and additional data¹¹⁴

Dimension	Aim	Indicator	Source
Availability	<i>To monitor the availability of healthcare personnel in preventative, primary, secondary and long-term care</i>	Generalist medical practitioners	EUROSTAT
		Dentists	EUROSTAT
		Physicians by sex and age groups	EUROSTAT
		Specialist medical practitioners	EUROSTAT
		Health personnel employed in hospitals	EUROSTAT
		Nursing and caring professionals	EUROSTAT
		Providers of informal care (1)	EUROSTAT
	<i>To monitor the availability of healthcare facilities in primary, secondary and long-term care</i>	Number of primary healthcare units	WHO
		Curative care beds	EUROSTAT
		Long-term care beds in nursing and residential care facilities (2)	EUROSTAT
	<i>To monitor the availability of healthcare programmes in preventative care</i>	mHealth programmes for community mobilisation/health promotion campaigns	WHO
		Existence of a national screening programme	WHO
		Existence of a national immunisation programme for children/adolescents	WHO
Existence of a national immunisation programme for adults		WHO	
<i>To monitor the availability of equipment and medical products in</i>	Medical technology (3)	EUROSTAT	
	Availability of medical products	(DG SANTE future study)	

¹¹⁴ Indicators with not-yet-available input data are highlighted in blue. The strikethrough text indicates the changes resulting from the framework assessment.

Measurement of access to healthcare

primary and secondary care

<i>To monitor the availability of healthcare services in long-term care</i>	Ratio of the number of informal caregivers to the number of recipients of long-term care	EUROSTAT/ OECD
	Ratio of formal to informal caregivers	EUROSTAT/ OECD
<i>To monitor healthcare expenditure</i>	Healthcare expenditure by providers of preventative care	EUROSTAT
	Healthcare expenditure for preventative care	EUROSTAT
	Healthcare expenditure by providers of ambulatory care	EUROSTAT
	Healthcare expenditure for curative care	EUROSTAT
	Healthcare expenditure in hospitals	EUROSTAT
	Capacity to conduct HTA	Questionnaire to the recipients of the relevant WHO questionnaire
Affordability	Share of generics in the total pharmaceutical market	OECD
	Healthcare expenditure in long-term care (2)	EUROSTAT
<i>To monitor affordability of services provided</i>	Share of vaccines recommended for UMV that are fully funded (4)	EUROSTAT
	OOP expenditure	EUROSTAT
	Consultation skipped due to cost —Self-reported unmet need for medical examination	OECD EUROSTAT
	Level of informal payments in healthcare	Add questions to an existing survey
	Self-reported unmet need due to costs, by labour status and income quintile	EUROSTAT

Measurement of access to healthcare

	Prescribed medicines skipped due to cost	OECD
	Could not afford prescribed medicines	EUROSTAT
<i>To monitor the health insurance coverage</i>	Depth of basic coverage score	EUROSTAT
	Health insurance coverage (breakdown by compulsory and voluntary)	OECD
Adequacy	BMI (1)	EUROSTAT
	Blood pressure (1)	EUROSTAT
	Tobacco consumption (1)	EUROSTAT
	Vegetable consumption (1)	EUROSTAT
	Alcohol consumption (1)	EUROSTAT
	Physical activity (1)	EUROSTAT
	Blood cholesterol	WHO
	Blood sugar	EUROSTAT
	Infant mortality	EUROSTAT
	Change in infant mortality during the last 10 years	EUROSTAT
	NCD mortality	EUROSTAT
	Self-reported chronic morbidity, by income quintile and labour status	EUROSTAT
	Self-perceived health, by labour status	EUROSTAT
Activity limitation	EUROSTAT	
	Communication and interpersonal skills of healthcare personnel	Replace questions in the EQoL survey
	Technical skills of GPs	(feasibility study)

Measurement of access to healthcare

	<i>To monitor the adequacy of services in primary and secondary care</i>	Continuity/Integration of care	Add question to an existing survey
		Care transitions	Administrative data
		Medication reconciliation	Administrative data
		Care coordination score	Administrative data
		30-day in-patient case fatality of AMI and ischemic stroke	OECD
		In-patient suicide among patients with a psychiatric disorder	OECD EUROSTAT
		Hospital-acquired infection	ECDC
		Patient pathways – efficiency of information flow (EHR)	Questionnaire to national representatives
	<i>To monitor the adequacy of services in long-term care</i>	Quality of care in nursing homes	Administrative data
		Persons reporting a chronic disease, by disease	EUROSTAT
Timeliness	<i>To monitor the timely response of the healthcare system and the barriers to this timely response in primary and secondary care</i>	Self-reported unmet need for medical examination due to waiting list, by income quintile and labour status	EUROSTAT
		Waiting time more than four weeks for an appointment with a specialist	OECD
		Femur fracture waiting time	OECD
		Waiting time from specialist assessment to treatment	OECD
		Waiting time for cataract surgery, coronary bypass, hip and knee replacement	OECD
Accessibility	<i>To monitor the levels of health literacy</i>	Individuals and communities use social media to learn about health issues	WHO
		Healthcare organisations use social media to promote health messages as a part of health promotion campaigns	WHO
		Health literacy	HLS-EU
		Educational attainment as proxy	EUROSTAT

Measurement of access to healthcare

<i>To monitor the unmet needs and utilisation rates of healthcare service or product in preventative, primary, secondary and long-term care (revealed accessibility)</i>	General preventative examination	EUROSTAT
	Immisation coverage (4)	WHO
	Self-reported vaccination against influenza (1)	EUROSTAT
	Outpatient visits	EUROSTAT
	Self-reported consultations of a medical professional	EUROSTAT
	Consultation of a medical doctor (in private practice or as an outpatient) per inhabitant	EUROSTAT
	Consultation of a dentist per inhabitant (1)	EUROSTAT
	Self-reported breast examination	EUROSTAT
	Self-reported cervical smear test	EUROSTAT
	Self-reported colorectal cancer test	EUROSTAT
	Self-reported screening of cardiovascular disease and diabetes risk	EUROSTAT
	Cervical cancer screening in women aged 20-69	OECD
	Self-reported use of prescribed medicines	EUROSTAT
	Self-reported use of non-prescribed medicines	EUROSTAT
	Pharmaceutical consumption	OECD
	Cataract operations	OECD
	Cardiovascular operations	OECD
	Hip replacement	OECD
	Knee replacement	OECD
	Hospital discharges	EUROSTAT
Surgical operations and procedures performed in hospitals	EUROSTAT	
Curative care bed occupancy rate	EUROSTAT	

Measurement of access to healthcare

	Emergency department	visits	WHO
	Self-reported use of home care services		EUROSTAT
<i>To monitor the factors which facilitate and enhance access to primary and secondary care (physical accessibility)</i>	Health personnel by NUTS 2 regions		EUROSTAT
	Physicians (rural vs. urban)		OECD
	Dedicated national telehealth policy or strategy in place		WHO
	Healthcare organisations use social media to help to manage patient appointments		WHO
	Remote patient monitoring programmes		WHO
	mHealth programmes for health call centres/healthcare telephone helpline		WHO
	mHealth programmes for mobile telehealth		WHO
	Self-reported unmet need due to travel distance (1)		EUROSTAT
	Quality of medical facilities in primary care		EQoL
	Quality of medical facilities in secondary care		EQoL
	Hospital beds by NUTS 2 regions		EUROSTAT
	Proposal to examine the feasibility of adopting an approach similar to that of the UK for transport (future study) availability indicators and statistics		
Appropriateness <i>To monitor the appropriateness of the healthcare service or product regarding the</i>	National policy or strategy on multilingualism in place		WHO
	Discrimination/stigma indicator		EUROSTAT
	Communication and interpersonal skills of healthcare personnel		Replace questions in the EQoL survey

Measurement of access to healthcare

<i>beliefs and sensibilities of a patient/provider</i>	Patients reporting being involved in decisions about their care (5)	OECD
	Patients reporting easy-to-understand explanations (5)	OECD
	Patients reporting spending enough time with any/regular doctor during consultation (5)	OECD
	Patients reporting the opportunity to ask questions (5)	OECD

NOTES:

- (1) According to Eurostat, the frequency of data dissemination is every five years. The next round (EHIS wave 3) is planned for 2019.
- (2) These time series' should be interpreted cautiously, taking into account the methodological discrepancies between countries.
- (3) The following categories are proposed to measure the indicator: 'CT scanners' and 'MRI units'.
- (4) The vaccines which will be used for this indicator should be those recommended for UMV in the majority of the countries, as well as the more expensive (e.g. combination) vaccines.
- (5) For this set of indicators, it is proposed to use the similar questions from the Adequacy dimension, sub-node 'Medical staff skills'/'Communication and interpersonal skills'. As discussed elsewhere, these questions can be integrated into the EQoL survey.

10 A strategy and roadmap to move towards a fairer and more effective measurement of access to healthcare across the EU

10.1 Strategy to deliver a fairer and more effective measurement of access to healthcare in the EU

10.1.1 Introduction

This strategy and roadmap for implementation was produced following completion of a technical research exercise to analyse the key components determining access to healthcare in the EU. The technical research was undertaken to address the following requirements:

- Review existing measures and indicators, as well as the different aspects of access across the EU;
- Develop and test possible new indicators and/or improvements to existing indicators, ensuring that groups vulnerable to exclusion are reached and a 'total picture' of access to healthcare in countries and regions is acquired;
- A framework for measuring access to healthcare in the EU and a strategy and a roadmap for scale-up and implementation of that framework in its different versions

This section of the report delivers on this latter research requirement. It should be noted that this section is designed to be a stand-alone section, which may be read either in conjunction with the previous sections or as a brief summary of the technical research. This is an important and fundamental part of the strategy for delivery.

The strategy and roadmap comprise separate but closely linked tools. Taken together, these tools translate the way of implementation of the theoretical and technical outcomes of the work on the refinement of the measurement framework on access to healthcare. .

The strategy and roadmap for implementation should promote active management towards the amendments to existing indicators and development of new indicators proposed in the study. Such active management also requires engagement with relevant stakeholders.

Actions included in the strategy and roadmap are categorised according to their importance to framework development and difficulty of implementation. Table 10.3 includes estimates of time required to implement actions Figure 10.2 and Figure 10.3.

Estimates of time necessary for implementation for specific actions range from zero months' time allocation to 36 months.

10.1.1.1 Structure of the strategy

For changes to existing indicators and development of new indicators, the strategy is structured in the following way:

1. Purpose of the strategy: the fundamental aims (the strategic framework) and an overview of the specific actions needed to deliver the strategy;
2. Wider importance of developing a more effective measurement of access to healthcare;
3. Implementation of the strategy – this includes its delivery, key stakeholders, an overview of ease of implementation of specific actions, and suggested prioritisation;
4. Timetable of implementation for specific actions, both for amendments to existing indicators and development of new indicators.

10.1.2 The fundamental aims and specific purpose of the strategy

The overall purpose of the strategy is to deliver the actions required to implement a conceptual framework whose indicators enable more effective measurement of access to healthcare across the EU. The framework established was developed and tested through a research process, undertaken in 2018 by researchers and statisticians at ICF and Quantos. It involved a systematic literature and policy review, together with critical challenge through review and workshops involving academic experts and policy practitioners. The process was overseen by a steering group convened by DG SANTE.

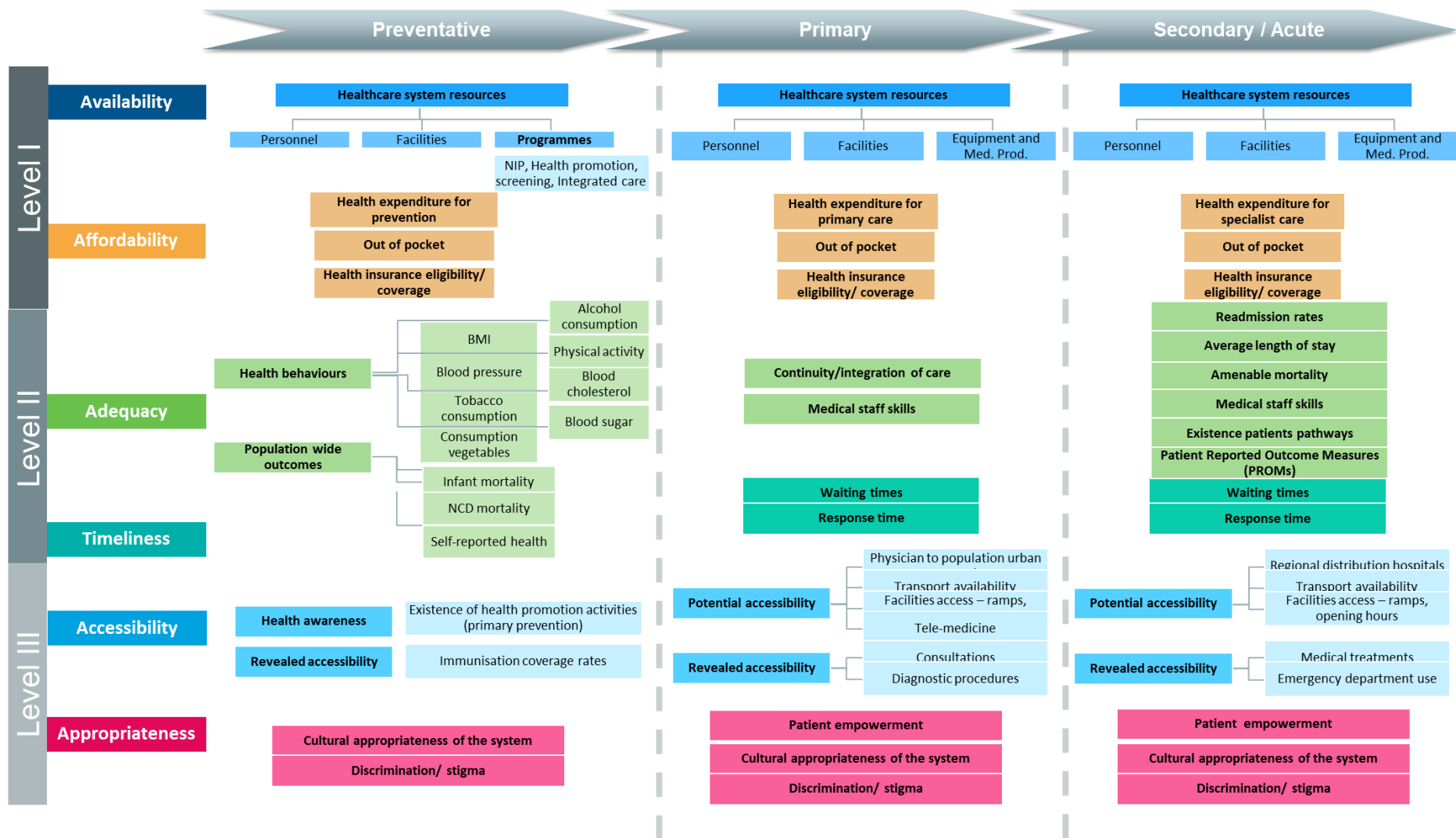
This process resulted in the development of an analytical framework to guide measurement and indicator development, as well as a set of indicators to populate the framework. This is divided into existing indicators and a set of indicators which could be developed. However, these indicators are essentially part of the same framework as, ultimately, effective measurement of access to healthcare requires that the framework of indicators be seen as a single framework.

The conceptual framework is outlined in Figure 10.1 below.

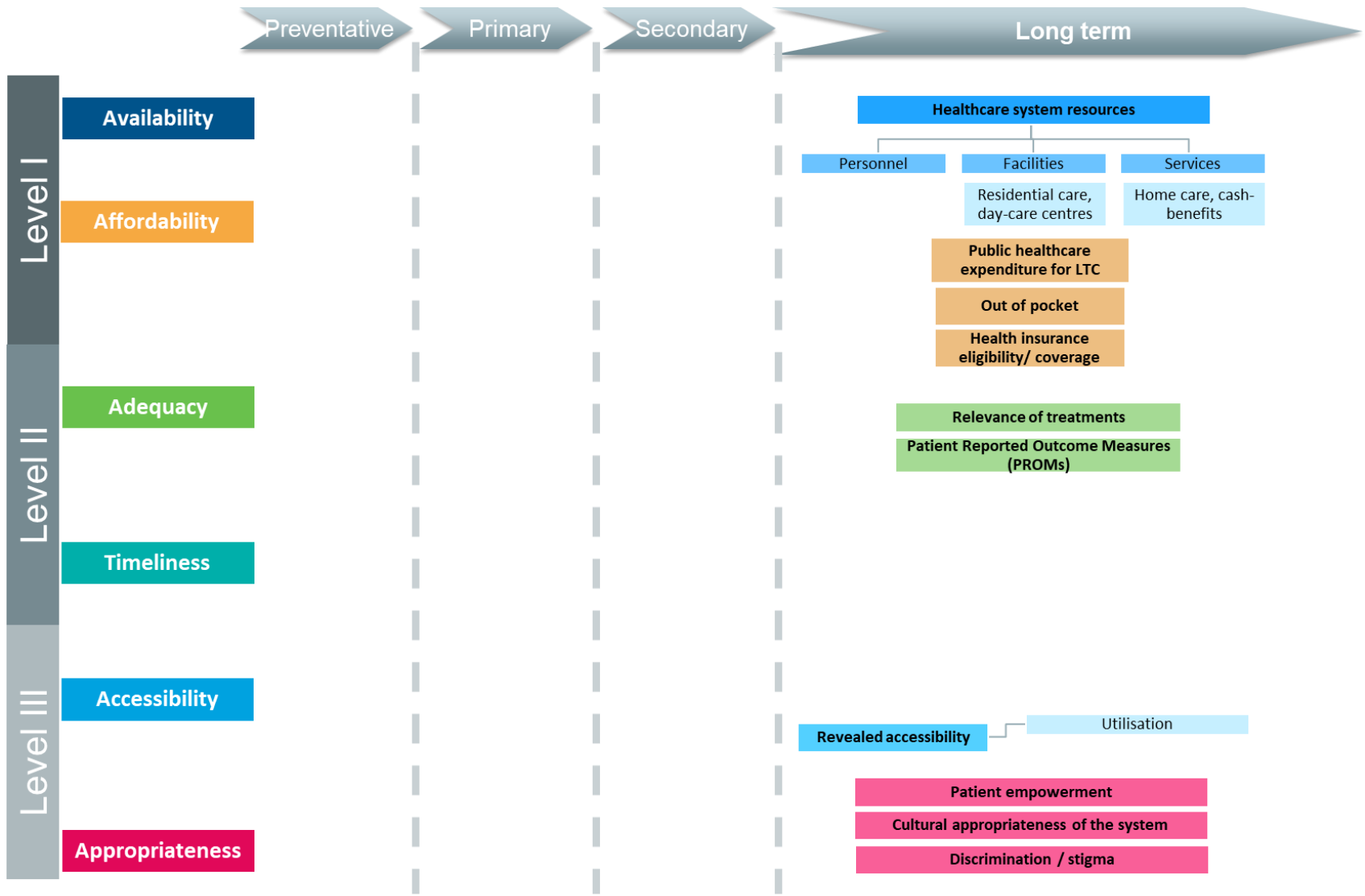
Table 10.1 then outlines the existing indicators which populate the framework, while Table 10.2 shows the fully developed list of indicators, including new indicators which should be developed. Actions to deliver the fully developed framework are the subject of specific roadmaps which follow the strategy (see Section 10.2 of this report).

Measurement of access to healthcare

Figure 10.1 Framework for measurement of access to healthcare



Measurement of access to healthcare



Measurement of access to healthcare

Table 10.1 Indicators with existing data

Dimension	Aim	Indicator	Source
Availability	<i>To monitor the availability of healthcare personnel in preventative, primary, secondary and long-term care</i>	Generalist medical practitioners	EUROSTAT
		Dentists	EUROSTAT
		Physicians by sex and age groups	EUROSTAT
		Specialist medical practitioners	EUROSTAT
		Health personnel employed in hospitals	EUROSTAT
		Nursing and caring professionals	EUROSTAT
		Providers of informal care (1)	EUROSTAT
	<i>To monitor the availability of healthcare facilities in primary, secondary and long-term care</i>	Number of primary healthcare units	WHO
		Curative care beds	EUROSTAT
		Long-term care beds in nursing and residential care facilities (2)	EUROSTAT
	<i>To monitor the availability of healthcare programmes in preventative care</i>	mHealth programmes for community mobilisation/health promotion campaigns	WHO
		Existence of a national screening programme	WHO
		Existence of a national immunisation programme for children/adolescents	WHO
		Existence of a national immunisation programme for adults	WHO
	<i>To monitor the availability of equipment and medical products in primary and secondary care</i>	Medical technology (3)	EUROSTAT
	<i>To monitor the availability of healthcare services in long-term care</i>	Ratio of the number of informal caregivers to the number of recipients of long-term care	EUROSTAT/ OECD
		Ratio of formal to informal caregivers	EUROSTAT/ OECD
Affordability	<i>To monitor healthcare expenditure</i>	Healthcare expenditure by providers of preventative care	EUROSTAT
		Healthcare expenditure for preventative care	EUROSTAT

Measurement of access to healthcare

	Healthcare expenditure by providers of ambulatory care	EUROSTAT	
	Healthcare expenditure for curative care	EUROSTAT	
	Healthcare expenditure in hospitals	EUROSTAT	
	Share of generics in the total pharmaceutical market	OECD	
	Healthcare expenditure in long-term care (2)	EUROSTAT	
<i>To monitor affordability of services provided</i>	Share of vaccines recommended for universal mass vaccine (UMV) that are fully funded (4)	EUROSTAT	
	Out-of-pocket (OOP) expenditure	EUROSTAT	
	Consultation skipped due to cost	OECD	
	Self-reported unmet need due to costs, by labour status and income quintile	EUROSTAT	
	Prescribed medicines skipped due to cost	OECD	
	Could not afford prescribed medicines	EUROSTAT	
<i>To monitor the health insurance coverage</i>	Depth of basic coverage score	EUROSTAT	
	Health insurance coverage (breakdown by compulsory and voluntary)	OECD	
Adequacy	<i>To monitor health behaviours and population-wide outcomes</i>	Body Mass Index (BMI) (1)	EUROSTAT
		Blood pressure (1)	EUROSTAT
		Tobacco consumption (1)	EUROSTAT
		Vegetable consumption (1)	EUROSTAT
		Alcohol consumption (1)	EUROSTAT
		Physical activity (1)	EUROSTAT
		Blood cholesterol	WHO
		Blood sugar	EUROSTAT
		Infant mortality	EUROSTAT

Measurement of access to healthcare

		Change in infant mortality during the last 10 years	EUROSTAT
		Non-communicable diseases (NCD) mortality	EUROSTAT
		Self-reported chronic morbidity, by income quintile and labour status	EUROSTAT
		Self-perceived health, by labour status	EUROSTAT
		Activity limitation	EUROSTAT
	<i>To monitor the adequacy of services in primary and secondary care</i>	30-day in-patient case fatality of acute myocardial infarction (AMI) and ischemic stroke	OECD
		In-patient suicide among patients with a psychiatric disorder	OECD
		Hospital-acquired infection	ECDC
	<i>To monitor the adequacy of services in long-term care</i>		
		Persons reporting a chronic disease, by disease	EUROSTAT
Timeliness	<i>To monitor the timely response of the healthcare system and the barriers to this timely response in primary and secondary care</i>	Self-reported unmet need for medical examination due to waiting list, by income quintile and labour status	EUROSTAT
		Waiting time more than four weeks for an appointment with a specialist	OECD
		Femur fracture waiting time	OECD
		Waiting time from specialist assessment to treatment	OECD
		Waiting time for cataract surgery, coronary bypass, hip and knee replacement	OECD
Accessibility	<i>To monitor the levels of health literacy</i>	Individuals and communities use social media to learn about health issues	WHO
		Healthcare organisations use social media to promote health messages as a part of health promotion campaigns	WHO
		Health literacy	HLS-EU
		Educational attainment as proxy	EUROSTAT
	<i>To monitor the unmet needs and utilisation rates of healthcare service or product in</i>	General preventative examination	EUROSTAT
		Immunisation coverage (4)	WHO

Measurement of access to healthcare

<i>preventative, primary, secondary and long-term care (revealed accessibility)</i>	Self-reported vaccination against influenza (1)	EUROSTAT
	Outpatient visits	EUROSTAT
	Self-reported consultations of a medical professional	EUROSTAT
	Consultation of a medical doctor (in private practice or as an outpatient) per inhabitant	EUROSTAT
	Consultation of a dentist per inhabitant (1)	EUROSTAT
	Self-reported breast examination	EUROSTAT
	Self-reported cervical smear test	EUROSTAT
	Self-reported colorectal cancer test	EUROSTAT
	Self-reported screening of cardiovascular disease and diabetes risk	EUROSTAT
	Cervical cancer screening in women aged 20-69	OECD
	Self-reported use of prescribed medicines	EUROSTAT
	Self-reported use of non-prescribed medicines	EUROSTAT
	Pharmaceutical consumption	OECD
	Cataract operations	OECD
	Cardiovascular operations	OECD
	Hip replacement	OECD
	Knee replacement	OECD
	Hospital discharges	EUROSTAT
	Surgical operations and procedures performed in hospitals	EUROSTAT
	Curative care bed occupancy rate	EUROSTAT
Emergency department visits	WHO	

Measurement of access to healthcare

		Self-reported use of home care services	EUROSTAT
<i>To monitor the factors which facilitate and enhance access to primary and secondary care (physical accessibility)</i>		Health personnel by NUTS 2 regions	EUROSTAT
		Physicians (rural vs. urban)	OECD
		Dedicated national telehealth policy or strategy in place	WHO
		Healthcare organisations use social media to help to manage patient appointments	WHO
		Remote patient monitoring programmes	WHO
		mHealth programmes for health call centres/healthcare telephone helpline	WHO
		mHealth programmes for mobile telehealth	WHO
		Self-reported unmet need due to travel distance (1)	EUROSTAT
		Hospital beds by NUTS 2 regions	EUROSTAT
	Appropriateness	<i>To monitor the appropriateness of the healthcare service or product regarding the beliefs and sensibility of a patient/provider</i>	National policy or strategy on multilingualism in place	WHO
Discrimination/stigma indicator			EUROSTAT
Patients reporting being involved in decisions about their care			OECD
Patients reporting easy-to-understand explanations			OECD
Patients reporting spending enough time with any/regular doctor during consultation			OECD
Patients reporting the opportunity to ask questions			OECD

NOTES:

(1) According to Eurostat, the frequency of data dissemination is every five years. The next round (EHIS wave 3) is planned for 2019.

(2) These time series' should be interpreted cautiously, taking into account the methodological discrepancies between countries.

(3) The following categories are proposed to measure the indicator: 'Computed Tomography (CT) scanners' and 'Magnetic Resonance Imaging (MRI) units'.

(4) The vaccines which will be used for this indicator should be those recommended for UMV in the majority of the countries, as well as the more expensive (e.g. combination) vaccines.

Measurement of access to healthcare

Table 10.2 Indicator framework with additional data¹¹⁵

Dimension	Aim	Indicator	Source
Availability	<i>To monitor the availability of healthcare personnel in preventative, primary, secondary and long-term care</i>	Generalist medical practitioners	EUROSTAT
		Dentists	EUROSTAT
		Physicians by sex and age groups	EUROSTAT
		Specialist medical practitioners	EUROSTAT
		Health personnel employed in hospitals	EUROSTAT
		Nursing and caring professionals	EUROSTAT
		Providers of informal care (1)	EUROSTAT
	<i>To monitor the availability of healthcare facilities in primary, secondary and long-term care</i>	Number of primary healthcare units	WHO
		Curative care beds	EUROSTAT
		Long-term care beds in nursing and residential care facilities (2)	EUROSTAT
	<i>To monitor the availability of healthcare programmes in preventative care</i>	mHealth programmes for community mobilisation/health promotion campaigns	WHO
		Existence of a national screening programme	WHO
		Existence of a national immunisation programme for children/adolescents	WHO
Existence of a national immunisation programme for adults		WHO	
<i>To monitor the availability of equipment and medical products in</i>	Medical technology (3)	EUROSTAT	
	Availability of medical products	(DG SANTE future study)	

¹¹⁵ Indicators with not-yet-available input data are highlighted in blue. The strikethrough text indicates the changes resulting from the framework assessment.

Measurement of access to healthcare

primary and secondary care

<i>To monitor the availability of healthcare services in long-term care</i>	Ratio of the number of informal caregivers to the number of recipients of long-term care	EUROSTAT/ OECD	
	Ratio of formal to informal caregivers	EUROSTAT/ OECD	
<i>To monitor healthcare expenditure</i>	Healthcare expenditure by providers of preventative care	EUROSTAT	
	Healthcare expenditure for preventative care	EUROSTAT	
	Healthcare expenditure by providers of ambulatory care	EUROSTAT	
	Healthcare expenditure for curative care	EUROSTAT	
	Healthcare expenditure in hospitals	EUROSTAT	
	Capacity to conduct health technology assessment (HTA)	(feasibility study)	
	Share of generics in the total pharmaceutical market	OECD	
	Healthcare expenditure in long-term care (2)	EUROSTAT	
	Affordability <i>To monitor affordability of services provided</i>	Share of vaccines recommended for UMV that are fully funded (4)	EUROSTAT
		OOP expenditure	EUROSTAT
Consultation skipped due to cost – Self-reported unmet need for medical examination		OECD EUROSTAT	
Level of informal payments in healthcare		EUROSTAT	
Self-reported unmet need due to costs, by labour status and income quintile		EUROSTAT	
Prescribed medicines skipped due to cost		OECD	
Could not afford prescribed medicines		EUROSTAT	

Measurement of access to healthcare

<i>To monitor the health insurance coverage</i>	Depth of basic coverage score	EUROSTAT
	Health insurance coverage (breakdown on compulsory and voluntary)	OECD
Adequacy	BMI (1)	EUROSTAT
	Blood pressure (1)	EUROSTAT
	Tobacco consumption (1)	EUROSTAT
	Vegetable consumption (1)	EUROSTAT
	Alcohol consumption (1)	EUROSTAT
	Physical activity (1)	EUROSTAT
	Blood cholesterol	WHO
	Blood sugar	EUROSTAT
	Infant mortality	EUROSTAT
	Change in infant mortality during the last 10 years	EUROSTAT
	NCD mortality	EUROSTAT
	Self-reported chronic morbidity, by income quintile and labour status	EUROSTAT
	Self-perceived health, by labour status	EUROSTAT
	Activity limitation	EUROSTAT
<i>To monitor the adequacy of services in primary and secondary care</i>	Communication and interpersonal skills of healthcare personnel	EQoL
	Technical skills of General Practitioners (GPs)	(feasibility study)
	Continuity/Integration of care	EUROSTAT
	Care transitions	EUROSTAT
	Medication reconciliation	EUROSTAT

Measurement of access to healthcare

	Care coordination score	EUROSTAT
	30-day in-patient case fatality of AMI and ischemic stroke	OECD
	In-patient suicide among patients with a psychiatric disorder	OECD EUROSTAT
	Hospital-acquired infection	ECDC
	Patient pathways – efficiency of information flow (electronic health records (EHR))	WHO EUROSTAT
<hr/>		
	<i>To monitor the adequacy of services in long-term care</i> Quality of care in nursing homes	EUROSTAT
	Persons reporting a chronic disease, by disease	EUROSTAT
<hr/>		
Timeliness	<i>To monitor the timely response of the healthcare system and the barriers to this timely response in primary and secondary care</i> Self-reported unmet need for medical examination due to waiting list, by income quintile and labour status	EUROSTAT
	Waiting time more than four weeks for an appointment with a specialist	OECD
	Femur fracture waiting time	OECD
	Waiting time from specialist assessment to treatment	OECD
	Waiting time for cataract surgery, coronary bypass, hip and knee replacement	OECD
<hr/>		
Accessibility	<i>To monitor the levels of health literacy</i> Individuals and communities use social media to learn about health issues	WHO
	Healthcare organisations use social media to promote health messages as a part of health promotion campaigns	WHO
	Health literacy	HLS-EU
	Educational attainment as proxy	EUROSTAT
<hr/>		
<i>To monitor the unmet needs and utilisation rates of healthcare</i>	General preventative examination	EUROSTAT
	Immunisation coverage (4)	WHO
	Self-reported vaccination against influenza (1)	EUROSTAT

Measurement of access to healthcare

service or product in preventative, primary, secondary and long-term care (revealed accessibility)	Outpatient visits		EUROSTAT
	Self-reported consultations of a medical professional		EUROSTAT
	Consultation of a medical doctor (in private practice or as an outpatient) per inhabitant		EUROSTAT
	Consultation of a dentist per inhabitant (1)		EUROSTAT
	Self-reported breast examination		EUROSTAT
	Self-reported cervical smear test		EUROSTAT
	Self-reported colorectal cancer test		EUROSTAT
	Self-reported screening of cardiovascular disease and diabetes risk		EUROSTAT
	Cervical cancer screening in women aged 20-69		OECD
	Self-reported use of prescribed medicines		EUROSTAT
	Self-reported use of non-prescribed medicines		EUROSTAT
	Pharmaceutical consumption		OECD
	Cataract operations		OECD
	Cardiovascular operations		OECD
	Hip replacement		OECD
	Knee replacement		OECD
	Hospital discharges		EUROSTAT
	Surgical operations and procedures performed in hospitals		EUROSTAT
	Curative care bed occupancy rate		EUROSTAT
	Emergency department visits	WHO	
	Self-reported use of home care services		EUROSTAT

Measurement of access to healthcare

<i>To monitor the factors which facilitate and enhance access to primary and secondary care (physical accessibility)</i>	Health personnel by NUTS 2 regions	EUROSTAT
	Physicians (rural vs. urban)	OECD
	Dedicated national telehealth policy or strategy in place	WHO
	Healthcare organisations use social media to help to manage patient appointments	WHO
	Remote patient monitoring programmes	WHO
	mHealth programmes for health call centres/healthcare telephone helpline	WHO
	mHealth programmes for mobile telehealth	WHO
	Self-reported unmet need due to travel distance (1)	EUROSTAT
	Quality of medical facilities in primary care	EQoL
	Hospital beds by NUTS 2 regions	EUROSTAT
<i>Proposal to examine the feasibility of adopting an approach similar to that of the UK for transport availability indicators and statistics (future study)</i>		
Appropriateness <i>To monitor the appropriateness of the healthcare service or product regarding the beliefs and sensibilities of a patient/provider</i>	National policy or strategy on multilingualism in place	WHO
	Discrimination/stigma indicator	EUROSTAT
	Communication and interpersonal skills of healthcare personnel	EQoL
	Patients reporting being involved in decisions about their care (5)	OECD
	Patients reporting easy-to-understand explanations (5)	OECD
	Patients reporting spending enough time with any/regular doctor during consultation (5)	OECD

NOTES:

- (1) According to Eurostat, the frequency of data dissemination is every five years. The next round (EHIS wave 3) is planned for 2019.
- (2) These time series' should be interpreted cautiously, taking into account the methodological discrepancies between countries.
- (3) The following categories are proposed to measure the indicator: 'CT scanners' and 'MRI units'.
- (4) The vaccines which will be used for this indicator should be those recommended for UMV in the majority of the countries, as well as the more expensive (e.g. combination) vaccines.
- (5) For this set of indicators, it is proposed to use the similar questions from the Adequacy dimension, sub-node 'Medical staff skills'/'Communication and interpersonal skills'. As discussed elsewhere, these questions can be integrated into the Eurofound/ European Quality of Life (EQoL) survey.

10.1.3 The wider importance of the strategy

Ultimately, the actions identified in the strategy may improve the overall framework established to understand features of access to healthcare in the EU. More specifically, the proposed actions would allow the framework to be used to address the different needs of various healthcare stakeholders in measuring access to healthcare in the EU.

10.1.3.1 Wider importance of understanding access to healthcare

European health systems face a growing number of challenges. These include: ageing populations and a rise in the prevalence of chronic disease; budget constraints; and increasing levels of health inequality within and between Member States. In the face of the increasing demand for services, financial pressures and an uneven distribution of healthcare professionals, it is crucial to ensure that healthcare systems can guarantee equitable access¹¹⁶.

According to Article 153(2) of the Treaty on the Functioning of the European Union (TFEU), the Union is empowered to adopt measures to support and complement the activities of the Member States in the area of social security and social protection of workers. Article 153(4) provides that provisions adopted pursuant to Article 153 TFEU shall not affect the right of Member States to define the fundamental principles of their social security system, nor shall they significantly affect their financial equilibrium.

Pursuant to Article 168(2) TFEU the Union shall encourage cooperation between the Member States in the area of human health and, if necessary, lend support to their action. The Commission may, in close contact with the Member States, take any useful initiative to promote coordination between Member States in this area. This includes (but is not limited to) initiatives to establish guidelines and indicators, the organisation of exchanges of best practice, and the preparation of the necessary elements for periodic monitoring and evaluation. Articles 168(1) and 168(7) TFEU provide that Union action shall complement national policies and respect the responsibilities of the Member States, and shall be directed towards improving public health, preventing physical and mental illness and disease, and avoiding sources of danger to physical and mental health.

The European Pillar of Social Rights proclaimed on 17 November 2017 sets out a general right of access to good quality preventative healthcare and medical treatment. It goes beyond Article 35 of the Charter of Fundamental rights¹¹⁷ in that it requires timely access to healthcare and stipulates that it should be affordable and of good quality. The Social Scoreboard has been established to measure Member States' progress towards achieving the principles of the Pillar.

Ensuring that European citizens have good and equitable access to healthcare is important for several reasons:

¹¹⁶ Patient Access Partnership, 2015. *Interest Group on Access to Healthcare: Preliminary Opinion of the Expert Panel on Access to Health Services in the EU*.

¹¹⁷ The legally binding Article 35 of the Charter of Fundamental Rights, states that: 'Everyone has the right to access to preventative healthcare and the right to benefits from medical treatment under the conditions established by national laws and practices. A high level of human health protection shall be ensured in the definition and implementation of all the Union's policies and activities' (European Union, 2012).

- Healthcare is a significant determinant of wellbeing, contributing to health improvements and prolonged life, as well as the prevention of suffering and ill-health¹¹⁸;
- A healthy population is associated with better economic growth, labour market participation and productivity. In particular, higher expenditure and more equitable distribution of resources in the healthcare system is linked to better health among the population (the relationship is not linear). This, in turn, leads to greater economic prosperity through higher productivity¹¹⁹;
- Ongoing avoidable and preventable inequalities in health within and between Member States conflict with the rights stated in the Charter of Fundamental Rights. They also conflict with the EU Treaty objective to ensure ‘the development of human resources with a view to lasting high employment and the combating of exclusion’ (European Union, 2008). The EU and its Member States are thus legally bound to reduce health inequality, and the provision of equitable and accessible healthcare plays a key role here;
- There is evidence of significant variation in access to healthcare between Member States and different population groups. For example, those most economically deprived or not in employment are more likely to have difficulties in accessing the healthcare that they need.

10.1.4 Implementation of the strategy

10.1.4.1 Requirements to deliver the strategy and roadmap

The strategy and roadmap require DG SANTE to own the framework and take the strategic lead in delivering the specific actions outlined within it. This does not mean that DG SANTE is responsible for delivering each of the actions outlined below, with many of the actions being deliverable by other stakeholders.

Convening a working group composed of a range of relevant stakeholders, many of whom are identified in the strategy and roadmap below, is likely to be the most appropriate approach to delivery. A committee or a working group would ensure broad participation and could also be authorised to work with third parties (Eurofound, EU Health Literacy) for some activities relating to surveys carried out by others. Further development of data will also require co-operation with Eurostat, the OECD, European Observatory on Health Systems and Policies, WHO and possibly other stakeholders.

This group could meet every six months to monitor the impact of changes made to the set of indicators and delivery of the actions required to modify or establish indicators, as appropriate.

In a more general sense, the framework could be presented and discussed in workshops, with feedback sought. It should be seen as a work-in-process, open to further improvement, especially by incorporating new methodological developments or a reduction in the number of indicators, for example. Cooperation with other committees and working groups with similar mandates will also be needed.

¹¹⁸ Nolte, E. & McKee, M., 2011. ‘Variations in amenable mortality – trends in 16 high-income nations’. *Health Policy*, 103(1), pp. 47–52.

¹¹⁹ European Commission, 2010. *European Economy: Projecting future healthcare expenditure at European level: drivers, methodology and main results*.

http://ec.europa.eu/economy_finance/publications/economic_paper/2010/pdf/ecp417_en.pdf

10.1.4.2 Identification of stakeholders

The following stakeholders have been identified as important to the delivery of actions required to modify/establish indicators. Some would also be involved in overseeing delivery of the required actions to improve existing indicators and develop new indicators:

- European Commission;
- Eurostat;
- OECD;
- European Observatory on Health Systems and Policies;
- European and national organisations representing the interest of patients, healthcare professionals;
- Member State authorities involved in healthcare;
- Eurofound;
- Health Literacy Europe;
- Academic experts and specialist researchers.

10.1.4.3 Ease of implementation and suggested prioritisation

The list of indicators proposed for amendment, together with the new indicators proposed, is outlined in Table 10.3 below. This table includes an assessment of the relative importance (priority level) of each of the actions proposed to improve the overall indicator framework, as well as its ease of implementation. The assessment of importance is based on discussions at stakeholder workshops, desk research undertaken by the study team, and the views of the external experts on the study team.

Table 10.3 An overview of indicators included in the strategy and their relative difficulty and importance

Amendments to existing indicators and framework / indicator development tasks				
Dimension	Aspect	Indicator	Ease of implementation (Easy/ Moderate / Difficult)	Priority level (High/ Medium/ Low)
Availability	Personnel	- Proposal to enrich the node by adding the Eurostat indicators with the number of physicians broken down by sex and age groups to the currently placed indicators, in all of preventative, primary and secondary care	-	High
	Facilities	- Proposal to remove the Facilities/preventative care node - Proposal to remove the indicator: <i>Number of primary healthcare units in primary care</i>	-	NA
	Programmes	- Proposal to enrich the indicator <i>Existence of a national screening programme – preventative care</i> by adding the additional questions, which are much more general and not restricted to screening	-	High
	Equipment and medical products.	- DG SANTE will conduct a future study to examine in greater depth how to measure availability of medical products in the EU	Moderate	High
Affordability	OOP expenditure.	- Proposal to keep the OOP expenditure indicator for long-term care but exclude it from the framework until the methodological issues are resolved	Difficult	High
		- Proposal to use the already placed indicator of OOP expenditure in primary and secondary care until the methodological work by Eurostat on linking SHA with disease-specific data is complete and more accurate estimates by stage can be obtained	Difficult	High
		- Proposal to use the vaccines which are recommended for UMV in the majority of the countries, as well the more expensive (e.g. combination) vaccines to measure the indicator <i>Share of recommended vaccines not fully funded</i>	Easy to Moderate	High
		- Proposal to remove the indicator <i>Consultations skipped due to cost in primary care</i> in favour of the indicator from Eurostat already in secondary care, namely <i>the self-reported unmet need for medical examination from EU-SILC data</i>	-	High

Measurement of access to healthcare

	Health insurance eligibility/ coverage	- Proposal to follow-up the developments of Eurostat's work linking SHA with disease-specific data, in order to produce stage-specific indicators	Difficult	High
Adequacy	Health behaviours	- Proposal to remove the indicator <i>Blood cholesterol</i> in preventative care	-	High
	Epidemiology – long-term care	Proposal to add this new sub-node, with existing indicators on the prevalence of cardiovascular disease, dementia, musculoskeletal diseases, stroke and urinary incontinence in older people with at least some degree of activity limitation	-	NA
	Patient Reported Outcome Measures (PROMs) – secondary and long-term care	- Proposal to wait for the pilot questionnaires in the OECD Patient-Reported Indicators Survey (PaRIS), given the more advanced work that OECD is conducting for this survey	Moderate	Low
	Amenable mortality	- Proposal to collect data from administrative data in the EU for the indicator: <i>In-patient suicide among patients diagnosed with a mental disorder in secondary care</i>	Moderate	Medium
Timeliness	Response time	- Proposal to remove the response times node in primary care	-	NA
		- Proposal to enrich the response times node in secondary care by adding the OECD waiting time indicators for cataract surgery, coronary bypass, hip replacement and knee replacement	-	High
Accessibility	Health literacy – preventative care	- Alternative proposed indicator: Use educational attainment from EU-LFS data as proxy	-	Medium
	Physical accessibility	- Proposal to examine the feasibility of adopting an approach similar to that of the UK for transport availability indicators and statistics	Difficult	Medium
		- Proposal to use two questions from the EQoL survey for the quality of medical facilities in primary and secondary care, respectively	-	Medium
		- Proposal to remove the indicator <i>Outpatient visits</i>	-	High
Appropriateness	Patient empowerment	- Proposal to replace the OECD patient empowerment indicators with the similar questions in the Adequacy dimension, sub-node 'Medical staff skills'/Communication and interpersonal skills' and integrate them into the EQoL survey	Moderate	High

Measurement of access to healthcare

General issues		- Proposal to use the breakdowns of indicators by employment status and/or by income quintile in the existing indicators drawn from EU-SILC or EHIS data	-	Medium
New Indicators				
Dimension	Aspect	Indicator	Ease of implementation	Priority level
Availability	Services	- Proposed indicator: The ratio of the number of informal caregivers to the number of recipients of long-term care and the annual (or compound) change rate of this ratio - see indicator fiche AV1	-	Medium
		- Alternative proposed indicator: the ratio of the number of formal to informal caregivers and the annual (or compound) change rate of this ratio - see indicator fiche AV2	-	Medium
Affordability	Healthcare expenditure	- Proposed indicator: Capacity to conduct HTA – see indicator fiche AF1	Easy	High
	OOP expenditure	- Proposed indicator: Share of recommended vaccines not fully funded – see indicator fiche AF2 - Proposal to use the vaccines which are recommended for UMV in the majority of the countries, as well as the more expensive (e.g. combination) vaccines	Easy to Moderate	High
		- Proposed indicator: Level of informal payments in healthcare (secondary care) - see indicator fiche AF3	Moderate	Medium
	Health insurance eligibility/ coverage	- Proposed indicator: Depth of basic coverage score (all stages of healthcare) - see indicator fiche AF4	Moderate	High
Adequacy	Medical staff skills – primary care and secondary care	- Proposed indicator: Communication and interpersonal skills (for both primary and secondary care) – see indicator fiche AD1	Moderate	Low
	Medical staff skills – primary care and secondary care	- Proposed indicator: Technical skills (only primary care) – see indicator fiche AD2	Difficult	Low
		- Proposed indicator: Continuity/Integration of care indicator – see indicator fiche AD3	Moderate	Low

Measurement of access to healthcare

	Continuity/ Integration of care	- Proposed indicators: Care transition indicators – see indicator fiche AD4	Moderate	Low
		- Proposed indicator: Medication reconciliation indicator – see indicator fiche AD5	Moderate	Low
		- Proposed indicator: Care coordination score – see indicator fiche AD6	Moderate	Low
	Existence of patient pathways – secondary care	- Proposed indicator: Patient pathways indicator (efficiency of information flow) – see indicator fiche AD7	Easy	Medium
	Treatment adequacy (or relevance of treatment) – long-term care	- Proposed indicator: Quality of care in nursing homes – see indicator fiche AD8	Moderate	Medium
Accessibility	Health literacy – preventative care	- Proposed indicator: Health literacy – see indicator fiche AC1	Moderate	Medium
Appropriateness	Discrimination/ stigma	- Proposed indicator: Discrimination/stigma indicator – see indicator fiche AP1	-	Medium

10.1.5 Timetable

Figure 10.2 and Figure 10.3 below present a timetable for undertaking the actions identified in this study. Table 10.1 then outlines the actions, estimates of time requirements from European Commission officers, and the overall likely duration required to implement the actions required to adapt existing indicators. Table 10.2 presents this information for establishing new indicators.

Measurement of access to healthcare

Figure 10.2 Implementation timetable for adapting existing indicators

Adaptation of existing indicators and framework development tasks			EST. COMM OFFICER TIME (months)	Estimate of time required for implementation (months)																																				
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	
Dimension	Aspect	Indicator																																						
Availability	Personnel	AV3: Proposal to enrich the node by adding the Eurostat indicators with the number of physicians broken down by sex and age groups to the currently placed indicators, in all of preventive, primary and secondary care.	3																																					
	Facilities	AV4: Proposal to remove the Facilities / preventive care node & Proposal to remove the indicator: Number of primary health care units in primary care	1																																					
	Programmes	AV5: Proposal to enrich the indicator <i>Existence of a national screening program – preventive care</i> by adding the additional questions, which are much more general and not restricted to screening	0																																					
	Equipment and Medicinal Products.	AV6: DG SANTE will in the future conduct a study to examine in greater depth how to measure availability of medicinal products in the EU.	3																																					
Affordability	Out-of-pocket (OOP) expenditure.	AF5: Proposal to keep the OOP expenditure indicator for long-term care but not put it yet in the framework until the methodological issues have been resolved.	12																																					
		AF6: Proposal to use the already placed indicator of OOP expenditure in primary and secondary care until the methodological work by Eurostat on the linking of SHA with disease-specific data is completed and more accurate estimates by stage can be obtained.	24																																					
		Proposal to remove the indicator Consultations skipped due to cost in primary care and to use instead the indicator from Eurostat which is placed in secondary care, namely the self-reported unmet needs for medical examination from EU-SILC data	0																																					
	Health insurance eligibility / coverage.	AF7: Proposal to follow-up the developments of Eurostat work on the linking SHA with disease-specific data, in order to produce stage-specific indicators.	24																																					
Adequacy	Health behaviours	AD9: Proposal to remove the indicator <i>Blood cholesterol</i> in preventative care	0																																					
	Patient Reported Outcome Measures (PROMs)	AD10: Proposal to wait for the pilot questionnaires in the OECD Patient-Reported Indicators Survey (PaRIS), given the more advanced work that OECD is conducting for this survey.	3																																					
	Amenable mortality	AD11: Proposal to collect data from administrative data in the EU for the indicator <i>In-patient suicide among patients diagnosed with a mental disorder in secondary care</i>	3																																					
Timeliness	Response time	T11: Proposal to remove the response times node in primary care.	1																																					
		T12: Proposal to enrich the response times node in secondary care, by adding the OECD waiting times indicators for cataract surgery, coronary bypass, hip replacement and knee replacement.	3																																					
	Physical accessibility	AC3: Proposal to examine the feasibility of adopting an approach similar to the one in the UK for transport availability indicators and statistics.	24																																					
		AC2: Proposal to use two questions from the European Quality of Life Survey for the quality of medical facilities in primary and secondary care, respectively.	3																																					
		AC4: Proposal to remove the indicator <i>Outpatient visits</i>	0																																					
Appropriateness	Patient empowerment	AP2: Proposal to use, instead of the OECD patient empowerment indicators, the quite similar questions in the dimension Adequacy, sub-node "Medical staff skills"/ Communication and inter-personal skills and put them in the Eurofound/ EQoL survey	6																																					
General issues	Discrimination / stigma	GE1: Proposal to use also breakdowns of indicators by employment status and/or by income quantile in the existing indicators drawn from EU-SILC or EHIS data.	3																																					

10.2 Roadmaps

The roadmaps identify the key actions and the sequence in which they should be undertaken in order to effect the desired changes to existing indicators and development of new indicators.

The roadmaps cover both European and national level. Given the limits to what can be agreed at European level and what remains at Member State discretion, certain issues will need to be investigated further as recommended actions are undertaken.

An overview of the roadmaps is given below, ahead of detailed descriptions of the roadmaps themselves.

10.2.1 Overview of roadmaps

The roadmaps contain milestones for the proposed actions. These are included to provide a common method of classifying actions and suitable maturity milestones to guide the key actions required. Maturity milestones provide a common framework so that policy makers understand the stage of implementation for each action over time.

Organisational development milestones:

- O1: Dissemination of study findings;
- O2: Internal buy-in for actions;
- O3: Resources allocated to implement activities.

Methodological development milestones:

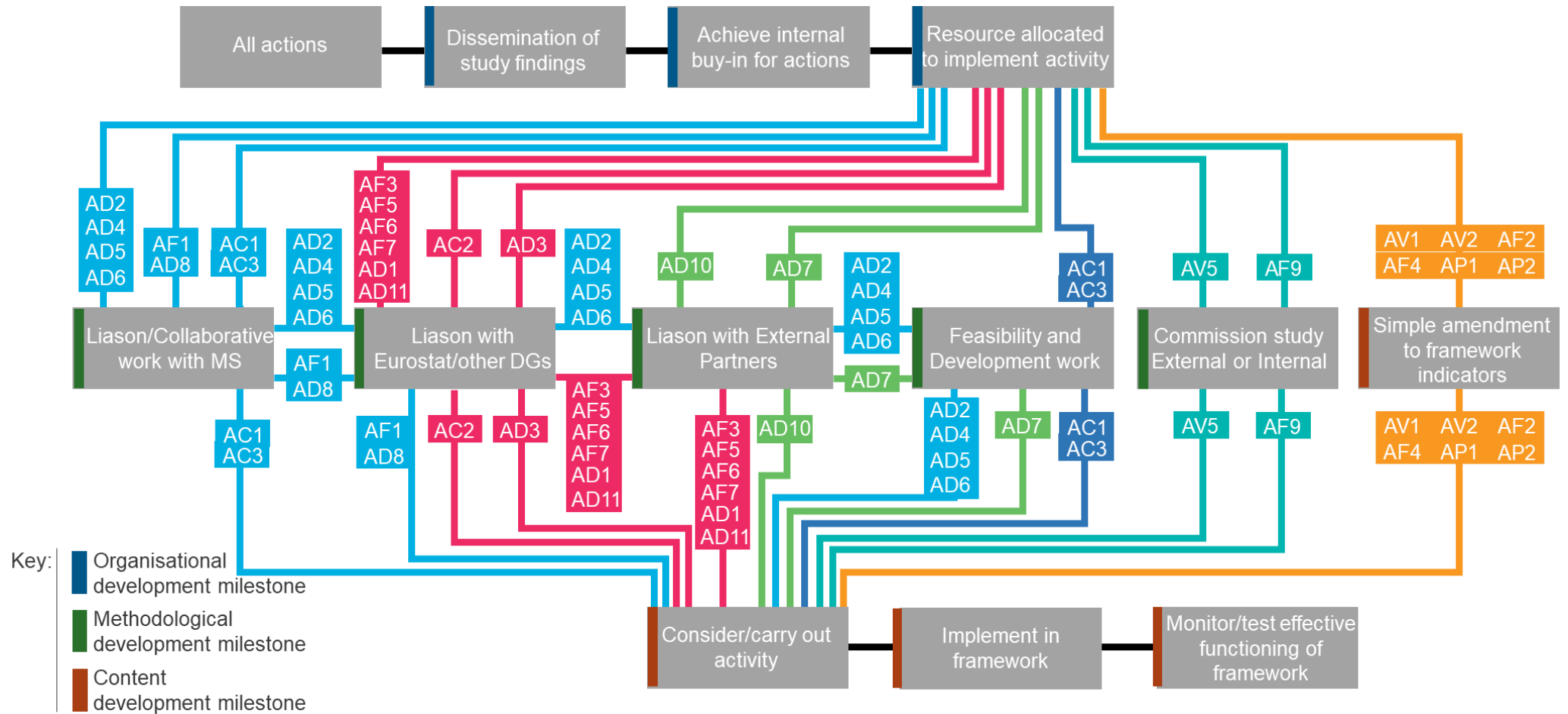
- M1: Liaison/collaborative work with Member States;
- M2: Liaison with Eurostat/other Directorate-Generals (DGs);
- M3: Liaison with external partners;
- M4: Feasibility and development work;
- M5: Commission research and study work (external or internal).

Content development milestones:

- C1: Simple amendments to framework indicators;
- C2: Consider the changes to indicators/testing work;
- C3: Implementation of changes to the framework;
- C4: Monitoring/testing effective functioning of the framework.

The diagram below provides an outline of the key actions to establish new indicators, as well as the actions required to amend existing indicators where there are resource/time commitments for DG SANTE. It thus excludes actions such as removal of nodes/indicators, which have been, in effect, implemented in the revised framework.

Figure 10.4 Roadmap for implementation of recommended actions



10.2.2 Detailed description of the actions

Detailed descriptions of the actions needed to deliver the recommendations are outlined in the sub-sections below. These are presented by node for each of the six dimensions: Availability, Affordability, Adequacy, Timeliness, Accessibility and Appropriateness, as well as general issues.

It should be noted that these detailed roadmaps do not propose solutions to problems but, rather, describe the target outcome of the actions and outline an appropriate schedule. The roadmaps contain the following elements:

- Description of proposed actions: a detailed description of the action required;
- Time and resource requirements: the amount of time and the resources (person-months of full-time equivalents (FTE)) required to implement the action. This refers to DG SANTE's effort to manage the implementation of the action, although these actions may, in practice, be managed through a steering group.

10.2.2.1 Availability

Description of proposed actions

For this node the following actions are proposed:

Personnel: AV3 - a proposal to enrich the node, with the Eurostat indicators with the number of physicians broken down by sex and age groups added to the currently placed indicators, in all of preventative, primary and secondary care. This action is complete and requires nothing further.

Facilities: AV4

- Removal of the Facilities/preventative care node. This action is complete and requires nothing further;
- Removal of the indicator *Number of primary healthcare units in primary care*. This action is complete and requires nothing further.

Programmes: AV5 - enrich the indicator *Existence of a national screening programme – preventative care* by adding the additional questions from the WHO on the prediction of NCDs. This action is complete and requires nothing further.

Equipment and Medical Products: AV6 - DG SANTE will conduct a future study to examine in greater depth how to measure availability of medical products in the EU. This action requires a small-scale study. Implementation involves the following milestones:

- O1: Dissemination of study findings;
- O2: Internal buy-in for actions;
- O3: Resources allocated to implement activities;
- M5: Commission research or study work (external or internal);
- C2: Consider the changes to indicators/testing work;
- C3: Implementation of changes to the framework;
- C4: Monitoring/testing effective functioning of the framework.

Services:

AV1 – the proposed new indicator is the *Ratio of the number of informal caregivers to the number of recipients of long-term care and the annual (or compound) change rate of this ratio.*

AV2 – an alternative proposed indicator is the *Ratio of the number of formal to informal caregivers and the annual (or compound) change rate of this ratio.*

Implementation of these two actions involves the following milestones:

- O1: Dissemination of study findings;
- O2: Internal buy-in for actions;
- O3: Resources allocated to implement activities;
- C1: Simple amendments to framework indicators;
- C2: Consider the changes to indicators/testing work;
- C3: Implementation of changes to the framework;
- C4: Monitoring/testing effective functioning of the framework.

Time and resource requirements

Table 10.4 provides the estimated time requirements for DG SANTE staff to deliver the required actions. Time estimates include the time required to undertake technical tasks and oversee actions required of other organisations, such as those in Member States and other stakeholders (where appropriate).

Table 10.4 Actions and DG SANTE time required to implement actions

Proposed actions	DG SANTE officer time (months)
<i>Personnel</i> <ul style="list-style-type: none"> • AV3: A proposal to enrich the node, with Eurostat indicators with the number of physicians broken down by sex and age groups added to the currently placed indicators, in all of preventative, primary and secondary care 	0
<i>Facilities</i> <ul style="list-style-type: none"> • AV4: A proposal to remove the Facilities/preventative care node • Proposal to remove the indicator: <i>Number of primary healthcare units in primary care</i> 	0
<i>Programmes</i> <ul style="list-style-type: none"> • AV5: Enrich the indicator <i>Existence of a national screening programme – preventative care</i> by adding the additional questions from the WHO which concern the prediction of NCDs 	0
<i>Equipment and medical products</i> <ul style="list-style-type: none"> • AV6: No immediate proposal. DG SANTE will conduct a future study to examine in greater depth how to measure availability of medical products in the EU 	3

<p>Services</p> <ul style="list-style-type: none"> • AV1: Proposed new indicator is the <i>Ratio of the number of informal caregivers to the number of recipients of long-term care and the annual (or compound) change rate of this ratio</i> • AV2: Alternative proposed indicator is the <i>Ratio of the number of formal to informal caregivers and the annual (or compound) change rate of this ratio</i> 	
--	--

10.2.2.2 Affordability

Description of proposed actions

For this node, the following sub-node actions are proposed:

Healthcare expenditure: AF1 – the proposed indicator is *Capacity to conduct health technology assessment (HTA)*. This activity would involve DG SANTE liaising with national HTA contacts on data collection. Implementing this action involves the following milestones:

- O1: Dissemination of study findings;
- O2: Internal buy-in for actions;
- O3: Resources allocated to implement activities;
- M1: Liaison/collaborative work with Member States;
- M2: Liaison with Eurostat/other DGs (assuming Eurostat would have a role in data collection);
- C2: Consider the changes to indicators/testing work;
- C3: Implementation of changes to the framework;
- C4: Monitoring/testing effective functioning of the framework.

OOP expenditure: AF2 – the proposed indicator is *Share of recommended vaccines not fully funded*. DG SANTE could undertake to carry out and review this calculation annually, as the recommended vaccines may change.

Health insurance eligibility/coverage: AF4 – the proposed indicator is *Depth of basic coverage score (all stages of healthcare)*. This action involves DG SANTE undertaking the calculation using existing data.

For these two actions the following milestones would be relevant:

- O1: Dissemination of study findings;
- O2: Internal buy-in for actions;
- O3: Resources allocated to implement activities;
- C1: Simple amendments to framework indicators;
- C2: Consider the changes to indicators/testing work;
- C3: Implementation of changes to the framework;
- C4: Monitoring/testing effective functioning of the framework.

Each of the following four actions, one to establish a new indicator (AF3) and the others to amend existing indicators (AF5, AF6 and AF7) involve the same milestones, requiring interaction with Eurostat.

AF3: the proposed indicator is *Level of informal payments in healthcare (secondary care)*. This proposal involves inserting questions into an existing survey, such as EU-SILC.

AF5: proposal to keep the OOP expenditure indicator for long-term care but exclude it from the framework until the methodological issues are resolved.

AF6: proposal to use the already placed indicator of OOP expenditure in primary and secondary care until the methodological work by Eurostat on linking SHA with disease-specific data is completed and more accurate estimates by stage can be obtained.

AF7: Proposal to follow-up the developments of Eurostat's work on linking SHA with disease-specific data to produce stage-specific indicators. It should be noted that this is ongoing work by Eurostat, thus DG SANTE can only monitor developments and perhaps identify ways to contribute.

These actions would involve the following milestones:

- O1: Dissemination of study findings;
- O2: Internal buy-in for actions;
- O3: Resources allocated to implement activities;
- M3: Liaison with external partners;
- C2: Consider the changes to indicators/testing work;
- C3: Implementation of changes to the framework;
- C4: Monitoring/testing effective functioning of the framework.

AF8: proposal to remove the indicator *Consultations skipped due to cost in primary care* in favour of using the indicator from Eurostat already in secondary care, namely the *self-reported unmet need for medical examination* from EU-SILC data. This action is complete and requires nothing further.

AF9: proposal to use the vaccines recommended for UMV in the majority of the countries, as well as the more expensive (e.g. combination) vaccines to measure the indicator *Share of recommended vaccines not fully funded*. This work would involve the following milestones:

- O1: Dissemination of study findings;
- O2: Internal buy-in for actions;
- O3: Resources allocated to implement activities;
- M5: Commission research or study work (a small study);
- C2: Consider the changes to indicators/testing work;
- C3: Implementation of changes to the framework;
- C4: Monitoring/testing effective functioning of the framework.

Time and resource requirements

Table 10.5 provides the estimated time requirements for DG SANTE to deliver the required actions. Time estimates include the time required to undertake technical tasks, as well as to oversee the actions required of other organisations, such as those in Member States and other stakeholders, where appropriate.

Table 10.5 Actions and DG SANTE time required to implement actions

Proposed actions	DG SANTE officer time (months)
<p><i>Healthcare expenditure</i></p> <ul style="list-style-type: none"> AF1: Proposed indicator is <i>Capacity to conduct health technology assessment (HTA)</i> 	6
<p><i>OOP expenditure</i></p> <ul style="list-style-type: none"> AF2: the proposed indicator is <i>Share of recommended vaccines not fully funded</i>. AF5: proposal to keep the OOP expenditure indicator for long-term care but exclude it from the framework until the methodological issues are resolved. AF3: the proposed indicator is <i>Level of informal payments in healthcare (secondary care)</i>. AF6: proposal to use the already placed indicator of OOP expenditure in primary and secondary care until the methodological work by Eurostat on linking SHA with disease-specific data is complete and more accurate estimates by stage can be obtained. AF8: proposal to remove the indicator <i>Consultations skipped due to cost in primary care</i> and to use instead the indicator from Eurostat which is already placed in secondary care, namely the <i>self-reported unmet need for medical examination</i> from EU-SILC data. AF9: proposal to use the vaccines recommended for UMV in the majority of the countries, as well as the more expensive (e.g. combination) vaccines to measure the indicator <i>Share of recommended vaccines not fully funded</i>. 	6 6 6 24 3 0
<p><i>Health insurance eligibility/coverage</i></p> <ul style="list-style-type: none"> AF4: the proposed indicator is <i>Depth of basic coverage score (all stages of healthcare)</i>. AF7: proposal to follow-up the developments of Eurostat work on linking SHA with disease-specific data in order to produce stage-specific indicators. 	0 24

10.2.2.3 Adequacy

Description of proposed actions

For this node, the following sub-node actions are proposed:

AD1: Medical staff skills (primary care and secondary care) – the proposed indicator is *Communication and interpersonal skills (for both primary and secondary care)*. This action involves adding questions to the EQoL survey.

AD3: Continuity/Integration of care – the proposed indicator is *Continuity/Integration of care indicator*. This action also requires an addition to an existing survey.

AD11: Amenable mortality - proposal to collect data from administrative data in the EU for the indicator *In-patient suicide among patients diagnosed with a mental disorder in secondary care*.

The milestones for these three activities are:

- O1: Dissemination of study findings;
- O2: Internal buy-in for actions;
- O3: Resource allocated to implement activities;
- M2: Liaison with Eurostat/other DGs;
- C2: Consider the changes to indicators/testing work;
- C3: Implementation of changes to the framework;
- C4: Monitoring/testing effective functioning of the framework.

Medical staff skills – primary care and secondary care

AD2: the proposed indicator is *Technical skills (only primary care)*. This action requires liaison with Member States to develop scoring systems and dissemination of questionnaires to GPs.

Continuity/Integration of care

The following three indicators require working with Member States to access administrative data:

AD4: the proposed indicators are *Care transitions indicators*.

AD5: the proposed indicator is *Medication reconciliation indicator*.

AD6: the proposed indicator is *Medication reconciliation indicator*.

Treatment adequacy (or relevance of treatment) – long-term care

AD8: this proposed indicator (*Quality of care in nursing homes*) requires working with Member States, some of which may have useful administrative data. For others, this action would require primary survey work.

For each of these actions the following milestones are important:

- O1: Dissemination of study findings;
- O2: Internal buy-in for actions;
- O3: Resources allocated to implement activities;
- M1: Liaison/collaborative work with Member States;
- C2: Consider the changes to indicators/testing work;

- C3: Implementation of changes to the framework;
- C4: Monitoring/testing effective functioning of the framework.

Existence of patients' pathways – secondary care

AD7: the proposed indicator, *Patient pathways (efficiency of information flow)* could use data taken by DG SANTE from the WHO Global eHealth survey. This approach may not be effective and there may need to be further planning work to establish the most effective means of gathering these data, potentially involving Member State surveys. This action would therefore involve the following milestones:

- O1: Dissemination of study findings;
- O2: Internal buy-in for actions;
- O3: Resources allocated to implement activities;
- M3: Liaison with external partners;
- M4: Feasibility and development work (potentially);
- C2: Consider the changes to indicators/testing work;
- C3: Implementation of changes to the framework;
- C4: Monitoring/testing effective functioning of the framework.

Patient Reported Outcome Measures (PROMs) – secondary and long-term care:
AD10: this action proposal is to wait for the pilot questionnaires in the OECD Patient-Reported Indicators Survey (PaRIS), given the more advanced work that the OECD is conducting for this survey. This would involve the following milestones:

- O1: Dissemination of study findings;
- O2: Internal buy-in for actions;
- O3: Resources allocated to implement activities;
- M3: Liaison with external partners;
- C2: Consider the changes to indicators/testing work;
- C3: Implementation of changes to the framework;
- C4: Monitoring/testing effective functioning of the framework;

Health behaviour

AD9: proposal to remove the indicator *Blood cholesterol in preventative care*. This action is complete and requires nothing further.

Time and resource requirements

Table 10.6 provides the estimated time requirements for DG SANTE to deliver the required actions. Time estimates include the time required to undertake technical tasks, as well as oversee the actions required of other organisations, such as those in Member States and other stakeholders, where appropriate.

Table 10.6 Actions and DG SANTE time required to implement actions

Proposed actions	DG SANTE officer time (months)
<ul style="list-style-type: none"> AD9: Health behaviour - proposal to remove the indicator <i>Blood cholesterol in preventative care</i>. 	0
<p><i>Medical staff skills – primary care and secondary care.:</i></p> <ul style="list-style-type: none"> AD1: the proposed indicator is <i>Communication and interpersonal skills (for both primary and secondary care)</i>. AD2: the proposed indicator is <i>Technical skills (only primary care)</i>. 	6 24
<p><i>Continuity/Integration of care</i></p> <ul style="list-style-type: none"> AD3: the proposed indicator is <i>Continuity/Integration of care indicator</i>. AD4: the proposed indicators are <i>Care transitions indicators</i>. AD5: the proposed indicator is <i>Medication reconciliation indicator</i>. AD6: the proposed indicator is <i>Medication reconciliation indicator</i>. 	6 12 12 12
<p><i>Existence of patient pathways – secondary care</i></p> <ul style="list-style-type: none"> AD7: the proposed indicator is <i>Patient pathways indicator (efficiency of information flow)</i>. 	3 or 24
<p><i>Treatment adequacy (or relevance of treatment) – long-term care</i></p> <ul style="list-style-type: none"> AD8: the proposed indicator is <i>Quality of care in nursing homes</i>. 	12
<p><i>Patient Reported Outcome Measures (PROMs) – secondary and long-term care</i></p> <ul style="list-style-type: none"> AD10: the proposal is to wait for the pilot questionnaires in the OECD Patient-Reported Indicators Survey (PaRIS), given the more advanced work that the OECD is conducting for this survey. 	6
<p><i>Amenable mortality</i></p> <ul style="list-style-type: none"> AD11: Proposal to collect data from administrative data in the EU for the indicator <i>In-patient suicide among patients diagnosed with a mental disorder in secondary care</i>. 	?

10.2.2.4 Accessibility

Description of proposed actions

Health literacy – preventative care

AC1: this action proposes the following indicator *Health literacy*. Undertaking this action would require making a connection with the European Health Literacy project to continue its survey. This may or may not be possible and may require further feasibility work.

Physical accessibility

AC3: the proposal is to examine the feasibility of adopting an approach similar to that of the UK for transport availability indicators and statistics.

These two actions involve the following milestones:

- O1: Dissemination of study findings;
- O2: Internal buy-in for actions;
- O3: Resources allocated to implement activities;
- M1: Liaison/collaborative work with Member States;
- M4: Feasibility and development work;
- C2: Consider the changes to indicators/testing work;
- C3: Implementation of changes to the framework;
- C4: Monitoring/testing effective functioning of the framework.

AC2: Proposal to use two questions from the EQoL survey for the quality of medical facilities in primary and secondary care, respectively. This action would involve the following milestones:

- O1: Dissemination of study findings;
- O2: Internal buy-in for actions;
- O3: Resources allocated to implement activities;
- M2: Liaison with Eurostat/other DGs;
- C2: Consider the changes to indicators/testing work;
- C3: Implementation of changes to the framework;
- C4: Monitoring/testing effective functioning of the framework.

AC2: Proposal to remove the indicator *Outpatient visits*. This action is complete and requires nothing further.

Time and resource requirements

Table 10.7 provides the estimated time requirements for DG SANTE to deliver the required actions. Time estimates include the time required to undertake technical

tasks, as well as overseeing actions required of other organisations, such as those in Member States and other stakeholders, where appropriate.

Table 10.7 Actions and DG SANTE time required to implement actions

Proposed actions	DG SANTE officer time (months)
<i>Health literacy – preventative care</i> AC1: the proposed indicator is <i>Health literacy</i> .	24
<i>Physical accessibility</i> AC3: proposal to examine the feasibility of adopting an approach similar to that in the UK for transport availability indicators and statistics. AC2: proposal to use two questions from the EQoL survey for the quality of medical facilities in primary and secondary care. Proposal to remove the indicator <i>Outpatient visits</i> .	36 3 0

10.2.2.5 Appropriateness

Description of proposed actions

Discrimination/stigma indicator

AP1: this action involves DG SANTE calculating and monitoring the indicator repository.

Patient empowerment

AP2: proposal to use the similar questions from the Adequacy dimension, sub-node 'Medical staff skills'/'Communication and interpersonal skills'. As discussed elsewhere, these questions can be integrated into the EQoL survey instead of the patient empowerment OECD indicators.

The following milestones are applicable to these two actions:

- O1: Dissemination of study findings;
- O2: Internal buy-in for actions;
- O3: Resources allocated to implement activities;
- C1: Simple amendments to framework indicators;
- C2: Consider the changes to indicators/testing work;
- C3: Implementation of changes to the framework;
- C4: Monitoring/testing effective functioning of the framework.

Time and resource requirements

Table 10.8 provides the estimated time requirements for DG SANTE to deliver the required actions. Time estimates include the time required to undertake technical tasks and oversee the actions required of other organisations, such as those in Member States and other stakeholders, where appropriate.

Table 10.8 Actions and DG SANTE time required to implement actions

Proposed actions	DG SANTE officer time (months)
<p><i>Discrimination/stigma</i></p> <ul style="list-style-type: none"> AP1: the proposed indicator is <i>Discrimination/ stigma indicator</i>. 	0
<p><i>Patient empowerment</i></p> <p>The proposal to use the similar questions from the Adequacy dimension, sub-node 'Medical staff skills'/'Communication and interpersonal skills'. As discussed elsewhere, these questions can be integrated into the EQoL survey instead of the patient empowerment OECD indicators</p>	6

Part A: ANNEXES

Annex 1 Survey questionnaire

Introduction

We are grateful for your participation in the survey on Measuring Access to Healthcare in the EU.

This survey is part of the pilot project 'Towards a fairer and more effective measurement of access to healthcare across the EU', which aims to identify effective ways of measuring access to healthcare and to develop a conceptual framework and a list of indicators to measure access in the EU. This project is undertaken by ICF on behalf of the European Commission (DG SANTE).

The purpose of the survey is to gather opinions on the existing measurement framework of access to healthcare, as well as the limitations and gaps of current indicators used to measure access and requirements for new indicators and their application. The survey responses will inform the development of a conceptual framework for measuring access to healthcare in the EU. The deadline to complete this survey is Friday 13 April 2018. The survey should take approximately 15 minutes to complete.

Personal data will not be recorded in the survey and responses to the survey will be anonymous and analysed on the basis of the organisation, affiliation by stakeholder and, if relevant, Member State.

We thank you in advance for your collaboration.

The ICF project team.

Do you consent to your data being used in this study as outlined in the participation information sheet?*

Yes

No

1. Please indicate the organisation/institution/association you work for:

2. Please indicate the main field of your work:

University or research institution

Public institution – statistics

Public institution – health

Patient representative association

Healthcare provision representative association

Other, please specify::

*

3. Please select your Member State:

Austria

Belgium

Bulgaria

Cyprus

Czech Republic

Germany

Denmark

Estonia

Greece

Spain

Finland

France

Croatia

Hungary

Ireland

Italy

Lithuania

Luxembourg

Latvia

Malta

Netherlands

Poland

Portugal

Romania

Sweden

Slovenia

Slovakia

United Kingdom

4. In this question, we would like to have your view on the determinants of access to healthcare. The term 'determinants of access' refers to the factors that determine access to healthcare for individuals and/or social groups.

Please indicate if you agree or disagree with the following determinants of access to healthcare and their corresponding definitions. Do you have any suggestions on how to modify them? Would you propose any new ones?

Please respond to these questions by completing the table below:*

	I agree with the definition		Suggestions to modify/refine the definition
	Yes*	No*	
Availability: 'Whether a healthcare service or product is available in the healthcare system'	()	()	—
Accessibility: 'Whether a healthcare service or product is easily accessible in terms of distance or transportation means to reach it in the healthcare system'	()	()	—
Timeliness: 'Whether a healthcare service or product is available or reachable in a reasonable time in the	()	()	—

healthcare system'			
Quality: 'Whether a healthcare service or product is relevant and follows most recent medical and technological'	()	()	—
Affordability: 'Whether seeking healthcare services affects a patient's financial resources'	()	()	—
Acceptability: 'Whether a healthcare service or product respects the cultural or other individual characteristics of a patient'	()	()	—

5. Please elaborate further if you would like to suggest a new dimension:

6. Measuring access to healthcare is a complex task. Currently in the EU it is measured predominantly through self-reported incidences of unmet healthcare needs, healthcare system resource availability and utilisation.

To your knowledge, what are the current approaches used to measure access to healthcare (both preventative and curative care)? Could you describe them under each determinant identified by type of care?

Please hover over the determinants of access to healthcare to view their corresponding examples.

	Preventative care	Curative care
Availability	—	—
Accessibility	—	—
Timeliness	—	—
Quality	—	—
Affordability	—	—
Acceptability	—	—

7. Please elaborate further if you would like to suggest a new approach under a new dimension:

8. Please upload any relevant documents:

_____ 1

_____ 2

_____ 3

_____ 4

_____ 5

- _____ 6
- _____ 7
- _____ 8
- _____ 9
- _____ 10

9. To your knowledge, what are the current indicators used to measure access to healthcare in your country?

Please list them under each of the dimensions. Please hover over the dimensions of access to healthcare to view their corresponding examples.

	Preventative care	Curative care
Availability	_____	_____
Accessibility	_____	_____
Timeliness	_____	_____
Quality	_____	_____
Affordability	_____	_____
Acceptability	_____	_____

10. Please elaborate if you would like to suggest a new approach under a new dimension:

11. In your view, what are the limitations of the existing indicators used to measure access to healthcare? How would you suggest overcoming these issues?
Please hover over the specifications/suggestions of the current existing indicators to view examples.

	Specification and implications of the identified limitation	Suggestion on how to overcome the issue
Not effectively measuring access to healthcare	—	—
Not capturing all aspects of access	—	—
No common framework at national/European/wider level	—	—

12. Please elaborate further if you would like to indicate other existing limitations:

13. Do you have any suggestions on new indicators that could be used to measure access to healthcare? If yes, please list/describe them.

14. What are the main sources of data (e.g. Eurostat (EU-SILC), WHO, OECD, national statistics institutes, etc.) to measure access to healthcare?

Provide list the main sources in a table and leave space for further suggestions.

Data sources	Database specifications/further information

15. Do you think new data should be collected?*

Yes

No

Logic: Hidden unless: #16 Question 'Do you think new data should be collected?' is one of the following answers ('Yes')

16. If yes, which data?

Thank you!

Thank you for taking our survey. Your response is very important to us.

Annex 2 Data sources used to compile the indicator repository

Agency for healthcare research and quality, US
Assessment of patient payment policies and projection of their efficiency, equity and quality effects (ASSPRO) - Central and Eastern European countries (CEE) project
Australian Bureau of Statistics
Australian Institute of Health and Welfare
Benchmarking ICT use among General Practitioners in Europe
Cause of Death Register, Sweden
Child Health: CHILD project
Commonwealth Fund
Emergency Services project
Environment/health project
EUROCARE-5 database (survival of cancer patients in Europe)
Eurofound/ European Quality of Life Survey
Euro-Healthy project
European Cancer Health Indicator Project (EUROCHIP) project
European Cardiovascular Indicators Surveillance Set (EUROCISS) project
European Centre for Disease Control and Prevention
European Collaboration for Healthcare Optimization (ECHO)
European Core Indicators in Diabetes Mellitus (EUCID) project
European Data Portal
European Health Promotion Indicator Development (EUHPID) project
European Health Risk Monitoring (EHRM) project
European Monitoring Centre for Drugs and Drug Addiction (EMCDDA)
European Patients' Forum (EPF)

European Social Survey
Eurostat
Hospital data project
Hospital statistics
Indicators for monitoring COPD and asthma in the EU (IMCA) project
Licensed Care and Welfare Personnel Workforce Status (LOVA) register, Sweden
Local data bank (BDL), Poland
Manpower project
Maternal Health Care Register, Sweden
Médecins du Monde (Mdm) health centres
Mental health project
Mental health Working Party
Michigan Patient Experience of Care Initiative (MiPEC)
Musculoskeletal conditions project
National Bowel Cancer Screening Program Register, Australia
National Breast Cancer Register, Sweden
National Hip Fracture Register, Sweden
National Lung Cancer Register, Sweden
National Patient Register, Sweden
National Prostate Cancer Registry, Sweden
National Quality Register for the Prevention of Cervical Cancer, Sweden
Organisation for Economic Co-operation and Development (OECD)
Oral health project
Perinatal Quality Register, Sweden
Peristat project
Public health nutrition in Europe (PHNut) project

Pomona project
Prescribed Drug Register, Sweden
Quality and Costs of Primary Care in Europe (QUALICOPE)
Register of Licensed Health Personnel, Sweden
Reproductive health indicators (REPROSTAT) project
Robert Koch Institute (RKI), Germany
Scandinavian Obesity Surgery Registry, Sweden
SHARE Ageing in Europe – Supporting policies for an inclusive society
Social Protection Committee indicators
Statistics Austria
Statistics Canada
Statistics Denmark
Statistics England: NHS
Statistics Finland
Statistics France: INSEE
Statistics Germany: Destatis
Statistics Greece: ELSTAT
Statistics Housing Assistance and Family Support, The National Board of Health and Welfare
Statistics Italy: Istat
Statistics Japan: e-STAT
Statistics Malta: NSO
Statistics Netherlands
Statistics Poland (GUS)
Statistics Portugal: INE
Statistics Spain: INE
Statistics Sweden

Statistics UK: ONS
Swedish Association of Local Authorities and Regions
Swedish Hip Arthroplasty Register
Swedish Institute for Infectious Disease Control
Swedish Intensive Care Register
Swedish Knee Arthroplasty Register
Swedish National Anterior Cruciate Ligament (ACL) Register
Swedish National Board of Institutional Care
Swedish Quality Register of Otorhinolaryngology
Swedish Stroke Register
The Medical Birth Register, Sweden
UNICEF
Workhealth project
Working Party on health systems
World Health Organization (WHO)
World Health Organization (WHO) - European Health for All (EHA) databases
World Health Organization (WHO) - Global Information System on Alcohol and Health (GISAH)
World Health Organization (WHO) - Regional Office for Europe

Annex 3 New indicators

A3.1 Availability

Indicator AV1
Name of the indicator
Ratio of informal caregivers to recipients of long-term care.
Definition / description
<p>The ratio of the number of informal caregivers to the number of recipients of long-term care. Calculated as: LTCi/LTCr, where:</p> <p>LTCi = number of informal caregivers; LTCr = number of long-term recipients.</p> <p>LTCi can be calculated from the EHIS, see for example Eurobase table 'Persons providing informal care or assistance at least once a week by sex, age and educational attainment level' (hlth_ehis_ic1e).</p> <p>LTCr is directly available from OECD data¹²⁰ as the sum of long-term care recipients in institutions and long-term recipients at home, therefore somewhat underestimating the true number of long-term care recipients.</p> <p>For the change rate over more than one year, the Compound Annual Growth Rate (CAGR) can be used to provide an average annual change rate. This is calculated as:</p> $\left(\frac{\text{End value}}{\text{Start value}}\right)^{\frac{1}{\text{end year}-\text{start year}}} - 1.$
Rationale
This ratio reflects the availability of informal caregivers. Higher values of the number of informal caregivers indicate larger support to their population with sufficient time availability to provide their services. The ratio of this number to the estimated population of recipients of long-term care is used to compensate for differences in the size of the long-term sector among countries.
Reference population
Total resident population.
Reference period
Calendar year.
Periodicity of publication
Every five years, with the release of the EHIS results.
Unit of measurement
None. The indicator is a ratio of headcount.

Indicator AV2
Name of the indicator
Ratio of formal to informal caregivers in long-term care.
Definition / description
<p>The ratio of the number of formal caregivers to the number of informal caregivers in long-term care. Calculated as: LTCf/LTCi, where:</p> <p>LTCf = number of formal caregivers in long-term care; LTCi = number of informal caregivers in long-term care.</p> <p>LTCf can be collected from OECD data¹²⁰ and refer to formal caregivers working in institutions or at the homes of the recipients of their services.</p> <p>LTCi can be calculated from the EHIS, see for example Eurobase table 'Persons providing informal care or assistance at least once a week by sex, age and educational attainment level' (hlth_ehis_ic1e).</p> <p>For the change rate over more than one year, the Compound Annual Growth Rate (CAGR) can be used to provide an average annual change rate. This is calculated as:</p> $\left(\frac{\text{End value}}{\text{Start value}} \right)^{\left(\frac{1}{\text{end year} - \text{start year}} \right)} - 1.$
Rationale
This ratio can reveal whether or not the formal supply in long-term caregiving is sufficient. Higher values indicate sufficiency.
Reference population
Total resident population.
Reference period
Calendar year.
Periodicity of publication
Every five years, with the release of the EHIS results.
Unit of measurement
None. The indicator is a ratio of headcount.

¹²⁰ Topic Health/ Long-Term Care Resources and Utilisation/ Long-term care recipients. These data cover the majority of the EU Member States.

¹²¹ Topic Health/ Long-Term Care Resources and Utilisation/ Long-Term Care Resources and Utilisation/ Long-term care workers: formal sector.

A3.2 Affordability

Indicator AF1
Name of the indicator
Capacity to conduct health technology assessment (HTA).
Definition / description
<p>This indicator can be constructed from data collected through a survey by responsible authorities in the Member States. It reflects the capacity to conduct HTA, in five dimensions:</p> <ul style="list-style-type: none"> ■ The use of HTA principles in public sector decision-making processes; ■ Processes of HTA; ■ Structures and capacity supporting HTA; ■ Governance; ■ Interests and impediments to strengthening capacity. <p>The survey questionnaire is the one used by the WHO in its 2015 Global Survey on Health Technology Assessment¹²². The construction of the indicator requires qualitative evaluation. Each dimension (section in the questionnaire) is scored from 1 'Very poor' to 10 'Very strong'. The indicator is then calculated as the average of the five section scores.</p> <p>The recipients of the questionnaire can be the nominated national HTA focal points responsible for the WHO survey.</p>
Rationale
The abovementioned survey showed that the results adequately reflect the capacity for HTA in the participating countries and the individual questions have strong differentiating power. The five perspectives are widely accepted as key determinants of the use of HTA.
Reference population
Member States.
Reference period
Calendar year.
Periodicity of publication
Biennially.
Unit of measurement
None. A score from 1 to 10.

¹²² <http://www.who.int/health-technology-assessment/HTASURVEY/en/>

Indicator AF2
Name of the indicator
Share of vaccines recommended for universal mass vaccination (UMV) that are fully funded.
Definition / description
<p>This indicator is defined as $K \sum_{j=1}^N w_j \delta_j$ where:</p> <ul style="list-style-type: none"> ▪ N are the vaccines recommended for UMV; ▪ w_j is the share of expenditure associated with the purchase of vaccine j in the total expenditure for the N vaccines, averaged across EU countries in the reference year; ▪ $\delta_j = 1$ if vaccine j is <u>fully</u> covered in a country, otherwise $\delta_j = 0$; ▪ K is a constant to set the maximum value to a convenient value, say 1 (otherwise the maximum is the sum of the weights w_j which is not necessarily equal to 1). <p>The relevant data can be collected from administrative data sources.</p>
Rationale
<p>Vaccination policies vary widely among the Member States, as the national health authorities strive to maximise the benefits each year, subject to budgetary constraints, estimates for the anticipated risks, supply considerations and many other factors, including barriers due to public attitudes. In terms of equity of access, the most important factor is the level of reimbursement. These differences in national policies make a common base for comparison impossible. The proposed indicator is not based on a common 'basket' of vaccines but on those recommended for UMV in each country. This is the closest to a 'fair' comparison in the Member States, since the set of such vaccines which is common to all Member States constitutes a large part of the vaccines available in each country.</p> <p>With the proposed weighting, new expensive vaccines have a larger contribution in the calculation of this score. Therefore, countries not fully covering such vaccines will have lower scores.</p> <p>The discriminating power of this indicator can be increased by focusing on the most expensive vaccines recommended for UMV and ignoring inexpensive vaccines which are fully funded everywhere.</p>
Reference population
Member States.
Reference period
Calendar year.
Periodicity of publication
Biennially.
Unit of measurement
None. The indicator is a score between 0 and 1.

Indicator AF3
Name of the indicator
Level of informal payments in healthcare.
Definition / description
<p>This indicator can be calculated by the following questions:</p> <ul style="list-style-type: none"> a) Have you been to a public healthcare practitioner such as a GP (general practitioner) or a public healthcare institution such as a public hospital in the past 12 months? b) (if the respondent replies positively) 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? c) (if the respondent replies positively) What was the value of this extra payment, valuable gift or donation? <p>These are similar to the questions asked in the Special Eurobarometer surveys on corruption.</p> <p>One possible calculation is the percentage of those who had a contact with the healthcare system [yes in (a)] and were requested to give an extra payment, gift or donation [yes in (b)].</p> <p>Another indicator can sum the values reported in (c). An estimate for the whole population can then be obtained by using the post-stratification weights of the survey.</p> <p>These questions can be incorporated into a general population survey with a sufficiently large sample, such as the health module of the EU-SILC instrument.</p>
Rationale
The only way to estimate informal payments is through a survey. These questions were used in two Special Eurobarometer surveys on corruption, with the results used in a plethora of articles in the literature. The results were also used at national level to estimate informal payments, as required in the System of Health Accounts (SHA) as part of the out-of-pocket (OOP).
Reference population
All persons living in private households (i.e. excluding persons living in collective households and in institutions).
Reference period
Calendar year.
Periodicity of publication
Annual.
Unit of measurement
Percentage and EUR, for the two calculation options.
Indicator AF4

Name of the indicator
Depth of basic coverage.
Definition / description
<p>The depth of basic coverage is defined as $\sum_{j=1}^N w_j S_j$ where:</p> <ul style="list-style-type: none"> ▪ N is the number of selected healthcare functions from the SHA; ▪ w_j is the share of expenditure associated with healthcare function j in the total expenditure (for the N functions), averaged across EU countries in the reference year; ▪ $S_j = 6$ if function j is covered (with or without co-payments), otherwise $S_j = 0$. <p>The following eight functions are proposed:</p> <ul style="list-style-type: none"> ■ Acute inpatient care; ■ Outpatient - primary care physicians; ■ Outpatient – specialists; ■ Clinical laboratory tests; ■ Diagnostic imaging; ■ Pharmaceuticals; ■ Dental care; ■ Dental prostheses.
Rationale
<p>Equity of access to healthcare requires healthcare coverage both in depth (proportion of services covered) and in breadth (extent of the population covered) and there is usually a trade-off between the two. While the extent of the population covered is measured by many other indicators in the proposed framework, the equally important depth of (basic) coverage is not used by existing indicators.</p> <p>As the weights for the selected functions are higher for the more expensive functions, the score is higher in more generous packages of benefits. This indicator was shown in a recent OECD study¹²³ to be an important determinant of the value-for-money of a healthcare system. The only change from the indicator used in that study is in the shares of health expenditures for the calculation of the weights, which are averages across EU countries rather than OECD ones.</p>
Reference population
Total resident population.
Reference period
Calendar year.

¹²³ Lorenzoni, L., Murin, F., Springare, L-S., Aaraaen, A. & Daniel, F., 2018. Which policies increase value for money in healthcare? OECD Health Working Paper No. 104.

Periodicity of publication
Annually, with the release of SHA data.
Unit of measurement
None.

A3.3 Adequacy

Indicator AD1
Name of the indicator
Communication and interpersonal skills of healthcare personnel.
Definition / description
<p>This indicator can be constructed by adding some questions from the European Patients' Forum (EPF) survey to the Eurofound/EQoL survey, in particular by extending Q64, which currently asks for a satisfaction score (from 1 'very dissatisfied' to 10 'very satisfied') on the following aspects:</p> <ol style="list-style-type: none"> Quality of the facilities (building, room, equipment); Expertise and professionalism of staff; Personal attention given, including staff attitude and time devoted; Being informed or consulted about care. <p>Question Q64d above can be replaced by the following statements:</p> <ul style="list-style-type: none"> ■ I am adequately informed by healthcare providers about my treatment options; ■ I am involved in decisions regarding my care by my healthcare providers; ■ My healthcare providers give me the information I need about the safety of my treatment; ■ My healthcare providers adapt my care according to my changing needs; ■ My healthcare providers are capturing my feedback on quality of care provided (through satisfaction survey or other means). <p>Annex 1 All new questions could be scored on the same scale (from 1 'very dissatisfied' to 10 'very satisfied'). The results from all parts of Q64 (excluding Q64a) could then be averaged.</p>
Rationale
Communication and interpersonal skills are an important part of the medical staff skill set. These questions were designed to assess these skills. The results of the EPF survey, although not entirely reliable for methodological reasons, still showed sufficient differentiation to allow for comparisons between Member States.
Reference population
General population, persons aged 18+ years.
Reference period
Calendar year.
Periodicity of publication
Four years, with the release of the Eurofound/EQoL survey results.
Unit of measurement
None. A score from 1 'very low skills' to 10 'very high skills'.

Indicator AD2

Name of the indicator

Technical skills of GPs.

Definition / description

This indicator is constructed from data collected from GPs, using the approach of the Quality and Outcomes Framework (QOF) in the UK, which is, in turn, based on the methodological work of the National Institute for Health and Care Excellence (NICE).

Below is a list of selected measurements for:

- Cardiovascular disease (in group 'Cardiovascular');
- Cancer and diabetes mellitus (in group 'High dependency and other long-term conditions');
- Mental diseases (group 'Mental health and neurology');
- Musculoskeletal diseases (group 'Musculoskeletal');
- General primary prevention, including lifestyle interventions, in domain 'Public Health'..

The reason cancer is poorly covered is because the questions are addressed to GPs.

Domain	Group	Indicator group	Indicator Description	Points
Clinical	Cardiovascular	Atrial fibrillation	The contractor establishes and maintains a register of patients with atrial fibrillation	5
			The percentage of patients with atrial fibrillation in whom stroke risk has been assessed using the CHA2DS2-VASc score risk stratification scoring system in the preceding 12 months (excluding those patients with a previous CHADS2 or CHA2DS2-VASc score of 2 or more)	12
			In those patients with atrial fibrillation with a record of a CHA2DS2-VASc score of 2 or more, the percentage of patients who are currently treated with anticoagulation drug therapy	12
Clinical	Cardiovascular	Secondary prevention of coronary heart disease	The contractor establishes and maintains a register of patients with coronary heart disease	4
			The percentage of patients with coronary heart disease for whom the last blood pressure reading (measured in the preceding 12 months) was 150/90 mmHg or less	17
			The percentage of patients with coronary heart disease with a record, in the preceding 12 months, of taking aspirin, an alternative anti-platelet therapy or an anti-coagulant	7
			The percentage of patients with coronary heart disease who have had influenza immunisation in the preceding 1 August to 31 March	7
Clinical	Cardiovascular	Heart failure	The contractor establishes and maintains a register of patients with heart failure	4
			The percentage of patients with a diagnosis of heart failure (diagnosed on or after 1 April 2006) which has been confirmed by an echocardiogram or by specialist assessment three months before or 12 months after entry into the register	6
			In those patients with a current diagnosis of heart failure due to left ventricular systolic dysfunction, the percentage of patients who are currently treated with an ACE-I or ARB	10

			In those patients with a current diagnosis of heart failure due to left ventricular systolic dysfunction who are currently treated with an ACE-I or ARB, the percentage of patients who are additionally currently treated with a beta-blocker licensed for heart failure	9
Clinical	Cardiovascular	Hypertension	The contractor establishes and maintains a register of patients with established hypertension	6
			The percentage of patients with hypertension for whom the last blood pressure reading (measured in the preceding 12 months) was 150/90 mmHg or less	20
Clinical	Cardiovascular	Peripheral arterial disease	The contractor establishes and maintains a register of patients with peripheral arterial disease	2
			The percentage of patients with peripheral arterial disease for whom the last blood pressure reading (measured in the preceding 12 months) was 150/90 mmHg or less	2
			The percentage of patients with peripheral arterial disease with a record, in the preceding 12 months, of taking aspirin or an alternative anti-platelet	2
Clinical	Cardiovascular	Stroke and transient ischaemic attack (TIA)	The contractor establishes and maintains a register of patients with stroke or TIA	2
			The percentage of patients with a history of stroke or TIA for whom the last blood pressure reading (measured in the preceding 12 months) was 150/90 mmHg or less	5
			The percentage of patients with a stroke shown to be non-haemorrhagic, or a history of TIA, who have a record, in the preceding 12 months, of taking an anti-platelet agent or an anti-coagulant	4
			The percentage of patients with a stroke or TIA (diagnosed on or after 1 April 2014) who have a record of a referral for further investigation between three months before or one month after the date of the latest recorded stroke or the first TIA	2
			The percentage of patients with stroke or TIA who have had influenza immunisation in the preceding 1 August to 31 March	2
Clinical	High dependency and other long-term conditions	Cancer	The contractor establishes and maintains a register of all cancer patients defined as a 'register of patients with a diagnosis of cancer excluding non-melanotic skin cancers diagnosed on or after 1 April 2003'	5
			The percentage of patients with cancer, diagnosed within the preceding 15 months, who have a patient review recorded as occurring within six months of the date of diagnosis	6
Clinical	High dependency and other long-term conditions	Diabetes mellitus	The percentage of patients with diabetes, on the register, for whom the last blood pressure reading (measured in the preceding 12 months) was 150/90 mmHg or less	8
			The percentage of patients with diabetes, on the register, for whom the last blood pressure reading (measured in the preceding 12 months) was 140/80 mmHg or less	10
			The percentage of patients with diabetes, on the register, whose last measured total cholesterol (measured within the preceding 12 months) was 5 mmol/l or less	6
			The percentage of patients with diabetes, on the register, with a diagnosis of nephropathy (clinical proteinuria) or micro-albuminuria who are currently treated with an ACE-I (or ARBs)	3
			The percentage of patients with diabetes, on the register, for whom the last IFCC-HbA1c was 59 mmol/mol or less in the preceding 12 months	17
			The percentage of patients with diabetes, on the register, for whom the last IFCC-HbA1c was 64 mmol/mol or less in the preceding 12 months	8
			The percentage of patients with diabetes, on the register, for whom the last IFCC-HbA1c was 75 mmol/mol or less in the preceding 12 months	10

			The percentage of patients with diabetes, on the register, with a record of a foot examination and risk classification: 1) low risk (normal sensation, palpable pulses), 2) increased risk (neuropathy or absent pulses), 3) high risk (neuropathy or absent pulses plus deformity or skin changes in previous ulcer) or 4) ulcerated foot within the preceding 12 months	4
			The percentage of patients newly diagnosed with diabetes, on the register, in the preceding 1 April to 31 March who have a record of being referred to a structured education programme within nine months of entry onto the diabetes register	11
			The contractor establishes and maintains a register of all patients aged 17 or over with diabetes mellitus, which specifies the type of diabetes where a diagnosis has been confirmed	6
			The percentage of patients with diabetes, on the register, who have had influenza immunisation in the preceding 1 August to 31 March	3
Clinical	High dependency and other long-term conditions	Palliative care	The contractor establishes and maintains a register of all patients in need of palliative care/support, irrespective of age	3
			The contractor has regular (at least three-monthly) multi-disciplinary case review meetings where all patients on the palliative care register are discussed	3
Clinical	Mental health and neurology	Dementia	The contractor establishes and maintains a register of patients diagnosed with dementia	5
			The percentage of patients diagnosed with dementia whose care plan has been reviewed in a face-to-face review in the preceding 12 months	39
			The percentage of patients with a new diagnosis of dementia recorded in the preceding 1 April to 31 March with a record of FBC, calcium, glucose, renal and liver function, thyroid function tests, serum vitamin B12 and folate levels recorded between 12 months before or six months after entry onto the register	6
Clinical	Mental health and neurology	Depression	The percentage of patients aged 18 or over with a new diagnosis of depression in the preceding 1 April to 31 March, who have been reviewed not earlier than 10 days after and not later than 56 days after the date of diagnosis	10
Clinical	Mental health and neurology	Epilepsy	The contractor establishes and maintains a register of patients aged 18 or over receiving drug treatment for epilepsy	1
Clinical	Mental health and neurology	Mental health	The contractor establishes and maintains a register of patients with schizophrenia, bipolar affective disorder and other psychoses and other patients on lithium therapy	4
			The percentage of patients with schizophrenia, bipolar affective disorder and other psychoses who have a comprehensive care plan documented in the record, in the preceding 12 months, agreed between individuals, their family and/or carers, as appropriate	6
			The percentage of patients with schizophrenia, bipolar affective disorder and other psychoses who have a record of blood pressure in the preceding 12 months	4
			The percentage of patients with schizophrenia, bipolar affective disorder and other psychoses who have a record of alcohol consumption in the preceding 12 months	4
			The percentage of women aged 25 or over and who have not attained the age of 65 with schizophrenia, bipolar affective disorder and other psychoses whose notes record that a cervical screening test has been performed in the preceding five years	5
			The percentage of patients on lithium therapy with a record of serum creatinine and TSH in the preceding nine months	1
			The percentage of patients on lithium therapy with a record of lithium levels in the therapeutic range in the preceding four months	2
Clinical	Musculoskeletal	Osteoporosis: secondary prevention of fragility fractures	The percentage of patients aged 50 or over and who have not attained the age of 75, with a fragility fracture on or after 1 April 2012, for whom osteoporosis is confirmed on DXA scan, who are currently treated with an appropriate bone-sparing agent	3

			The contractor establishes and maintains a register of patients: 1. Aged 50 or over and who have not attained the age of 75 with a record of a fragility fracture on or after 1 April 2012 and a diagnosis of osteoporosis confirmed on DXA scan, and 2. Aged 75 or over with a record of a fragility fracture on or after 1 April 2014 Although the register indicator OST004 defines two separate registers, the disease register for the purposes of calculating the APDF is defined as the sum of the number of patients on both registers (NICE 2011 menu ID: NM29)	3
			The percentage of patients aged 75 or over with a record of a fragility fracture on or after 1 April 2014 and a diagnosis of osteoporosis, who are currently treated with an appropriate bone-sparing agent	3
Clinical	Musculoskeletal	Rheumatoid arthritis	The contractor establishes and maintains a register of patients aged 16 or over with rheumatoid arthritis	1
			The percentage of patients with rheumatoid arthritis, on the register, who have had a face-to-face review in the preceding 12 months	5
Public Health	Cardiovascular	Blood pressure	The percentage of patients aged 45 or over who have a record of blood pressure in the preceding five years	15
Public Health	Cardiovascular	Cardiovascular disease (CVD) - primary prevention	In those patients with a new diagnosis of hypertension aged 30 or over and who have not attained the age of 75, recorded between the preceding 1 April to 31 March (excluding those with pre-existing CHD, diabetes, stroke and/or TIA), who have a recorded CVD risk assessment score (using an assessment tool agreed with the NHS CB) of $\geq 20\%$ in the preceding 12 months: the percentage who are currently treated with statins	10
Public Health	Lifestyle	Obesity	The contractor establishes and maintains a register of patients aged 18 or over with a BMI ≥ 30 in the preceding 12 months	8
Public Health	Lifestyle	Smoking	The percentage of patients with any one or any combination of the following conditions: CHD, PAD, stroke or TIA, hypertension, diabetes, COPD, CKD, asthma, schizophrenia, bipolar affective disorder or other psychoses whose notes record smoking status in the preceding 12 months	25
			The contractor supports patients who smoke in stopping smoking by a strategy which includes providing literature and offering appropriate therapy	2
			The percentage of patients aged 15 or over who are recorded as current smokers who have a record of an offer of support and treatment within the preceding 24 months	12
			The percentage of patients with any one or any combination of the following conditions: CHD, PAD, stroke or TIA, hypertension, diabetes, COPD, CKD, asthma, schizophrenia, bipolar affective disorder or other psychoses who are recorded as current smokers who have a record of an offer of support and treatment within the preceding 12 months	25

Annex 2

Annex 3 The responses receive points between 0 and the maximum indicated in the right-hand column. A score is assigned to the respondent by totalling the points in those areas where he/she has patients and scaling the result in the range 0-100:

$$\left(\frac{\text{Total points}}{\text{Maximum points}} \right) \times 100\%.$$

Rationale
<p>Demonstrated technical skills by medical personnel are important, both for the obvious reasons in terms of outcomes, but also for building trust-based relationships. Such relationships overcome barriers of access to healthcare and positively affect other aspects, such as continuity of care.</p> <p>This system has been shown to be successful in monitoring adherence to best practice and producing useful statistics. The specific indicators were designed by the UK NICE.</p>
Reference population
GPs.
Reference period
Calendar year.
Periodicity of publication
Annually.
Unit of measurement
None. The indicator is a score in the range 0-100.

Indicator AD3
Name of the indicator
Continuity / Integration of care.
Definition / description
<p>For each respondent, the percentage of ambulatory visits to the most frequently visited physician is first counted, as $100\% \times \frac{N_{max}}{N_{tot}}$, where:</p> <ul style="list-style-type: none"> ▪ N_{max} is the number of ambulatory visits to the most frequently visited physician over a 2-year period; ▪ N_{tot} is the total number of ambulatory visits to all physicians over the same period. <p>Responses with fewer than three ambulatory visits over the two-year period are excluded.</p> <p>The percentage of respondents reporting at least 50% of visits to the most frequently visited physician is then computed.</p> <p>The calculation also applies to children (including visits to paediatricians) and to older people, for example 60+ years (including internal medicine specialists).</p> <p>The data can be collected through any survey with a simpler wording ('Would you say that half or more of your visits ...').</p>
Rationale
<p>The existence of personal long-term relationships with care providers is a key determinant of continuity of care. Canada is a best-practice case in such measurements. This indicator is one suggested by the Manitoba Centre for Health Policy in Canada and is actually used by the Winnipeg Regional Health Authority to measure Continuity of Care (COC).</p>
Reference population
Total resident population.
Reference period
Calendar year.
Periodicity of publication
Annual.
Unit of measurement
Percentage.

Indicator AD4
Name of the indicator
Care transitions indicators.
Definition / description
<p>The two proposed indicators for the transitions in healthcare are:</p> <ul style="list-style-type: none"> ■ The percentage of patients discharged to home or another site of care, who were accompanied by a complete transition record over all (eligible) discharges; ■ The percentage of complete transition records as above, which were transmitted within 24 hours of discharge, over all (eligible) discharges. <p>In these indicators, patients who died, left against medical advice or discontinued care are excluded from the eligible discharges. A complete transition record contains the reason for the admission, all major procedures and tests, a summary of the results, the principal diagnosis at discharge, the current medication list, studies pending at discharge (if applicable), patient instructions, advance care plan (or reason for not having such a plan), contact for emergencies related to in-patient stay, contact information for pending studies (if any), plan for follow-up care, primary care physician or other health professional or site responsible for follow-up care.</p> <p>The indicators can be constructed from administrative data.</p>
Rationale
<p>Transitions in care are more general than clinical handovers and involve the actions designed to ensure the coordination and continuity of healthcare as patients transfer between different locations or different levels of care within the same location¹²⁴. Timely and comprehensive transitions constitute an important element in integrated care. These two particular indicators are recommended by the US National Quality Forum¹²⁵ and are included in the adaptation of the WHO guidelines in the BLOCKS report by the Expert Group on HSPA.</p>
Reference population
Hospital discharges.
Reference period
Calendar year.
Periodicity of publication
Annually.
Unit of measurement
Percentages.

¹²⁴ World Health Organization, 2016. Transitions of Care: Technical Series on Safer Primary Care. Geneva.

¹²⁵ National Quality Forum, 2014. Endorsed Measures for Care Coordination: Phase 3.

Indicator AD5
Name of the indicator
Medication reconciliation indicator.
Definition / description
<p>This indicator measures medication management in integrated care:</p> <ul style="list-style-type: none"> ■ The percentage of patients aged 65+ years discharged from any in-patient facility (e.g. hospital, skilled nursing facility, or rehabilitation facility) and seen within 60 days of discharge in the office of the physician providing ongoing care, and who had a documented reconciliation of the discharge medications with the current medication list in the medical record. <p>The data can be collected from medical records. A record counting reconciliations must indicate that the physician took notice of the in-patient facility discharge medications and either kept these medications or changed these, or their dosages.</p>
Rationale
<p>As noted in the relevant US National Quality Forum standard, implementing routine medication reconciliation after discharge from an in-patient facility is an important step in ensuring the continuity of patient care. Estimates suggest that almost half of medication errors occur on admission or discharge from a hospital¹²⁶. The process of resolving discrepancies in a patient's medication list reduces the risk of adverse drug interactions being overlooked and helps physicians to minimise the duplication and complexity of the patient's medication regime. This, in turn, may increase patient adherence to the medication regime and reduce hospital re-admission rates. Medication reconciliation is thus an important element of integrated care.</p>
Reference population
Patients aged 65+ years discharged from any in-patient facility
Reference period
Calendar year.
Periodicity of publication
Annually.
Unit of measurement
Percentages.

¹²⁶ Pronovost, P., Weast, B., Schwarz, M. et al., 2003. Medication Reconciliation: A Practical Tool to Reduce the Risk of Medication Errors. *J. Crit Care*. Dec, 18(4), pp. 201-5.

Indicator AD6
Name of the indicator
Care coordination score.
Definition / description
<p>This indicator can be constructed by surveying representatives of the health systems in the Member States. The respondents can be asked to grade the following aspects, in a range from 1 ('not at all') to 10 ('to the highest degree'):</p> <ul style="list-style-type: none"> ■ Primary healthcare organisations (PHCO) coordinate patient care with other healthcare organisations, using standard procedures and protocols. <ul style="list-style-type: none"> – This aspect can be judged by the degree of standardisation of the communication between PHCOs, the use of IT systems to support the coordination of care, the relationships between PHCOs (e.g. PHCO networks, joint planning, funding and/or management, agreements between PHCOs). ■ The quality of care processes is based on best practice guidelines. <ul style="list-style-type: none"> – The extent to which there are clinical protocols and care packages developed for each patient group, ensuring standardisation of best practice. ■ The quality of clinical integration or coordination in multi-professional teams is ensured. <ul style="list-style-type: none"> – An example is coordination in cancer care, i.e. the extent to which cancer cases are discussed at the level of multidisciplinary team meetings. <p>The respondents should be familiar with coordination in primary care to be able to grade these aspects in an objective manner. A composite indicator can be constructed by averaging the three scores.</p>
Rationale
Care coordination is an important component of integrated care. The proposed indicators attempt to measure aspects of care coordination, as reflected by organisational aspects in primary care, standardisation of care processes through guidelines, and operations of multi-disciplinary teams. These are aspects usually examined in the literature in the context of specific studies. The studies on which the proposed indicator are based are included in the adaptation of the WHO guidelines in the BLOCKS report by the Expert Group on HSPA.
Reference population
Member States.
Reference period
Calendar year.
Periodicity of publication
Annually.
Unit of measurement
None. A score in the range 1-10.

Indicator AD7
Name of the indicator
Patient pathways (efficiency of information flow).
Definition / description
<p>This indicator can be constructed from part of the questionnaire in the section of the WHO Global eHealth survey which is dedicated to electronic health records (EHR). This is presented in Appendix II.</p> <p>Secondary care is of particular interest:</p> <ul style="list-style-type: none"> ▪ Question 148 collects the answers on the use of a national EHR system in secondary care facilities, in the scale 'Low', 'Medium', 'High', 'Very High'. ▪ Question 149 similarly collects the answers on the use of a national EHR system in tertiary care facilities, in the scale 'Low', 'Medium', 'High', 'Very High'. <p>These scales are converted to numerical values as follows: Low=2, Medium=5, High=7.5, Very High=10.</p> <p>The indicator is then computed as the average of these two values.</p> <p>Where no national EHR system exists, the score is zero. Similarly, where the answers to Questions 148 and/or 149 are 'No', the corresponding values are zero. In cases where the answers to Questions 148 and/or 149 are 'Don't know', the corresponding values are missing.</p> <p>An independent survey of national representatives can be carried out in the place of the WHO Global eHealth survey.</p>
Rationale
The existence and use of EHR has been proven to be at the core of efficient patient pathways. Efficient information flow is an absolute requirement for the coordination of the inter-related healthcare activities needed to manage certain conditions and in the presence of multiple diseases. In general, the literature on pathways examines the use of registries and ICT systems for efficient coordination and decision-making.
Reference population
Member States.
Reference period
Calendar year.
Periodicity of publication
Biennially, as soon as the WHO Global eHealth survey results are published (or through an independent survey).
Unit of measurement
None. A score in the range 0-10.

Indicator AD8
Name of the indicator
Quality of care in nursing homes.
Definition / description
<p>The construction of the indicator is based on inspections of nursing homes.</p> <p>In these inspections, the incidence rates of the following are counted:</p> <ul style="list-style-type: none"> ■ Pressure ulcers; ■ Urinary tract infections; ■ Use of physical restraints. <p>These rates are expressed as percentages and then averaged.</p>
Rationale
<p>The quality of care in nursing homes is relevant to treatment adequacy in long-term care. Process deficiencies such as those ones proposed are indicative of poor quality of care. These specific deficiencies are frequently used in the literature, in relevant projects, and are the most objectively measured (contrary to other observations, such as polypharmacy or unnecessary medication). They are recorded, for example, in the inspections of nursing homes by Medicare in the US and are also mentioned in a recent presentation by the OECD¹²⁷.</p>
Reference population
Nursing homes.
Reference period
Calendar year.
Periodicity of publication
Annual.
Unit of measurement
Percentage.

¹²⁷ https://ec.europa.eu/health/sites/health/files/indicators/docs/ev_20170608_co05_en.pdf

A3.4 Timeliness

There is no proposed indicator fiche associated with this dimension.

A3.5 Accessibility

Indicator AC1
Name of the indicator
Health literacy indicator.
Definition / description
<p>For the construction of this indicator, the HLS-EU-Q16 questionnaire is used, as developed by Health Literacy Europe¹²⁸. This is presented in Appendix II, section 10.2.</p> <p>All 16 questions are of the form ‘<i>On a scale from very easy to very difficult, how easy would you say it is to: ...</i>’ and the possible answers are ‘very difficult’, ‘fairly difficult’, ‘fairly easy’ and ‘don’t know’.</p> <p>After the exclusion of responses with very few valid items (too many ‘don’t know’ responses), the answers are recoded into values from 1 (‘Very difficult’) to 4 (‘Very easy’). The total score is then calculated as the mean of these values.</p> <p>This score is further divided by 4 in order to be in the range 0-1.</p>
Rationale
<p>This questionnaire is based on the original 47-item questionnaire (HLS-EU-Q47) used in the HLS-EU project which took place in 2009-2012 using Eurobarometer standards. The 16-item short version proved capable of capturing most of the variability of the HLS-EU-Q47. This research effort is based on a solid conceptual model and the results revealed very interesting findings, including links between health literacy and socioeconomic factors.</p>
Reference population
Total resident population.
Reference period
Calendar year.
Periodicity of publication
Annual.
Unit of measurement
None. The indicator is a score in 0-1.

¹²⁸ HLS-EU Consortium, 2012. HLS-EU-Q16. The European Health Literacy Survey Questionnaire - short version. <https://www.healthliteracyeurope.net/history>

A3.6 Appropriateness

A3.6.1 Indicator AP1
Name of the indicator
Discrimination / stigma indicator.
Definition / description
<p>For more information, please see the extract from the European Union Minorities and Discrimination Survey carried out within the framework of the EU-MIDIS project, included in Appendix II, section 10.3.</p> <p>The proposed indicator is the percentage of persons who faced unfair treatment or felt discriminated against among those who had one or more contacts with the healthcare system in the last 12 months.</p> <p>These are the respondents who replied:</p> <p>‘Yes’ to question DHE05 [Was there any time during the past 12 months when you really needed a medical examination or treatment for yourself?] AND</p> <p>EITHER</p> <p> ‘No’ to DHE06 [Did you have a medical examination or treatment each time you really needed it during the past 12 months?] AND</p> <p> replied ‘I was refused treatment/I was unfairly treated because of my ethnic or immigrant background/Roma background/ethnic minority background’ in DHE07 [What was the main reason why you did not have a medical examination or treatment?]</p> <p>OR</p> <p> refused to answer/did not understand/replied ‘don’t know’ to DHE06 [Did you have a medical examination or treatment each time you really needed it during the past 12 months?] AND</p> <p> ‘Yes’ to DHE08 [In the past five years, have you used any healthcare services? For example, have you seen a doctor, nurse, dentist, visited a hospital, an emergency clinic or medical centre?] AND</p> <p> selected at least one of ‘Skin colour’, ‘ethnic or immigrant background/ethnic origin’, ‘Religion or religious beliefs’ in DHED01 [When using healthcare services in the past five years in [COUNTRY] (or since you have been in [COUNTRY]), have you ever felt discriminated against for any of the following reasons? Tell me all that apply] AND</p> <p> replied ‘Sometime in the past 12 months to DHED02 [When was the LAST TIME you felt discriminated against because of your ethnic or immigrant background / Roma background/ethnic minority background when using healthcare services?]</p> <p>OR</p> <p> ‘Yes’ to DHE06 [Did you have a medical examination or treatment each time you really needed it during the past 12 months?] AND</p> <p> selected at least one of ‘Skin colour’, ‘ethnic or immigrant background/ethnic origin’,</p>

'Religion or religious beliefs' in DHED01 [When using healthcare services in the past five years in [COUNTRY] (or since you have been in [COUNTRY]), have you ever felt discriminated against for any of the following reasons? Tell me all that apply] AND

replied 'Sometime in the past 12 months' to DHED02 [When was the LAST TIME you felt discriminated against because of your ethnic or immigrant background/Roma background/ethnic minority background when using healthcare services?]

Rationale

The European Union Minorities and Discrimination Survey is the most comprehensive survey for the measurement of discrimination issues. It includes a section on access to healthcare. The questions are adjusted to a specific group for each particular case, therefore separate results can be extracted for immigrants, Roma, ethnic minorities, etc. Given the high priority given to human rights in EU policies, this survey is expected to continue.

Reference population

EU residents 16+ years who self-define as persons of immigrant or ethnic minority background (including Roma) living in private households for at least the last 12 months.

Reference period

Calendar year.

Periodicity of publication

With the dissemination of the European Union Minorities and Discrimination Survey results.

Unit of measurement

Percentage.

Annex 4 Specific questionnaires

A4.1 WHO Global eHealth survey – the section on EHR

Section 5 – Electronic Health Records

A robust EHR system plays a vital role in universal health coverage through supporting the diagnosis and treatment of patients by providing rapid, comprehensive and timely patient information at point of care.

Electronic health records (EHRs) are real-time, patient-centred records that provide immediate and secure information to authorised users. EHRs typically contain a patient’s medical history, diagnoses and treatment, medications, allergies, immunizations, as well as radiology images and laboratory results. A National Electronic Health Records system is most often implemented under the responsibility of the national health authority and will typically make a patient’s medical history available to health professionals in health care institutions and provide linkages to related services such as pharmacies, laboratories, specialists, and emergency and medical imaging facilities.

144 Does your country have a national EHR ¹² system (according to the definition above)?

- Yes
- No (go to question 153)
- Don’t know (go to question 153)

145 What year was it first introduced?

Year _____

146 Does your country have specific legislation governing the use of the national EHR system?

- Yes
- No
- Don’t know

Please complete the table below to indicate the types of health facilities, as well as their levels of uptake, that use the national EHR system in your country.

Health facility	Use national EHR system	Proportion of facilities using national EHR system
147 Primary care facilities (e.g. clinics and health care centres)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Don’t know	<input type="checkbox"/> Low – less than 25% <input type="checkbox"/> Medium – more than 25%; less than 50% <input type="checkbox"/> High – more than 50%; less than 75% <input type="checkbox"/> Very high – more than 75%
148 Secondary care facilities (e.g. hospitals, emergency care)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Don’t know	<input type="checkbox"/> Low – less than 25% <input type="checkbox"/> Medium – more than 25%; less than 50% <input type="checkbox"/> High – more than 50%; less than 75% <input type="checkbox"/> Very high – more than 75%

¹²Note: for the purpose of this survey and for gross comparisons, the terms electronic health records (EHR) and electronic medical records (EMR) will be used interchangeably, although this is not strictly correct.

149 Tertiary care facilities (e.g. specialized care, referral from primary/secondary care)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Don't know	<input type="checkbox"/> Low – less than 25% <input type="checkbox"/> Medium – more than 25%; less than 50% <input type="checkbox"/> High – more than 50%; less than 75% <input type="checkbox"/> Very high – more than 75%
150 Other. Please specify: _____ _____	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Don't know	<input type="checkbox"/> Low – less than 25% <input type="checkbox"/> Medium – more than 25%; less than 50% <input type="checkbox"/> High – more than 50%; less than 75% <input type="checkbox"/> Very high – more than 75%

151 What other systems does your national EHR system link to?. Check as many as apply.

- Laboratory information systems
- Pathology information systems
- Pharmacy information systems (e.g. national ePrescription system)
- Picture archiving and communications systems (PACS)
- Automatic vaccination alerting system
- None
- Other. Please specify: _____

152 Which of the following international standards are being used to support your country's national EHR system? Please check all that apply

- CEN/TC 251 published standards
- Continuity of Care Record- ASTM International Continuity of Care Record standard
- DCMI (Dublin Core Metadata Initiative)
- DDI (Data Documentation Initiative)
- DICOM (Digital Imaging and Communications in Medicine)
- HL7 Messaging (Health Level 7)
- ICD (International Classification of Diseases)
- ISO TC 215 - provides international technical specifications for EHRs.
- ISO 18308 - describes EHR architectures
- IXF Messaging (UN Indicator Transmission Format)
- LOINC (Logical Observation Identifiers Names and Codes)
- SDMX (Statistical Data and Metadata Exchange)
- SNOMED CT (Systematized Nomenclature of Medicine-Clinical Terms)
- Other – Please specify: _____

Barriers to implementing electronic health records

There are many reasons why electronic health record systems may not be successfully implemented in countries. From the list below, please rate **each suggested barrier** according to how important it is in your country.

	Not a barrier	Slightly important barrier	Moderately important barrier	Very important barrier	Extremely important barrier
153 Capacity – lack of trained human resources and/or technical support for EHR programmes.					
154 Infrastructure - lack of equipment and/or connectivity.					
155 Funding - lack of funding to develop and support EHR programmes.					
156 Effectiveness – lack of evidence on effectiveness of EHR programmes.					
157 Cost-effectiveness – lack of evidence on cost-effectiveness of EHR programme.					
158 Demand - lack of demand by health professionals or patients for EHR programmes.					
159 Legal - lack of legislation or regulations covering EHR programmes.					
160 Policy - national policies do not promote the adoption of EHR.					
161 Standards - lack of national or international information standards for interoperability.					
162 Priorities - competing health system priorities.					
163 Other – Please specify					

A4.2 Health literacy: the HLS-EU-Q16 questionnaire

HLS-EU-Q16					1	2	3	4	5
HLS-EU Matrix Item No.	HLS-EU Survey Item No.	HLS-EU Short version No.	On a scale from very easy to very difficult, how easy would you say it is to: ...	1 very difficult	2 fairly difficult	3 fairly easy	4 very easy	5 don't know	
HC-FHI 1.1.2	Q1.2	Q1	find information on treatments of illnesses that concern you?						
HC-FHI 1.1.4	Q1.4	Q2	find out where to get professional help when you are ill?						
HC-UHI 1.2.1	Q1.5	Q3	understand what your doctor says to you?						
HC-UHI 1.2.4	Q1.8	Q4	understand your doctor's or pharmacist's instruction on how to take a prescribed medicine?						
HC-JHI 1.3.3	Q1.11	Q5	judge when you may need to get a second opinion from another doctor?						
HC-AHI 1.4.1	Q1.13	Q6	use information the doctor gives you to make decisions about your illness?						
HC-AHI 1.4.4	Q1.16	Q7	follow instructions from your doctor or pharmacist?						
DP-FHI 2.1.2	Q1.18	Q8	find information on how to manage mental health problems like stress or depression?						
DP-UHI 2.2.1	Q1.21	Q9	understand health warnings about behaviour such as smoking, low physical activity and drinking too much?						
DP-UHI-3 2.2.3	Q1.23	Q10	understand why you need health screenings?						
DP-JHI 2.3.5	Q1.28	Q11	judge if the information on health risks in the media is reliable?						
DP-AHI 2.4.3	Q1.31	G12	decide how you can protect yourself from illness based on information in the media?						
HP-FHI 3.1.2	Q1.33	G13	find out about activities that are good for your mental wellbeing?						
HP-UHI 3.2.1	Q1.37	Q14	understand advice on health from family members or friends?						
HP-UHI 3.2.3	Q1.39	Q15	understand information in the media on how to get healthier?						
HP-JHI 3.3.3	Q1.43	Q16	judge which everyday behaviour is related to your health?						

A4.3 Excerpt from the European Union Minorities and Discrimination Survey questionnaire

DHE05	Need for medical examination or treatment in past 12 months
	ASK ALL
	Was there any time during the past 12 months when you really needed a medical examination or treatment for yourself?
	SINGLE RESPONSE
1	Yes (I really needed a medical examination or treatment at least on one occasion)
2	No (I did not need any medical examination or treatment)
96	<i>Refused</i>
97	<i>Doesn't understand the question</i>
99	<i>Don't know</i>

DHE06	Unmet need for medical examination or treatment in past 12 months
	ASK IF DHE05=1 (Ask if the respondent really needed a medical examination or treatment for him/herself in the past 12 months)
	Did you have a medical examination or treatment each time you really needed it during the past 12 months?
	SINGLE RESPONSE
1	Yes (I had a medical examination or treatment each time I needed)
2	No (there was at least one occasion when I did not have a medical examination or treatment)
96	<i>Refused</i>
97	<i>Doesn't understand the question</i>
99	<i>Don't know</i>

DHE07	Main reason for unmet need in access to health
	ASK IF DHE06=2 (Ask if the respondent did not need any medical examination or treatment at least in one occasion in the past 12 months)
	What was the main reason why you did not have a medical examination or treatment?
	READ OUT
	SINGLE RESPONSE
1	I could not afford to (too expensive and/or not covered by the insurance)
2	The waiting list or waiting time for an appointment was too long
3	I could not take time off because of work or had to care for children/others
4	It was too far to travel/I had no means of transportation
5	Fear of doctor, hospitals, examination, treatment
6	Didn't know any good doctor or specialist
7	Wanted to wait and see if the problem got better
8	Because of language difficulties with [MAIN COUNTRY LANGUAGE]

9	I was refused treatment/I was unfairly treated because of my: [TAILORED TO TARGET GROUP CATEGORIES ethnic or immigrant background/Roma background/ ethnic minority background]
10	It was not possible to choose a male or female doctor
11	Other (DO NOT READ OUT)
96	Refused (DO NOT READ OUT)
97	Doesn't understand the question (DO NOT READ OUT)
99	Don't know (DO NOT READ OUT)

DHE08	Use of healthcare services in past five years
	<p>ASK IF DHE06=2 OR 96-99 (Ask if the respondent did not have a medical examination or treatment each time it was really needed during the past 12 months OR if the respondent refused/did not understand/did not know how to answer the question)</p> <p>In the past five years, have you used any healthcare services? For example, have you seen a doctor, nurse, dentist, visited a hospital, an emergency clinic or medical centre?</p> <p>BY 'HEALTHCARE SERVICES' WE MEAN: HOSPITALS, MEDICAL CENTRES, DOCTOR'S OFFICE (GENERAL PRACTITIONER OR A SPECIALIST, DENTIST), LABS, MEDICAL IMAGING EXAMINATIONS (X-RAYS, SCANS), ETC.</p>
	SINGLE RESPONSE
1	Yes
2	No
96	Refused
97	Doesn't understand the question
99	Don't know

DHED01	Experiences of discrimination when using healthcare services in past five years																				
	<p>ASK IF DHE06=1 OR DHE08=1 (Ask if the respondent had a medical examination or treatment each time it was really needed during the past 12 months OR if the respondent used any healthcare services in the past 5 years)</p> <p>When using healthcare services in the past five years in [COUNTRY] (or since you have been in [COUNTRY]), have you ever felt discriminated against for any of the following reasons? Tell me all that apply.</p> <p>IF LESS THAN FIVE YEARS IN COUNTRY, 'SINCE YOU'VE BEEN IN THE COUNTRY'</p> <p>SHOWCARD WITH THE DEFINITION OF DISCRIMINATION ONLY WHEN NEEDED (DHED01_DISCRIM) ('BY DISCRIMINATION WE MEAN WHEN SOMEBODY IS TREATED LESS FAVOURABLY THAN OTHERS BECAUSE OF SKIN COLOUR, AGE, SEX, SEXUAL ORIENTATION, DISABILITY, ETHNIC ORIGIN, RELIGION OR BELIEF')</p> <p>SHOW CARD DHED01, PROBE FOR MORE, CODE ALL THAT APPLY</p> <p>MULTIPLE RESPONSES, EXCEPT DHED01_09</p>																				
	<table border="1"> <thead> <tr> <th></th> <th></th> <th>Not mentioned</th> <th>Mentioned</th> </tr> </thead> <tbody> <tr> <td>DHED01_01</td> <td>A. Skin colour</td> <td>0</td> <td>1</td> </tr> <tr> <td>DHED01_02</td> <td>B. [TAILORED TO TARGET GROUP CATEGORIES ethnic or immigrant background/ethnic origin]</td> <td>0</td> <td>1</td> </tr> <tr> <td>DHED01_03</td> <td>C. Religion or religious beliefs</td> <td>0</td> <td>1</td> </tr> <tr> <td>DHED01_04</td> <td>D. Age (such as being too young or too old)</td> <td>0</td> <td>1</td> </tr> </tbody> </table>			Not mentioned	Mentioned	DHED01_01	A. Skin colour	0	1	DHED01_02	B. [TAILORED TO TARGET GROUP CATEGORIES ethnic or immigrant background/ethnic origin]	0	1	DHED01_03	C. Religion or religious beliefs	0	1	DHED01_04	D. Age (such as being too young or too old)	0	1
		Not mentioned	Mentioned																		
DHED01_01	A. Skin colour	0	1																		
DHED01_02	B. [TAILORED TO TARGET GROUP CATEGORIES ethnic or immigrant background/ethnic origin]	0	1																		
DHED01_03	C. Religion or religious beliefs	0	1																		
DHED01_04	D. Age (such as being too young or too old)	0	1																		

DHED01_05	E. Sex/gender (such as being a man or a woman)	0	1
DHED01_06	F. Disability	0	1
DHED01_07	G. Sexual orientation (such as being gay, lesbian or bisexual)	0	1
DHED01_08 DHED01_08_Other	H. Other (please specify): OPEN TEXT BOX	0	1
DHED01_09	I. I haven't felt discriminated against on any ground when using healthcare services in the past five years	0	1
DHED01_96	<i>Refused</i> (NOT ON SHOW CARD)	0	1
DHED01_97	<i>Doesn't understand the question</i> (NOT ON SHOW CARD)	0	1
DHED01_99	<i>Don't know</i> (NOT ON SHOW CARD)	0	1

DHED02	Date of last experience of discrimination when using healthcare services
	<p>ASK IF DHED01=DHED01_01 OR DHED01_02 OR DHED01_03 (Ask if the respondent experienced discrimination when using healthcare services in [COUNTRY] in the past five years because of skin colour OR because of ethnic origin or immigrant background OR because of religion or religious beliefs.)</p> <p>When was the LAST TIME you felt discriminated against because of your: [TAILORED TO TARGET GROUP CATEGORIES ethnic or immigrant background/Roma background/ethnic minority background] when using healthcare services?</p> <p>READ OUT</p> <p>SINGLE RESPONSE</p>
1	Sometime in the past 12 months
2	Sometime in the past five years, but not in the past 12 months
3	More than five years ago
96	<i>Refused</i> (DO NOT READ OUT)
97	<i>Doesn't understand the question</i> (DO NOT READ OUT)
99	<i>Don't know</i> (DO NOT READ OUT)

DHED03	Number of experiences of discrimination when using healthcare services in past 12 months
	<p>ASK IF DHED02=1 (Ask if the last time the respondent felt discriminated against when using healthcare services was in the past 12 months)</p> <p>HOW MANY TIMES has this happened to you in the past 12 months when using healthcare services?</p> <p>SINGLE RESPONSE</p>
1	Once
2	Twice
3	Three times
4	Four times
5	Five times
6	Six to 10 times
7	More than 10 times
8	All the time (daily)
96	<i>Refused</i>
97	<i>Doesn't understand the question</i>

99	Don't know
----	------------

DHED04	Reasons for last experience of discrimination when using healthcare services		
	ASK IF DHED02=1 OR 2 (Ask if the last time the respondent felt discriminated against when using healthcare services was in the past five years including the past 12 months)		
	LAST TIME you felt discriminated against because of your: [TAILORED TO TARGET GROUP CATEGORIES ethnic or immigrant background / Roma background / ethnic minority background] when using healthcare services, in your opinion, what were the main reasons for this?		
	SHOW CARD DHED04, CODE ALL THAT APPLY		
	MULTIPLE RESPONSES, EXCEPT DHED04_09		
		Not mentioned	Mentioned
DHED04_01	1. My skin colour/my physical appearance	0	1
DHED04_02	2. My first or last name	0	1
DHED04_03	3. My accent/the way I speak [COUNTRY LANGUAGE]	0	1
DHED04_04	4. The way I am dressed (such as wearing a headscarf/turban)	0	1
DHED04_05	5. The reputation of the neighbourhood where I live (my address)	0	1
DHED04_06	6. My citizenship	0	1
DHED04_07	7. My country of birth	0	1
DHED04_08 DHED04_08_Other	8. Other reason (please specify): OPEN TEXT BOX	0	1
DHED04_09	9. None of the above	0	1
DHED04_96	Refused (NOT ON SHOW CARD)	0	1
DHED04_97	Doesn't understand the question (NOT ON SHOW CARD)	0	1
DHED04_99	Don't know (NOT ON SHOW CARD)	0	1

Annex 5 References

- ⁱ Levesque, J.-F., Harris, M.F. and Russell, G., 2013. Patient-centred access to healthcare: conceptualising access at the interface of systems and populations. *International Journal for Equity in Health*, 12(8), pp.1-9.
- ⁱⁱ Field, K.S., and Briggs, D.J., 2001. Socioeconomic and locational determinants of accessibility and utilisation of primary healthcare. *Health and Social Care in the Community*, 9(5), pp.294-308.
- ⁱⁱⁱ Field, K.S., and Briggs, D.J., 2001. Socioeconomic and locational determinants of accessibility and utilisation of primary healthcare. *Health and Social Care in the Community*, 9(5), pp.294-308.
- ^{iv} Thiede, M., 2005. 'Information and access to healthcare: is there a role for trust?' *Social Science & Medicine*, 61(7), pp.1452-62.
- ^v Delamater, P.L., Messina, J.P., Shortridge, A.M. and Grady, S.C., 2012. Measuring geographic access to healthcare: raster and network-based methods. *International Journal of Health Geographics*, 11(5), pp.1-8.
- ^{vi} Apparicio, P., Abdelmajid, M., Riva, M. and Shearmur, R., 2008. Comparing alternative approaches to measuring the geographical accessibility of urban health services: Distance types and aggregation-error issues. *International Journal of Health Geographics*, 7(7).
- ^{vii} Fortney, J., Rost, K. and Warren, J., 2000. Comparing Alternative Methods of Measuring Geographic Access to Health Services. *Health Services & Outcomes Research Methodology*, 1(2), pp.173-184.
- ^{viii} Goldsmith, L.J., 2007. 'Access to healthcare for disadvantaged individuals: a qualitative inquiry.' Available at: <https://cdr.lib.unc.edu/indexablecontent/uuid:abf95678-f389-4300-ba67-6eaf7b510eb5> [Accessed 3 April].
- ^{ix} Ruiz-Casares, M., Rousseau, C., Laurin-Lamothe, A., Rummens, J. A., Zelkowitz, P., Crepeau, F. and Steinmetz, N., 2013. Access to healthcare for undocumented migrant children and pregnant women: the paradox between values and attitudes of healthcare professionals. *Maternal & Child Health Journal*, 17(2), pp. 292-8.
- ^x Rotarou, E.S. and Sakellariou, D., 2017. Access to healthcare in an age of austerity: disabled people's unmet needs in Greece. *Critical Public Health*, pp.1469-3682.
- ^{xi} Wilson, K. and Rosenberg, M.W., 2004. Accessibility and the Canadian healthcare system: squaring perceptions and realities. *Health Policy*, 67, pp.137-148.
- ^{xii} European Patients' Forum, 2016. 'Defining and Measuring Access to Healthcare: the patients' perspective.' Available at: http://www.eu-patient.eu/globalassets/policy/access/epf_position_defining_and_measuring_access_010316.pdf [Accessed 3 April 2018].
- ^{xiii} Xu, K., Saksena, P. and Evans, D.B., 2010. 'Health financing and access to effective interventions.' Available at: <http://www.who.int/healthsystems/topics/financing/healthreport/8Accesstocare.pdf> [Accessed 3 April 2018].
- ^{xiv} Levesque, J.-F., Harris, M.F. and Russell, G., 2013. Patient-centred access to healthcare: conceptualising access at the interface of systems and populations. *International Journal for Equity in Health*, 12(8), pp.1-9.
- ^{xv} The Economist Intelligence Unit Limited, 2017. 'Global access to healthcare: Building sustainable health systems.' Available at: <http://accesstohealthcare.eiu.com/whitepaper/> [Accessed 3 April 2018].
- ^{xvi} Bauer, J. and Groneberg, D. A., 2016. Measuring spatial accessibility of healthcare providers- introduction of a variable distance decay function within the floating catchment area (FCA) method. *PLoS ONE*, 11(7).
- ^{xvii} European Commission, Expert Panel on effective ways of investing in Health (EXPH), 2016. 'Access to health services in the European Union.' Available at: https://ec.europa.eu/health/expert_panel/sites/expertpanel/files/015_access_healthservices_en.pdf [Accessed 3 April 2018].
- ^{xviii} European Commission, Expert Panel on effective ways of investing in Health (EXPH), 2016. 'Access to health services in the European Union.' Available at: https://ec.europa.eu/health/expert_panel/sites/expertpanel/files/015_access_healthservices_en.pdf [Accessed 3 April 2018].
- ^{xix} Evans, D.B., Hsu, J. and Boerma, T., 2013. Universal health coverage and universal access. *Bulletin of the World Health Organization*, 91, pp.546-546A.
- ^{xx} Delamater, P.L., Messina, J.P., Shortridge, A.M. and Grady, S.C., 2012. Measuring geographic access to healthcare: raster and network-based methods. *International Journal of Health Geographics*, 11(5), pp.1-8.

- xxi Wilson, K. and Rosenberg, M.W., 2004. Accessibility and the Canadian healthcare system: squaring perceptions and realities. *Health Policy*, 67, pp.137-148.
- xxii MacKinney, A.C., Coburn, A.F., Lundblad, J.P., McBride, T.D., Mueller, K.J. and Watson, S.D. (RUPRI Health Panel), 2014. 'Access to rural healthcare - A literature review and new synthesis.' Available at: http://www.rupri.org/Forms/HealthPanel_Access_August2014.pdf [Access 3 April 2018].
- xxiii Haggerty, J.L., Roberge, D., Levesque, J.L., Gauthier, J. and Loignon, C., 2014. An exploration of rural–urban differences in healthcare-seeking trajectories: Implications for measures of accessibility. *Health and Place*, 28, pp.92-98.
- xxiv MacKinney, A.C., Coburn, A.F., Lundblad, J.P., McBride, T.D., Mueller, K.J. and Watson, S.D. (RUPRI Health Panel), 2014. 'Access to rural healthcare - A literature review and new synthesis.' Available at: http://www.rupri.org/Forms/HealthPanel_Access_August2014.pdf [Access 3 April 2018].
- xxv European Commission, Expert Panel on effective ways of investing in Health (EXPH), 2016. 'Access to health services in the European Union.' Available at: https://ec.europa.eu/health/expert_panel/sites/expertpanel/files/015_access_healthservices_en.pdf [Accessed 3 April 2018].
- xxvi Wilson, K. and Rosenberg, M.W., 2004. Accessibility and the Canadian healthcare system: squaring perceptions and realities. *Health Policy*, 67, pp.137-148.
- xxvii Gulley, S. P. and Altman, B. M., 2008. Disability in two healthcare systems: access, quality, satisfaction, and physician contacts among working-age Canadians and Americans with disabilities. *Disability & Health Journal*, 1(4), pp.196-208.
- xxviii European Commission, Social Protection Committee, 2015. 'Towards a Joint Assessment Framework in the Area of Health, Work in progress: 2015 update.' Available at: <http://ec.europa.eu/social/BlobServlet?docId=17033&langId=en> [Accessed 3 April 2018].
- xxix National Coordinating Centre for NHS Service Delivery and Organisation R&D (NCCSDO), 2001. 'Access to healthcare - report of a scoping exercise for the National Co-ordinating Centre for NHS Service Delivery and Organisation R & D (NCCSDO).' Available at: http://www.netscc.ac.uk/hhdr/files/project/SDO_ES_08-1009-005_V01.pdf [Accessed 3 April 2018].
- xxx Paris, V. et al., 2016. 'Healthcare coverage in OECD countries in 2012.' OECD Health Working Papers, No. 88, OECD Publishing, Paris.
- xxxi European Commission, Expert Panel on effective ways of investing in Health (EXPH), 2016. 'Access to health services in the European Union.' Available at: https://ec.europa.eu/health/expert_panel/sites/expertpanel/files/015_access_healthservices_en.pdf [Accessed 3 April 2018].
- xxxii European Commission, Expert Panel on effective ways of investing in Health (EXPH), 2016. 'Access to health services in the European Union.' Available at: https://ec.europa.eu/health/expert_panel/sites/expertpanel/files/015_access_healthservices_en.pdf [Accessed 3 April 2018].
- xxxiii Ricketts, T. C. and Goldsmith, L. J., 2005. Access in health services research: the battle of the frameworks. *Nursing Outlook*, 53(6), pp. 274-80.
- xxxiv Gulley, S. P. and Altman, B. M., 2008. Disability in two healthcare systems: access, quality, satisfaction, and physician contacts among working-age Canadians and Americans with disabilities. *Disability & Health Journal*, 1(4), pp. 196-208.
- xxxv Racial ethnic disparities in access to medicare home healthcare
- xxxvi Goldsmith, L.J., 2007. 'Access to healthcare for disadvantaged individuals: a qualitative inquiry.' Available online: <https://cdr.lib.unc.edu/indexablecontent/uuid:abf95678-f389-4300-ba67-6eaf7b510eb5> [Accessed 3 April 2018].
- xxxvii Evans, D.B., Hsu, J. and Boerma, T., 2013. Universal health coverage and universal access. *Bulletin of the World Health Organization*, 91, pp.546–546A.
- xxxviii Rotarou, E.S. and Sakellariou, D., 2017. Access to healthcare in an age of austerity: disabled people's unmet needs in Greece. *Critical Public Health*, pp.1469-3682.
- xxxix Gulley, S. P. and Altman, B. M., 2008. Disability in two healthcare systems: access, quality, satisfaction, and physician contacts among working-age Canadians and Americans with disabilities. *Disability & Health Journal*, 1(4), pp. 196-208.
- xl European Commission, Expert Panel on effective ways of investing in Health (EXPH), 2016. 'Access to health services in the European Union.' Available at: https://ec.europa.eu/health/expert_panel/sites/expertpanel/files/015_access_healthservices_en.pdf [Accessed 3 April 2018].
- xli Evans, D.B., Hsu, J. and Boerma, T., 2013. Universal health coverage and universal access. *Bulletin of the World Health Organization*, 91, pp.546–546A.

- ^{xlii} European Commission, Expert Panel on effective ways of investing in Health (EXPH), 2016. 'Access to health services in the European Union', Available at: https://ec.europa.eu/health/expert_panel/sites/expertpanel/files/015_access_healthservices_en.pdf [Accessed 3 April 2018].
- ^{xliii} European Commission, Expert Panel on effective ways of investing in Health (EXPH), 2016. 'Access to health services in the European Union.' Available at: https://ec.europa.eu/health/expert_panel/sites/expertpanel/files/015_access_healthservices_en.pdf [Accessed 3 April 2018].
- ^{xliiv} Daley, A. E. and MacDonnell, J. A., 2011. Gender, sexuality and the discursive representation of access and equity in health services literature: implications for LGBT communities. *International Journal for Equity in Health*, 10(40).
- ^{xliv} Goldsmith, L.J., 2007. 'Access to healthcare for disadvantaged individuals: a qualitative inquiry.' Available at: <https://cdr.lib.unc.edu/indexablecontent/uuid:abf95678-f389-4300-ba67-6eaf7b510eb5> [Accessed 3 April].
- ^{xlvi} Haggerty, J.L., Roberge, D., Levesque, J.L., Gauthier, J. and Loignon, C., 2014. An exploration of rural–urban differences in healthcare-seeking trajectories: Implications for measures of accessibility. *Health and Place*, 28, pp.92-98.
- ^{xlvii} Zhang, X. Z., Andersen, R., Saaddine, J. B., Beckles, G. L. A., Duenas, M. R. and Lee, P. P., 2008. Measuring Access to Eye Care: A Public Health Perspective. *Ophthalmic Epidemiology*, 15(6), pp.418-425.
- ^{xlviii} Baker, S.R., 2009. Applying Andersen's behavioural model to oral health: what are the contextual factors shaping perceived oral health outcomes? *Community Dentistry and Oral Epidemiology*, 37, pp.485-494.
- ^{xlix} Goldsmith, L.J., 2007. 'Access to healthcare for disadvantaged individuals: a qualitative inquiry.' Available at: <https://cdr.lib.unc.edu/indexablecontent/uuid:abf95678-f389-4300-ba67-6eaf7b510eb5> [Accessed 3 April 2018].
- ⁱ Daley, A. E. and MacDonnell, J. A., 2011. Gender, sexuality and the discursive representation of access and equity in health services literature: implications for LGBT communities. *International Journal for Equity in Health*, 10(40).
- ⁱⁱ Daley, A. E. and MacDonnell, J. A., 2011. Gender, sexuality and the discursive representation of access and equity in health services literature: implications for LGBT communities. *International Journal for Equity in Health*, 10(40).
- ⁱⁱⁱ European Commission, Expert Panel on effective ways of investing in Health (EXPH), 2016. 'Access to health services in the European Union.' Available at: https://ec.europa.eu/health/expert_panel/sites/expertpanel/files/015_access_healthservices_en.pdf [Accessed 3 April 2018].
- ⁱⁱⁱⁱ Harris, R. V., 2013. Operationalisation of the construct of access to dental care: a position paper and proposed conceptual definitions. *Community Dental Health*, 30(2), pp.94-101.
- ^{liv} Ricketts, T. C. and Goldsmith, L. J., 2005. Access in health services research: the battle of the frameworks. *Nursing Outlook*, 53(6), pp.274-80.
- ^{lv} Harris, R. V., 2013. Operationalisation of the construct of access to dental care: a position paper and proposed conceptual definitions. *Community Dental Health*, 30(2), pp.94-101.
- ^{lvi} European Commission, Expert Panel on effective ways of investing in Health (EXPH), 2016. 'Access to health services in the European Union.' Available at: https://ec.europa.eu/health/expert_panel/sites/expertpanel/files/015_access_healthservices_en.pdf [Accessed 3 April 2018].
- ^{lvii} Wilson, K. and Rosenberg, M. W., 2004. Accessibility and the Canadian healthcare system: squaring perceptions and realities. *Health Policy*, 67(2), pp.137-48.
- ^{lviii} Eastwood, C., Doucet, J., Estrella-Holder, E., MacDonald, J., Nichols, N., Sherrard, H., Smigorowsky, M., Yates, G. and Woodend, K., 2008. A commentary on access to cardiovascular services: nursing roles and initiatives. *Canadian Journal of Cardiology*, 24(2), pp.107-12.
- ^{lix} European Commission, Expert Panel on effective ways of investing in Health (EXPH), 2016. 'Access to health services in the European Union.' Available at: https://ec.europa.eu/health/expert_panel/sites/expertpanel/files/015_access_healthservices_en.pdf [Accessed 3 April 2018].
- ^{lx} Ricketts, T. C. and Goldsmith, L. J., 2005. Access in health services research: the battle of the frameworks. *Nursing Outlook*, 53(6), pp.274-80.
- ^{lxi} National Coordinating Centre for NHS Service Delivery and Organisation R&D (NCCSDO), 2001. 'Access to healthcare - report of a scoping exercise for the National Coordinating Centre for NHS

-
- Service Delivery and Organisation R & D (NCCSDO).’ Available at: http://www.netscc.ac.uk/hhdr/files/project/SDO_ES_08-1009-005_V01.pdf [Accessed 3 April 2018].
- ^{lxii} European Commission, Expert Panel on effective ways of investing in Health (EXPH), 2016. ‘Access to health services in the European Union.’ Available at: https://ec.europa.eu/health/expert_panel/sites/expertpanel/files/015_access_healthservices_en.pdf [Accessed 3 April 2018].
- ^{lxiii} Levesque, J.-F., Harris, M.F. and Russell, G., 2013. Patient-centred access to healthcare: conceptualising access at the interface of systems and populations. *International Journal for Equity in Health*, 12(8), pp.1-9.
- ^{lxiv} European Commission, Expert Panel on effective ways of investing in Health (EXPH), 2016. ‘Access to health services in the European Union.’ Available at: https://ec.europa.eu/health/expert_panel/sites/expertpanel/files/015_access_healthservices_en.pdf [Accessed 3 April 2018].
- ^{lxv} European Commission, Expert Panel on effective ways of investing in Health (EXPH), 2016. ‘Access to health services in the European Union.’ Available at: https://ec.europa.eu/health/expert_panel/sites/expertpanel/files/015_access_healthservices_en.pdf [Accessed 3 April 2018].
- ^{lxvi} Paris, V. et al., 2016. ‘Healthcare coverage in OECD countries in 2012.’ OECD Health Working Papers, No. 88, OECD Publishing, Paris.
- ^{lxvii} European Commission, Expert Panel on effective ways of investing in Health (EXPH), 2016. ‘Access to health services in the European Union.’ Available at: https://ec.europa.eu/health/expert_panel/sites/expertpanel/files/015_access_healthservices_en.pdf [Accessed 3 April 2018].
- ^{lxviii} MacKinney, A.C., Coburn, A.F., Lundblad, J.P., McBride, T.D., Mueller, K.J. and Watson, S.D. (RUPRI Health Panel), 2014. ‘Access to rural healthcare - A literature review and new synthesis.’ Available at: http://www.rupri.org/Forms/HealthPanel_Access_August2014.pdf [Accessed 3 April 2018].
- ^{lxix} European Patients’ Forum, 2016. ‘Defining and Measuring Access to Healthcare: the patients’ perspective.’ Available at: http://www.eu-patient.eu/globalassets/policy/access/epf_position_defining_and_measuring_access_010316.pdf [Accessed 3 April 2018].
- ^{lxx} European Patients’ Forum, 2016. ‘Defining and Measuring Access to Healthcare: the patients’ perspective.’ Available at: http://www.eu-patient.eu/globalassets/policy/access/epf_position_defining_and_measuring_access_010316.pdf [Accessed 3 April 2018].
- ^{lxxi} European Commission, Social Protection Committee, 2015. ‘Towards a Joint Assessment Framework in the Area of Health, Work in progress: 2015 update.’ Available at: <http://ec.europa.eu/social/BlobServlet?docId=17033&langId=en> [Accessed 3 April 2018].
- ^{lxxii} Wang, F., Luo, L. and McLafferty, S., 2010. Healthcare access, socioeconomic factors and late-stage cancer diagnosis: An exploratory spatial analysis and public policy implication. *International Journal of Public Policy*, 5(2-3), pp.237-258.
- ^{lxxiii} Yang, D. H., Goerge, R. and Mullner, R., 2006. Comparing GIS-based methods of measuring spatial accessibility to health services. *Journal of Medical Systems*, 30(1), pp.23-32.
- ^{lxxiv} Harris, R. V., 2013. Operationalisation of the construct of access to dental care: a position paper and proposed conceptual definitions. *Community Dental Health*, 30(2), pp.94-101.
- ^{lxxv} Apparicio, P., Gelb, J., Dube, A. S., Kingham, S., Gauvin, L. and Robitaille, E., 2017. The approaches to measuring the potential spatial access to urban health services revisited: distance types and aggregation-error issues. *International Journal of Health Geographics*, 16.
- ^{lxxvi} The criteria from Relevance (including data availability) to Coherence and Comparability are the quality dimensions recognised in the Quality Assessment Framework of the European Statistical System and they offer a useful backbone for the analysis criteria.
- ^{lxxvii} European Commission, Expert Panel on effective ways of investing in Health (EXPH), 2016. ‘Access to health services in the European Union’, Available at: https://ec.europa.eu/health/expert_panel/sites/expertpanel/files/015_access_healthservices_en.pdf [Accessed 3 April 2018].