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Towards a Joint Assessment Framework in the Area of Health

Work in progress: 2015 update

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1. BACKGROUND

The 2013 ISG Work Programme identified as its main work priority reviewing the indicators related to health and exploring the feasibility of developing a health policy area within the Joint Assessment Framework (JAF) in order to strengthen the assessment tools of health systems in the EU. The objective of such a framework should be to strengthen the use of the evidence-base by the Social Protection Committee (SPC) in its activities related to health policy in the context of the Open Method of Co-ordination (OMC), and possibly also in the context of the European Semester.

The proposed framework is intended to act as a **first-step quantitative screening device** to detect possible challenges in MS's health systems, with a specific focus on issues related to access, quality and equity. Following the Joint Assessment Framework (JAF) methodological approach, this first quantitative step will be followed by a more qualitative assessment based on a wider set of data and information, in order to verify and deepen the understanding of the challenges identified in the first screening.[1]

The present proposal, developed by the ISG with the support of the Commission services (in particular DG Employment, Social Affairs and Inclusion and Eurostat, with due consultation of DG SANTE and DG ECFIN), has been strongly conditioned by the state of data availability and data quality in the area of health. The development of the assessment framework has resulted in a thorough review of the existing health data and the identification of significant data gaps and further indicator development needs, which will allow a more robust and solid quantitative base for such a framework in the future.

The present paper provides an update of the framework presented to the SPC in February 2014[2], which in turn was based on the framework presented to the SPC in November 2013[3]. In particular, it takes into account developments in data availability and coverage. It is structured as follows. First, it explains the Joint Assessment Framework (JAF) methodology and gives an overview of the data sources used. It then presents the conceptual framework of the health system as proposed for adapting JAF methodology in the area of health. Next, individual indicators, underpinning each of the dimensions of the framework, are proposed and presented, providing data sources and comparability limitations, where appropriate.

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1 This qualitative assessment can be done based on comprehensive country specific information available from WHO's Health Systems in transition, OECD country reports and OECD Health at a Glance series, as well as other Commission reports, such as Joint Report on Health Systems and Ageing Report.

2 [SPC/2015.2.2/3.2] Towards a Joint Assessment Framework in the Area of Health. Work in progress: 2014 update

3 [SPC/2013.11/7] Developing an assessment framework in the area of health based on the Joint Assessment Framework methodology: final report to the SPC on the first stage of implementation

2. METHODOLOGICAL CHOICES

2.1. Joint Assessment Framework (JAF) methodology

The present work takes as its basis the methodology developed in the Commission-EMCO-SPC Joint Assessment Framework (JAF).[4]

The JAF methodology is a combination of a first-step screening of country specific challenges based on quantitative information and a second-step in-depth qualitative analysis to contextualise findings coming from hard data. The latter involves consultation of thematic reports, national-level publications as well as national data sets. The main purpose of employing the JAF methodology in the area of health is therefore to identify key challenges and best practices in the Member States' health systems to achieve the social OMC objectives of equal access, high-quality health care, and financial sustainability.

It should also be kept in mind that in various EU Member States the responsibilities and governance structures for health systems lay at the regional level and regions may display large differences in health, economic development and health system performance. Furthermore, given health systems' inherent complexities, within any given national system, some parts may be functioning well (e.g.: primary care) while others (e.g.: mental health care) may not. There are no adequate internationally comparable indicators to assess and compare the quality of such sub-systems available yet, and therefore national resources may be better placed for that.

In the following section a conceptual framework covering all relevant areas of a broad health system definition is presented. The framework acknowledges the complexity of health systems with their multiple dimensions, which makes it very difficult to summarize performance through a single measure.[5] That is why the JAF Health uses a dashboard for the indicators chosen to underpin the different aspects of health systems, rather than a hierarchy of indicators as originally suggested by the JAF methodology. Apart from it, the core JAF has been followed when distinction was made between main and context indicators. **Main indicators** as suggested by the JAF methodology are employed in the first step quantitative assessment and **context indicators** are to be used together with other international and national information sources in the second step more qualitative assessment. In other words, the context information refers to past and future trends in the light of which the main indicators are assessed.

Following the JAF methodology, a priority for the choice of indicators was given to **EU social indicators**. Ideally, JAF Health should be based on EU indicators alone, i.e. indicators that have clear normative interpretation and high quality of coverage and cross-country comparability. However, the existing and already available health indicators and data are strongly limited and cannot satisfy the criteria of EU social indicators. This has been the reason for an explicit choice to look not only at EU indicators but also NAT indicators[6]. Thus,

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4 This methodology has so far been used in other policy areas, including employment, education and social inclusion; more details as to the methodology are available here: http://ec.europa.eu/social/main.jsp?langId=en&catId=89&newsId=972&furtherNews=yes

5 Smith at al. (2009) Performance measurement for health system improvement

6 In the 'Portfolio of indicators for the monitoring of the European strategy for social protection and social inclusion' (September 2009 update), available at: http://ec.europa.eu/social/main.jsp?catId=756 these are defined as follows: **EU indicators** are "commonly agreed EU indicators contributing to a comparative assessment of Member States. These indicators might refer to social outcomes, intermediate social outcomes or outputs". **NAT indicators** are "commonly agreed national indicators based on commonly agreed definitions and assumptions that provide key information to assess the progress of MS in relation to certain

the present JAF in the area of health distinguishes between **commonly agreed EU indicators (EU) and commonly agreed national indicators based on commonly agreed definitions and assumptions (NAT)** as a useful way to classify the proposed indicators and send a clear message on their normative potential. In order to highlight the due caution with which NAT indicators should be treated, they have been marked across the framework and the respective outputs. It is our understanding that this is a sub-optimal but necessary solution in order to arrive to some results until better data becomes available.

The Social Protection Committee Indicators Sub-Group (ISG) has adopted a broad common methodological framework for the development of the portfolio of EU social indicators[7]. The framework outlines the following minimum set of methodological criteria to guide the selection of individual indicators:

- **An indicator should identify the essence of the problem and have a clear and accepted normative interpretation:** Indicator should be recognized as meaningful by users of all kinds; it must be acceptable and understandable to the general public; it must have intuitive validity and produce results that seem reasonable; it must have a clear normative interpretation so that national targets can be set and performance assessed.
- **An indicator should be robust and statistically validated:** Indicator should be measurable in a way that commands general support; it should employ statistically reliable data and be validated as far as possible by other evidence; it should not be systematically biased or liable to unpredictable or inexplicable fluctuations.
- **An indicator should be responsive to effective policy interventions but not subject to manipulation:** Indicator must reflect successful policy intervention; indicator must be of a form that can be linked to policy initiatives; indicator should not be easily manipulated through artificial policy changes.
- **An indicator should be measurable in a sufficiently comparable way across member states, and comparable as far as practicable with internationally applied definitions and data collection standards:** Full comparability is an ideal that cannot normally be attained due to variations in institutional and social structures; indicators that are over-sensitive to these structural differences or that raise interpretation problems should be avoided.
- **An indicator should be timely and susceptible to revision:** Indicator should be based on up-to-date data and subject to revision of data and underlying concepts. Ideally, it should be possible to chain the indicator before and after revision.
- **The measurement of an indicator should not impose too large of a burden on member states, enterprises, or the Union's citizens:** Indicator should, whenever possible, make use of information already supplied to Eurostat; where new information is needed, indicator should be obtained using existing instruments.

JAF Health also includes indicators that are not EU social indicators. Such indicators are referred to as **indicators for development**, which include indicators taken from existing

objectives, while not allowing for a direct cross-country comparison, or not necessarily having a clear normative interpretation. These indicators are especially suited to measure the scale and nature of policy intervention. These indicators should be interpreted jointly with the relevant background information (exact definition, assumptions, representativeness)".

7 SPC-ISG Guiding principles for the selection of indicators and statistics, available at: http://ec.europa.eu/social/main.jsp?catId=756

international data sources, but also indicators that are not sufficiently developed or that still need to be developed. The necessity to include such indicators is directly linked to the complex and multidimensional nature of the health systems' framework.

Another class of indicators in this document are the **indicators meeting the SPC-ISG Guiding Principles for the Selection of Indicators and Statistics.** These are previous indicators for development, that have been evaluated by ISG for their policy relevance, data availability and conformity with the SPC-ISG principles for the selection of indicator in order to be consented for use in JAF Health.

In summary, the list of the proposed indicators for the JAF Health includes such which were selected from the EU social indicators portfolio but also a number of indicators for development that were not evaluated with the quality criteria of the EU social indicators. Therefore the latter indicators need first to be tested and only at a later stage, when definitions and data collection are considered stable and with sufficient coverage, a conclusive qualitative evaluation undertaken by the ISG might lead to their inclusion in the JAF Health and, if appropriate, to a proposal to the SPC for their inclusion in the EU social indicators portfolio[8].

All this leads to the conclusion that, for the time being, it has to be kept in mind that missing data, comparability problems and lack of appropriate indicators to fully assess health system performance across the targeted dimensions constrain the explanatory power of the framework. As a result, the analytical results must be interpreted with caution.

The main and context indicators, with their definitions, sources and information on data availability for the number of EU Member States and the latest and next year for which data is collected or disseminated are presented in tables under each dimension of the conceptual framework, together with letter codes introduced to ease a reference to the suggested indicators. The indicators selected from the EU social indicators are separated from the proposed indicators for development and presented in two sets of tables under each dimension.

The JAF methodology suggests looking at how much countries are deviating from the EU average on any given indicator. The degree of deviation from the EU average is then taken as a (first) indication of over- or underperformance on this particular indicator (always keeping in mind that the EU average itself is not an indicator of good performance).

As the JAF health consists of a range of indicators for each dimension, they are standardised in order to present them on the same scale in one single chart and therefore allow for an easier comparison and analysis. Technically expressed, the standardisation consists in transforming the values of each indicator per policy area according to a common standardisation formula. The calculation for that involves standardising the value of the considered indicator by the mean and the standardised deviation and multiplying it by ten.

More formally, the standardisation formula can be expressed as:

*Individual Score for each indicator = [(Indicator – EU average)/Standard deviation] *10*

[8] As the EU social indicators have more functions and are used for more applications than the JAF health alone, the inclusion into EU social indicators should be discussed separately.

The JAF methodology proposes to use, where possible, the weighted EU-28 average as the mean. In the area of health, however, for a number of indicators (most prominently in the "non-health system determinants" area) data is not available for all Member States and an EU-28 average is not possible. Thus, for indicators where there is missing country data and no EU-28 average is possible, an un-weighed average for the available data is calculated and used in the standardisation as the reference point. This second best approach for calculating the EU average is currently applied because the JAF methodology needs a common reference point. However, as a matter of discussion it could be introduced and possibly addressed in the general review of the core JAF methodology, which is planned to be conducted this year[9]. The mid-term target, however, is to complete the coverage where Member State coverage gaps exist so that the reference point comes more in line with the "EU average" as conceptualised in the core JAF.

The results for the indicators included to underpin the JAF health framework are shown per Member State in illustration charts with coloured bars for the main indicators and grey bars for the context indicators. Additionally to the reference point of EU average, the minimum and maximum values in the EU for each indicator are referred to in light grey background bars. More details about the illustration charts and some examples are included in section 5.

For the moment the framework represents a snapshot of health systems´ performance at a point in time for which latest data is available, offering a static and not a dynamic picture of the situation. However, expected improvement in data collection and dissemination will allow for the assessment to be supplemented by time series, which will help to assess the situation and development in the individual Member States.

2.2. Data sources

In recent years, there have been significant improvements in health data collection and comparability at the EU level.[10]

The main data sources from which the proposed indicators are derived include:

- Joint Questionnaire (Eurostat-OECD-WHO) on non-monetary health care statistics
- Joint Questionnaire (Eurostat-OECD-WHO) on health care expenditure statistics based on the System of Health Accounts (SHA)
- European Health Interview Survey (EHIS)
- EU-SILC
- Eurostat demography data.

The subsequent sections present a detailed summary of definitions, data sources and their comparability. However, after a thorough review of existing data and indicators and several rounds of discussion, the limitations of the current list of indicators in terms of issues covered, the very heterogeneous nature of health data in terms of timely availability, comparability and coverage have emerged as major constraints in building a framework which delivers on timely and comprehensive monitoring.

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[9] In the ISG 2015 Work Programme a review of the current social monitoring framework is envisaged. It includes the review of JAF in the social policy areas to be carried out together with the EMCO Indicators group and the European Commission.

[10] For a more detailed overview of these data collection developments, please look at the Progress report on the review of the joint assessment framework in the area of health systems (SPC/ISG/2015/01/2.1)

3. CONCEPTUAL FRAMEWORK

For the needs of this work, we follow the WHO definition of health systems as *"the people, institutions and resources, arranged together in accordance with established policies, to improve the health of the population they serve, while responding to people's legitimate expectations and protecting them against the cost of ill-health through a variety of activities whose primary intent is to improve health".*[11] The conceptual framework takes into account also the broad definition of health systems as used for the purposes of the Tallinn Charter of the WHO European Region stating that *"health system encompasses both personal and population services, as well as activities to influence the policies and actions of other sectors to address the social, environmental and economic determinants of health"*[12]. Therefore, not only the health care services but also broader public health, external factors and issues related to the wider socio-economic determinants of health are taken into account.

The proposed framework (see Figure 1 below[13]) is based on the input from the ISG delegates and a review of literature on comparative Health System Performance Assessment (HSPA), as developed by other international organisations.[14] It is built on the assumption that overall health outcomes are driven by two distinct sets of factors. Following from the work of WHO[15]and OECD[16] as well as a more recent review done in the context of the EuroREACH[17] project, the framework below distinguishes between ***health care related determinants*** and the issues that fall ***outside of the health care,*** referred to here as non-health care determinants. These two segments together define the boundaries of the health system for the needs of our conceptual framework. As it is a framework developed by the Social Protection Committee, it goes beyond health care systems performance and allows taking into consideration other social determinants, which have impact on health and can be modified by social policies. It also recognises that population health is influenced by other sectors and underlines the necessity to coordinate policies to jointly address health concerns.

Overall health outcomes

The main outcome that is expected from a health system is good health status of the population. This should not only be measured by the health system's ability to prevent premature death. In an ageing society it is increasingly important to prevent ill-health and to mitigate chronic diseases and disability. Thus, one should not only look at mortality (or life expectancy) data, but also at indicators of disability free life expectancy, which is a key determinant of people's ability to work and live independently up to a higher age.

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11 The world health report 2000: health systems: improving performance. Geneva, World Health Organization, 2000. Available at: http://www.who.int/whr/2000/en/whr00_en.pdf

12 The Tallinn Charter: Health Systems for Health and Wealth. Copenhagen, WHO Regional Office for Europe, 2008, available at: http://www.euro.who.int/__data/assets/pdf_file/0008/88613/E91438.pdf?ua=1

13 This figure is for illustrative purposes and will be developed in more detail in the future.

14 For a comprehensive overview of available literature, see Papanicolas, I. and Smith, P.C (2013) Health Systems Performance Comparison: An agenda for Policy, information and research, Maidenhead: Open University Press.

15 WHO (2000) Performance Framework, available at: http://www.who.int/healthinfo/paper06.pdf

16 OECD (2006) Health Care Quality Indicators, available at: http://www.oecd.org/els/health-systems/36262363.pdf

17 www.euroreach.net

Health care related determinants

The first set of drivers determines whether **all** people in need of health care can receive high quality interventions, when required. Here we look at issues of: ***access*** and ***quality*** as well as ***resources,*** which underpin the two.

For access the WHO definition of accessibility '*a measure of the proportion of the population that reaches appropriate health services*' is followed, and as the literature suggests, three sets of barriers in access to healthcare are considered, namely financial (cost), geographical (distance) and waiting times.

Quality of care is a complex concept with numerous dimensions. Research over recent decades points to the fact that definitions of quality vary widely. This model uses the OMC definition of quality care as keeping up *'with medical advances and the emerging needs associated with ageing and is based on an assessment of their health benefits'*[18]. So far the OMC considerations on the quality of health care put emphasis on preventive measures and a breakdown by gender.

The conceptual framework underscores that financial, human and technological resources have impact on both access and quality of healthcare while recognising that no normative interpretation is possible. That is why resource indicators are classified as context indicators, to be used in the second-step more qualitative assessment only.

We also point to the question whether better health could be achieved with the same resources, signalling the need to study more thoroughly ***efficiency*** of the health systems.

Efficiency

Even though there is no linear relation between resources and health outcomes, most countries could further improve health outcomes with the resources they currently spend on the health sector, meaning achieving better health at the same cost (or the same health at a lower cost). This is especially important given the fact that health expenditure makes up a large and growing share of GDP.[19] Given the rising demand for health care and constrained resources, there is a need to increase the ***efficiency*** of health systems in order to be able to provide universal access to high quality care, while ensuring sustainability of health systems.

To this end further and more in-depth work is needed to populate the conceptual framework with efficiency indicators that would consider also analysis by disease type and by function of health care, which is beyond the scope of this exercise at this stage but is recognised as an important work stream for the future.

Non-health care related determinants

On the other hand, overall health outcomes are also driven by factors outside of the health care system, ***individual lifestyles and behaviour*** as well as ***environmental factors***, which play out in interaction with genetic predisposition. This offers a potential for prevention activities, including health protection and health promotion for improving population health at relatively low immediate cost. In developed countries, where non-communicable diseases account for the vast majority of potential life years lost, it has been noted that a large share of variation in

[18] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2004:0304:FIN:EN:PDF

[19] See Joint Report on Health Systems available at: http://europa.eu/epc/pdf/joint_healthcare_report_en.pdf

health outcomes across countries will not be explained by differences in health systems. On the other hand, a large share of the variation across countries is due to the degree of success of health promotion, disease and other prevention policies rather than through differences in personal health care services.[20] Acknowledging that efficient preventive interventions need to follow a multisectoral pattern, and that the implementation of the health in all policies approach can have a substantial impact on the overall health outcomes, the non-health care related determinants (individual health lifestyles and behaviour as well as external factors not related to lifestyle) are considered main dimensions in the conceptual framework. In a consequence, the proposed indicators for those dimensions will be included in the first-step quantitative assessment.

While, it is recognised that a host of other characteristics such as relationship or family status, housing tenure etc. have bearings on the individual health behaviour and outcomes, these individual-level qualifiers are not introduced in the analysis.

Socio-economic context

Following the OECD, the present conceptual framework also recognises that the wider ***socio-economic context***, or issues falling outside of the health system boundaries, would have an impact on both healthcare and non-healthcare related factors and ultimately having bearings on the health outcomes. The indicators chosen under this dimension will be for contextual information only.

Equity

Mainstreaming ***equity*** at all levels of the conceptual framework has been given a clear priority, following the OMC recommendation to provide a ***breakdown of all indicators by age, gender and socio-economic status*** to the extent possible. This approach was also recommended in the Communication on Health Inequalities and the impact assessment that accompanied it[21] and it was also reflected in more recent research projects[22,23]. It has been noted that people from higher socioeconomic groups pay more attention to their health-related behaviours and are likely to make better use of effective healthcare interventions, as they tend to have higher health literacy. This is why it is important not to look only at the average levels of health as these averages may hide significant variations across groups; the distributional aspect is an important element to consider.

As the literature suggests, people in vulnerable situations experience higher degrees of morbidity and mortality. Equitable access to healthcare is therefore essential to minimise their disadvantage. In practice, however, people in equal need do not receive equal treatment at all income levels, not even in EU countries with a longstanding tradition in providing rather universal and comprehensive health services coverage arrangements for their population. Therefore, equity concerns have been integrated into the framework transversally by proposing to look at relevant indicators broken down by gender, age/life stages and/or socio-economic status (SES) as considered appropriate for the indicator in question and depending on data availability. In general, indicators based on EHIS provide breakdown by educational status, while those based on EU-SILC allow for break down based on income.

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20 Schroeder et al (2007), available at: http://www.nejm.org/doi/full/10.1056/NEJMsa073350

21 http://ec.europa.eu/health/archive/ph_determinants/socio_economics/documents/com2009_iasum_en.pdf

22 EuroReach: www.euroreach.net/activities/workpackages/wp1

23 Eurohealthnet (2012), Re-orienting health systems: towards modern, responsive and sustainable health promoting systems; Discussion paper

However, it should be noted that for important dimensions of health outcomes such as Healthy Life Years (HLY), or infant mortality, current data does not allow for a breakdown by socio-economic status, while for life expectancy the breakdown is not available for all countries. Furthermore, the breakdown of demographic data by socio-economic status could not be approximated at least in the medium-term by income levels. An option that has been explored is to look at the variations in health outcomes by educational level, as recommended by European Core Health Indicators (ECHI).[24] However, where possible, priority was given to ***break-downs by income groups, over break-downs by educational levels***.

It should be highlighted that equity has a strong regional dimension in all countries, which can be of particular importance to Member States with predominant governance structure of the health system at regional level. Even though regional disparities are not included in the present framework, one possibility to take account of the regional aspect of equity could be the inclusion of Member States' own data and analysis in the second phase of more qualitative assessment.

Life course approach

As suggested by the WHO framework for health systems performance assessment, the health of the population should reflect the health of individuals through the life course[25]. Therefore the JAF framework captures various aspects of ***health at different stages of life, from birth, through childhood, adolescence to the old age***.

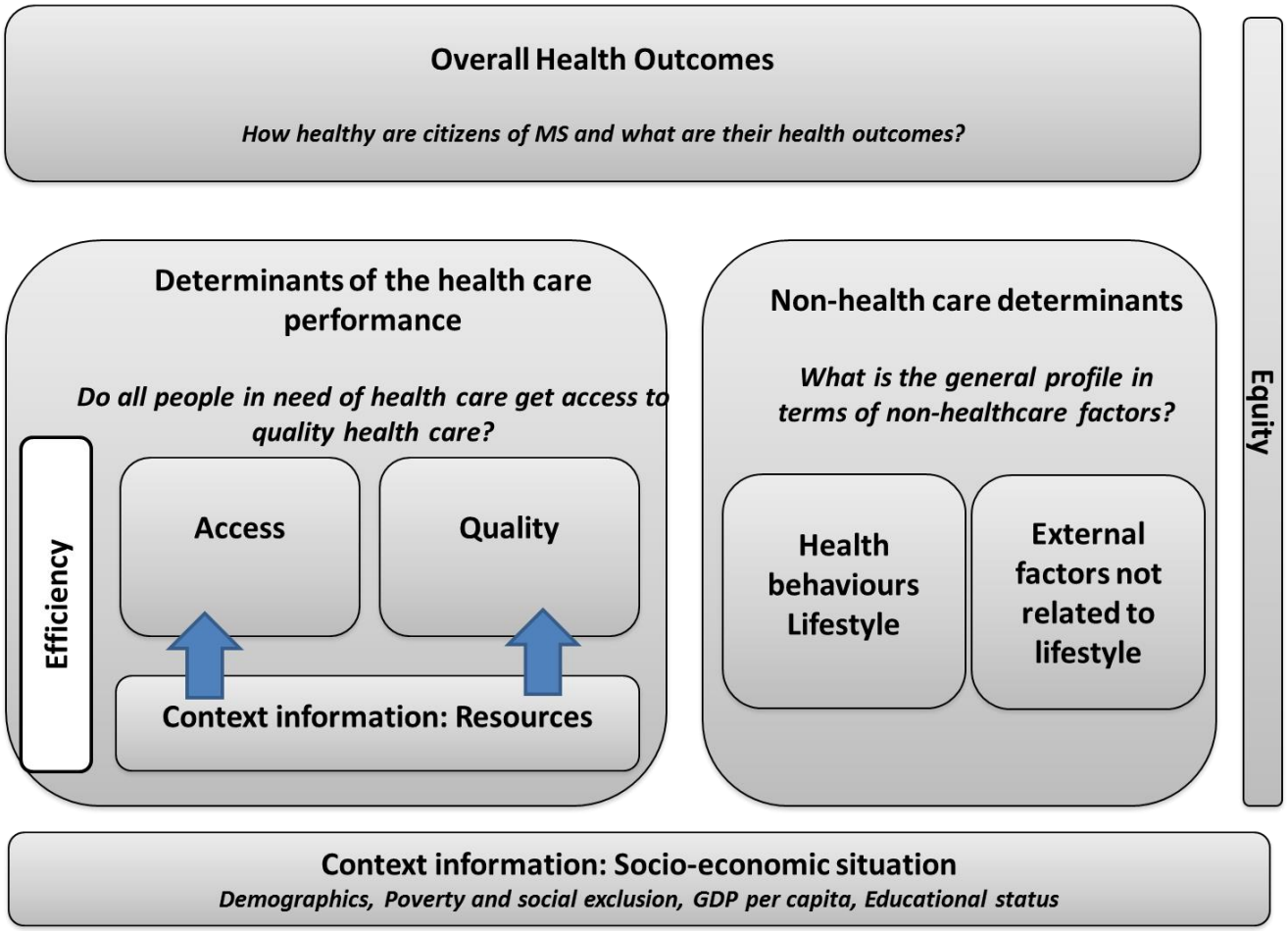
Children and adolescents are the future of our societies and their health is of a prime concern. Newborns and children are vulnerable to infectious diseases, many of which can be effectively prevented or treated, and that is why we look at indicators as infant and child mortality, as well as vaccination coverage for children. Special attention deserves the lifestyle of adolescents of age 15+ or 18+ with regard to the immediate and long-term effects on health and chronic conditions that are likely to emerge in adulthood and old age. Furthermore, the growing share of old age population shapes not only the epidemiological change, but also the evolvement of health care services to be delivered, including disease prevention services as influenza vaccination. Important in this context is not only the life expectancy of old aged, but also how many years they can live in good health.

The choice of individual indicators to describe each of the dimensions of the conceptual framework is discussed in more detail in the section below.

[24] Previously known as European Community Health Indicators, more info on: http://ec.europa.eu/health/indicators/echi

[25] Murray CJL, Frenk J. (2000) Evidence and information for policy, WHO

Figure 1. Proposed conceptual framework for the JAF in the area of health



Source: Commission services (2014)

4. CHOICE OF INDICATORS PER DIMENSION

In this section, the indicators chosen for each dimension in the framework are presented. There are three different classes of indicators within each dimension. Firstly, there are the indicators selected from the EU social indicators portfolio; secondly, the indicators that were not selected from the EU social indicators portfolio but ISG considered them meeting the SPC-ISG Guiding Principles for the Selection of Indicators and Statistics are presented; thirdly, the indicators proposed for development are shown. Proposed indicators for development have to be discussed by the ISG, evaluated after data has become available and, if consented by ISG, proposed for endorsement by the SPC.

4.1. Overall health outcomes

One of the main health system's goals is to improve the health of the populations they serve. This can be captured by using broad measures of mortality or by measures of the time lived in poor health.

Indicators selected from the EU social indicators portfolio

In order to capture overall health outcomes, we use a set of indicators as opposed to a single one. Measures of ***life expectancy*** and ***healthy life years at birth and 65***, and broken down by gender, provide an important starting point to observe the functioning of a health system for various segments of the population and to capture any inequalities.

Life expectancy is a well-established and widely accepted and available indicator. It allows for straightforward comparisons at multiple levels, starting from population sub-groups all the way to Member States. Healthy Life Years (HLY), or "disability-free life expectancy", indicates the number of years a person of a certain age can expect to live without limitations in activities people usually do.[26] HLY has been endorsed as an important policy indicator – it was a structural indicator under the Lisbon Strategy,[27] and it currently can assist with understanding progress towards the Europe 2020 targets,[28] particularly those on employment rates and poverty reduction. Furthermore, increasing the average healthy lifespan in the EU by two years by 2020 is the primary objective of the EU Innovation Partnership on Active and Healthy Ageing (EIP AHA),[29] which is a flagship initiative under Europe 2020. HLY is a European Core Health Indicator (ECHI)[30] and, together with Life Expectancy (LE), is used as EU sustainable development indicators (SDI).[31] It is to some extent subjective and based partly on a self-assessment of limitations in usual activities, but important improvements in the comparability of data[32,33] and limiting the subjective bias are underway.

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26 More information available from: http://ec.europa.eu/health/indicators/healthy_life_years/index_en.htm, and http://www.eurohex.eu/index.php?option=aboutehemu

27 http://ec.europa.eu/archives/growthandjobs_2009

28 http://ec.europa.eu/europe2020/index_en.htm

29 https://webgate.ec.europa.eu/eipaha/index/aboutus

30 http://www.echim.org; the most recent documentation sheets for each indicator are available from http://www.echim.org/docs/Final_Report_II_2012.pdf

31 http://epp.eurostat.ec.europa.eu/portal/page/portal/sdi/indicators

32 For more information, please see http://www.eurohex.eu/

33 http://epp.eurostat.ec.europa.eu/cache/ITY_SDDS/Annexes/hlth_hlye_esms_an2.pdf; and Eurostat note on "A synthesis report on the 2012 consultation on further harmonisation and documentation on the EU-SILC1 PH0302 variable", Luxembourg, 21/08/2012

Life expectancy at birth when compared with healthy life years at birth can provide an indication of the number of years an individual may be able to contribute productively to society. Healthy life years on its own may also signal the potential burden on the healthcare system. The disparity between the figures for life expectancy and healthy life years at birth can also provide an indication of the gap that needs closing by increasing the healthy life years.

The framework also includes subjective measures such as self-perceived general health and its distribution. The indicators on ***self-perceived general health*** have been found to be correlated with the amount of health care people use, as well as being an accurate predictor of mortality. Such a measure is indisputably subjective in its nature, and subject to a strong cultural bias. However, this information could be of value at a national level (rather than the EU level) for individual governments to note how their own populations believe their health is faring for instance over time or across different population sub-groups. In the context of JAF Health, it provides yet another dimension to the bird's eye view on how well the health system is working. The ***gap between people from the top and bottom income quintiles*** reporting good or very good health is a good proxy of the distribution of health, admittedly among the extreme poles of society.

The next group of indicators concerns mortality at the beginning of life. ***Infant mortality*** is defined as the rate at which babies and children of less than one year of age die. It reflects both the impact of socio-economic factors on the health of mothers and new-borns and the effectiveness of health systems in addressing health inequalities.

Indicators meeting the SPC-ISG Guiding Principles for the Selection of Indicators and Statistics

Child mortality (age 1-14) is an indicator of avoidable causes of death because much of the morbidity and mortality among children and young people is preventable. Among other factors, the indicator is linked to immunization for preventable diseases and preventing morbidity from substance abuse, injuries and mental illness. Socio-economic inequalities also have a significant impact on child mortality rates. Furthermore, this indicator helps monitor the implementation of the Commission's recommendation on "Investing in children".

According to the OECD, ***Potential Years of Life Lost (PYLL)*** is a summary measure of premature mortality, which provides an explicit way of weighting deaths occurring at younger ages, which are, a priori, preventable.

Two alternative indicators falling under the concept of avoidable mortality have also been added. First, the indicator ***amenable mortality*** is understood as deaths that could be avoided through good quality of healthcare, such as through effective immunisations and cancer screenings, two indicators included in the Quality domain of the framework. Based on on-going work in the Eurostat Task Force on satellite lists, data could be disseminated as of 2015. In addition, the indicator ***preventable mortality*** has also been included. It takes into account deaths occurring due to the lack of health promotion and prevention interventions.

External causes of death indicates the number of deaths due to suicide, accidents (excluding transport accidents), violence, and environmental events. The ISG decided to accept this indicator and to place it in the Overall Health Outcomes domain rather than in the Non-health Care Determinants domain. This indicator is strongly linked to lifestyle factors, such as drinking or substance abuse, but also with wider socio-economic determinants of health.

Indicators for development

Building on the WHO statement that there is no health without mental health, the indicators ***mental health*** and ***well-being*** are under development in order to complement the other Health Outcome indicators that are more strongly linked to physical health. However, an agreed definition still needs to be set for both indicators.

A distribution of ***Potential Years of Life Lost (PYLL by socio-economic status*** is a good measure of health inequalities. This indicator requires further development.

Overall, the objective of the proposed set of overall health outcomes (H) indicators[34], as presented in tables 1a and 1b, is to provide a balanced country profile as accurately as possible in this dimension of the framework.

[34] This is the same set of JAF Health indicators as presented to the SPC in November 2013. The only change in the current update is that the indicator ***external causes of death*** was moved from the overall health outcomes to the external factors not related to lifestyle dimension.

Table 1a: Overall health outcomes – proposed main indicators selected from the EU social indicators portfolio

Code	Indicator	EU/NAT	Definition	Data source	Comments	EU data availability	Year (currently latest available)	Year (next update)
H-1	**Life expectancy at birth and 65 (total population, women, men)**	**EU**	Life expectancy at birth and at 65 represents the mean number of years still to be lived by a person who has reached that exact age, if subjected throughout the rest of his or her life to the current mortality conditions (age-specific probabilities of dying).	Eurostat (Demographic data)	OMC HC-P4a, ECHI 10 Annual data, full coverage.	28 MS	2013	2014 data available in 2016
H-2	**Healthy life years (HLY) at birth and 65 (women, men)**	**NAT**	The mean number of healthy years still to be lived by a person at birth and at 65, if subjected throughout the rest of his or her life to the current mortality conditions. The data required are the age-specific prevalence (proportions) of the population in healthy and unhealthy conditions and age-specific mortality information. A healthy condition is defined by the absence of limitations in functioning/disability. The indicator is calculated separately for males and females. The indicator is also called disability-free life expectancy (DFLE).	Eurostat (Demographic data and EU-SILC)	OMC HC-P5a, ECHI 40 Annual data, full coverage.	28 MS	2013	2014 data available in 2016
H-3	**Self-perceived general health (good and very good)**	**NAT**	Percentage of people reporting a good or very good health. The concept is operationalized by a question on how a person perceives his/her health in general using one of the answer categories: very good/ good/ fair/ bad/ very bad.	Eurostat (EU-SILC)	OMC HC-S2, ECHI 33 Annual data, full coverage.	28 MS	2013	2014 data available in 2016
H-4	**Self-perceived general health - income quintile gap (q1-q5) for good and very good health**	**NAT**	The difference between the percentage of the people from the bottom (q1) and the top (q5) income quintiles reporting a good or very good health. The total disposable income of a household is calculated by adding together the personal income received by all of household members plus income received at household level. Missing income information is imputed. Disposable household income includes: - all income from work (employee wages and self-employment earnings) - private income from investment and property - transfers between households - all social transfers received in cash including old-age pensions.	Eurostat (EU-SILC)	OMC HC-S2 Annual data, full coverage.	28 MS	2013	2014 data available in 2016
H-5	**Infant mortality rate (total)**	**EU**	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 1000 live births.	Eurostat (Demographic data)	OMC HC-S3, ECHI 11 - Commission recommendation on "Investing in children" monitoring framework.	28 MS	2013	2014 data available in 2016

Table 1a (continuation): Overall health outcomes – proposed main indicators meeting the SPC-ISG Guiding Principles

Code	Indicator	EU/NAT	Definition	Data source	Comments	EU data availability	Year (first available)	Year (next update)
H-6	**Child mortality, 1-14 (total)**	**EU**	Death rate of children aged 1-14 years per 100,000 population. Number of deaths of residents dying inside and outside their home country at age 1-14 years divided by the midterm population* aged 1-14 years. *midterm populationt= (populationt+populationt+1)/2	Eurostat (Causes of Death (COD))	This indicator can be provided by Eurostat by ad-hoc extraction on demand, as the data is disseminated for 0-14 age breakdown; - Commission recommendation on "Investing in children" monitoring framework suggests calculating 3-year moving average for small countries. Eurostat recommends removing the reference to a 3-year moving average in order to be consistent with other indicators such as Infant mortality rate. The indicator could be also replicated for past years (i.e. pre-2011 values) with a major methodological restriction: before the implementing regulation the reference population used for all deaths could include residents dying abroad and non-residents dying in the country or none of the groups. Starting with the reference year 2011, the underlying population is clearly defined as residents dying inside and outside their home country.	28 MS	2012	2013 data available in 2016
H-7	**Potential years of life lost (total)**	**EU**	Potential Years of Life Lost (PYLL) is a summary measure of premature mortality which provides an explicit way of weighting deaths occurring at younger ages, which are, a priori, preventable. The calculation for PYLL involves adding up deaths for all causes (ICD=A-R, V-Y) occurring at each age to 70 years and multiplying this with the number of remaining years to live until a selected age limit.	Eurostat (COD and Demographic data)	Sustainability of the data collection Causes of death data collection is based on EC regulation 328/2011, first reference year: 2011, and is thus compulsory for countries. Data is only available from 2011 onwards and is comparable across countries. Eurostat provided an ad-hoc calculation of the PYLL total indicator for the latest available data in 2015 (2011 and 2012 data) and will present a breakdown by sex. Regular publication is foreseen for 2016 onwards.	28 MS	2012	2013 data available in 2016

Table 1a (continuation): Overall health outcomes – proposed main indicators meeting the SPC-ISG Guiding Principles

Code	Indicator	EU/NAT	Definition	Data source	Comments	EU data availability	Year (first available)	Year (next update)
H-8	**Amenable mortality, standardised death rate per 100.000 population aged 0-74 years**	**NAT**	Number of deaths of residents dying inside and outside their home country, which are considered to be amenable. Amenable mortality is a dimension of avoidable mortality and is understood as deaths that could be avoided through good quality of healthcare. More precisely a death is amenable if, in the light of medical and technology at the time of death, all or most deaths from that cause could be avoided through good quality healthcare (ONS, 2011). The list of amenable deaths is calculated according to a list of ICD codes and specific age groups compiled by the Eurostat Task Force on Satellite Lists. The indicator is used in the form of Standardized deaths rates. Standardized deaths rates are calculated using the Crude death rates and weighting the age specific rates with the European Standard population.	Eurostat (COD)	Sustainability of the data collection Causes of death data collection is based on EC regulation 328/2011, first reference year: 2011, and is thus compulsory for countries. Data is only available from 2011 onwards and is comparable across countries. Eurostat expects to publish data on amenable mortality from early 2015 onwards. Since the indicator is based on comparable ICD codes (as for the other causes of deaths) and uses a wide range of ICD codes, it should be comparable on the EU level.	28 MS	2012	2013 data available in 2016
H-9	**Preventable mortality, standardised death rate per 100.000 population aged 0-74 years**	**NAT**	Preventable mortality is another dimension of avoidable mortality. A death is preventable if, in the light of understanding of the determinants of health at the time of death, all or most deaths from that cause (subject to age limits if appropriate) could be avoided by public health interventions in the broadest sense (ONS, 2011). It combines major causes of preventable deaths as cancer, cardio-vascular diseases, alcohol related diseases and motor vehicle and traffic accidents. The list of preventable deaths was calculated according to a list of ICD codes and specific age groups compiled by the Eurostat Task Force on Satellite Lists. The indicator is used in the form of Standardized deaths rates. Standardized deaths rates are calculated using the Crude death rates and weighting by the age specific rates with the European Standard population.	Eurostat (COD)	Sustainability of the data collection Causes of death data collection is based on EC regulation 328/2011, first reference year: 2011, and is thus compulsory for countries. Data is only available from 2011 onwards and is comparable across countries. Eurostat expects to publish data on preventable mortality from early 2015 onwards. The data on causes of deaths does not allow a linkage to socio-economic indicators. Since the indicator is based on comparable ICD codes (as for the other causes of deaths) and uses a wide range of ICD codes, it should be comparable on the EU level.	28 MS	2012	2013 data available in 2016
H-10	**External causes of death excl. transport accidents (total)**	**EU**	Mortality due to external causes (excluding transport accidents (V01-V99, Y85)). Number of deaths of residents dying inside and outside their home country with a cause of death between W00-Y89 (excluding Y85) at all ages divided by the total midterm population*. *midterm populationt= (populationt+populationt+1)/2	Eurostat (COD)	Annual data, full coverage. The indicator could be also replicated for past years (i.e. pre-2011 values) with a major methodological restriction: before the implementing regulation the reference population used for all deaths could include residents dying abroad and non-residents dying in the country or none of the groups. Starting with the reference year 2011, the underlying population is clearly defined as residents dying inside and outside their home country.	28 MS	2012	2013 data available in 2016

Table 1b (continued): Overall health outcomes – proposed main indicators for development

Code	Indicator	Definition	Data source	Comments	EU data availability	Year (first available)
H-11	**Well-being (to include also income quintile gap)**	To be defined.	Eurostat (EU-SILC) and/or other sources	New indicator to be developed; Given the multi-dimensional nature of well-being Eurostat does not support the inclusion/development of a single (composite) indicator. Eurostat already disseminates a set of indicators on Quality of Life that could be explored. The availability of data depends on the definition of the indicator. Some data is available in EHIS (wave 1 and wave 2) and other in SILC (2013 module on well-being).		
H-12	**Mental Health**	To be defined.	Eurostat (EHIS)	Potential indicators for which data is available in EHIS: (1) Self-reported 12-month prevalence of depression; (2) Depressive symptom prevalence; (3) Prevalence percentage of depressive symptom severity. The data availability depends on the indicator to be chosen as some countries asked for derogation on variables which are needed to calculate indicators 2 and 3.	expected 28 MS	2014 data available in 2016
H-13	**Potential Years of Life Lost by SES**	To be defined.	Eurostat	Indicator to be developed.		

4.2. Health care performance

In the present framework, we defined health care as having three key dimensions of performance: access, quality and resources. Each is discussed separately below.

4.2.1. Access

Access to good quality healthcare services is a prerequisite for social integration and inclusive growth. Achieving universal access to adequate health care and long-term care is embedded in the Open Method of Coordination for social protection and social inclusion, along with other health-related objectives, i.e. tackling health inequalities, with a further dedicated strategy in this field.[35]

The right to access preventive health care and the right to benefit from medical treatment are guaranteed in the EU's Charter of Fundamental Rights[36]. It is also prominently listed as one of the four common values and principles of EU health systems, along with universality, solidarity and equity[37]. Furthermore, ensuring that people have easy access to good quality primary care may generate savings and is likely to enhance efficiency by preventing ill health and avoiding the use of more expensive services in secondary care.[38] Ensuring access in proportion to need constitutes efficient resource allocation, and hence it raises population health outcomes. Health systems need to ensure equity in financing, where payments are according to ability to pay. Another dimension is the equity in delivery, which can be both vertical (different treatment for different need) and horizontal (equal treatment for equal need). When talking about equity of access in financial terms, one should consider, not only who is covered, but also, what services are covered and to what extent these are subject to out-of-pocket payments. This is illustrated in Figure 2 below.

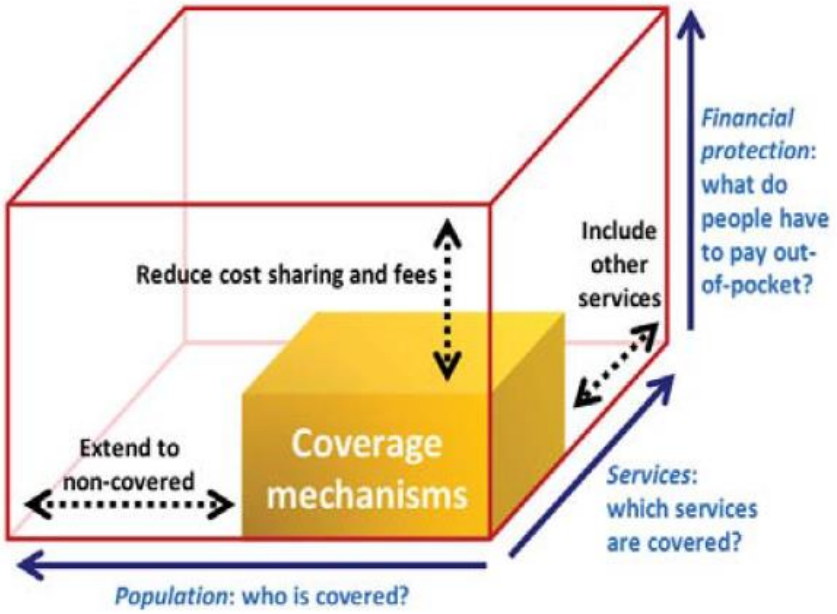
35 http://ec.europa.eu/health/ph_determinants/socio_economics/documents/com2009_en.pdf

36 http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2010:083:0389:0403:en:PDF

37 European Commission (2007) Together for health: a strategic approach for the EU, available at: http://ec.europa.eu/health-eu/doc/whitepaper_en.pdf

38 http://www.euro.who.int/__data/assets/pdf_file/0009/170865/e96643.pdf

Figure 2. Dimensions of health coverage



Source: WHO (2010)

Organisational barriers, such as waiting lists or limited surgery opening hours, also have a relatively greater impact on people with low incomes. If waiting lists are long, these people usually lack the means to turn to alternative providers in the private sector. People in blue collar jobs and/or working in shifts may have less flexibility to attend surgery hours and when they feel their job is at risk they may delay seeking care. However, it should also be acknowledged that rationing by waiting may be more beneficial to those with lower income than rationing by price. Lastly, geographical barriers are especially relevant to older people and those with limited mobility. Such barriers may be exacerbated in rural areas, where poverty risk also tends to be higher.

Indicators selected from the EU social indicators portfolio

Therefore, the framework includes ***"self-reported unmet need for medical care",*** which covers barriers resulting from financial, geographical and waiting time issues. It also includes ***the gap between the reported unmet needs for medical care***[39] between the top and bottom income quintiles. This gap indicator could illustrate cultural/structural differences across Member States, however its inclusion in the framework should be reviewed.

When analysing the information on reported unmet need for medical care, the indicator on ***care utilisation,*** defined as use of primary, and secondary out-patient care, should be looked at together with unmet needs (as context information for the former).

Health baskets offered within the scope of public insurance programmes are fairly comprehensive, but people in vulnerable situations may still miss out on certain services.

[39] We excluded the indicator capturing the income quintile gap for the unmet dental needs, as based on correlation results they seemed to suggest limited value – it did not help explain cross-country variations in life expectancy.

Dental care, physiotherapy and certain mental health services are often excluded from basic packages. However, taking out additional insurance cover may be a financial step too far for people on lower incomes, thereby severely restricting their access to such services.

This is why the framework also looks at levels of health insurance coverage, which determines the extent to which people are protected from the financial consequences of ill health (financial protection) and have access to needed services. This is captured by the OECD indicator s***hare of the population covered by health insurance*****,** which includes coverage by both public and private insurance.[40] However, the indicator comes with its shortcomings - range of services covered and the degree of cost sharing can vary across countries and various substitutive public coverage mechanisms may be in place at Member State level for specific population groups (e.g. civil servants, prison detainees, army personnel) skewing conclusions on Member State variation based on this indicator.

Indicators for development

Finally, ***out-of-pocket payments*** can pose barriers to access to health. Groups at risk of poverty and/or social exclusion are disproportionately affected by the financial burden of cost-sharing arrangements. This can impact negatively on the uptake of necessary services. In some countries, special arrangements exist to protect people on lower incomes for the relatively high costs incurred through exemptions. However, it should also be acknowledged that some of the out-of-pocket expenditure occurs because people choose to (rather than have to) pay for private services (perhaps wanting higher quality), therefore it may not always be associated with payments by those on lower incomes. Overall, this contributes to an improvement of health outcomes at population level.

Therefore, two possible indicators on out-of-pocket payment are proposed to complete the access dimension. A micro-level dimension addressing the financial burden for health care at the household level which is not possible to define based on current data availability but is highlighted for future development. A macro-level dimension on aggregate out-of-pocket expenditure which can be built based on existing data on health expenditure and which can serve as a context information to be defined.

The suggested access (A) indicators are presented in tables 2a and 2b.

[40] This does not distinguish the coverage for different functions of care.

Table 2a: Health care system access – proposed main indicators selected from the EU social indicators portfolio

Code	Indicator	EU/NAT	Definition	Data source	Comments	EU data availability	Year (currently latest available)	Year (next update)
A-1	**Self-reported unmet need for medical care (total by reason: cost, waiting time, distance)**	**NAT**	Percentage of the population aged 16 and over reporting unmet needs in the previous 12 months for medical care for any of the following three reasons: financial reasons (too expensive), distance (too far to travel), or waiting time (long waiting lists).	Eurostat (EU-SILC)	OMC HC-P1, ECHI 80 - annual data, full coverage; - to be possibly complemented with information on care utilisation - possibilities include hospital discharges (ECHI 71 and 71) and/or out-patient medical care (ECHI 72 and 72), data available from administrative sources but also based on the proposed EU-SILC ad hoc module variables on care utilisation. Cultural factors may affect responses to questions about unmet care needs. Caution is therefore required in comparing the magnitude of inequalities across countries.	28 MS	2013	2014 data available in Q2 2016
A-2	**Self-reported unmet need for medical care - income quintile gap (q1-q5 by reason: cost, waiting time, distance)**	**NAT**	The difference (gap) between the percentage of the population aged 16 and over from the bottom (q1) and top (q5) income quintile with self-reported total unmet need for medical examination during the previous 12 months for the following three reasons: financial barriers, waiting times, too far to travel. The first quintile group represents the 20% of the population with the lowest income, and the fifth quintile group represents the 20% of the population with the highest income .	Eurostat (EU-SILC)	OMC HC-P1 - annual data, full coverage. - to be possibly complemented with information on care utilisation - possibilities include hospital discharges (ECHI 71) and/or out-patient medical care (ECHI 72), data available from administrative sources.	28 MS	2013	2014 data available in Q2 2016
A-3	**Share of population covered by health insurance**	**NAT**	The percentage of the population covered by public health insurance (which is defined as tax-based public health insurance and income-related payroll taxes including social security contribution schemes) + the percentage of the population covered by private health insurance including: Private mandatory health insurance, Private employment group health insurance, Private community-rated health insurance, and Private risk-rated health insurance. Coverage for health care is defined as the share of the population receiving a defined set of health care goods and services under public programmes and through private health insurance. It includes those covered in their own name and their dependents. Public coverage refers both to government programmes, generally financed by taxation, and social health insurance, generally financed by payroll taxes. Take-up of private health insurance is often voluntary, although it may be mandatory by law or compulsory for employees as part of their working conditions. Premiums are generally non-income related, although the purchase of private coverage can be subsidised by the government.	OECD	OMC HC-P3, ECHI 76 - annual data, - other sources for BG, CY, HR, LV, LT, RO; - MT missing; - some countries with outdated data (HR from 2006, CY from 2007, ES and IT from 2011)	27 MS	2012	

Table 2b: Health care system access – proposed main and context indicators for development

Code	Indicator	EU/NAT	Definition	Data source	Comments	EU data availability	Year (first available)
A-4	**Financial burden of out-of-pocket payment for health care**		A micro-level indicator to be defined.	Eurostat (future EU-SILC 3-year health module)	The indicator could be based on the 3 "financial burden of health care" variables proposed in the EU-SILC 3-year health module. EU Household Budget Survey could also be considered as a source.	expected 28 MS	Probably after 2018
			Context information for access dimension				
A-5	**Care utilisation (total, by SES)**	**Context**	To be defined and possibly also broken down by socio-economic group.	Eurostat (future EU-SILC 3-year health module)	There are three possibilities: (1) Data on "number of visits to a doctor (GP or specialist)/dentist during the last 12 months" likely available from the future EU-SILC 3-year health module could be considered; (2) EHIS data could also serve the same use but only every 5 years and with no link to unmet needs variables in EU-SILC; and (3) the Joint questionnaire on non-expenditure data with no SES breakdowns could be considered.	expected 28 MS	Probably after 2020
A-6	**Household out-of-pocket payment for health care**	**Context**	A macro-level indicator to be defined. 'Household out-of-pocket payment' means a direct payment for health care goods and services from the household primary income or savings, where the payment is made by the user at the time of the purchase of goods or the use of the service.	Eurostat (SHA 2011)	"HF.3 Household out-of pocket payment", Eurostat (Joint questionnaire with OECD/WHO), also on-going work at the Eurostat's Task Force. Missing countries: IE, IT, UK.	25 MS	2012, 2011 (LV)

4.2.2. Quality

Quality in health care has many dimensions, which may capture different aspects of the system, such as structure, process and outcomes[41] and would ideally have to be measured using a very large set of indicators. For example, the OECD's Health Care Quality Indicators (HCQI) contains over 40 indicators grouped under the following headings: cancer care; care for acute exacerbation of chronic conditions (AMI); care for chronic conditions; care for mental disorder and patient safety.

However, it is not feasible to have such a broad range of indicators in a summary overview of the health system as presently required in the JAF framework. Therefore we aim to identify some indicators that, together, could be representative of the overall quality of the health care system. The present framework includes process, as well as outcome measures.

Indicators selected from the EU social indicators portfolio

Cancer, next to cardiovascular diseases, is the leading cause of death in Europe. The data for, ***cancer survival*** and ***screening rates*** are included for ***breast and cervical*** (for women) and ***colorectal cancer*** (total), as those are seen as good proxies of care quality. In order to be able to have data on annual basis Joint Questionnaire is used as a source for screening rates. However, this causes a limitation that data cannot be broken down by socio-economic status. Survival rates reflect advances in public health interventions, (greater awareness, screening programmes[42]) and better clinical procedures. This reflects not only quality of treatment but also quality of the organisational infrastructure, such as integrated care pathways. For cancer survival rates, two sources of data can be used, firstly Eurocare[43], or alternatively the OECD data set. The two are presented in the tables below. However, for reasons of better country coverage, the Eurocare data set, has been used for the moment.

Along with survival rates, the OMC health objectives clearly state that a key element of assessing the quality of health care, should be in looking at both preventive and curative measures. Therefore, two prevention indicators are proposed, both of which capture vaccination rates at both ends of the age spectrum – ***vaccination coverage in children*** and ***influenza vaccination in the over-65s***. Data on these are widely available, both through the OECD, the WHO, and/or through the EHIS. In order to capture the inequalities in health, we look at the differences in influenza vaccination coverage by socio-economic status, using the educational level gap between the least and most educated as a proxy.

Indicators meeting the SPC-ISG Guiding Principles for the Selection of Indicators and Statistics

Within the Quality domain, the indicators ***In-hospital mortality following AMI*** and ***In-hospital mortality following ischemic stroke*** reflect the quality of acute care for cardiovascular diseases, which together with cancer, greatly contribute to the disease burden in a given health care system. These indicators can be used to reflect care quality (integrated care pathways) as well as quality of preventive services and public health interventions, in relation with lifestyle and behaviour determinants and health literacy.

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41 Donabedian (2005) reprint of Donabedian`, 1966

42 In the ideal scenario survival rates by stages of cancer would be introduced; however this could be discussed at a later stage;

43 Eurocare is an European cancer registry based study on survival and care of cancer patients: http://www.eurocare.it/Home/tabid/36/Default.aspx

Indicators for development

The Quality domain of health care systems can be also assessed in both primary care and hospital care settings through data on ***avoidable admissions,*** especially for ***chronic conditions*** such as ***COPD***, ***diabetes,*** and ***asthma***. Data were collected by the OECD in 2015, though they were only available for 21 EU Member States.[44] Alternatively, Eurostat annual data on hospital discharges could be used.[45]

Data on avoidable admissions gives important insights into the frequency of acute crises, which need to be avoided in these conditions. Acute crises can be harmful for patients with chronic diseases both in terms of quality of life and risks, but also in terms of longer-term complications. These indicators capture the capacity of health systems to address chronic conditions in the long-term in a coordinated and patient-centred manner, for example through the interface between primary care and secondary care, early detection of symptoms, patient empowerment and health literacy etc.

The decision on whether avoidable admissions indicators meet the SPC-ISG guiding principles has been postponed until more information on the indicators is collected. The indicators were deemed as relevant, but the ISG preferred to explore the possibility of combining COPD and asthma indicators into a composite indicator. Thus, the decision of acceptance is postponed for future ISG meeting, when the composite indicators on avoidable admission for asthma and COPD and avoidable admission for uncontrolled diabetes without complication, short-term complications and long-term complications will be released by OECD and after MS consult national experts on the matter. The suggested quality (Q) indicators are presented in tables 3a and 3b.

[44] The following EU MS are covered: AT, BE, CZ, DE, DK, ES, FI, FR, HU, IE, IT, NL, PL, PT, SE, SI, SK, UK; available at: http://www.oecd-ilibrary.org/docserver/download/8111101ec040.pdf?expires=1365062378&id=id&accname=guest&checksum=858AF4D79B83FB7D5A3365E0BD804082

[45] Eurostat collects annual data on hospital discharges for: Chronic obstructive pulmonary disease and bronchiectasis (J40-J44, J47) Asthma (J45-J46) and Diabetes mellitus (E10-E14), therefore allowing for construction of indicators on avoidable admissions for these conditions.

Table 3a: Health care system quality – proposed main indicators selected from the EU social indicators portfolio

Code	Indicator	EU/NAT	Definition	Data source	Comments	EU data availability	Year (currently available)	Year (next update)
Q-1a	**Colorectal cancer survival rates (total)**	**NAT**	Age-standardized 5-year relative colorectal survival rate is the observed rate of persons diagnosed with colorectal cancer (C18-C21) surviving five years after diagnosis, divided by expected survival rate in the general population.	Eurocare	OMC HC-P9, ECHI 78 - annual data, currently missing EL, CY, LU, HU, RO.	23 MS	patients diagnosed 2000-2007	patients diagnosed 2008-2012 data expected to be released in 2017
Q-2a	**Breast cancer survival rates (women)**	**NAT**	Age-standardized 5-year relative breast survival rate is the observed rate of women diagnosed with breast cancer (C50) surviving five years after diagnosis, divided by expected survival rate in the general population.	Eurocare	OMC HC-S6, ECHI 78 - annual data, currently missing EL, CY, LU, HU, RO.	23 MS	patients diagnosed 2000-2007	patients diagnosed 2008-2012 data expected to be released in 2017
Q-3a	**Cervical cancer survival rates (women)**	**NAT**	Age-standardized 5-year relative cervical survival rate is the observed rate of women diagnosed with cervical cancer (C53) surviving five years after diagnosis, divided by expected survival rate in the general population.	Eurocare	OMC HC-P8, ECHI 78 - annual data, currently missing EL, CY, LU, HU, RO.	23 MS	patients diagnosed 2000-2007	patients diagnosed 2008-2012 data expected to be released in 2017
			alternatively					
Q-1b	**Colorectal cancer survival rates (total)**	**NAT**	Five-year observed survival for men, women and total population aged 15-99 diagnosed with colorectal cancer (first primary cancer at the specified site) divided by the expected survival of a comparable group from the general population (expressed in percentage).	OECD	OMC HC-P9, ECHI 78 - annual data, currently missing BG, HR, CY, EE, FR, EL, HU, IT, LT, LU, MT, RO, SK, ES.	14 MS	patients diagnosed 2007-2012	patients diagnosed 2008-2013 data in 2015
Q-2b	**Breast cancer survival rates (women)**	**NAT**	Five-year observed survival for women aged 15-99 diagnosed with breast cancer (first primary cancer at the specified site) divided by the expected survival of a comparable group from the general population (expressed in percentage).	OECD	OMC HC-S6, ECHI 78 - annual data, currently missing BG, HR, CY, EE, FR, EL, HU, IT, LT, LU, MT, RO, SK, ES.	14 MS	patients diagnosed 2007-2012	patients diagnosed 2008-2013 data in 2015
Q-3b	**Cervical cancer survival rates (women)**	**NAT**	Five-year observed survival for women aged 15-99 diagnosed with cervical cancer (first primary cancer at the specified site) divided by the expected survival of a comparable group from the general population (expressed in percentage).	OECD	OMC HC-P8, ECHI 78 - annual data, currently missing BG, HR, CY, EE, FR, EL, HU, IT, LT, LU, MT, RO, SK, ES.	14 MS	patients diagnosed 2007-2012	patients diagnosed 2008-2013 data in 2015

Table 3a (continued): Health care system quality –proposed <u>main indicators selected from the EU social indicators portfolio</u>

Code	Indicator	EU/NAT	Definition	Data source	Comments	EU data availability	Year (currently latest available)	Year (next update)
Q-4	**Breast cancer screening (women)**	**EU**	Breast cancer screening rates reflect the proportion of eligible women (aged 50-69) reporting a mamography in the past two years.	Eurostat (EHIS)	OMC HC-S5, ECHI 58 - EHIS data available every 5 years, current data from 2008 available for 17 MS. Next data available in 2016 for year 2012 and 28 MS. - alternatively Eurostat / WHO / OECD Joint questionnaireannual data can be used. Currently available for 16 MS and year 2012. Missing countries: BE, BG, GR, ES, AT, MT, PL, PT, RO, SK, SE, DE.	17 MS	2008	2014 data available in 2016
Q-5	**Cervical cancer screening (women)**	**EU**	Proportion of women (aged 20-69) reporting to have undergone a cervical cancer screening test within the past three years.	Eurostat (EHIS)	OMC HC-P7, ECHI 59 - EHIS data every 5 years, current data from 2008 available for 17 MS. Next data available in 2016 for year 2012 and 28 MS. - alternatively annual data from the Eurostat / OECD / WHO Joint questionnaire can be used; curently data available for year 2013 and 13 MS. Missing countries: BE, BG, DE, GR, ES, FR, HR, LV, AT, PL, PT, RO, SK, SE, MT;	17 MS	2008	2014 data available in 2016
Q-6	**Colorectal cancer screening (total, men, women)**	**NAT**	Proportion of persons (aged 50-74) reporting to have undergone a colorectal cancer screening test in the past two years.	Eurostat (EHIS)	ECHI 60 - EHIS data every 5 years. Currently missing coutnries: BE, DK, EE, ES, IE, HR, IT, LT, LU, NL, AT, PT, FI, SE, UK. Next data available in 2016 for year 2012 and 28 MS.	15 MS	2008	2014 data available in 2016

Table 3a (continued): Health care system quality –proposed main indicators selected from the EU social indicators portfolio

Code	Indicator	EU/NAT	Definition	Data source	Comments	EU data availability	Year (currently latest available)	Year (next update)
Q-7	**Vaccination coverage for children**	**EU**	Percentage of infants who have been fully vaccinated against important infectious childhood diseases (reaching their 1st birthday in the given calendar year against pertussis, diphtheria, tetanus, and poliomyelitis; reaching their 2nd birthday in the given calendar year against measles, mumps and rubella).	WHO (HfA)	OMC HC-P6, ECHI 56 - Commission recommendation on "Investing in children" monitoring framework; - annual data; full coverage; - if aggregate measure is to be used, its calculation still needs to be defined. Data available for 2013 for diph, teta, pert. Childhood vaccination policies differ slightly across countries. Thus, these indicators are based on the actual policy in a given country. Some countries administer combination vaccines (e.g. DTP for diphtheria, tetanus and pertussis) while others administer the vaccinations separately. Some countries ascertain vaccinations based on surveys and others based on encounter data, which may influence the results.	28 MS	2012	
Q-8	**Influenza vaccination for 65+ (total, by educational level gap between ISCED 0-2 and 5-6)**	**EU (NAT in 2008)**	Influenza vaccination rate refers to the number of people aged 65 and older who have received an annual influenza vaccination, divided by the total number of people over 65 years of age. The gap in influenza vaccination for the elderly is the difference between the percentage of people aged 65+ with lower secondary education (ISCED 2) and people aged 65+ with terciary education (ISCED 5-6).	Eurostat (EHIS)	OMC HC-S4, ECHI 57 EHIS data every 5 years. Currently missing coutnries: BE, DK, ES, IE, HR, IT, LT, LU, NL, AT, PT, FI, SE, UK. Next data available in 2016 for year 2012 and 28 MS. Alternatively data from the Joint questionnaire with OECD/WHO can be used for the total measure as available more frequently, but it does not allow breakdown by educational level. Data available for 17 MS. Missing countries: BE, BG, CZ, DE, GR, CY, NL, AT, PT, SE, MT. Next data available in 2014 for year 2012.	14 MS	2008	2014 data available in 2016

Table 3a (continued): Health care system quality –proposed main indicators meeting the SPC-ISG Guiding Principles

Code	Indicator	EU/NAT	Definition	Data source	Comments	EU data availability	Year (currently latest available)	Year (next update)
Q-9	**In-hospital mortality following AMI**	**NAT**	The number of people who die within 30 days of being admitted to hospital with AMI, where death occurs at the same hospital as the initial AMI admission, as a proportion of all hospital admissions for AMI in a specified year, standardised for age and gender to the 2010 OECD population. The admission-based indicator is used and the unit of counting is a hospital admission.	OECD	ECHI 79 OECD biannual data for 20 MS: currently missing BG, EL, CY, LT, RO, HR, EE, MT. Countries differ in their ability to track fatalities across the health care system, and to link fatalities to a particular hospital admission. Some can link patient fatalities across hospitals and out of hospitals, whereas others can only link fatalities if they occur in the same hospital as the initial admission. The OECD therefore collects two different AMI mortality indicators (admission-based and patient-based) because of these cross-country differences in data collection. The admission-based calculation does not require unique patient identification and the linking of related admissions. This means each admission is counted for the purposes of calculating indicator regardless of whether a patient has multiple admissions within the specified period or not. The patient-based indicator, which tracks patients across hospitals and out of hospitals, is a more robust indicator for international comparison than the admission-based indicator, but the admission-based indicator continues to be used because more countries are able to report it. Therefore, the indicator will be accepted using the admission-based approach, while keeping the patient-based approach as contextual information.	20 MS	2011	2013 data available in 2015
Q-10	**In-hospital mortality following stroke**	**NAT**	The number of people who die within 30 days of being admitted to hospital with ischaemic stroke, where death occurs in the same hospital as the initial stroke admission, as a proportion of all hospital admissions for ischaemic stroke in a specified year, standardised for age and gender to the 2010 OECD population. The admission-based indicator is used and the unit of counting is a hospital admission.	OECD	ECHI 79 OECD biannual data for 19 MS: currently missing BG, EE, EL, CY, LT, RO, HR, PL, MT. Countries differ in their ability to track fatalities across the health care system, and to link fatalities to a particular hospital admission. Some can link patient fatalities across hospitals and out of hospitals, whereas others can only link fatalities if they occur in the same hospital as the initial admission. The OECD therefore collects two different stroke mortality indicators (admission-based and patient-based) because of these cross-country differences in data collection. The admission-based calculation does not require unique patient identification and the linking of related admissions. This means each admission is counted for the purposes of calculating indicator regardless of whether a patient has multiple admissions within the specified period or not. The patient-based indicator, which tracks patients across hospitals and out of h The admissions-based approach is more an indicator of the health care system rather than of health outcomes, which is the primary interest.	19 MS	2011 (2012 for DK)	2013 data available in 2015

Table 3b: Health care system quality – availability and source of proposed <u>main indicators for development</u>

Code	Indicator	EU/NAT	Definition	Data source	Comments	EU data availability	Year (currently latest available)	Year (next update)
Q-11a	**Avoidable admission: respiratory diseases (asthma)**	**NAT**	The **asthma** indicator **for respiratory diseases** is defined at the OECD as the number of hospital discharges of people aged 15 years and over per 100 000 population, adjusted to take account of the age and sex composition of each country's population structure. Coverage: Population aged 15 and older Numerator: All non-maternal/non-neonatal hospital admissions with a principal diagnosis code of asthma in a specified year (ICD codes are available). Denominator: Population count, age & sex standardised to the 2010 OECD population.	OECD	OECD data available biannually for 21 MS: currently missing BG, EL, HR, CY, LT, EE, RO. Methodological issues (including comparability across countries and over time) Clinical/diagnostic and coding practices and conventions may vary across institutions and countries, particularly with regard to asthma versus COPD. Reporting asthma and COPD admissions as a composite indicator is being considered for the future. Eurostat supported by ISG recommands to standardize the indicator to the European population. R&D suggestion for facooring in asthma prevelance. There is ongoing R&D regarding the exclusion of admissions ending in death. A number of countries report difficulty with consistent exclusion of patient transfers.	21 MS	2011	2013 data available in 2015
Q-11b	**Avoidable admission: respiratory diseases (COPD)**	**NAT**	The **COPD** indicator **for respiratory diseases** is defined at the OECD as the number of hospital discharges of people aged 15 years and over per 100 000 population, adjusted to take account of the age and sex composition of each country's population structure. Coverage: Population aged 15 and older Numerator: All non-maternal/non-neonatal hospital admissions with a principal diagnosis code of Chronic Obstructive Pulmonary Disease in a specified year (ICD codes are available). Denominator: Population count, age & sex standardised to the 2010 OECD population.	OECD	OECD data available biannually for 21 MS: currently missing BG, EL, HR, CY, LT, EE, RO. Methodological issues (including comparability across countries and over time) Clinical/diagnostic and coding practices and conventions may vary across institutions and countries, particularly with regard to asthma versus COPD. Reporting asthma and COPD admissions as a composite indicator is being considered for the future. Eurostat supported by ISG recommands to standardize the indicator to the European population. R&D suggestion for facotring in COPD prevelance.	21 MS	2011	2013 data available in 2015
Q-12	**Avoidable admission: uncontrolled diabetes**	**NAT**	The indicator for **uncontrolled diabetes** is defined as the number of hospital discharges of people aged 15 years and over with diabetes Type I or II without mention of a short-term or long-term complication per 100 000 population. The rates have been adjusted to take account of the age and sex composition of each country's population structure.	OECD	OECD data available biannually for 15 MS, (no data for FR, LU, NL, SK, SI, BG, EE, EL, HR, CY, LT, MT, RO), No EU aggregate available. Variations in coding practices are likely to exist across countries. The three indicators related to diabetes admissions (uncontrolled diabetes without complication, diabetes short-term complications and diabetes long-term complications) have now been consolidated to form a composite indicator in the OECD HCQI suite. Consequently, only data on the composite indicator was specified for the 2014-15 HCQI data collection.	15 MS	2011	2013 data available in 2015

4.3. Context information: Resources

Resources impact both access and quality of healthcare, but it is difficult to establish a normative judgement. Therefore, this dimension is highlighted as context information to be used in the second-step qualitative assessment.

In a paper by Tchouajet et al. (2012) it is proposed to divide resources into the following sub-categories: financial, human, technological, material and organizational.[46] The present framework loosely follows that typology and focuses on the first three categories.

Indicators selected from the EU social indicators portfolio

Financial resources are measured by both the ***total current health expenditure per capita*** in purchasing power parity standards (PPS) and by the ***total current spending on health in relation to GDP***. In addition, the framework looks at ***Long-Term Care (LTC) expenditure***[47], as it is projected to be a considerable expense given the demographic ageing. It includes both medical and social expenditure.

Apart from the overall sum dedicated to health activities, it is important to look at how the overall amount is shared between various functions of health. This way, the framework looks at the ***percentage of the total current health expenditure that goes to curative care***, ***rehabilitative care***, ***long-term nursing care***, and ***prevention and public health services***. Strengthening and investing in public health services can help lower costs for health and long-term care services as well as for acute interventions in the future whilst improving health.

Human resources are measured by the number of health professionals (***physicians*** and ***nurses/midwives***) per 100,000 inhabitants. There are concerns about the current and future availability of doctors and especially about their geographic distribution[48], as it affects access to and quality of care. Nurses have a pivotal role to play in delivery of health care, both in hospitals but also in out-patient and home settings. Due to population ageing, demand for nurses will increase, but also large cohorts of nurses will retire, thus possibly limiting the supply of workers in this health care profession.[49] Also due to intra EU mobility of health professionals, we can observe outflows of professionals from some countries, further exacerbating the staff shortage that they are already facing.

Indicators for development

It was suggested to operationalize the **technological resources** of health care systems through indicators on the number of ***computed tomography (CT) scanners*** and the number of ***magnetic resonance imaging (MRI) machines***[50] per 100,000 inhabitants.[51] These are examples of new medical technologies that improve diagnosis and treatment. They are available both in hospitals and in ambulatory settings. Since technological progress in health

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46 As also suggested by Donabedian (1973, 1980, 1992)

47 It is the sum of HC.3 Services of LTC + HC.R.1 Social Services of LTC in order to include both LTC within health care and within social care and improve comparability; also in the future the annual % change in spending on LTC can be considered.

48 Ono, T. at al. (2014)

49 OECD (2012)

50 Limitations in the comparability of data exist, for example in Germany only data for hospital based MRI and CT units are available; in UK units in private establishments are not included

51 In the future "used capacity" of MRIs and CTs could be included, if data allows

tends to be a product rather than a process innovation and CT and MRI units are related to considerable investments, these technologies tend to drive health spending, rather than produce savings.[52]

The indicators MRI and CTS were proposed to the ISG, but after deliberation it was decided that the two indicators presented a series of methodological issues and did not meet the SPC-ISG Guiding Principles. For example, MRI and CTS unit availability depends on policies of de-centralisation, geography and use of moving units in a given country. Moreover, the indicators are not useful if the health system lacks adequate human capital capable of putting the technology into practice. Furthermore, the indicators only take into account the quantity of technology, but not the innovativeness or quality of the technology. Therefore the indicators on the number of ***computed tomography (CT) scanners*** and the number of ***magnetic resonance imaging (MRI) machines*** per 100,000 inhabitants are dropped from use in JAF Health.

The suggested resource (R) indicators are presented in tables 4a.

[52] Freeman R., Rothgang H. (2010)

Table 4a: Health care system: resources – proposed context indicators selected from the EU social indicators portfolio

Code	Indicator	Context EU/NAT	Definition	Data source	Comments	EU data availability	Year (currently latest available)	Year (next update)
R-1	**Current expenditure on health care per capita (in pps)**	**Context (NAT)**	'Current expenditure on healthcare' means the final consumption expenditure of resident units on healthcare goods and services, including the healthcare goods and services provided directly to individual persons as well as collective healthcare services.	Eurostat (Joint questionnaire with OECD/WHO)	OMC HC-P11 - annual data, currently missing - UK, IE, IT, MT. The comparability of the functional breakdown of health expenditure data has improved over recent years. However, limitations remain, as some countries have not yet implemented the SHA classifications and definitions. Even among those countries that are submitting data according to the SHA, the comparability of data sometimes needs to be improved. Different practices regarding the treatment of capital expenditure and the inclusion of long-term care in health or social expenditure are some of the main factors affecting data comparability.	24 MS	2012, 2011 (BG, PT, SI, SK), 2010 (LV)	2013 available in 2015
R-2	**Current expenditure on health care as % of GDP**	**Context (NAT)**	'Current expenditure on healthcare' means the final consumption expenditure of resident units on healthcare goods and services, including the healthcare goods and services provided directly to individual persons as well as collective healthcare services. Gross domestic product (GDP) = final consumption + gross capital formation + net exports. Final consumption of households includes goods and services used by households or the community to satisfy their individual needs. It includes final consumption expenditure of households, general government and non-profit institutions serving households.	Eurostat (Joint questionnaire with OECD/WHO)	OMC HC-P12, ECHI 77 - annual data, currently missing - UK, IE, IT, MT. In countries, such as Ireland and Luxembourg, where a significant proportion of GDP refers to profits exported and not available for national consumption, gross national income (GNI) may be a more meaningful measure than GDP.	24 MS	2012, 2011 (BG, PT, SI, SK), 2010 (LV)	2013 available in 2015
R-3	**Total long-term care (health and social) expenditure as % of GDP**	**Context (NAT)**	Expenditure on long-term care (health) (category HC.3 in SHA 2011) plus expenditure on long-term care (social) (category HC.R.1 in SHA 2011) as a % of GDP. 'Long-term care (health)' means a range of medical and personal care services that are consumed with the primary goal of alleviating pain and suffering and reducing or managing the deterioration in health status in patients with a degree of long-term dependency. 'Long-term care (social)' means lower-level social care services to assist with instrumental activities of daily living (such as home-help, meals on wheels, transport and day centres, etc.) including in-kind long-term social car and Llong-term social care cash-benefits.	Eurostat (Joint questionnaire with OECD/WHO)	OMC HC-P13 annual data, for HC.3 currently missing - UK, IE, IT, MT. The Eurostat regulation on health expenditures will not include this indicator. Therefore data collection will remain on voluntary basis and expectedly with incomplete MS coverage.	HC.3: 24 MS HCR.1: 12 MS	2012, 2011 (BG, PT, SI, SK), 2010 (LV)	2013 available in 2015

Table 4a (continued): Health care system: resources – proposed context indicators selected from the EU social indicators portfolio

Code	Indicator	Context EU/NAT	Definition	Data source	Comments	EU data availability	Year (currently latest available)	Year (next update)
R-4	**Expenditure on curative care as % of current expenditure on health care**	**Context (NAT)**	Curative care' means the health care services during which the principal intent is to relieve symptoms or to reduce the severity of an illness or injury, or to protect against its exacerbation or complication that could threaten life or normal function.	Eurostat (Joint questionnaire with OECD/WHO)	OMC HC-C4 - annual data, no data from: DK, PT, SE, IE, IT, MT, UK.	21 MS	2012, 2011 (BG, SI, SK), 2010 (LV)	2013 available in 2015
R-5	**Expenditure on preventive care as a % of current expenditure on health care**	**Context (NAT)**	Preventive care' means any measure that aims to avoid or reduce the number or the severity of injuries and diseases, their sequelae and complications. It is based on a health promotion strategy that involves a process to enable people to improve their health through the control over some of its immediate determinants. Interventions (both individual and collective) are included when their primary purpose is health promotion and if they occur before the diagnosis has been made.	Eurostat (Joint questionnaire with OECD/WHO)	OMC HC-C4 - annual data, no data from: IE, IT, MT, UK.	24 MS	2012, 2011 (BG, PT, SI, SK), 2010 (LV)	2013 available in 2015
R-6	**Expenditure on rehabilitative care as % of current expenditure on health care**	**Context (NAT)**	Rehabilitative care means the services to stabilise, improve or restore impaired body functions and structures, compensate for the absence or loss of body functions and structures, improve activities and participation and prevent impairments, medical complications and risks.	Eurostat (Joint questionnaire with OECD/WHO)	OMC HC-C4 - annual data, no data: DK, PT, SE, IE, IT, MT, UK.	21 MS	2012, 2011 (BG, SI, SK), 2010 (LV)	2013 available in 2015
R-7	**Expenditure on long-term care (health) as % of current expenditure on health care**	**Context (NAT)**	Long-term care (health)' means a range of medical and personal care services that are consumed with the primary goal of alleviating pain and suffering and reducing or managing the deterioration in health status in patients with a degree of long-term dependency.	Eurostat (Joint questionnaire with OECD/WHO)	OMC HC-C4 - annual data, no data from: IE, IT, MT, UK.	24 MS	2012, 2011 (BG, PT, SI, SK), 2010 (LV)	2013 available in 2015

Table 4a (continued): Health care system: resources – proposed context indicators selected from the EU social indicators portfolio

Code	Indicator	Context EU/NAT	Definition	Data source	Comments	EU data availability	Year (currently latest available)	Year (next update)
R-8	**Practising physicians or doctors**	**Context (NAT)**	Total number of practising physicians (medical doctors) per 100 000 inhabitants. The data for most countries refer to practising medical doctors, defined as the number of doctors who are providing care directly to patients. In many countries, the numbers include interns and residents (doctors in training). The numbers are based on head counts.	Eurostat (Joint questionnaire with OECD/WHO)	OMC HC-C1, ECHI 63 - annual data; - some countries report only data on professionally active or licensed to practice physicians (20 MS practising, 15 MS professionally active, 14 MS licensed to practice physicians)	25 MS	2012 (2011 for LU, RO, 2009 for DK, 2008 for FI, 2007 for SK)	2013 available in 2015
R-9	**Practising and professionally active nurses and midwives**	**Context (NAT)**	Total number of professional nurses and midwives per 100,000 inhabitants. The number of nurses includes those employed in public and private settings providing services directly to patients ("practising") and in some cases also those working as managers, educators or researchers.	Eurostat (Joint questionnaire with OECD/WHO)	OMC HC-C2, ECHI 64 - annual data (16 MS practising, 14 MS professionally active nurses and midwives)	18 MS	2011 2009 for DK, 2008 for NL)	2013 available in 2015

4.4. Non-health care determinants

Non-health care determinants include factors outside the health care system. They comprise lifestyle choices, behaviours, and environmental factors.

Non-health care factors can be even more important determinants of the health status of a population than health care system determinants. As mentioned previously, in advanced economies that have made the epidemiologic transition to non-communicable disease burden, the lifestyle, behavioural, and socio-economic factors will explain most of the observed variation (90%) in health outcomes.[53]

Lifestyle factor indicators selected from the EU social indicators portfolio

The indicators under this category rely largely on self-reported subjective data. ***Regular daily smoking***, ***obesity,*** and ***alcohol consumption***[54] fall within the ambit of public health policy, but are also influenced by societal habits and perceptions. These indicators provide a proxy for both current and past unhealthy lifestyles. They can also provide an indicator for potential future pressures on the health care system as well as on mortality, since they are risk factors for several chronic illnesses.

Lifestyle factor indicators for development

Fruit and vegetable consumption is an important lifestyle determinant of health. Although, in the format that the data is currently collected by Eurostat, these constitute two separate indicators, for the needs of this framework they will be merged and calculated to estimate the percentage of the population consuming 5 portions of vegetables or fruit a day, as recommended in the nutritional guidelines.

Physical activity is also an important element of prevention and could be considered for inclusion in the framework along with the other lifestyle factors discussed above. EU Guidelines recommend at least 60 minutes per day of physical activity for children and young people, and a minimum of 30 minutes of exercise per day for adults[55]. Along with fruit and vegetable consumption and the proportion of the population who is obese, this indicator is of value for policy-makers to target policy initiatives in the long run, and it provides a more complete picture of lifestyle determinants for the purposes of the framework. New data for physical activity based on a revised question in EHIS wave 2 will be available from Eurostat as of 2016.

The indicators on fruit and vegetable consumption and physical activity can be specially relevant when taken together with ***obesity indicators***. Moreover, when health system-related factors are mentioned (lifestyle factors) it should be stressed that there are considerable time lags at play between lifestyle behaviour and health outcome impacts. Consequences of this in terms of data availability should be considered as well.

As the risky behaviours display a social gradient, we propose to introduce a measure of the gap between people with top and bottom educational achievements. Furthermore, we propose a gender breakdown. Lastly, we look specifically at the age group 15-24, as it corresponds to

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53 Schröder et al (2007), available at: http://www.nejm.org/doi/full/10.1056/NEJMsa073350

54 Here risky single occasional drinking, or in other words binge drinking

55 EU Physical Activity Guidelines, 2008

the monitoring strategy of the Commission Recommendation on Investing in children - breaking the cycle of disadvantage.

As already acknowledged, there are more lifestyle factors at the individual level that affect one's health outcomes, such as age, disability, living conditions, employment status, family status, and/or housing tenure. However, these are not yet included in the scope of the JAF Health.

The suggested non-health care determinants indicators for lifestyle (L) are presented in tables 5a and 5b.

Table 5a: Non-health care determinants – proposed <u>main indicators selected from the EU social indicators portfolio</u>

Code	Indicator	EU/NAT	Definition	Policy relevance	Data source	Comments	EU data availability	Year (currently latest available)	Year (next update)
L-1	**Regular daily smoking (total population 15+, 15-24, men, women, income quintile gap q1-q5)**	**EU (NAT in 2008)**	Proportion of people reporting to smoke cigarettes daily. Percentage of respondents reporting to smoke cigarettes daily derived from EHIS questions SK.1 and SK.2; SK.1: Do you smoke at all nowadays? 1. Yes, daily; 2. Yes, occasionally; 3. Not at all. SK.2: What tobacco product do you smoke each day? 1. Manufactured cigarettes; 2. Hand-rolled cigarettes; 3. Cigars; 4. Pipefuls of tobacco; 5. Other. For the calculation of this indicator the answering categories "yes, daily" for EHIS question SK.1 should be combined with answering categories "manufactured cigarettes" and/or "hand-rolled cigarettes" for EHIS question SK2. EHIS data will not be age standardized.	Tobacco kills nearly 6 million people each year, of whom more than 5 million are from direct tobacco use and more than 600 000 are non-smokers exposed to second-hand smoke. Smoking is a major risk factor for at least two of the leading causes of premature mortality – circulatory disease and cancer. Several studies provide strong evidence of socio-economic differences in smoking and mortality (Mackenbach et al., 2008). People in less affluent social groups have a greater prevalence and intensity of smoking, a higher all-cause mortality rate and lower rates of cancer survival (Woods et al., 2006). The influence of smoking as a determinant of overall health inequalities is such that, if the entire population was non-smoking, mortality differences between social groups would be halved (Jha et al., 2006).	Eurostat (EHIS)	OMC HC-S11, ECHI 44 (excluding indicator capturing income quintile gap); - EHIS: data available every 5 years; currently missing DK, IE, IT, LT, LU, NL, PT, FI, SE, UK, HR, FR. Next data available in 2016 for year 2012 and 28 MS. - also possible every 3 years from the future EU-SILC to be tested in 2017; - Commission recommendation on "Investing in children" monitoring framework.	16 MS	2008	2014 data available in 2016
L-2	**Obesity (total population 18+, 18-24, men, women, income quintile gap q1-q5)**	**EU (NAT in 2008)**	Proportion of people who are obese, i.e. whose body mass index (BMI) is >= 30kg/m2. Body mass index (BMI), or Quetelet index, is defined as the individual's body weight (in kilograms) divided by the square of their height (in metres). Weight and height are derived from European Health Interview Survey (EHIS) questions BMI01: How tall are you? (cm), and BMI02: How much do you weight without clothes and shoes? (kg). EHIS data will not be age standardized.	The prevalence of obesity has increased over the past decade in all OECD countries. In 2011, at least one in five adults was obese in ten OECD countries, compared to five a decade ago. The rise in overweight and obesity is a major public health concern. Obesity is a known risk factor for numerous health problems, including hypertension, high cholesterol, diabetes, cardiovascular diseases, respiratory problems (asthma), musculoskeletal diseases (arthritis) and some forms of cancer. Because obesity is associated with higher risks of chronic illnesses, it is linked to significant additional health care costs. Furthermore, there is a time lag between the onset of obesity and related health problems.	Eurostat (EHIS)	ECHI 42, (excluding indicator capturing income quintile gap); - EHIS: data available every 5 years; currently missing DK, IE, IT, HR, LT, LU, NL, PT, FI, SE, UK. Next data available in 2016 for year 2012 and 28 MS. - also possible every 3 years from the future EU-SILC to be tested in 2017; - Commission recommendation on "Investing in children" monitoring framework.	17 MS	2008	2014 data available in 2016

Table 5b: Non-health care determinants – proposed <u>main indicators for development</u>

Code	Indicator	EU/NAT	Definition	Data source	Comments	EU data availability	Year (currently available)	Year (next update)
L-3	**Fruit consumption (total population 15+, 15-24, educational level gap between ISCED 0-2 and 5-6)**		Proportion of people reporting to eat fruits (excluding juice) at least once a day.	Eurostat (EHIS)	ECHI 49 - EHIS: data available every 5 years; currently missing DK, DE, EE, IE, LT, LU, NL, PL, PT, FI, SE, UK, HR. Next data available in 2016 for year 2012 and 28 MS. - also possible every 3 years from the future EU-SILC to be tested in 2017; - proposal to link with vegetable consumption to determine "5 a day" possible only from 2014 EHIS.	15 MS	2008	2014 data available in 2016
L-4	**Vegetable consumption (total population 15+, 15-24, educational level gap between ISCED 0-2 and 5-6)**		Proportion of people reporting to eat vegetables (excluding potatoes and juice) at least once a day.	Eurostat (EHIS)	ECHI 50 - EHIS: data available every 5 years; currently missing DK, DE, EE, IE, LT, LU, NL, PL, PT, FI, SE, UK, HR. Next data available in 2016 for year 2012 and 28 MS. - also possible every 3 years from the future EU-SILC to be tested in 2017; - proposal to link with fruit consumption to determine "5 a day" possible only from 2014 EHIS.	15 MS	2008	2014 data available in 2016
L-5	**Physical activity (total population 15+, 15-24, men, women, educational level gap between ISCED 0-2 and 5-6)**		Percentage of a countries' population doing ≥ 150 minutes of at least moderate-intensity aerobic physical activity per week.	Eurostat (EHIS)	ECHI 52 - EHIS: data available every 5 years; Next data available in 2016 for year 2012 and 28 MS. - Eurostat does not currently disseminate any data on phisical activity as the instrument measuring it changed between 2008 and 2014 EHIS waves and is therefore not recommended to use and compare data between the two waves. - also possible every 3 years from the future EU-SILC to be tested in 2017.			2014 data available in 2016
L-6	**Risky single occasion drinking (total population 15+, 15-24, men, women, educational level gap between ISCED 0-2 and 5-6)**		Proportion of people ingesting more than 60g of pure ethanol on a single occasion in the past 12 months.	Eurostat (EHIS)	ECHI 47 - Commission recommendation on "Investing in children" monitoring framework; - EHIS: data available every 5 years; - currently missing AT, DK, DE, EE, IE, IT, HR, FR, LT, LU, NL, PL, PT, FI, SE, UK. Next data available in 2016 for year 2012 and 28 MS.	12 MS	2008	2014 data available in 2016

4.5. Context information: Socio-economic situation

This section presents relevant contextual data affecting the relationship between drivers and outcomes of health care. In the specific policy area of health, this dimension of the JAF conceptual framework is especially relevant for the second-step qualitative assessment, because it provides contextual information that impacts on the health system's performance.

Indicators selected from the EU social indicators portfolio

Population ageing is one of the factors driving health systems' cost structure and poses a challenge to the sustained provision of quality care. The older one gets, the more chronic conditions emerge and the more health and long-term care one will consume. Thus, the present framework takes into account the population structure by including the indicator ***Old Age Dependency ratio*** to account for the potential care burden on people in the productive age.

Furthermore, the framework includes the ***At risk of poverty or social exclusion rate (AROPE)*** as contextual information for the poverty and social exclusion driving forces behind health inequalities.

Indicators meeting the SPC-ISG Guiding Principles for the Selection of Indicators and Statistics

To complement the old age dependency ratio, the indicators ***Share of population 65+*** and ***Share of population 80+*** were evaluated and it was decided that they met the criteria to be included in the framework. Moreover, apart from the ***At risk of poverty or social exclusion rate (AROPE),*** the ISG accepted the indicator ***GDP per capita in PPS***, which is a proxy of the relative living standard in a given country. Lastly, and as it has been highlighted throughout this document, the socio-economic status is a good predictor of an individual's health. Therefore, this framework's dimension will also count with the indicator ***Percentage of population with low educational attainment.***

These socio-economic situation (S) indicators are presented in tables 6a.

Table 6a: Contextual information: socio-economic situation – proposed context indicators selected from the EU social indicators portfolio

Code	Indicator	Context EU/NAT	Definition	Data source	Comments	EU data availability	Year (currently latest available)	Year (next update)
S-1	**Old age dependency ratio**	**Context (EU)**	This indicator is the ratio between the total number of elderly persons of an age when they are generally economically inactive (aged 65 and over) and the number of persons of working age (from 15 to 64).	Eurostat (Demographic data)	OMC PN-C2, ECHI 1 annual data, full coverage.	28 MS	2014	2015 data available in 2016
S-2	**At risk of poverty or social exclusion rate**	**Context (EU)**	The share of the total population that is at-risk-of-poverty, or severely materially deprived, or living in households with very low work intensity.The indicator sums up the number of persons who are at risk of poverty, severely materially deprived or living in households with very low work intensity. Persons present in several sub-indicators are counted only once. Persons at risk of poverty have an equivalised disposable income below 60 % of the national median equivalised disposable income after social transfers. Material deprivation covers indicators relating to economic strain and durables. Persons are considered living in households with very low work intensity if they are aged 0-59 and the working age members in the household worked less than 20 % of their potential during the past year.	Eurostat (EU-SILC)	OMC SI-P1 annual data, full coverage. High accuracy and comparability (both over time and geographically)	28 MS	2014	2015 data available in 2016

Table 6a (continuation): Contextual information: socio-economic situation – proposed context indicators meeting the SPC-ISG Guiding Principles

Code	Indicator	Context EU/NAT	Definition	Data source	Comments	EU data availability	Year (currently latest available)	Year (next update)
S-3	**Share of population 65+**	**Context (EU)**	Share of population aged 65 and above expressed as a percentage of the total population.	Eurostat (Demographic data)	ECHI 1 annual data, full coverage.	28 MS	2014	2015 data available in 2016
S-4	**Share of population 80+**	**Context (EU)**	Share of population aged 80 and above expressed as a percentage of the total population.	Eurostat (Demographic data)	ECHI 1 annual data, full coverage.	28 MS	2014	2015 data available in 2016
S-5	**Percentage of population with low educational attainment**	**Context (EU)**	Percentage of population (25-64) with low educational attainment (ISCED 0-2). The educational attainment of an individual is the highest ISCED (International Standard Classification of Education) level successfully completed, the successful completion of an education programme being validated by a recognised qualification (or credential), i.e. a qualification officially recognised by the relevant national education authorities. The aggregate 'lower secondary education attainment' refers to levels 0, 1 and 2 of the ISCED 2011 (less than primary, primary and lower secondary education, online code ED0-2). Data up to 2013 refer to ISCED 1997 levels 0, 1 and 2 but also include level 3C short (educational attainment from ISCED level 3 programmes of less than two years).	Eurostat (LFS)	ECHI 6 annual data, full coverage.	28 MS	2014	2015 data available in 2016
S-6	**GDP per capita**	**Context (EU)**	Gross domestic product (GDP) is a measure for the economic activity. It is defined as the value of all goods and services produced less the value of any goods or services used in their creation. Gross domestic product per capita in purchasing power standards (PPS) is the ratio between the level of gross domestic product (GDP), expressed in purchasing power standards, and total population. GDP in PPS is obtained by converting GDP to a fictive currency using special conversion factors. Purchasing power parities reflect the price ratios between the countries and are at the same time expressed in a single currency. They thus eliminate from national gross domestic products both the differences in currency expression and the differences in the prices levels between the countries. The result is GDP comparable across countries.	Eurostat	annual data, full coverage. - It should be noted that the results of the countries are mutually co-dependent due to the multilateral character of the comparison. Therefore, the changes of input data carried out by individual countries during revisions also affect the results of other countries.	28 MS	2014	2015 data available in 2016

5. ILLUSTRATION OF RESULTS

The aim of the JAF is to provide through a **country profile chart** an initial screening of areas where MS might be facing specific challenges. It allows for summary assessments to be made of the relative situation with regard to overall health outcomes and provide indications of what might be relevant underlying factors helping to explain these relative outcomes.

Indeed, as shown below in the examples for Spain and Latvia (see figures below), the JAF graphs provide an illustration of possible problem areas of health systems across the dimensions identified in the framework proposed. These two countries were chosen for illustrative purposes only, given also relatively high availability of data.

The white coloured bar indicates better than EU average results and the red coloured bar indicates worse than EU average results. Contextual information on resources and socio-economic situation are illustrated by the grey bars, given impossibility to assign normative judgement.

Furthermore, background bars for each indicator show the range of values for the indicator across Member States (i.e. the extremes of the light grey bars indicate the minimum and maximum values for that indicator).

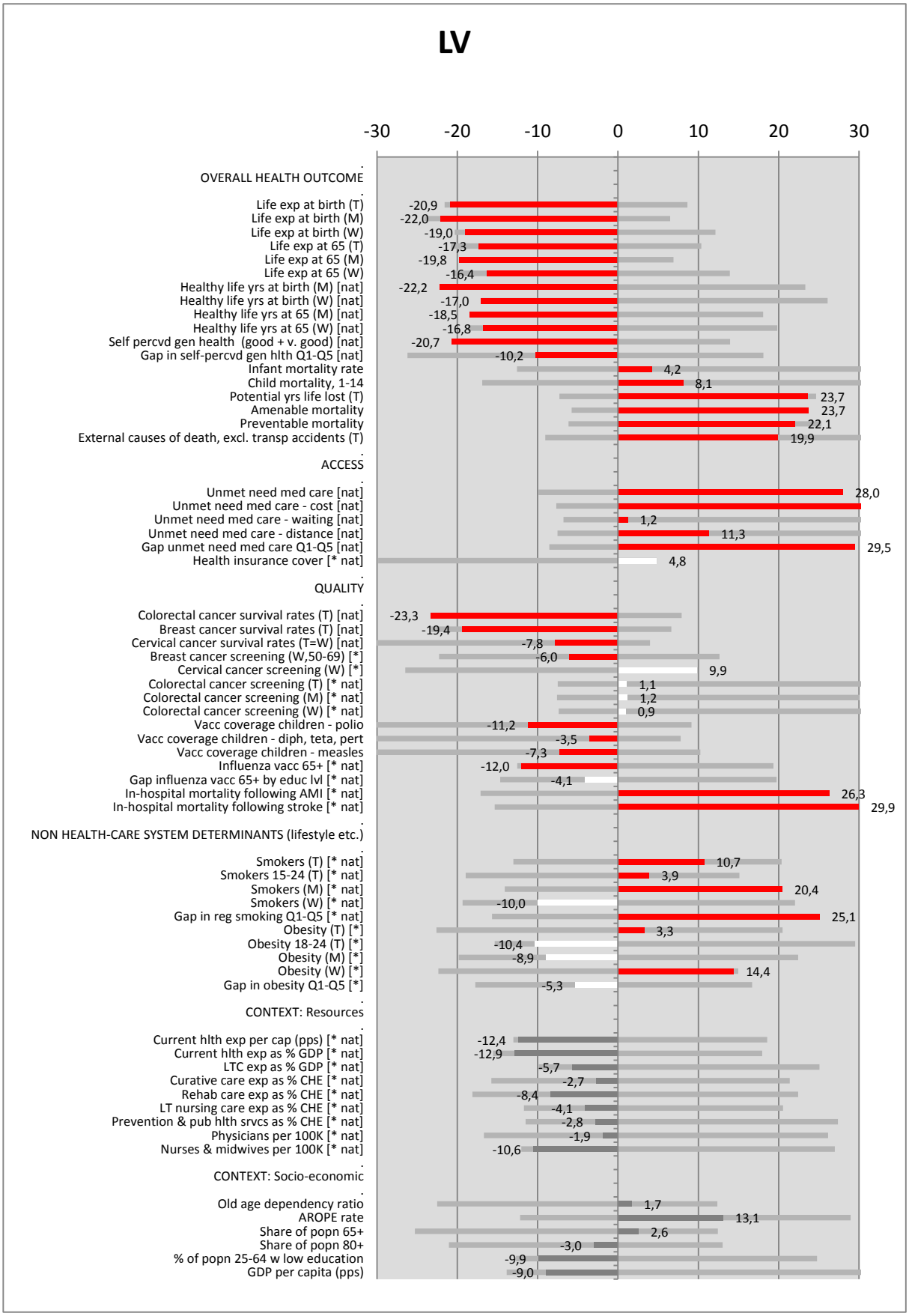
The length of the bars gives an indication of the relative magnitude of differences. Longer bars therefore indicate areas where differences relative to the EU average are most pronounced. Potential problem areas would therefore appear as the longer red coloured bars.

This helps to identify country-specific problem areas where results are atypical compared to the EU average. Significant differences are indicated by standardised values of at least 5, and mainly higher than 10.

When an indicator with relevant significances is detected, the underlying data should be analysed looking for information on the nature of the indicator that could influence the score obtained: low magnitude that amplifies small divergences, reliability of the indicator, time series evolution, reference year used for the calculation of the score, etc.

On the indicator label, the presence of an asterisk (*) indicates that no EU-28 average is available for that indicator and that the reference point used for the average is an un-weighted average of the figures which are available. The presence of "nat" after the label name highlights that the indicator in question is a NAT indicator as currently defined in the EU social indicators portfolio. However, the visualisation of indicators with missing data observations for a large number of Member States, as well as the presentation of NAT indicators, should be regarded as work in progress and is suggested for further development by the ISG.

Figure 3: JAF Health profile chart for Latvia



The JAF Health profile chart for **Latvia** can be interpreted as follows:

Overall outcomes: Life expectancy is well below the EU average (and close to the worst of all Member States), as are the number of healthy life years. The self-perceived level of good and very good general health among the population is also well below average and the worst of all Member States, and a noticeable gap exists in the self-perceived level of health between those on low and high incomes compared to the EU average. The infant mortality rate is around average and the child (1-14) mortality rate is slightly worse than average. Potential years of life lost and preventable and amenable mortality are well above the average and close to the worst performance among all Member States. Mortality for external causes of death excl. transport accidents is also noticeably worse than the EU average.

Access to healthcare: Unmet need for medical care is well above the average and the worst score among all Member States, as is the subcomponent cost and the gap in unmet need for low and high income groups. The subcomponent waiting time is around average but the subcomponent distance is noticeably worse than the average. Health insurance coverage is 100 %.

Quality of health care service: The colorectal cancer survival rate is well below the average and the worst performance across the EU. The breast cancer survival rate is also noticeably below the average, and the cervical cancer survival rate is slightly below average. The breast cancer screening rate is slightly below average, but the cervical cancer screening rate is the best in the EU. Colorectal cancer screening is around average. Vaccination coverage for children is slightly worse than average and influenza vaccination for the elderly is among the lowest. In-hospital mortality following AMI and stroke is well above average and the highest (worst) in the EU.

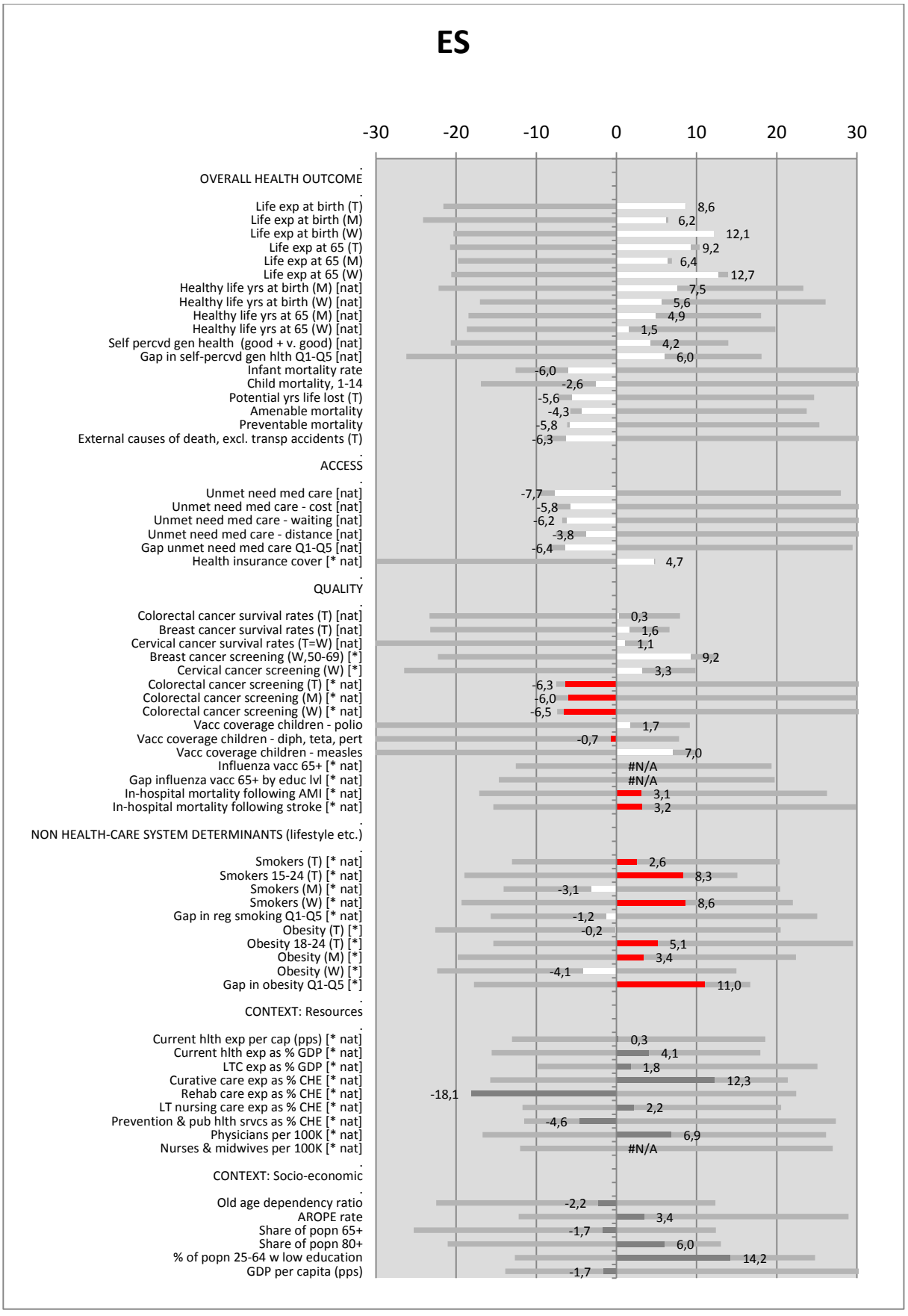
Non-health care determinants: The total smoking rate is noticeably above the EU average and it is the highest out of all Member States for males. In contrast, the smoking rate for women is noticeably below the average. The gap in regular smoking between low and high income groups is the highest (worst performance) in the EU. The obesity rate for women is one of the highest, while for men it is noticeably below the average.

Context

Resources: Overall health expenditure (per capita and as a percentage of GDP) is noticeably below average, especially on long term care and rehabilitative care. The level of physicians in relation to the size of the population is around average. Levels of nurses and midwives are noticeably below average.

Socio-economic background: Latvia's old age dependency ratio is around average, and the AROPE rate is noticeably above average. The share of population age 65+ and 80+ are around the EU average. The GDP per capita and the percentage of the population with low education are noticeably below average.

Figure 4: JAF Health profile chart for Spain



The JAF Health profile chart for **Spain** can be interpreted as follows:

Overall outcomes: The life expectancy at 65 is noticeably better than the average and at birth it is the highest in the EU. Healthy life years at birth is slightly better than average. The self-perceived good and very good general health is also slightly better than the EU average, and inequality in perception between low and high income groups is slightly better than the average. The infant and child (1-14) mortality rates, the potential years of life lost, the amenable and preventable mortality, and the external causes of death excl. transport accidents indicators all display slightly better than average results.

Access to healthcare: The unmet need for medical care is slightly better than average. The subcomponents cost and waiting time are slightly better than average, while the subcomponent distance is around average. The gap in unmet need for low and high income groups is also slightly better than average, and the health insurance coverage ranks 100 %.

Quality of health care service: Cancer survival rates are around the EU average. Breast cancer screening is slightly better than average, and cervical cancer screening is around average. Colorectal cancer screening is slightly worse than average and among the worst in the EU. Vaccination coverage for children is around average, except for in the case of measles, where vaccination coverage is slightly better than average. In-hospital mortality following AMI and stroke is around average.

Non-health care determinants: The total smoking rate is around average, but women and young people (15–24) smoke slightly more than the average. The gap in smoking between high and low income groups is around average. Even though obesity rates are around average, there are indications of notable differences in obesity incidence between low and high income groups.

Context

Resources: Overall health expenditure (per capita and as a percentage of GDP) is around average. Expenditure on curative care is noticeably better than average but expenditure on rehabilitative care is the lowest in the EU, which though are most probably biased by national accounting practices. The number of physicians relative to the size of the population is slightly better than average. Information on nurses and midwives is missing.

Socio-economic background: The old age dependency ratio and the risk at poverty and social exclusion are around average. The share of population 65+ is around average, but the share of population 80+ is slightly higher than the EU average. The percentage of population with low educational attainment is noticeably higher than the average, and the GDP per capita is around average.

REFERENCES

Council of the European Union (2006), *Council conclusions on common values and principles in EU health systems – 2733rd Employment, Social Policy, Health and Consumer Affairs Council meeting*, 1–2 June 2006, Brussels.

Council of the European Union (2010), *Council conclusions on equity and health in all policies: solidarity in health – 3019th Employment, Social Policy, Health and Consumer Affairs Council meeting*, 8 June 2010, Brussels.

Council of the European Union (2011), *Council conclusions on closing health gaps within the EU through concerted action to promote healthy lifestyle behaviours*, 3131st Employment, Social Policy, Health and Consumer Affairs, Council meeting, Brussels, 1 and 2, December 2011.

Eurofound (2012), *Third European Quality of Life Survey – Quality of life in Europe: Impacts of the crisis*, Publications Office of the European Union, Luxembourg.

EuroHealthNet (2012), *Re-orienting Health Care Systems: Towards modern, responsive and sustainable health promoting systems*, EuroHealthNet: Brussels.

European Commission (2007), *Communication - Together for health: a strategic approach for the EU 2008-2013*, EU COM(2007) 630.

European Commission (2009), *Communication – Solidarity in health: Reducing health Inequalities in the EU*, EU COM(2009) 567.

European Commission and Economic Policy Committee (2010), *European economy: Joint report on health systems*, Occasional Papers 74, European Commission, Brussels.

European Commission (2013a), *Investing in health*, Staff working document, SWD(2013).

European Commission (2013b), *Europe 2020 – Country specific recommendations*, available at http://ec.europa.eu/europe2020/making-it-happen/country-specific-recommendations/

European Parliament (2013), *Motion for a European Parliament resolution on impact of the crisis on access to care for vulnerable groups (2013/2044(INI)*), Brussels.

Freeman R., Rothgang H. (2010), *Health*, in: The Oxford Handbook of the Welfare State, Oxford University Press.

Hofmarcher M., and Smith P. (eds) (2013), *The Health Data Navigator. Your toolkit for comparative performance analysis. A EuroREACH product*. Vienna: European Centre for Social Welfare Policy and Research.

Legido-Quigley H., McKee M., Nolte E., Glinos I.A. (2008), *Assuring the quality of health care in the EU: a case for action*, WHO Regional Office for Europe.

Karanikolos M., Mladovsky P., Cylus J., Thomson S., Basu S., Stuckler D., Mackenbach J.P. and McKee M. (2013), *Financial crisis, austerity, and health in Europe*, The Lancet, Vol. 381, No. 9874, pp. 1323–1331.

Kelley E., Hurst J. (2006), *Health Care Quality Indicators: Conceptual Framework Paper*, OECD Health Working Papers No.23, available at: http://www.oecd.org/health/health-systems/36262363.pdf

McDaid, D. (2005), *Making the long-term economic case for investing in mental health to contribute to sustainability from a health, public sector and societal perspective*, available at: http://ec.europa.eu/health/mental_health/docs/long_term_sustainability_en.pdf

Murray CJL, Frenk J. (2000), *A WHO Framework for Health System Performance Assessment*, available at: http://www.who.int/healthinfo/paper06.pdf

Mladovsky P., Srivastava D., Cylus J., Karanikolos M., Evetovits T., Thomson S. and McKee M. (2012b), *Health policy responses to the financial crisis in Europe*, World Health Organisation, Policy Summary 5.

OECD (2010), *Health care systems: Getting more value for money*, OECD Economics Department Policy Notes, No.2.

OECD (2012), *Health at a Glance: Europe 2012*, OECD Publishing, available at: http://dx.doi.org/10.1787/9789264183896-en

Ono, T., Schoenstein M. and Buchan J. (2014), *Geographic Imbalances in Doctor Supply and Policy Responses*, OECD Health Working Papers, No. 69, OECD Publishing. available at: http://dx.doi.org/10.1787/5jz5sq5ls1wl-en

Papanicolas, I. and Smith, P.C (2013), *Health Systems Performance Comparison: An agenda for Policy, information and research*, Maidenhead: Open University Press.

Robine, J-M. and Jagger, C. *The rationale for Healthy Life Years as a Structural Indicator for the European Commission*, available at: http://ec.europa.eu/health/ph_information/implement/wp/indicators/docs/ev_20050125_rd01_en.pdf

Smith P.C., Mossialos E., Papanivolas I., Leatherman Sh. (eds) (2009), *Performance measurement for health system improvement: experiences, challenges and prospects*, Cambridge University Press.

Schroeder M.D., Steven A. (2007), *We Can Do Better — Improving the Health of the American People*, The New England Journal of Medicine, No. 357, September 2007, pp. 1221-1228.

Tamsma N. and Berman P. (2004), *The role of the health care sector in tackling poverty and social exclusion in Europe*, EHMA and EuroHealthNet, December 2004.

WHO (2000), *The world health report 2000 - Health systems: improving performance*, Geneva, available at: http://www.who.int/whr/2000/en/

WHO (2008), *The Tallinn Charter: Health Systems for Health and Wealth*, Copenhagen, WHO Regional Office for Europe, available at: http://www.euro.who.int/__data/assets/pdf_file/0008/88613/E91438.pdf?ua=1

WHO (2010), *Health systems financing – the path to universal coverage*, available at: http://www.who.int/whr/2010/en/index.html

WHO (2010a), *Poverty, social exclusion and health systems in the WHO European Region*. Copenhagen, WHO Regional Office for Europe, available at: http://www.euro.who.int/__data/assets/pdf_file/0004/127525/e94499.pdf

WHO (2010b), *Health systems financing – the path to universal coverage*, Geneva.

WHO (2012), *Health 2020: A European policy framework supporting action across government and society for health and well-being*, WHO Regional Office for Europe, Copenhagen.

WHO (2013), *Health systems in times of global economic crisis: an update of the situation in the WHO European Region*, WHO Regional Office for Europe, Oslo.

ANNEX 1: SHORTLIST OF JAF HEALTH PROPOSED INDICATORS (SELECTED FROM THE EU SOCIAL INDICATORS PORTFOLIO AND FOR DEVELOPMENT)

Code	ISG classification: EU/NAT/ for development	Indicator
		Overall Health Outcomes
H-1	EU	Life expectancy at birth and 65 (total population, women, men)
H-2	NAT	Healthy life years (HLY) at birth and 65 (women, men)
H-3	NAT	Self-perceived general health
H-4	NAT	Self-perceived general health - income quintile gap (q1-q5)
H-5	EU	Infant mortality rate (total)
H-6	EU	Child mortality, 1-14 (total)
H-7	EU	Potential years of life lost (total)
H-8	NAT	Amenable mortality, standardised death rate per 100.000 population aged 0-74 years (total)
H-9	NAT	Preventable mortality, standardised death rate per 100.000 population aged 0-74 years (total)
H-10	EU	External causes of death excl. transport accidents (total)
H-11	for development	Well-being (to include also income quintile gap)
H-12	for development	Mental Health
H-13	for development	Potential years of life lost by SES
		Access
A-1	NAT	Self-reported unmet need for medical care (total by reason: cost, waiting time, distance)
A-2	NAT	Self-reported unmet need for medical care - income quintile gap (q1-q5 by reason: cost, waiting time, distance)
A-3	NAT	Share of population covered by health insurance
A-4	for development	Financial burden of out-of-pocket payment for health care
A-5	for development	Care utilisation (total, by SES)
A-6	for development	Household out-of-pocket payment for health care
		Quality
Q-1	NAT	Colorectal cancer survival rates (total)
Q-2	NAT	Breast cancer survival rates (total)
Q-3	NAT	Cervical cancer survival rates (total)
Q-4	EU	Breast cancer screening (women)
Q-5	EU	Cervical cancer screening (women)
Q-6	NAT	Colorectal cancer screening (total, men, women)
Q-7	EU	Vaccination coverage for children
Q-8	EU (NAT in 2008)	Influenza vaccination for 65+ (total, by educational level gap between ISCED 0-2 and 5-6)
Q-9	NAT	In-hospital mortality following AMI
Q-10	NAT	In-hospital mortality following stroke
Q-11	for development	Avoidable admission: respiratory diseases (asthma and COPD)
Q-12	for development	Avoidable admission: uncontrolled diabetes

SHORTLIST OF JAF HEATLH PROPOSED INDICATORS (CONTINUATION)

Code	ISG classification: EU/NAT/ for development	Indicator
		Resources (contextual information)
R-1	NAT	Current expenditure on health care per capita (in pps)
R-2	NAT	Current expenditure on health care as % of GDP
R-3	NAT	Total long-term care expenditure as % of GDP
R-4	NAT	Expenditure on curative care as % of current expenditure on health care
R-5	NAT	Expenditure on preventive care as a % of current expenditure on health care
R-6	NAT	Expenditure on rehabilitative care as % of current expenditure on health care
R-7	NAT	Expenditure on long-term nursing care as % of current expenditure on health care
R-8	NAT	Practicing physicians or doctors
R-9	NAT	Practicing and professionally active nurses and midwives
		Non-health care determinants (lifestyle and external factors)
L-1	EU (NAT in 2008)	Regular daily smoking (total population, 15-24, men, women, income quintile gap q1/q5)
L-2	EU (NAT in 2008)	Obesity (total population 15+, 15-24, men, women, income quintile gap q1/q5)
L-3	for development	Fruit consumption (total population 15+, 15-24, educational level gap between ISCED 0-2 and 5-6)
L-4	for development	Vegetable consumption (total population 15+, 15-24, educational level gap between ISCED 0-2 and 5-6)
L-5	for development	Physical activity (total population 15+, 15-24, men, women, educational level gap between ISCED 0-2 and 5-6)
L-6	for development	Risky single occasion drinking (total population 15+, 15-24, men, women, educational level gap between ISCED 0-2 and 5-6)
		Socio-economic situation (contextual information)
S-1	EU	Old age dependency ratio
S-2	EU	At risk of poverty or social exclusion rate
S-3	EU	Share of population 65+
S-4	EU	Share of population 80+
S-5	EU	Percentage of population with low educational attainment
S-6	EU	GDP per capita (pps)

ANNEX 2: ECHI DOCUMENTATION SHEETS

ANNEX 3: DEVELOPED INDICATORS DOCUMENTATION SHEETS