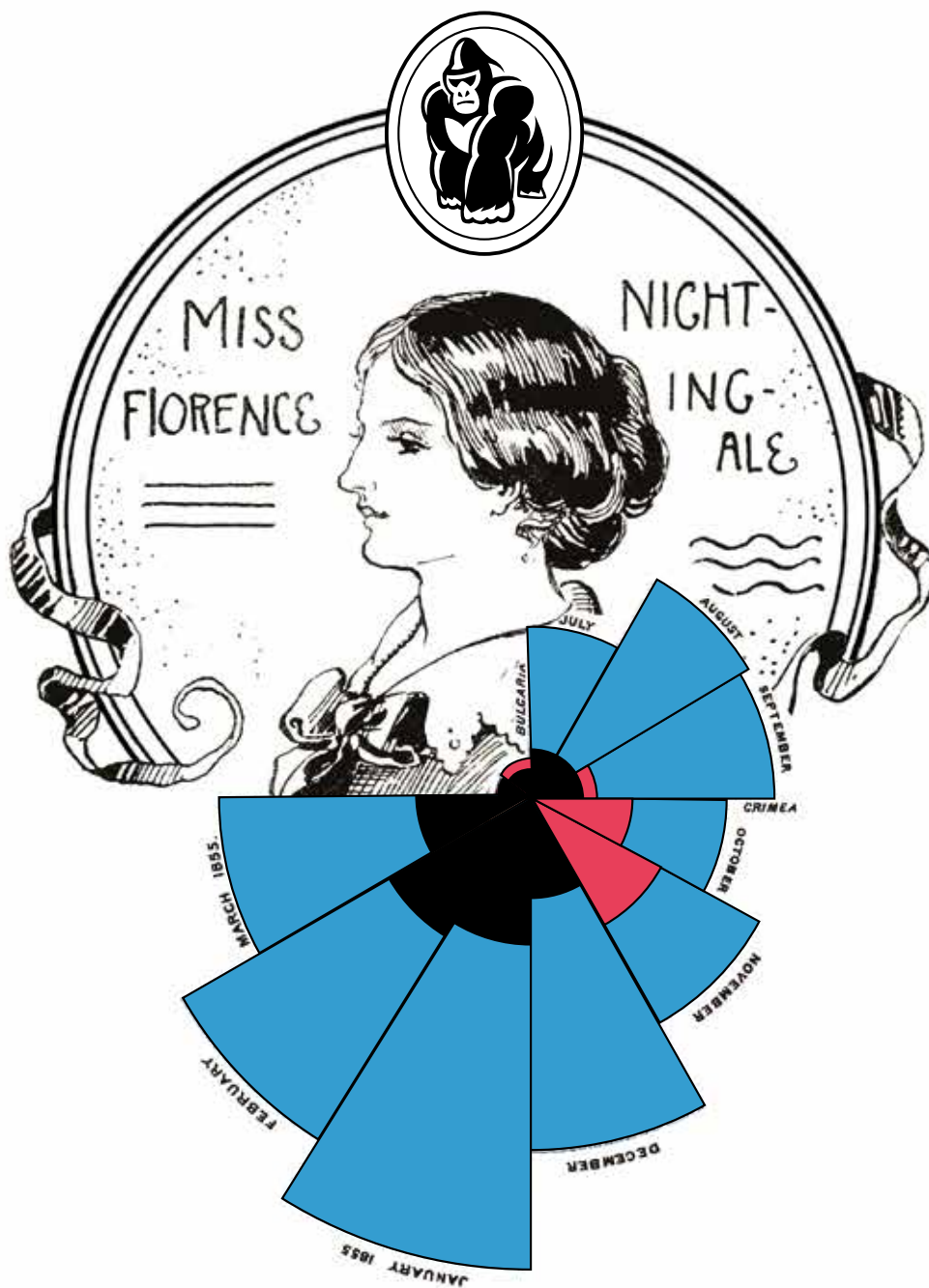# SO WHAT?

Strategies across Europe to assess quality of care

Report by the Expert Group on Health Systems Performance Assessment

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SO WHAT?

Strategies across Europe to assess quality of care

Report by the Expert Group on Health Systems Performance Assessment

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Brussels, April 2016

Foreword

Assessing the performance of health systems is a difficult and fascinating challenge.

To put it simply, it is all about better understanding how health systems work, and then improving them. In our view, proposed improvements should always have the end goals in sight: helping people remain healthy and ensuring access to high-quality healthcare for those in need.

The problem is that health systems are complex. When we were asked to set up an expert group on Health Systems Performance Assessment (HSPA) in 2014, we decided on a step-by-step approach where we would analyse different areas of the health system separately.

Our first step was to try to identify topics of high political priority. We found that the issue that deserved our immediate attention was quality of care. Therefore, the first year of our expert group was dedicated to analysing quality of care - its meaning and relevance, and the ways in which different countries set out to improve it.

Striving for best practice in assessing the quality of healthcare, led us to ask ourselves six key questions: What? When? Who? Why? How? and So what? And we realised that we already had satisfactory answers for most of them.

The "Why?" is already explained above. We also know who should do the assessment and for which target audience; keeping in mind that the target audience largely depends upon the objective of the HSPA exercise - sometimes it is better to address policy makers, other times health professionals or the wider public.

We also know what we should measure, and how to go about it – actually, we are already going about it. We collect powerful, robust and comparable indicators that help us understand and explain the main dimensions of the performance of health systems, e.g. effectiveness, patient safety and access. In fact, we have a long history of presenting HSPA findings in Europe.

The cover page of this report is indeed a tribute to Ms Florence Nightingale, a pioneer of HSPA, long before this acronym even existed. Beyond nursing patients, Ms Nightingale developed imaginative ways to measure what today we call the performance of health

services, and to communicate it in clear and effective ways. One example is the graph accompanying her portrait, which she produced in the middle of the nineteenth century to illustrate mortality rates in the army during the Crimean war.

So, with all these questions already being answered, we found that tackling the "So what?" was the most difficult challenge. What should we do with all this information? How do we translate it into policies that will improve people's lives? That is why we chose "So what?" as the title of this report.

In answering this question, the report aims to provide useful suggestions and recommendations for policy-makers, who want to design, set up, run, and evaluate a system to assess quality of care.

We hope that the collection of country cases analysed in this report will contribute to more effective and better targeted policies in all EU countries.

And in case you spotted a gorilla on the cover page, and you wonder why she is there: one of the group's experts told us that you have to be vocal and assertive – without being aggressive or provocative – to bring and keep HSPA high in the political agenda. You need to have, in his own words "a gorilla in the room":

Here we are.

Olivia Wigzell	Andrzej Rys
Swedish National Board for Health and Welfare	European Commission – DG Health and Food Safety
Director-General	Director for health systems, medical products and innovation

Brussels, April 2016

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Executive Summary

In June 2011, under the Hungarian presidency, the Council invited Member States and Commission to initiate a reflection process aiming to identify effective ways of investing in health, so as to pursue modern, responsive and sustainable health systems.

At the end of the reflection process in 2014, Member States agreed that they could play stronger role in developing and exchanging knowledge on how to monitor and measure the performance of health care systems.

In autumn 2014, the Commission in cooperation with Sweden activated the expert group on health systems performance assessment with the main goals to provide participating members with a forum for exchange of experience on the use of HSPA at national level, and to support national policy-makers by identifying tools and methodologies for developing HSPA

The Expert Group was open to all EU Member States, EEA EFTA States, the OECD, the WHO Regional Office for Europe, and the European Observatory on Health Systems and Policies.

This report is prepared by the Expert Group on health systems performance assessment. It collects and shares examples of best practice in assessing the quality of healthcare that have been implemented by its member countries, analyses them and draws general conclusions for policy development.

It summarises the work carried out by the Expert Group in 2014 and 2015 and presents a list of tools and methodologies developed to support national policy-makers. The content of the report is based on the exchange of experiences and knowledge among countries and with international organisations during this phase of the work.

The goal of the report is to support policy makers with examples, tools and methodologies to better understand the state and the evolution of key dimensions of quality, and therefore to take decisions that are based on more solid evidence. The intention is therefore not to compare or benchmark quality of care across countries, regions, or healthcare providers.

The Expert Group decided not to embrace a unique, binding definition of quality of care. Instead, every country presented its experiences according to the definition of quality of care which was implicitly or explicitly adopted at national level. The Group decided however to keep the framework developed by the OECD as a general reference point.

Main findings from countries experiences; use for policy action

The countries that presented their experiences in this report recognise that quality assessment has had an effective impact in shaping policy actions. Proper assessment is deemed essential

to highlight areas with lack of information and, more relevantly, the existence of differences in structure, process and outcomes both at regional and hospital level.

Even in the most recent experiences, when HSPA is still in its early stages, national institutions are already taking action in certain areas that have been highlighted by this process. Clearly, the expected impact differs according to goals that quality assessment intended to achieve, and to the target population to which the reporting activities are addressed to.

Whom to address quality assessment reporting to?

According to some of the experiences presented in this report, the findings of quality assessment should be presented mainly to policy makers. The main objective of the assessment would be therefore to monitor and manage intervention policies, be they at national or regional level.

Conversely, in some cases the target is the patient population; here, the main goal of the assessment exercise is to improve transparency towards patients. On the other hand, the results of the assessment may be addressed to health professionals and not to the overall public. In some of these cases, web tools were developed with this target population in mind.

Finally, some countries presented a model and set of indicators that were developed to be relevant and of interest to a wide audience, including professionals, the general public, politicians and patient interest groups. Inclusion of stakeholders was essential to ensure ownership and trust in the process.

How are the findings of the quality assessment presented?

The findings of the assessment shall be easy to understand. The way data are published and comparisons are made is critical: it must be attractive, understandable, and adjusted to the different types of audience, as highlighted above. Some countries stated the importance to standardise the presentation, using the same structure over time and across sectors.

The presentation should provide warning signals to facilitate the prioritising of needed actions and of further studies, when needed. In many cases, summary tables and graphs were developed to allow a quick and easy overview of the results and of their interpretation.

The use of composite indicators often raises controversies. Composite indicators may be interesting to assess progress over time on complex issues and to simplify the communication. However, they should be used carefully, because they can be difficult to understand and increase the difficulty of identifying proper remedial action.

We can identify a trend towards higher transparency in presenting the results of the assessments. National institutions often publish – totally or partially – these results in a form

that is understandable for the public and that allows comparison of regions, individual health professionals, and hospitals, at least in selected clinical areas.

General challenges in using quality assessment for policy action

Indicators should ideally be related to concrete themes. This requirement was interpreted with different nuances. When quality assessment was a part of a broader HSPA exercise, the requirement was sometime looser, without requiring that indicators should immediately refer to concrete actions. According to this view, HSPA reports should provide a global evaluation rather than be used to monitor programs.

A common challenge in linking HSPA reporting to policy action lies in how to set targets and standards and in the timeliness of the data and its reporting. The robustness of data is also important so as to serve as an evidence base for policy decisions. However, policy making is a complex activity, which has to be based on several variables and parameters, and not limited to the analysis of performance data.

Quality assessment to support legal or strategic initiatives

In the context of improving the quality of the health system, some countries had the additional goal to implement and monitor the impact of clinical guidelines, as well as the development of clinical orientations, including prescription of medications and medical tests, development of the integrated care pathways for chronic disease and health problems and clinical audits.

Examples of policy initiatives from the governmental level include new legislations and a number of national strategies targeting different areas, such as national cancer plans, strategies addressing chronic disease management, and national initiatives addressing mental health management or patient groups with multimorbidity.

Use of indicators for quality and organisational improvement

When the assessment is done at hospital level, it is often meant to provide tools for hospital to target improvement initiatives. In this case, each hospital has usually access to its results per indicator, showing if it reached or exceed the national target, its evolution over time, and how it compares to the average results of hospitals in the same region and hospitals in the same category. The same mechanism used for hospitals can also be applied to individual health professionals.

Regions or hospital showing critical values in some indicators are often required to plan specific actions addressed to critical indicators and corresponding sectors of healthcare, to be verified by national or regional bodies in the subsequent year. In the case of regions, critical indicators may be related to the objectives and targeted actions planned by the regions and monitored at national level.

If the system is to improve the organisation and management of health services, it can be used as a tool to evaluate managers according to their performance; performance indicators can be

included in CEO schemes in order to better align their objectives with those of the institution and of the healthcare system in general. These results have also been integrated within the budgeting process of health authorities.

Quality assessment for benchmarking

When data on quality in hospitals are collected at centralised level, results may be sent back to healthcare providers yearly as benchmarking information that allows comparison among them. This comparison may be done anonymously or with transparency on the names of the other hospitals.

In some cases, regions use the results of quality assessment to publicly disclose data to all the stakeholders within the regional health system, and thus leverage their reputation. Regions disseminate results through public events, such as press conferences, meetings and internal periodic monitoring. To enable peer review mechanisms, the performance results are discussed in managerial training activities, in order to stimulate feedback from professionals.

Hospitals are in some cases required by law to publish regular quality reports. They usually aim at informing patients and doctors about hospital specialties and services, presenting hospital performance and quality data to the public and providing a basis for benchmarking and quality improvement.

Policy focus group to interpret cross-country variations in quality indicators

A number of countries explicitly draw on international comparative data as a means of placing performance in a given area into a broader context. Such assessments are particularly challenging where comparing a specific indicator across countries. While highlighting variations between countries, it is often difficult for practitioners and policy makers to interpret what a country positioning means in terms of performance, and what policy action should be taken in order to improve performance.

Many factors play a role and need to be considered before drawing conclusions: variations could simply reflect differences in the level of completeness of underlying data or they might arise because of differences in underlying causes such as disease prevalence or differing reporting systems which were previously concealed. Detailed insight into specific indicators is therefore required in order to draw conclusions about the quality of services, and so inform further policy actions.

The report presents the findings of a structured 'policy focus group' with experts across European countries as a means of gathering in-depth insight into the possible reasons for observed variations across countries on selected indicators.

The policy focus group focused on two indicators that are widely recognised as indicators of the quality of care: admissions for diabetes and heart failure specifically. The focus was on

understanding what a particular position of a country in relation to a given indicator may mean, in terms of the quality of care provided.

There is an understanding of the need to disaggregate 'avoidable admissions' and examine specific conditions. However, indicator robustness varies for different diseases. While diabetes admissions are easier to interpret, admissions for heart failure are complex and need further contextual data to allow understanding of the drivers of changes in rates.

The approach and analyses presented here can be seen to serve as a starting point for broader work on mapping international variations in health systems performance assessment across the EU rather than an endpoint in itself.

However, going forward it would appear useful to consider additional or alternative methods to collate and analyse this type of information, including the systematic use of the expertise available in Member States, utilising tools such as key informant surveys, additional focus groups, or expert interviews. Each of these methods will however have considerable resource and time implications, which would need to be weighed up against the additional insights any more in-depth data gathering exercise is likely to provide.

International and within country comparisons can be fraught with difficulties and loopholes. This is due to contextual, health system and population incongruences which have also been seen and discussed in comparing hospital admissions for diabetes and heart failure. On the other hand, it is also evident that performance information derived from international comparisons can provide the basis for further scrutiny and a deeper comprehension of what policies are required to improve the status quo.

While comparative exercises were indeed considered to be very useful in gauging and assessing the state of play of their respective country, they should be used as a platform for further in-depth analysis and enquiry.

Lessons learnt: quality assessment is a piece of a bigger puzzle

Put quality into a broader framework: Quality assessment should provide a global balanced overview which enables aligning views between all actors, especially the field and decision makers. Therefore, the set of quality indicators should remain comprehensive and elaborated enough to assess the system as a whole. The interactions between quality and other dimensions of performance (e.g. efficiency, equity, access) should be further investigated and analysed in future upgraded models: all indicators referring to the quality dimension should be interpreted in a larger context of overall health system performance.

Adopt large boundaries for health systems: It's essential to analyse the quality of the health system as a whole encompassing, ideally: acute, chronic, palliative and mental care; hospital and primary care; health system and also health promotion and health in all policies.

Define the level and goal of quality assessment: Quality measurement can be done with different goals in mind: accountability to the public, to health professionals, quality improvement, introduction of financial incentives, health systems performance assessment, etc. The design of a quality measurement system cannot be independent from the final goal. The use of indicators for monitoring and evaluation has evolved significantly over the past decade. The indicators are used for different purposes and methods for developing indicators are different depending on the purpose. Quality measurement can take place at several different levels.

Define targets and benchmarks: The definition of targets and benchmarks is often problematic and implies degrees of subjective assessments. Referring to international benchmarks can be a way, but it doesn't fully solve the problem: interpreting the results of international comparisons of performance is still under debate, and there are many pitfalls, such as methodological and contextual variations, making meaningful comparisons difficult. In order to inform policy making, the analysis of international comparable data can be complemented by the analysis of national administrative data, registry data, and by the use of tools such as key informant surveys, additional focus groups, or expert interviews. Benchmarking can also be defined at regional level, within one country. Geographical variations may be used to illustrate the need for improvement and target setting

Independence between different assessment phases: Different phases in the process of assessing quality of care should be independent from each other. The institution which analyses and interprets data and information is usually not the same in charge of producing them. More relevantly, the organisation in charge of producing recommendations and monitor their implementation should be independent from the organisation which has to execute them. It is in general of outmost importance to have good knowledge of data and data quality when analysing them.

Put the patient at the centre: Quality assessment models should develop targeted reports for including patients and residents, decision-makers at different levels, and health care operations. In future, greater attention should be given to the assessment of patient experiences, such as patient reported experiences and patient reported outcomes. Health care in most countries still is not sufficiently patient-centred, despite the patients' participation being increasingly emphasised in recent decades. Patient-centred health care implies respect and sensitivity for the specific needs, expectations and values of individual patients. These aspects should be considered in clinical decisions, in information provided to patients, and in the extent to which patients are participating in decisions about their own care.

Lessons learnt: choice of indicators and concerns on data quality

Indicators only indicate: Quality indicators do not *measure* quality but can only indicate that a system *may be delivering* high or poor quality. This implies that indicators have to be read within a broad context – a key principle of HSPA – and no indicator should be read alone.

The publication of a report based on indicators is the starting point of a more in-depth assessment process. The analysis of indicators should be integrated by additional appraisal exercises to gain a better knowledge on the processing underlying the indicators. This can be done for instance through constructive dialogue with a broad range of stakeholders with different competences.

Complement process indicators with outcome indicators: In any widely adopted framework, effectiveness is a main component of quality of care, as often is appropriateness. Many indicators refer to processes; in order to have a comprehensive assessment system, they should be complemented with indicators on outcomes. The use of outcome measures to support the programs of clinical and organisational auditing is therefore essential for ensuring continuous improvement in the quality of health care.

Use of old data reduces their explanatory power: Some figures used in quality assessment can be outdated. This is inherent to the use of administrative data or registries. Validation of international data often requires longer time; therefore international comparison can be sometime done only on data that are few-years old. As a consequence, the late availability of data may imply that a short periodicity between two reports maybe not bring high added value.

Rely on powerful health information systems: A well-functioning health information system is essential to measure quality of care systematically across hospitals, regions, health professionals, and health care units. Information should be relevant, timely available, comparable and reliable. Quality of data is a critical point and should be monitored to identify potential opportunistic behaviours. Efforts should be constantly made to improve data collection without adding new administrative burdens, using for instance universal patient identification numbers, linkages between datasets, eHealth solutions.

Lessons learnt: communicate results and follow them up

Present findings which are easy to read and understand: Once it is collected, analysed and interpreted, information still has to be used. It is essential, for an effective use of information that it is presented in a way which is easy to understand, and that can lead clearly to the selection of relevant actions. This remains valid also if the information is presented to the general public, which should be put in the conditions to interpret it and to decide in full awareness. Reviews of health system performance should occur systematically and continually inform priority setting. International comparisons are potentially useful but sometimes fraught with methodological problems. Therefore data limitations need to be addressed explicitly in any publications, particularly in those that are likely to attract media attention.

Share assessment findings transparently: Health system performance assessment through transparent benchmarking among regions as well as units can contribute to a clearer focus on

the quality and outcomes of health services. The results may become a natural part of the debate on health care and the basis for a number of strategic decisions. The reputation effect can be a strong determinant of clinical, professional and organisational behaviours, but it is important to underline that using indicators to define uncritically incentives or sanctions can cause side effects and opportunism in coding clinical data, which may introduce biases and reduce the validity of the assessments.

Various experiences show that the systematic publication of indicators can have a positive impact on quality of care, especially when these results are used as an instrument of governance of the system, for example in the assessments of the objectives of the CEOs. The positive impact is mainly determined by the effect of public reporting that, even in systems with a high degree of internal competition, generates significant effects on changes in efficiency and quality of care of health services and professional and minimal effects on the choices of patients of the location and type of care.

Present concrete recommendations: Effective reporting should include concrete recommendations to policy makers, for instance to highlight critical areas and point out priorities, also for data collection. Recommendations should therefore be easily translated into actions. Once endorsed, recommendations should also be given the proper follow-up.

Structure of the report

This report is divided in two sections and in four chapters, according to the following outline.

<u>Section 1 – General Findings</u>

This section presents the general findings of the Expert Group in its exercise to identify tools and methodologies to assess quality of care. It is divided in the following four chapters.

Chapter 1 – Background, assumptions, and goals. It presents the background of the work underlying this report, which was carried out by the Expert Group on Health Systems Performance Assessment.

Chapter 2 – Main findings from countries' experiences. It provides a summary of the findings presented by a group of countries which volunteered to share their experiences in assessing quality of care. It also highlights commonalities and differences in the application of different approaches.

Chapter 3 – Interpreting cross-country variation in quality indicators. It explores reasons behind observed variations in a group of countries on selected indicators on healthcare quality. It analysed two specific indicators: hospital admissions for patients with diabetes and with congestive heart failure.

Chapter 4 – Conclusions. It presents the most relevant findings, conclusions and recommendations that can be derived from the analysis carried out in all other parts of the report.

<u>Section 2 – Countries' experiences</u>

This section describes experiences in measuring and assessing quality of care in several countries that volunteered to share their practices. Country cases were presented according to a common template which was agreed in the Expert Group, in order to facilitate the reading and the replication of good practices.

Section 1: GENERAL FINDINGS

Strategies across Europe to assess quality of care

Expert group on health systems performance assessment

I. Background, assumptions, and goals

This chapter provides a brief historic background to explain the genesis of this report, and defines its scope and its objectives.

a.   The context: a brief historic background.

In June 2011, under the Hungarian presidency, the Council adopted a set of conclusions towards modern, responsive and sustainable health systems[1]. As part of this process, the Council invited Member States and Commission to initiate a reflection process aiming to identify effective ways of investing in health, so as to pursue modern, responsive and sustainable health systems.

In response, the Council Working Party on Public Health at Senior Level (WPPHSL) established five working groups on, respectively, health in Europe 2020 and in the European Semester, health and the structural funds, the cost-effective use of medicines, hospital management and integration of care, and measuring and monitoring of health investments.

The fifth group 'measuring and monitoring of health investments' brought together 12 Member States and the European Commission (then DG SANCO), and it was coordinated by Sweden[2]. When the reflection process ended in 2014, the working group concluded that the EU could play stronger role in supporting Member States to develop and exchange knowledge on how to monitor and measure the performance of health care systems.

The working group also recommended the formation on an expert group to deal with Health Systems Performance Assessment (HSPA).

The Council Working Party on Public Health at Senior Level acknowledged the recommendations and agreed on the terms of reference for the expert group on HSPA[3]. They included the following objectives:

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[1] http://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/lsa/122395.pdf

[2] The fifth group of the reflection process involved the expert panel on effective ways of investing in health. The panel, on request of the group, prepared an opinion on definition and endorsement of criteria to identify priority areas when assessing the performance of health systems; this usefully fed the debate. The opinion is available here: http://ec.europa.eu/health/expert_panel/opinions/docs/002_criteriaperformancehealthsystems_en.pdf

[3] See Council document 12945/14 of the 9th of September 2014.

1. Provide participating Member States with a forum for exchange of experience on the use of HSPA at national level.

2. Support national policy-makers by identifying tools and methodologies for developing HSPA.

3. Define criteria and procedures for selecting priority areas for HSPA at national level, as well as for selecting priority areas that could be assessed EU-wide in order to illustrate and better understand variations in the performance of national health systems.

4. Intensify EU cooperation with international organisations, in particular the OECD and the WHO.

In autumn 2014, the Commission in cooperation with Sweden activated the expert group on health systems performance assessment (from here on: the Expert Group) inviting all Member States to participate; the OECD, the WHO Regional Office for Europe, and the European Observatory on Health Systems and Policies are permanent members of the Expert Group.

The Expert Group is jointly chaired by Sweden and the European Commission. So far it met six times; three meetings took place in Brussels and three in other European capitals: Stockholm, Berlin, and Rome. This solution permits a deeper insight into Member States' experience and a more effective exchange of practices.

Every meeting follows a similar structure: the morning is dedicated to the presentation and discussion of national cases, while the afternoon is to tackle international issues. These include, for instance, presentations of reports by international organisations and debates on the findings of research projects.

b.   Why a report on quality of care?

In line with its objectives, the Expert Group identified two priority areas where to focus the work of the Expert Group; these were:

- Assessment of quality of care, as a priority for 2015.

- Assessment of the performance of integrated care systems, as the main priority for 2016.

For both topics, the objective of the Expert Group is to identify tools and methodologies to support policy makers in informing decision making.

To optimise the work, and take into account the vast capital of knowledge existing in the field, the Expert Group convened two sub-groups with voluntary participation, addressing quality of care and integrated care respectively. The OECD, the WHO and the European Observatory are active members of both groups.

According to this mandate, the Expert Group started working on the assessment of quality of care, which is the subject of this report.

Knowledge and expertise on the enhancement of quality of care grew globally over decades. However, in spite of this wealth of experience, the challenge often faced by national policy makers is to identify those quality strategies that have positive impact on their health systems.

Even for well-developed health systems that have proper resources, quality remains a serious concern. Often policy makers and citizens face systems that cannot easily achieve the expected outcomes. Wide variations in the quality of provided health-care, both cross-country and within-country also signal the room for improvement in this area.

Health systems in all countries need to optimise the use of resources to meet the needs of the population in a sustainable way. This process of improvement should to be based on sound strategies for quality so that new investments will achieve the best possible results.

c.   What the report on quality of care seeks to achieve

The main objectives of the work on quality of care as identified by the sub-group are:

> To collect and share examples of best practice that have been implemented by Member States, and to make this information available to the whole group
>
> and
>
> To identify ways and approaches by which quality assessment can be used to inform policy making, based on observed good practices at national and sub-national level.

The Expert Group agreed to build on previous work in this area. Furthermore, it agreed that the purpose of this work was primarily to document and share knowledge and experience among participating Member States.

The Expert Group decided to build on definitions and frameworks that are already in the public domain, in particular the approach and framework developed by the OECD.

This report is not intended to compare or benchmark quality of care across countries, regions, or healthcare providers. The goal of the report is rather to support policy makers with examples, tools and methodologies to better understand the state and the evolution of key dimensions of quality, and therefore to take decisions that are based on more solid evidence.

d.   The definition: what do we mean by quality of care?

The literature on quality of care in health is extensive and originated several definitions. It is important to highlight that quality should be defined within the broader framework of performance of health systems. There has been considerable work on the development of

taxonomies and frameworks to acknowledge and capture the multi-domain nature of health care quality[4,5].

A seminal model to assess health services and evaluating quality of care was developed in the second half of last century by Avedis Donabedian, a pioneer in this field. In his model, Donabedian distinguishes three domains where information on quality of care can be derived from: structure, process, and outcomes. The third one refers to the impact healthcare has on the health status of patients; it is therefore a measurement of the effectiveness of health care. The Donabedian model is still at the basis of several frameworks to assess quality of care.

Partially based on the Donabedian model is also the framework developed by the OECD as part of the Health Care Quality Indicators project, which is widely accepted by its member countries. the OECD framework, which is also building on the definition of quality of care as developed by the US Institute of Medicine[6], defines 'good quality care' by means of three core dimensions: effectiveness, safety, and responsiveness (or patient-centeredness)[7]. Additional dimensions considered by the OECD, but not included in their framework are accessibility, efficiency and equity.

This definition of quality of care is in line with other initiatives, like the above mentioned report "Crossing the Quality Chasm", published by the Institute of Medicine in the US in 2001, and the recent joint assessment framework on health, developed by the Social Protection Committee in the EU. Given the wide acceptance of the OECD framework, the Expert Group agreed to use these common domains of quality of care to guide this report.

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[4] Legido-Quigley H, McKee M, Nolte E, Glinos I. Assuring the quality of health care in the European Union. Observatory Studies Series No. 12. Copenhagen: World Health Organization, on behalf of the European Observatory on Health Systems and Policies, 2008

[5] Opinion of the expert panel on effective ways of investing in health on a future EU agenda on quality of health care with a special emphasis on patient safety; the electronic version of this opinion is accessible at the following link: http://ec.europa.eu/health/expert_panel/opinions/docs/006_safety_quality_of_care_en.pdf.

[6] "The degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current medical knowledge".

[7] http://www.oecd.org/els/health-systems/36262363.pdf

Figure 1: the OECD framework for HSPA
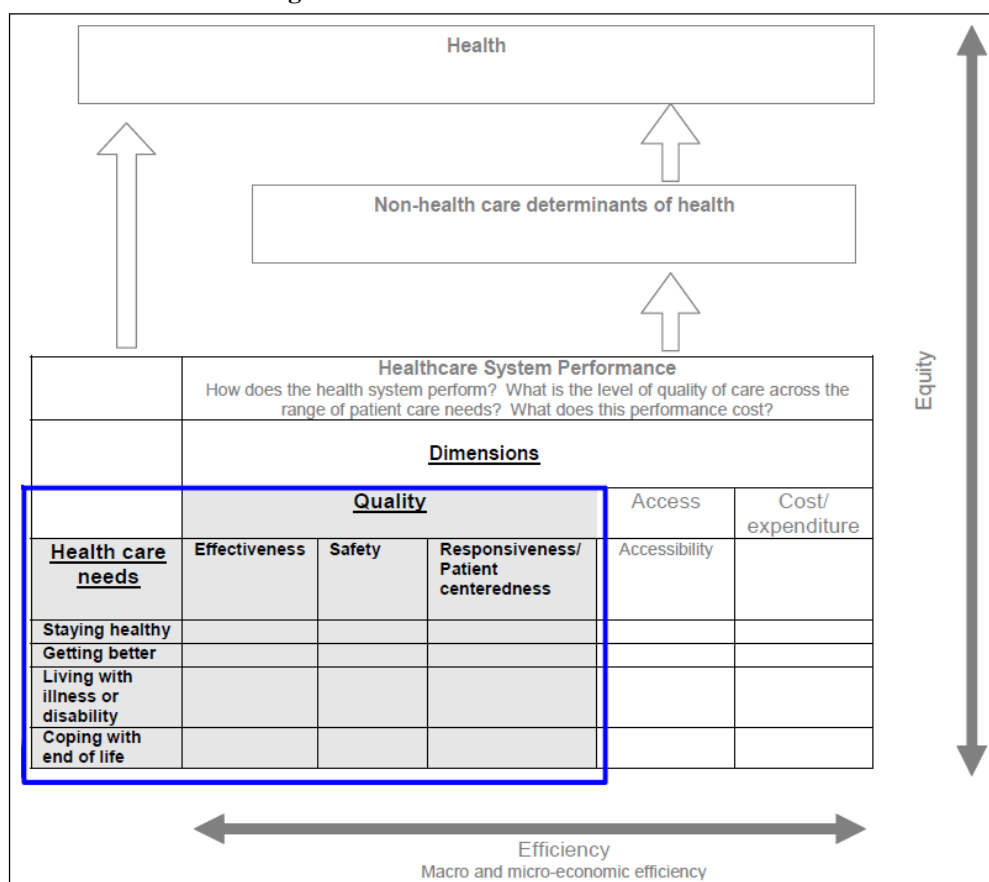
However, it is important to note that different organisations and Member States have adopted slightly different definitions of quality of care, and they have operationalised these in different ways. For example, the Expert Panel on effective ways of investing in health defined high quality health care as "the health care that uses the available and appropriate resources in an efficient way to contribute equitably to the health improvement of individuals and the population as a whole"[8]. In addition to effectiveness, safety and responsiveness, this definition also introduces equity and efficiency as domains of good quality care.

The following working definition, proposed by the WHO, is also shared by its member countries. It suggests that a health system should seek to make improvements in the following six areas or dimensions of quality:

- Effectiveness: delivering health care that is adherent to an evidence base and results in improved health outcomes for individuals and communities, based on need;

- Efficiency: delivering health care in a manner which maximises outcomes per resource used and avoids waste;

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[8] http://ec.europa.eu/health/expert_panel/opinions/docs/006_safety_quality_of_care_en.pdf

- Accessibility: delivering healthcare that is timely, geographically reasonable, and provided in a setting where skills and resources are appropriate to medical need;

- Patient-centeredness: delivering health care which takes into account the preferences and aspirations of individual service users and the cultures of their communities, thus reflecting the extent to which they are well informed about treatment alternatives, are involved in the decision-making process of their own care, and they are treated with empathy and respect;

- Safety: the degree to which health care processes avoid, prevent and ameliorate adverse outcomes or injuries that stem from the processes of health care itself;

- Equity: delivering health care which does not vary in quality because of personal characteristics such as gender, race, ethnicity, geographical location, or socioeconomic status.

Generally, the domains proposed by different organisations or frameworks are fairly similar, with the most common domains of quality in healthcare relating to effectiveness, efficiency and access, followed by safety, patient focus or responsiveness, and equity[9].

Figure 2: A simplified version of OECD framework
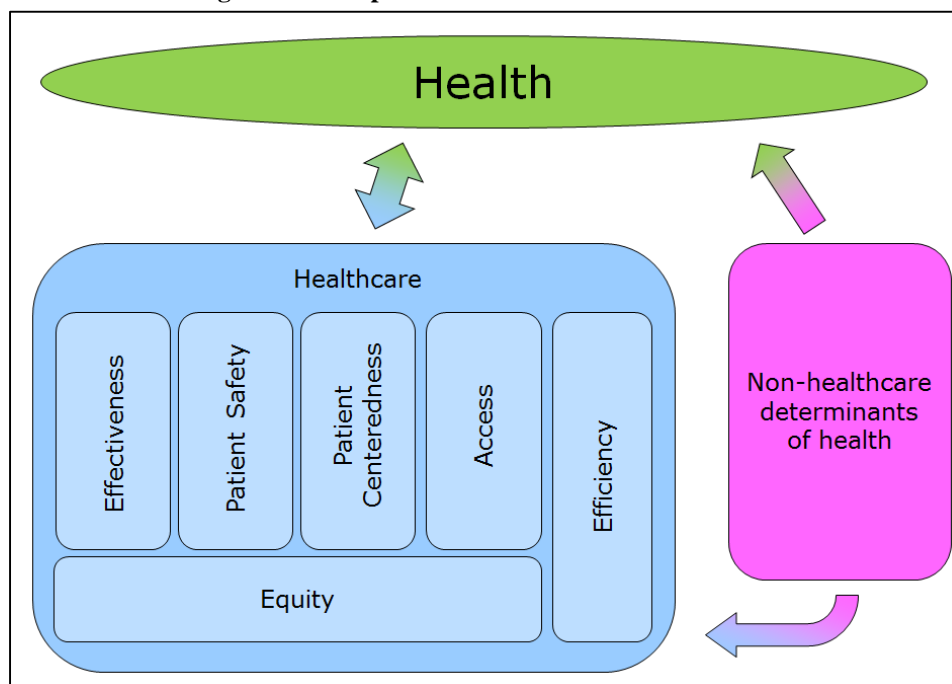
Different approaches very much reflect differences in the aims and outcomes that member states and organisations seek to achieve. Ultimately, the choice of definition will depend on

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9   Nolte E, Roland M, Damberg CL, Mattke S, Cacace M, Goshev S, Brereton L, Conklin A, Hiatt L, Quigley DD, Lovejoy SL. Informing the development of a resource allocation framework in the German healthcare system. Santa Monica: RAND Corporation, 2011.

the specific context, intended use and acceptability, as will the approach to operationalise the concept for practical use. Furthermore, as societies and health systems change, the definition of good quality health care is also changing over time.

II. Main findings from countries' experiences

This chapter is presenting the common findings from the experiences sent by nine volunteer countries (Belgium, Finland, France, Germany, Italy, Malta, Norway, Portugal, and Sweden). The contributions are presented according to a template agreed by the sub-group on quality of care, which corresponds to the headings of the components of this chapter. The full contributions from countries are presented in the second section of this report.

a. Background

All countries that presented their experiences in this report have policies on quality measurement or quality assurance, but there are differences in the way they are perceived or used. Sometimes quality is under a broader HSPA activity and can be used, for instance, for priority setting; in other cases it can be linked to pay-for-performance schemes.

Overall, there are a number of contextual factors – including historical ones – that explain differences in the scope and legal basis for quality assessment in healthcare. The first part of this chapter briefly summarises and reflects on some of these factors.

Historical factors

Historically, most quality assurance programmes started from hospitals management (Belgium, France, Italy, Finland), while in some case they expanded in primary care (Belgium). In some instances quality assurance systems that had been developed by medical scientific societies since the 1970s had later transformed to national programmes (Germany); quality registries on different diseases also started by initiative from specialists (Sweden). Furthermore, patient organisations with large memberships have contributed significantly to the development of treatment for certain diseases (Finland).

Inspiration from international initiatives

The adoption of the Tallinn Charter in 2008 represented an important milestone to improve quality and performance reporting. OECD and EU projects to develop quality management, quality indicators and patient safety have also been an inspiration for national work (Finland) or other regional cooperation initiatives i.e. the Nordic health care quality and patient safety indicators under the Nordic Council of Ministers. Quality in health care in Malta came to the forefront for the first time when Malta participated in an international hospital benchmarking exercise in 2003-4.

Differences in legal basis

In some countries quality monitoring is a mandatory activity that origins from national legislation (France). Other countries developed quality assessment activities in response to a mandate provided for by a strategy at national level (Portugal), or as a scaling up of procedures that were originally decentralised (Finland, Sweden).

In several Member States HSPA activities are not developed to comply with legal requirements, but rather to introduce voluntarily elements of accountability or of better governance of the health systems or sectors of it.

Differences on the scope

In some cases quality monitoring aimed at verifying the implementation and regional compliance with the provision of national standards (Italy) or as a basis for regions to identify priorities and to set challenging targets (Finland) and to enable peer review mechanisms, therefore seen as a tool to evaluate managers according to their performance.

Quality assessments have also been integrated within the budgeting process of health authorities and hospitals (Italy), while a pilot study on financial incentive for improvement of quality and safety of care was launched in 2012 before its generalisation in 2016 (France); a research programme on integration of different quality assessment monitoring systems and effectiveness in improving quality of care has also been launched (Italy). In some instance, quality measurement aimed to detect and prevent unintended consequences following the introduction of a hospital reimbursement scheme based on diagnosis-related groups (Germany).

Differences in models

Various kinds of models are in use between and within countries to improve quality management, including the ISO quality management system, the EFQM award, the Common Assessment Framework (CAF), the Lean quality method, and the Social and Health Quality Service SHQS programme (Finland). National investment in so-called 'national quality registers', which were built on existing disease-specific quality registers, has also been promoted (Sweden).

b. Dimensions considered

Most of the Member States have developed a conceptual framework, but are using different approaches and dimensions. For example, in Belgium the framework includes all domains of the health system and definition of quality is embedded into performance assessment. It encompasses appropriateness, effectiveness, safety, continuity and patient centeredness. In a broader view, several aspects of quality are also covered by other dimensions, like misuse, overuse, and underuse. In this approach, quality is closely linked to accessibility, efficiency and equity.

In Germany the Federal Joint Committee has not agreed an explicit quality of care model or framework that should be used, but six dimensions of high quality care (safety, effectiveness, patient-centeredness, timeliness, efficiency and equity) aim at assessing quality of care which can be categorised according to Donabedian's concept. It is worth noting, however, that the dimensions of efficiency and equity have been limited so far and are considered by programmes outside the Federal Joint Committee's area of work. In Germany, equity issues in health are considered by programmes outside the Federal Joint Committee's area of work Quality indicators used in the programme can also be categorised into indicators assessing structure, process and outcome of care according to Donabedian's concept.

In Malta, the Donabedian framework was chosen to anchor the methodological process and the final model reflects the input, process and output components of the Donabedian framework. Quality is considered as one of these dimensions and incorporates 10 national indicators. Other quality related dimensions such as efficiency, access and responsiveness also contain quality measures and indicators.

In Portugal, the National Strategy aimed to promote and disseminate, in institutions providing healthcare, a culture of continuous improvement of the quality. Actions include areas on clinical guidelines to help health professionals, on clinical and organizational quality of units providing health care, while the creation of a national system for notification of adverse events and incidents, is not punitive, but rather has an educational in learning with the error character.

The schemes developed in Italy have a broad scope focusing on indicators from prevention (vaccination coverage, access to cancer screening programs, controls for animal and food safety), hospital (general efficiency and outcomes of specific processes) outpatient care: (ie home care, volume of specific diagnostic services) and emergency care (efficiency of the territorial system). Similarly, at regional level, the performance evaluation system (PES) encompasses a large set of indicators that are up-to-date because they are calculated and disseminated in a six-month period. The indicators are grouped into 60 indexes and classified in six dimensions (population health, regional strategy compliance, quality/ appropriateness/ continuity of care, patient safety and managing supply to match demand, patient / staff satisfaction and efficiency/financial performance.

In Sweden, international models have inspired to the development of the concept "Good health care"– a concept that the National Board of Health and Welfare introduced in 2005. It serves as a framework for HSPA when it comes to how processes, results and costs of health care can be monitored. The concept or framework defines six main areas or aims for health care delivery. These aims were explicitly defined in the regulations for management systems for quality and patient safety in health care, a system that now is revised. The model is also application of the OECD framework for quality assessment.

c. Focus of the evaluation.

Differences exist on the focus of the evaluation from national to more regional or local level. For example, in Portugal actions include projects that are evaluated by different methods, at all levels, national, regional and local. The evaluations performed take into consideration both health date and demography in order to identify patterns and to estimate incidence and prevalence of disease.

Health care in Sweden is decentralized to a major degree: thus the development of HSPA has increasingly developed based on extensive cooperation national level, the county councils and the medical professions. Both open regional comparisons and evaluations present data on county council and hospital level, and in certain cases display distribution related to education level and country of birth. The main focus, however, has so far been primarily on the county council population level.

In Finland, there is no comprehensive national system of disease-specific quality registers. Instead, the work has been largely done in individual units, hospitals or hospital districts, resulting in a situation where the indicators and monitoring mechanisms for several diseases vary across the country, defeating efforts to compare treatment practices.

In Italy, LEA (*Livelli Essenziali di Assistenza* – Essential Levels of Healthcare) Grid is implemented for all Italian regions, ensuring evaluation of homogenous LEA provision for all Italian citizens. All indicators are measured at the regional level and are calculated with reference to the resident population, with the exception of hospital indicators of efficiency and appropriateness. The PNE (*Progetto Nazionale Esiti* – National Outcomes Programme) evaluates both the health care production function (hospitals) and the health care protection function (local health units). PNE investigates the heterogeneity of access to health care across both geographical areas and hospitals, focusing on those health care interventions for which evidence of effectiveness is available.

In Germany the focus of the national external, data-based quality assurance programme is the hospital level. Data on quality indicators for interventions or diseases in about 30 selected clinical areas are collected.

In France the report focus only on hospitals' quality indicators. The level used for collecting and reporting is the facility. However, beyond hospitals' quality indicators used to reward hospital ("IFAQ"), there is a longstanding incentive scheme for primary care professionals, ("ROSP" that means : individual payment based on public health and other performance objectives), based on individualized public health indicators. Quality can therefore be evaluated at a very close level (physician / health facility), taking now into account patient's perspective ("i- satis" which is an annual inpatient satisfaction survey for each public or private hospital), due to the development of a comprehensive information system managed under the authority of the Health ministry.

d. Methodology adopted

What to measure with the indicators?

The countries that presented their experiences have somehow different goals and rely on different information systems; therefore they use different types of indicators when assessing quality of care. At first approximation, indicators can be grouped in three classes: outcome indicators, process indicators, and volume indicators[10].

The outcome indicators measure the result of a process of care in terms of clinical outcomes (e.g. mortality, morbidity, complications, and hospitalisation). The process indicators measure the adherence of the care process to the standards of best clinical practice based on evidence; they can be considered proxies of health outcomes. Volume indicators measure health interventions or clinical conditions for which there is scientific evidence of association between volume of care and clinical outcomes. Volume indicators related to population also measure appropriateness (e.g. geographic variation)

How were indicators selected?

In almost all cases, the selection of indicators was done through standard methodology, which usually included a literature review (often including sets of indicators developed by international organisations) and the involvement of external independent experts, scientific societies, senior health managers, senior clinicians and health care professionals and academics. Involvement of health professionals is usually reported to be very valuable to ensure high quality of the exercise and create ownership among stakeholders[11].

Peer reviews of the set of indicators took different forms: some countries used Delphi methods (in one or two rounds)[12] or tailored procedure with multidisciplinary panels[13]. In organising these reviews countries usually reduce the risk of biases by requiring experts to declare their potential conflicts of interest.

In the case of a newly established HSPA system, it was established an expert working group to develop framework and indicators by analysing current international health system performance frameworks and testing them for their appropriateness to the national health care setting. The model was then tested using a discussion panel of national and international experts[14].

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[10] See also the experience from Italy for the use of a fourth class of indicators, based on "ambulatory care sensitive conditions" (ACSC), which are calculated for conditions for which the risk of hospitalisation can be reduced, either through better outpatient management of chronic diseases or through more timely diagnosis and effective treatment of acute conditions.

[11] Detailed descriptions of the methodology adopted in selecting the indicators are presented in the experiences from Belgium, France, Germany, Italy, and Malta.

[12] See the experience from Belgium and France.

[13] See the German experience on the use of a tailored RAND/UCLA procedure.

[14] See the experience from Malta for details.

Characteristics of the indicators

Indicators selected in the countries experiences are usually required to meet common characteristics, such as validity, reliability, relevance, sensibility, sensitivity, interpretability, feasibility. In some cases the indicators were requested by existing national policies and strategies, to provide tools to monitor them[15].

Often indicators were chosen keeping in mind the burden for data collection; preference was then given to the use of existing information that exploited existing data sources such as national registries or administrative data[16]. Some countries however highlighted the trade-off between the burden of data collection and the cost of producing the indicators on one hand, and the validity of the measurement on the other hand[17].

Similar considerations were made about the choice between the use of national and international indicators. National indicators are usually described as tailored, specific to the reality of the country, and reliable. On the other hand, international indicators provide with the possibility to benchmark with other countries and spot problematic areas and room for improvement. This opportunity is particularly interesting for smaller countries, which have difficulties to find benchmarks at national level[18].

Which form for the set of indicators?

Some countries decided to go for a small set of indicators, in order to be manageable for decision makers[19]. In this case, the selection of indicators was usually done in a multi-step approach; experts first agreed on a large set of indicators, and then narrowed it down to a smaller set, often through several iterations.

In some cases countries decided to adopt a core group of indicators to be provided by all information units – being them hospitals or regions – giving them the possibility to provide additional indicators, to be chosen according to specific needs and availability[20].

The set of indicators should in principle be stable through time, to ensure comparability of time series. However, several countries established mechanisms to regularly update and review the set, for instance to consider new clinical areas, procedures or diseases that are included into national programmes and which need to be assessed[21].

In general, any increase in the dimension of the set of indicators should not compromise their quality; in this case, quantity is not necessarily an advantage.

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[15] See for instance the experiences from Malta and Finland.
[16] See in particular the experience from Sweden.
[17] See for instance the experience from France.
[18] At this regard see the considerations done in the experiences from Belgium and Malta.
[19] See in particular the experiences from Belgium and Italy.
[20] See for instance the IRPES experience from Italy.
[21] See for instance the experience from Germany.

Some countries developed tailored graphic interfaces to present indicators in a more readable and effective way[22].

Simple or 'upgraded' indicators?

Several countries reflected on the use of composite indicators in complement of simple indicators[23]. When composite indicators are used, there has been a deep attention in the methodology used to calculate the weights of the different components[24].

Most countries calculate risk-adjustment to various degrees, to account for patient-related factors such as age, sex and comorbidity that influence the outcomes of healthcare. A first step towards risk-adjustment is often taken by carefully defining the target population from which a quality indicator is being collected. This increases the comparability of cases and, subsequently, results between hospitals. Stratification methods and then subgroup analysis is sometimes carried out for subsets of indicators[25]. In some case, stratification was done by socio-economic groups in order to assess equity[26].

Problems with missing data were considered as particularly important in when indicators are used to introduce an incentive system, as shown in the next paragraph. A solution which was applied was to assign negative score in case of missing data, in order to provide a negative incentive to provide incomplete data sets[27].

Use of indicators for quality and organisational improvement

In some countries, quality measurement was used to assess quality in hospitals and establish incentive mechanisms for quality improvement, or organisational improvement.

The guiding principles of these quality-improvement programmes were often to develop measures to compare hospitals, to reward both effort and excellence, to ensure coherence and consistency with other policies regarding quality of care, to limit the cost of the programme for the hospitals and the administration, and to use only positive incentive without financial penalty. If an accreditation mechanism was present, it may be linked to the incentive structure[28].

In case of organisational improvement models, indicators were defined by endorsing a "managerial" perspective. The rationale behind the selection of each indicator was the informational contribution it can offer the managers and policy makers. Indicators were usually defined in regular meetings with regional representatives that include both managers

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[22] See for instance the experience from Italy.
[23] Composite indicators are discussed also in the chapter on 'policy use'.
[24] See for instance the experience from France.
[25] See the experiences from Germany and Italy for additional information.
[26] See the experience from Sweden and Belgium.
[27] See the LEA experience from Italy
[28] See for instance the experiences from France and Germany.

and clinicians, to ensure their ownership on the process[29]. These models permit to sum indicators at regional level, to allow regional benchmarking.

e. Quality of data

Quality of data in relation to their sources

Two main approaches emerged from the analysis of the national contributions. In most cases data are collected from administrative databases that were in place for different purposes (administrative registries, hospital discharges, health insurance data sets, etc.), but in some cases the data collection was set up specifically for quality assurance purposes.

When data are mainly collected from administrative databases routinely available (e.g. in administrative databases or in national registries), their use entails no additional cost for data collection and solves many problems like comparability, completeness, reliability and trends[30]. In fact, data from national registries (such as the cancer registry) are robust and comprehensive, whilst routinely collected data from hospitals and other service users is also deemed reliable[31].

Moreover, in social insurance systems, the use of billing information implies that controls and audits are regularly made on those data and that risk of gamin is monitored[32]. The case is similar in national health systems where the data collected by hospital information systems are checked and validated by tax registers, which gather fiscal information on patients and cross-check data[33].

On the other hand, in some countries data are collected specifically for quality assurance purposes; in these cases data that are primarily collected for other purposes (e.g. administrative data) can be used to complement them[34].

In any case, utilisation data may poorly reflect health outcomes or quality; for instance, indicators of quality of life usually do not exist in administrative data and should be collected by other means (health interview survey, patient experience survey, quality register…).

The collection of healthcare quality indicators may result in a resource-intensive exercise, Any health information strategy should take into consideration the burden that collecting indicators implies in terms of human and financial resources.

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[29] See for instance the IRPES experience from Italy.
[30] See for instance experiences from Belgium and Finland.
[31] See for instance the experience from Malta.
[32] See for instance the experiences from Belgium and Italy.
[33] See for instance the experience from the outcome evaluation programme in Italy.
[34] See for instance the experience from Germany.

Checking the quality of data

Quality of data is usually checked routinely in all countries that presented their experiences in this report. In some countries, in particular when the assessment is done at hospital level, data validation programmes for correctness and completeness take place in two steps.

The first step occurs during the data collection process with quality checks procedures, including statistical testing on plausibility, record completeness (data completeness of individual cases) and case completeness rate.

The second one takes place at a later stage, usually before the publication of the results. This second step can involve audits in a sample of hospitals which can be selected randomly, or by health authorities, or on the basis of the anomalous values, or in a combination of the three approaches[35].

In one case, the second step of the validation procedure may lead to an appraisal process ("*structured dialogue*") if results are outside the normal range. This *structured dialogue* is considered to be essential for finally deciding whether there is deficient quality of care or not, and for finding the cause of deficient quality if present. If deficient quality of care is identified, hospitals are supported, measures are introduced to improve quality of care and targets for quality improvement are agreed[36].

When the assessment is linked to incentive mechanisms (accreditation or bonus financial remuneration) a tighter control of the validity of data and sanctions could be enforced to prevent gaming. In this case, hospitals could be controlled on one or more indicators, and even excluded from the incentive mechanisms programme if the data were not validated[37].

A further check on the quality of data is the 'case completeness rate' (number of transmitted cases / expected cases), which can be measured at hospital level and for clinical areas. The check of the case completeness rate can be accompanied by financial penalties if the hospital falls below a specified threshold[38].

Finally, the collection of data can be accompanied by assessment tools for risk management purposes. For instance, incident reports can lead to the investigation of serious patient safety incidents[39].

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[35] See experiences from France, Germany, and Italy for details.

[36] See the experience from Germany. Quality indicators do not measure quality but can only indicate that there may be poor quality. That's why data analysis of the external, data-based quality assurance programme is followed by an appraisal process (the structured dialogue) if results are outside the normal range. Same happens for Italy where hospitals are called to auditing data for their quality as a first step.

[37] See the experience from France.

[38] See the experience from Germany.

[39] See the for instance the experience from Finland.

Challenges related to quality of data.

The greatest challenge reported by some countries was in those areas where no data was readily available. However, for some countries the selection of indicators is independent from the availability of underlying data[40]. This choice is presented as an important signal to improve data collection. In fact, in this case figures are clearly not reported, but the indicators are presented as "under development", or with the clarification "data will be soon available".

Some countries report challenges also when data were not immediately comparable with international sources. The issue of comparability with international sources was more serious in small countries, which cannot define internally comparable benchmarks[41].

Another difficulty faced by our small size countries is due to small denominator for certain indicators (e.g. maternal mortality ratio and PSI in general), which may lead to large time-trend variations, requiring careful interpretation of the data. In addition, some data and results could be traced to source, hence creating confidentiality and data protection issues[42].

Furthermore, in some cases keeping data collection separated from their analysis and interpretation was reported as a challenge. Again, especially in small countries, where all resources and skills reside within the Ministry for Health, it is difficult to ensure independence between analysis and interpretation. This can be at least partly overcome by involving external auditors at different stages of the process.

Finally, being part of EU research projects on HSPA and on quality and outcomes measurement was reported as a valuable experience that helped increase the quality of data[43].

f. Use for policy actions

The countries that presented their experiences in this report recognise that quality assessment has had an effective impact in shaping policy actions. Proper assessment is deemed essential to highlight areas with lack of information and, more relevantly, the existence of differences in structure, process and outcomes both at regional and hospital level.

Even in the most recent experiences, when HSPA is still in its early stages, national institutions are already taking action in certain areas that have been highlighted by this process[44].

Clearly, the expected impact differs according to goals that quality assessment intended to achieve, and to the target population to which the reporting activities are addressed to. In the rest of this chapter some of these differences will be examined.

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[40] See for instance the experience from Belgium.
[41] See for instance the experience from Malta.
[42] See the experience from Malta.
[43] See the experience from Finland.
[44] On this regard, see the experience from Malta and Belgium.

Whom to address quality assessment reporting to?

According to some of the experiences presented in this report, the findings of quality assessment should be presented mainly to policy makers. The main objective of the assessment would be therefore to monitor and manage intervention policies, be they at national or regional level. However, also in this case, quality assessment (and more generally HSPA) could be an excellent tool to align priorities and make commitments to solve problems. Therefore, the content of certain dimensions can be communicated to specific actors[45].

Conversely, in some cases the target is the patient population; here, the main goal of the assessment exercise is to improve transparency towards patients[46]. On the other hand, the results of the assessment may be addressed to health professionals and not to the overall public. In some of these cases, web tools were developed with this target population in mind[47].

Finally, some countries presented a model and set of indicators that were developed to be relevant and of interest to a wide audience, including professionals, the general public, politicians and patient interest groups. Inclusion of stakeholders was essential to ensure ownership and trust in the process[48].

How are the findings of the quality assessment presented?

Most countries agreed that the findings of the assessment shall be easy to understand. The way data are published and comparisons are made is critical: it must be attractive, understandable, and adjusted to the different types of audience, as highlighted above. Some countries stated the importance to standardise the presentation, using the same structure over time and across sectors[49].

The presentation should provide warning signals to facilitate the prioritising of needed actions and of further studies, when needed. In many cases, summary tables and graphs were developed to allow a quick and easy overview of the results and of their interpretation[50].

The use of composite indicators often raises controversies. Composite indicators may be interesting to assess progress over time on complex issues and to simplify the communication. However, they should be used carefully, because they can be difficult to understand and increase the difficulty of identifying proper remedial action. For some countries, composite

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[45] See for instance the experience from Belgium, where the analyses of effectiveness and appropriateness are dedicated to health workers, while financial access is specific to policy makers.
[46] See considerations presented in the experiences from France and Sweden.
[47] See for instance the outcomes evaluation programme in the experience from Italy.
[48] See for instance the experience from Malta.
[49] See for instance the experience from Belgium.
[50] See for instance the experiences from Belgium and Italy.

indicators were presented only when other indicators on the same topic were available for a joint interpretation[51].

From the experiences analysed in this report, we can identify a trend towards higher transparency in presenting the results of the assessments. National institutions often publish – totally or partially – these results in a form that is understandable for the public and that allows comparison of regions, individual health professionals, and hospitals, at least in selected clinical areas[52].

General challenges in using quality assessment for policy action

Overall, all countries agreed that indicators should ideally be related to concrete themes. This requirement was interpreted with different nuances. When quality assessment was a part of a broader HSPA exercise, the requirement was sometime looser, without requiring that indicators should immediately refer to concrete actions. According to this view, HSPA reports should provide a global evaluation rather than be used to monitor programs.

A common challenge in linking HSPA reporting to policy action lies in how to set targets and standards and in the timeliness of the data and its reporting. The robustness of data is also important so as to serve as an evidence base for policy decisions. However, it was stressed that policy making is a complex activity, which have to be based on several variables and parameters, and not limited to the analysis of performance data[53].

Quality assessment to support legal or strategic initiatives

In the context of improving the quality of the health system, some countries had the additional goal to implement and monitor the impact of clinical guidelines, as well as the development of clinical orientations, including prescription of medications and medical tests, development of the integrated care pathways for chronic disease and health problems and clinical audits[54].

Examples of policy initiatives from the governmental level include new legislations – for instance to emphasise patents perspective and rights – and also a number of national strategies targeting different areas, such as national cancer plans, strategies addressing chronic disease management, and national initiatives addressing mental health management or patient groups with multimorbidity[55].

Use of indicators for quality and organisational improvement

When the assessment is done at hospital level, it is often meant to provide tools for hospital to target improvement initiatives. In this case, each hospital has usually access to its results per

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[51] See the experience from Belgium.
[52] See for instance the IQTiG experience in Germany and the Belgian experience with feedbacks from GPs.
[53] See for instance the experience form Malta for further considerations on this topic.
[54] See for instance the experience from Portugal.
[55] See for instance the experience from Sweden.

indicator, showing if it reached or exceed the national target, its evolution over time, and how it compares to the average results of hospitals in the same region and hospitals in the same category[56]. The same mechanism used for hospitals can also be applied to individual health professionals[57].

Regions or hospital showing critical values in some indicators are often required to plan specific actions addressed to critical indicators and corresponding sectors of healthcare, to be verified by national or regional bodies in the subsequent year. In the case of regions, critical indicators may be related to the objectives and targeted actions planned by the regions and monitored at national level[58].

If the system is to improve the organisation and management of health services, it can be used as a tool to evaluate managers according to their performance; performance indicators can be included in CEO schemes in order to better align their objectives with those of the institution and of the healthcare system in general. These results have also been integrated within the budgeting process of health authorities[59]. Again, the same system can be applied to benchmark across individual health professionals[60].

Quality assessment for benchmarking

When data on quality in hospitals are collected at centralised level, results may be sent back to healthcare providers yearly as benchmarking information that allows comparison among them. This comparison may be done anonymously or with transparency on the names of the other hospitals[61].

In some cases, regions use the results of quality assessment as an improvement tool to leverage their reputation, by publicly disclosing data to all the stakeholders within the regional health system. Regions disseminate results through public events, such as press conferences, meetings and internal periodic monitoring. To enable peer review mechanisms, the performance results are discussed in contexts such as managerial training activities, in order to stimulate feedback from professionals[62].

Hospitals are in some cases required by law to publish a quality report at regular intervals (e.g. yearly). These reports usually aim at informing patients and doctors about hospital

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[56] See for instance the experience from France.
[57] See for instance the experience with GPs in Belgium.
[58] See the experiences from Germany to have more details on the analysis at hospital level and from Italy for the analysis at regional and hospital level. In particular, a recent law has been approved in Italy where hospitals are called to adopt a requalification programme in case their outcomes on key indicators are poor.
[59] See in particular the IRPES experience from Italy.
[60] See for instance the experience with GPs in Belgium.
[61] See for instance the experience from Germany.
[62] See the IRPES experience from Italy.

specialties and services, presenting hospital performance and quality data to the public and providing a basis for benchmarking and quality improvement[63].

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[63] See for instance the experience from Germany and Italy.

III. Interpreting cross-country variation in quality indicators[64]

This chapter aims to provide a better understanding of the complexities involved in using international indicator comparisons to inform policy making. It explores reasons behind observed variations in different countries on selected indicators of health care quality as a means to gain further insight into this phenomenon.

It uses two specific indicators: hospital admissions for patients with diabetes and hospital admissions for patients with heart failure. The analysis draws on insights from experts from 13 European countries that took part in a structured policy focus group organised by the Expert Group.

a. Background

A number of countries explicitly draw on international comparative data as a means of placing performance in a given area into a broader context.[1, 2] However, often such comparative assessment fails to appropriately address the question of whether observed benchmarks are 'good' or 'bad'. In addition, some results may be considered to be 'good' when compared to other countries, but this does not necessarily mean that they are desirable within the own country context.

Such assessments are particularly challenging where comparing a specific indicator across countries. While highlighting variations between countries, it is often difficult for practitioners and policy makers to interpret what a country positioning means in terms of performance, and what policy action should be taken in order to improve performance.

Many factors play a role and need to be considered before drawing conclusions: variations could simply reflect differences in the level of completeness of underlying data or they might arise because of differences in underlying causes such as disease prevalence or differing reporting systems which were previously concealed. Detailed insight into specific indicators is therefore required in order to draw conclusions about the quality of services, and so inform further policy actions.

In the following sections we describe the reasoning for doing so. We then explore admissions for diabetes and heart failure specifically, assessing the national and international evidence that has sought to explain observed trends and patterns within and between countries. In conclusion of this chapter we illustrate policy actions, initiatives and examples of good

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[64] This chapter was written by Marina Karanikolos, Kenneth Grech, and Ellen Nolte. Niek Klazinga contributed to the organisation and the facilitation of the policy focus group, together with the three authors.

practices, as well as challenges that countries face when interpreting performance data generally and data on admissions for diabetes and heart failure specifically.

The analyses presented in this chapter should be seen to be exploratory rather than confirmatory. This is in part because of the time constraints within which this work was undertaken. More importantly however, it provided an opportunity to test the feasibility and practicality of undertaking a structured 'policy focus group' with experts across EU Member States as a means of gathering in-depth insight into the possible reasons for observed variations across countries on selected indicators.

Focus groups are frequently used in qualitative research to explore topics that are not easy to observe or that are sensitive, to ascertain perspectives and experiences from people on a topic in a short time span, or to gather preliminary data and clarify findings from another method, among other uses (see also Appendix I).

The policy focus group explicitly did not seek to benchmark countries' experiences. Instead, its focus was on understanding what a particular position of a country in relation to a given indicator may mean, in terms of the quality of care provided. It sought to tease out the sometimes subtle differences that may explain observed variations and then explore what lessons might be learned from the insights gathered, both in terms of informing policy development in the countries concerned as well as cross-national policy learning by means of exchanging examples of good practices.

Overall, this exercise can be seen to serve as a starting point for broader work on mapping international variations in health systems performance assessment across the EU, rather than as an endpoint in itself.

This chapter is complemented by a sound theoretical analysis presented in Annex I of this report. There we provide a rapid overview of the published evidence on health system- and population- related factors that have been found to be associated with admissions for conditions such as diabetes, asthma, COPD and heart failure that are considered 'avoidable' if managed effectively in primary care. We also draw on a rapid review of the peer-reviewed and grey literature. Finally, Appendix I presents a few examples of the use of these indicators to evaluate quality and to inform policy making.

b. Why a focus on hospital admissions for patients with diabetes or with heart failure?

European countries use a wide range of indicators to assess the quality of care provided by their systems. The selection of indicators for the policy focus group had to be pragmatic, while remaining theoretically solid. We adopted a set of well-established criteria, which is

presented below together with the analysis that lead to the selection of hospital admissions for patients with diabetes and hospital admissions for patients with heart failure[65].

1. There is a sizeable individual, social and economic burden associated with the condition captured by the indicator

Diabetes and heart failure each present a substantial health, social and economic burden to societies in Europe (see Box 1 in Appendix I for a detailed background).

2. The indicator is routinely reported as a proxy for the quality of care within and across EU countries and in international comparisons;

Hospital admissions for patients with diabetes and heart failure are routinely reported within EU countries' health system performance frameworks as part of their health care quality assessment, along with hospital admissions for asthma and chronic obstructive pulmonary disease (COPD).[8-11] They are also routinely used as indicators of the performance of primary care systems by OECD, as shown in a recent report on cardiovascular disease and diabetes quality of care.[12] However, the OECD report mainly focuses on coronary heart disease and stroke, while the present chapter takes the opportunity to explore further the differences in care for diabetes and heart failure across the EU.

3. There is international agreement about the suitability of the indicator as a measure of (aspects of) the quality of care;

There is international agreement about the suitability of hospital admissions for patients with diabetes or with heart failure as a measure of the quality of care. This includes the OECD Health Care Quality Indicators project (HCQI), which includes admissions for diabetes and for heart failure, together with hospital admissions for asthma and COPD, as indicators of the quality of primary care.[13]

4. The indicator can be seen to be fairly robust, i.e. it is clearly defined and the quality of the underlying data can be seen to be sufficiently acceptable, although allowing for some degree of variation;

Drawing on a structured expert review process, the OECD considered these indicators, along with vaccination rates for pertussis and measles for children, and for influenza for older people, as valid, internationally comparable indicators of the quality of primary care.

5. There is sufficient published evidence on the indicator that allows assessment of the key drivers behind variations on the indicator within and between countries.

There is a considerable evidence-base around the use of hospital admissions for selected chronic conditions such as diabetes and heart failure as proxy measures of the quality of

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[65] Annex I presents more elaborated considerations on the use of these two indicators, corroborated by a brief overview of the evidence.

primary care. Frequently classified as 'avoidable' hospital admissions, there is an expectation that a high performing primary care system should be able to prevent acute deterioration in people living with conditions such as diabetes, heart failure, asthma or COPD and so prevent their admission to hospital.[12] For the same reason, hospital admissions for chronic conditions such as diabetes and heart failure are often also referred as 'ambulatory (or 'primary') care sensitive conditions' (ACSCs),[14] and systematically applied as a means to identify the weaknesses in primary care and inform relevant policy action to strengthen the system.[15,16]

c. Hospital admissions for diabetes: Explaining variation among European countries

The data

Data from the OECD suggest that, in 2013, there were almost 7-fold variations in the admission rate for diabetes among countries across Europe (Figure 3).[12] In 2013 (or latest year available) age-adjusted admission rates for diabetes varied from 44 per 100,000 in Italy and Switzerland to 231 and 296 per 100,000 in Poland and Austria respectively.

With the exception of Poland, Latvia and Slovenia, most countries have seen a reduction in diabetes admission rates over the past five years. Countries such as Italy, Finland and Switzerland saw a decline of more than 30% in admission rates for diabetes between 2007 and 2013.

Figure 3: Diabetes admissions in European countries, 2007 and 2013 (or latest data available)

Diabetes admission , ASR per 100,000 population and % change in 2007-2013
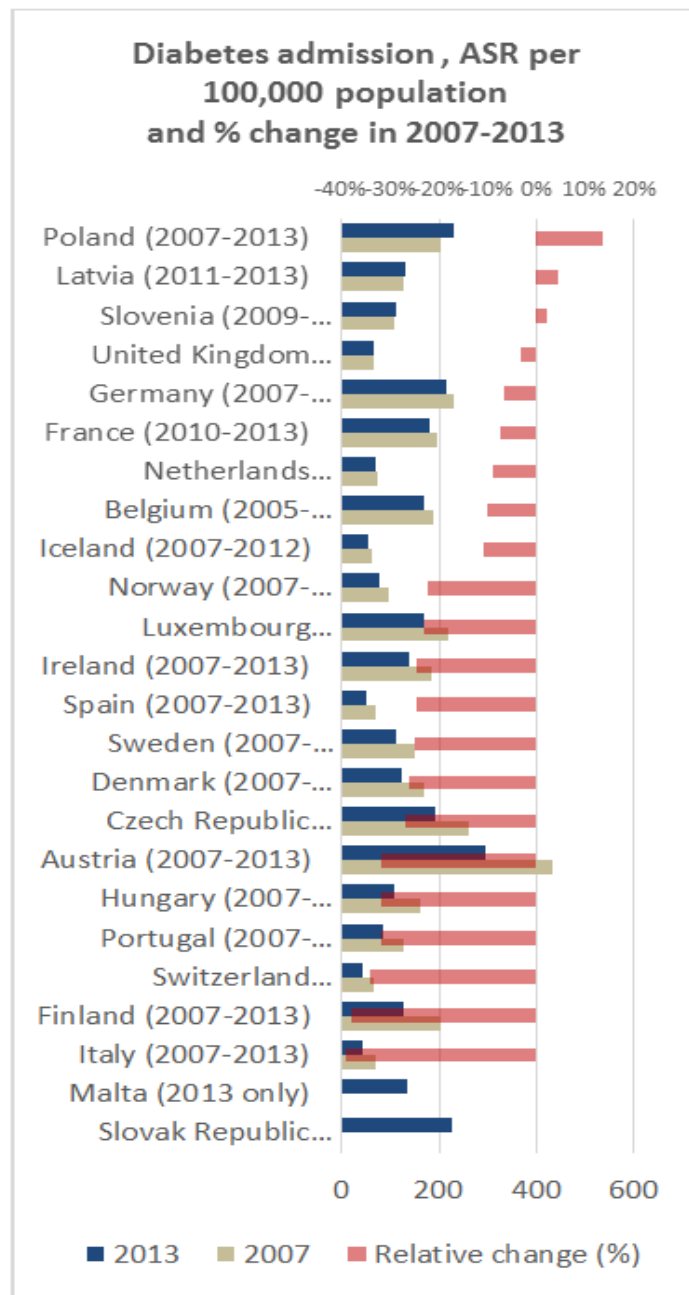
What do diabetes admissions tell us about the quality of care?[66]

Diabetes admission is in the basket of indicators used for international comparisons of health system performance by a range of organisations, including the OECD in its annual 'Health at a Glance' publication, alongside other national organisations, such as the Health Foundation in the United Kingdom.[48]

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[66] This chapter presents insights from the policy focus group. Insights from the literature are presented in Annex I

Many of the countries represented in the policy focus group use diabetes admission as one indicator of the quality of diabetes care in their health systems. However, focus group participants noted that the way the indicator is being used varies across countries, both in terms of validation and interpretation of the indicator, as well as regarding its utility and usage. Participants highlighted a range of issues that need to be considered when using this indicator to measure performance, and the following provides a summary overview of the core issues that were discussed.

Focus group participants agreed that international comparisons are used mostly to provide information on a country's comparative positioning while at the same time serving as a starting point for specific quality improvement activities. Yet, caution was expressed regarding the interpretation of international comparison exercises on the basis of single indictors, as this was seen to conceal contextual and health system variables that (also) affect a given country's positioning.

Comparison of single or a set of indicators was seen to provide some insight into the comparative performance of health systems, although it was most often used as a catalyst for further in-depth within-country analysis to better understand the nature of the data and the degree to which they were seen to accurately reflect service provision, which may then be used to inform policy development to enhance the quality of care. Thus, while the usefulness and appeal of international comparisons of performance indictors is widely acknowledged, there is widespread awareness of the need for caution in interpreting the data.[49]

Data on hospital admissions for diabetes were, on the whole, seen as a robust indicator of health system performance but countries tend to use it together with other data to monitor the quality of care for patients with diabetes. Interpretation of the indicator varies however across countries. There was consensus of the general utility of this indicator as a measure of the quality of primary care, with trends over time taken as a proxy for achievements in shifting care from the hospital into the community: a goal widely aspired to in the majority of countries represented in the policy focus group.

However, in some countries, the link between diabetes admissions and quality of primary care was not necessarily viewed as evident or strong, arguing that any observed changes are more likely to reflect aspects of secondary or hospital care. For example, a number of participants reported on national analyses that had demonstrated a positive correlation between admission rates and supply of or access to specialist services (see Appendix I for examples). This was particularly the case in countries where primary care is considered to be of low or medium strength.[50] Estonia utilised 'avoidable admissions', including diabetes admissions, as one of the key performance indicators in a health care integration assessment study carried out by the World Bank.[51]

Others commented that this indicator was more likely to reflect population-related factors, such as socio-economic status, reporting that they had observed higher rates of admissions

among people with diabetes in disadvantaged areas in their countries.[52] This could be seen to reflect unmet need or lack of access care, or both, which, while not directly measuring the quality of diabetes care can nevertheless function to inform service improvement among vulnerable populations in particular.

Overall, this debate highlighted that any indicator of performance needs to be set into the local system context in order to inform policy development, while there were also calls for more specific guidelines for the inclusion of diabetes among avoidable admissions in order enhance cross-country comparability on the indicator.

It is against this background that countries have begun to develop additional indicators to complement existing ones in a move to enable more precise measurement of the quality of care provided to people with diabetes. Examples include the use of diabetes amputations as sentinel events to monitor the quality of diabetes care. Figure 4 shows comparable international data on amputations per 100,000 population, highlighting differences between countries in terms of amputation levels.

Figure 4 Lower extremity amputations admissions in 16 countries, 2000-2012
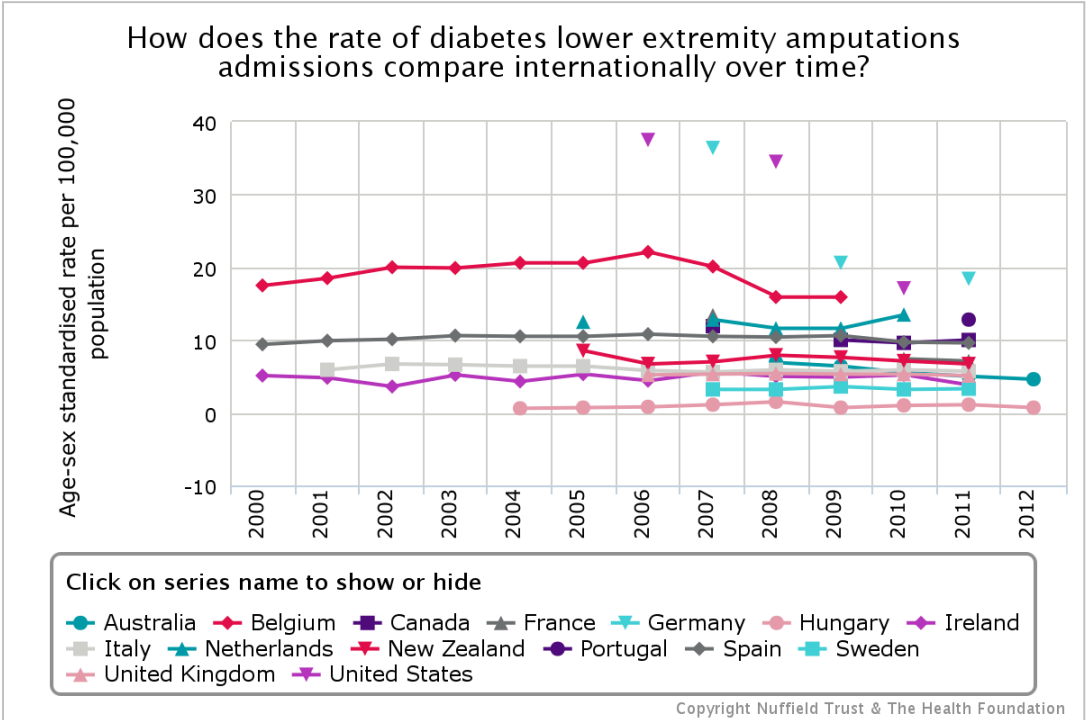
Source: Nuffield Trust and The Health Foundation, 2015 [53]

Figure 5 shows lower extremity amputation rates among patients with diabetes in Italy and Spain, highlighting that Spain had consistently higher rates during much of the 2000s, with some indication of improvement from 2009, while there has be a steady decline in Italy, albeit at a low pace.

Figure 5 Diabetes lower extremity amputations per 100,000 diabetic patients in Italy and Spain, 2001-2013
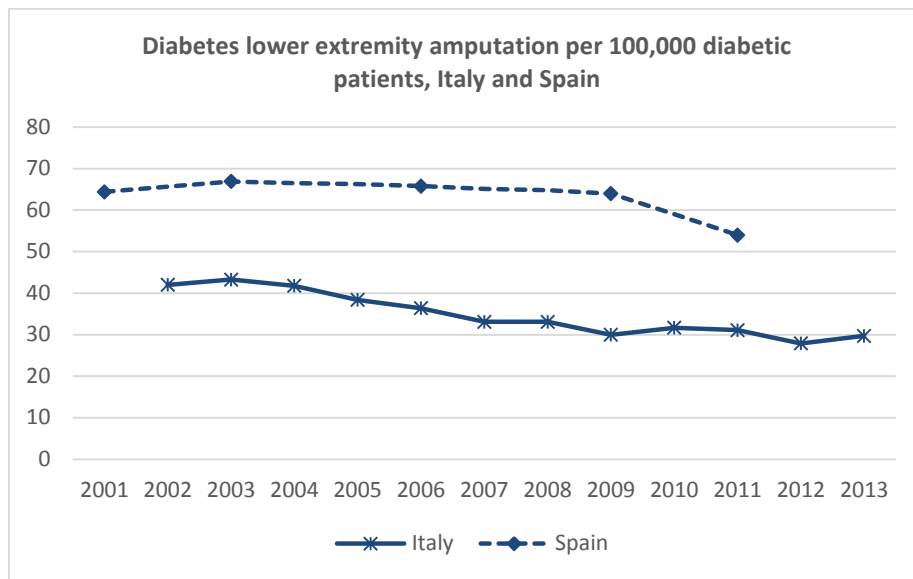
Source: OECD (2015) [54]

Many countries represented in the policy focus group were reported to have conducted their own regional analyses and most have documented variations across administrative regions. Regional variations have sometimes stimulated quality improvement initiatives, through the use of within-country benchmarking, alongside targets and incentives; Appendix I illustrate examples from Italy and Sweden.

Examples shown in Appendix I highlight that countries are developing new indicators in order to enable more specific monitoring of the quality of diabetes care, linking admissions for diabetes with other data, such as disease registers, or using data on co-morbidities or multiple diagnoses to arrive at a better understanding of the patient profile, as well as for the development of integrated care pathways.

Several countries make use of national registries such as the national quality registers in Sweden,[70] the Norwegian Diabetes Register for Adults,[71] the DEHKO FinDM II diabetes registry in Finland (See Appendix I for all examples),[72] and the soon to be launched diabetes register in Malta as part of its new National Diabetes Strategy.[73] In 2014, some 30 countries in the WHO European region had some form of diabetes register in place; however, of these, 83% were considered to be incomplete.[3]

Also, twenty-nine countries had implemented either specific diabetes plans, or a programme or strategy for the prevention and treatment of non-communicable disease of which diabetes was an essential component; another 10 countries were in the process of developing such plans. However, actual implementation of existing strategies varies across countries.[74]

d.   Hospital admissions for heart failure: Explaining variation among European countries

The data

OECD data suggest that there are large variations in hospital admission rates for patients with heart failure among selected EU countries and across Europe (Figure 6).[54] In 2013, age-adjusted admission rates for heart failure varied from 99 and 154 per 100,000 in the UK and Denmark to 441 and 548 per 100,000 in Hungary and Poland. Between 2007 and 2013 the majority of the countries recorded reductions in admissions for heart failure; however, a small number of countries, including Poland, Spain and the Czech Republic showed substantial increases.

Figure 6 Avoidable admissions for heart failure per 100,000 in Europe, 2007-2013
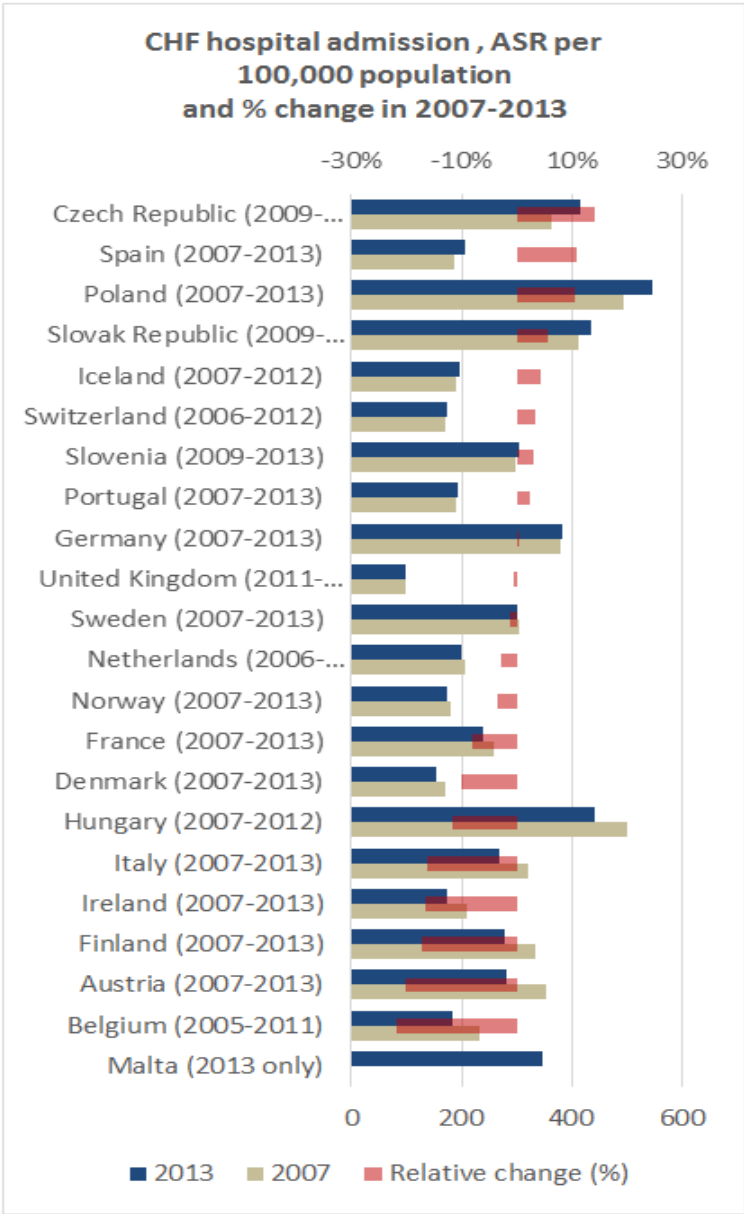
Source: OECD (2015) [54]

What do admissions for chronic heart failure tell us about the quality of care?[67]

Unlike admissions for patients with diabetes, which was largely considered as a robust, consistent and reliable indicator, hospital admissions for heart failure raised a series of questions among experts participating in the policy focus group in terms of its reliability and validity. Focus group discussions suggested that the indicator in its present format may be too difficult to interpret, and that there was a need for the further exploration of this indicator at the technical level.

There was consensus about a need for more detailed insight into approaches and methods of collecting the relevant data in different countries. There was also recognition that the journey of patients with heart failure is complex, which is attributable to pre-existing conditions and co-morbidities.

Focus group participants suggested that improvements in survival from acute myocardial infarction, which has been demonstrated for a large number of OECD countries,[12] may have led to the creation of a cohort of patients with more severe levels of heart failure. This might explain the observed lack of success in many countries to reduce admissions for heart failure as illustrated in Figure 6, and, as highlighted in the literature and by focus group participants more broadly, the lack of improvement in the quality of care for heart failure over the past decade or so.

Overall, therefore, there is a need to interpret an apparent lack of improvement in this indicator in the context of a range of other indicators, including severity of heart failure and survival after myocardial infarction, alongside the use of advanced technology such as fibrillators and appropriate medication regimes.

As already highlighted in the preceding section on diabetes admissions, specific policies may influence reporting of heart failure diagnosis at hospital level. For example, along with diabetes, hospital admissions for heart failure are formally considered avoidable, which may lead to either reporting heart failure as a secondary diagnosis rather than as primary diagnosis, or more patients with heart failure are directed to specialist centres.

Focus group discussions about admissions for patients with heart failure uncovered a set of issues related to performance measurement, which were not seen to be of concern in relation to using diabetes admissions as a performance indicator. First, and in line with the above, it was noted that there is a need for the better understanding of factors determining hospital admission for heart failure, such as survival of patients with cardiovascular diseases, the role of ageing, and disease severity.

Policy focus group participants commented on the challenges associated with interpreting the indicator without knowledge of the wider context such as the characteristics of the population

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[67] This chapter presents insights from the policy focus group. Insights from the literature are presented in Annex I

with heart failure and additional clinical data. Second, there was recognition that adherence to guidelines and treatment protocols varies within and between countries.

Appendix I presents the findings of a recent evaluation of the quality of care for people with heart failure in Sweden, demonstrating the need to consider a range of indicators in order to understand the performance of the system. It also shows how additional indicators relating to processes leading to admissions for heart failure may be used in a country to inform specific recommendations for service improvement at the national and regional level.

e.   Informing policy

This chapter has highlighted the value of analysing and drawing inferences from 'quality indicators' such as hospital admissions for diabetes and for heart failure. These indicators were seen to generate important hypotheses with regards to the quality of primary and secondary care.

Moreover, given that treatment of these complex conditions requires multi-sectoral and multi-disciplinary approaches, these indicators also provide information on the coordination between sectors, in particular primary and secondary care. This consideration will remain important to inform the work of the Expert Group on integrated care, the selected priority topic for 2016.

This chapter only considered two indicators that are widely recognised as indicators of the quality of care, in particular, primary care;[13] their selection had to be pragmatic because of constraints on time (and resources), however it did follow a set of defined criteria.

The analyses presented in this chapter provided the opportunity to test the feasibility and practicality of undertaking a structured 'policy focus group' with experts across EU Member States as a means of gathering in-depth insights into the possible reasons for observed variations across countries on selected indicators.

We find that implementing such an approach is feasible, while at the same time highlighting certain challenges, such as involving more countries in the debate, allowing for sufficient time to consult internally with national experts to obtain the feedback and input necessary to comment on observed cross-country variations in the chosen indicators.

At the same time, as this chapter demonstrates, the discussions of the policy focus group provided invaluable new insights into the complex subject of variations across countries as well as within-country and regional comparative analysis.

There is an understanding of the need to disaggregate 'avoidable admissions' and examine specific conditions. However, indicator robustness varies for different diseases. While diabetes admissions are easier to interpret, admissions for heart failure are complex and need further contextual data to allow understanding of the drivers of changes in rates.

The approach and analyses presented here can be seen to serve as a starting point for broader work on mapping international variations in health systems performance assessment across the EU rather than an endpoint in itself. However, going forward it would appear useful to consider additional or alternative methods to collate and analyse this type of information, including the systematic use of the expertise available in Member States, utilising tools such as key informant surveys, additional focus groups, or expert interviews. Each of these methods will however have considerable resource and time implications, which would need to be weighed up against the additional insights any more in-depth data gathering exercise is likely to provide.

The evidence from the literature suggests that the use of quality of care indicators to inform health care performance is well established.[93, 94] National health system performance frameworks have also been utilised mainly to drive improvement and efficiency. The same cannot be said for policy development, where performance assessment has been slow to inform the policy debate[95] and only recently have certain countries, such as the Netherlands and Italy, sought to evaluate the impact that their performance reports have had upon policy development[96], or on improving access to enhanced services, such as in Italy (Appendix I).

International and within country comparisons can be fraught with difficulties and loopholes. This is due to contextual, health system and population incongruences which have also been seen and discussed in comparing hospital admissions for diabetes and heart failure. On the other hand, it is also evident that performance information derived from international comparisons can provide the basis for further scrutiny and a deeper comprehension of what policies are required to improve the status quo.

This was the view taken by the participants of the policy focus group who were consistent in their view that while comparative exercises were indeed considered to be very useful in gauging and assessing the state of play of their respective country, they should be used as a platform for further in-depth analysis and enquiry.

IV.   Conclusions

The Working Party on Public Health at Senior Level asked this Expert Group to provide a forum for the exchange of experiences on the use of HSPA at national level. In doing so, the Group was strongly recommended to intensify cooperation with international organisations, in particular the OECD and the WHO.

A second major task was to support national policy-makers by identifying tools and methodologies for developing HSPA. In particular, the Expert Group had to select priority areas and tailor its work around them; the first selected priority area was the assessment of quality of care.

The Expert Group committed itself to comply with these requirements. This report summarises the work carried out during 2014 and 2015 and presents a list of tools and methodologies developed to support national policy-makers. The content of the report is based on the exchange of experiences and knowledge among countries and with international organisations during this phase of the work.

This chapter presents the main conclusions that derived by the analysis of the national experiences and from their discussion among the expert of the Expert Group. Conclusions are grouped under headings that aim to facilitate their reading, with the goal to provide an useful overview for policy-makers with the aim to design, implement, and improve an HSPA system.

<p style="text-align:center">∗ ∗ ∗</p>

Most countries in Europe have strategies of performance measurement that are aimed at improving quality of healthcare services. These strategies normally include sets of indicators that are measured over time; the number of indicators varies between less than 30 (Austria) and more than 1,000 (Finland).

Countries often benchmark with other countries. Whilst the challenges involved in these comparisons are well known, it is also evident that information deriving from international comparisons can provide the basis for further scrutiny and a deeper comprehension of the policies required to improve the status quo.

The Expert Group acknowledged an increasing interest in indicator-based assessment to promote accountability, in particular in the delivery of health services. This approach reflects a desired shift in focus towards health outcomes and an increased focus on the patient.

The Expert Group identified the main conclusions, here grouped in clusters:

Quality assessment in the broader context

Put quality into a broader framework

Quality assessment should provide a global balanced overview which enables aligning views between all actors, especially the field and decision makers. Therefore, the set of quality indicators should remain comprehensive and elaborated enough to assess the system as a whole.

The interactions between quality and other dimensions of performance (e.g. efficiency, equity, access) should be further investigated and analysed in future upgraded models: all indicators referring to the quality dimension should be interpreted in a larger context of overall health system performance.

Adopt large boundaries for health systems

It's essential to analyse the quality of the health system as a whole encompassing, ideally: acute, chronic, palliative and mental care; hospital and primary care; health system and also health promotion and health in all policies.

Define the level and goal of quality assessment

Quality measurement can be done with different goals in mind: accountability to the public, to health professionals, quality improvement, introduction of financial incentives, health systems performance assessment, etc. The design of a quality measurement system cannot be independent from the final goal.

The use of indicators for monitoring and evaluation has evolved significantly over the past decade. The indicators are used for different purposes and methods for developing indicators are different depending on the purpose. Quality measurement can take place at several different levels.

Define targets and benchmarks

The definition of targets and benchmarks is often problematic and implies degrees of subjective assessments. Referring to international benchmarks can be a way, but it doesn't fully solve the problem: interpreting the results of international comparisons of performance is still under debate, and there are many pitfalls, such as methodological and contextual variations, making meaningful comparisons difficult.

In order to inform policy making, the analysis of international comparable data can be complemented by the analysis of national administrative data, registry data, and by the use of tools such as key informant surveys, additional focus groups, or expert interviews.

Benchmarking can also be defined at regional level, within one country. Geographical variations may be used to illustrate the need for improvement and target setting

Independence between different assessment phases

Different phases in the process of assessing quality of care should be independent from each other. The institution which analyses and interprets data and information is usually not the same in charge of producing them. More relevantly, the organisation in charge of producing recommendations and monitor their implementation should be independent from the organisation which has to execute them. It is in general of outmost importance to have good knowledge of data and data quality when analysing them.

Put the patient at the centre

Quality assessment models should develop targeted reports for including patients and residents, decision-makers at different levels, and health care operations. In future, greater attention should be given to the assessment of patient experiences, such as patient reported experiences and patient reported outcomes. Health care in most countries still is not sufficiently patient-centred, despite the patients' participation being increasingly emphasised in recent decades.

Patient-centred health care implies respect and sensitivity for the specific needs, expectations and values of individual patients. These aspects should be considered in clinical decisions, in information provided to patients, and in the extent to which patients are participating in decisions about their own care.

Indicators and data quality

Indicators only indicate

An important point is that quality indicators do not measure quality but can only indicate that a system may be delivering high or poor quality.

This implies that indicators have to be read within a broad context – a key principle of HSPA – and no indicator should be read alone. The publication of a report based on indicators is the starting point of a more in-depth assessment process. The analysis of indicators should be integrated by additional appraisal exercises to gain a better knowledge on the processing underlying the indicators. This can be done for instance through constructive dialogue with a broad range of stakeholders with different competences.

Complement process indicators with outcome indicators

In any widely adopted framework, effectiveness is a main component of quality of care, as often is appropriateness. Many indicators refer to processes; in order to have a comprehensive assessment system, they should be complemented with indicators on outcomes. The use of outcome measures to support the programs of clinical and organisational auditing is therefore essential for ensuring continuous improvement in the quality of health care.

Use of old data reduces their explanatory power

Some figures used in quality assessment can be outdated. This is inherent to the use of administrative data or registries. Validation of international data often requires longer time; therefore international comparison can be sometime done only on data that are few-years old. As a consequence, the late availability of data may imply that a short periodicity between two reports maybe not bring high added value.

Rely on powerful health information systems

A well-functioning health information system is essential to measure quality of care systematically across hospitals, regions, health professionals, and health care units. Information should be relevant, timely available, comparable and reliable.

Quality of data is a critical point and should be monitored to identify potential opportunistic behaviours. Efforts should be constantly made to improve data collection without adding new administrative burdens, using for instance universal patient identification numbers, linkages between datasets, eHealth solutions.

Communication and follow up

Present findings which are easy to read and understand

Once it is collected, analysed and interpreted, information still has to be used. It is essential, for an effective use of information that it is presented in a way which is easy to understand, and that can lead clearly to the selection of relevant actions.

This remains valid also if the information is presented to the general public, which should be put in the conditions to interpret it and to decide in full awareness.

Reviews of health system performance should occur systematically and continually inform priority setting.

International comparisons are potentially useful but sometimes fraught with methodological problems. Therefore data limitations need to be addressed explicitly in any publications, particularly in those that are likely to attract media attention.

Share assessment findings transparently

Health system performance assessment through transparent benchmarking among regions as well as units can contribute to a clearer focus on the quality and outcomes of health services. The results may become a natural part of the debate on health care and the basis for a number of strategic decisions.

The reputation effect can be a strong determinant of clinical, professional and organisational behaviours, but it is important to underline that using indicators to define uncritically incentives or sanctions can cause side effects and opportunism in coding clinical data, which may introduce biases and reduce the validity of the assessments.

Various experiences show that the systematic publication of indicators can have a positive impact on quality of care, especially when these results are used as an instrument of governance of the system, for example in the assessments of the objectives of the CEOs.

The positive impact is mainly determined by the effect of public reporting that, even in systems with a high degree of internal competition, generates significant effects on changes in efficiency and quality of care of health services and professional and minimal effects on the choices of patients of the location and type of care.

Present concrete recommendations

Effective reporting should include concrete recommendations to policy makers, for instance to highlight critical areas and point out priorities, also for data collection. Recommendations should therefore be easily translated into actions. Once endorsed, recommendations should also be given the proper follow-up.

Section 2: Countries' experiences

Strategies across Europe to assess quality of care

Expert group on health systems performance assessment

Structure of section 2

This section presents the experiences reported by a group of volunteer Member States according to the following template agreed in the sub-group.

1. Background – when, why, and how the assessment of quality of care started.

2. Dimensions considered – effectiveness, patient safety, patient centeredness, other dimensions (which ones?).

3. Focus of the evaluation – hospital level, population level or both.

4. Methodology adopted – how the indicators are developed, risk adjustment methods, dealing with internal variability, etc.

5. Quality of data – comprehensiveness of data collection, coding procedures, quality checks and audit, etc.

6. Use for policy actions – audit for risk management, regulatory use of quality standard, etc.

Belgium

Pascal Meeus, National Institute for Health and Disability Insurance

Lieven De Raedt, Federal Public Service Health, Food Chain Safety and Environment

The Belgian Health System Performance Report is a national monitoring report in which Belgium is also compared internationally. The report attempts to monitor the performance of the Belgian health system to provide information to health policy makers.

This report comprises a quality chapter. Quality is interpreted through 40-50 indicators. Some of the indicators used to measure the other dimensions of performance (equity, access, efficiency and sustainability) can also be used to interpret quality.

This chapter aims to describe the quality chapter and highlight its importance to performance measurement.

This paper aims to contribute to the reflexion process on HSPA (Health System Performance Assessment) on national and EU level, based on the Belgian experience of HSPA report. It is focus on quality which is one of the five dimension described in the Belgian HSPA report.

a. Background

Quality policy has been implemented in Belgium in the early 90, first in hospital, afterwards in primary care (2010).

The experience on hospital quality report in Belgium came mostly from the PATH project (performance assessment tool for quality improvement in hospital developed by WHO in early 2000). In this early report 20 indicators were selected to analyse hospital performance. 6 dimensions were identified: 3 were directly linked to quality outcome: clinical effectiveness, safety, patient centeredness. The 3 other dimensions were efficiency, staff orientation and responsive governance.

In the field of primary care, quality was assessed in 2010 through a performance report on GP practice.

Quality was one of the pillars, assessed through 20 indicators analysing the different aspects of GP practice (health promotion, prevention, acute care, chronic care) through several sub-dimensions (efficacy, safety, appropriateness and efficiency). 2 other dimensions were also analysed: Patient focus (accessibility, continuity, compliance and acceptability) and viable capacity and professionalism (productivity, appropriate funding and workforce, medical and responsive governance).

An important milestone to boost quality and performance report in Belgium at global level (health system rather than hospital or primary care) , was the adoption of the Tallinn Charter (WHO) in 2008. The Charter states that health is an investment to economic development and countries committed to perform health system performance assessment. On 18 March 2008, following a recommendation of the Tallinn Charter (WHO) a commitment was formulated in the Belgian governmental agreement on public health: "The performances of our health system (including quality), are to be assessed on the basis of measurable objectives."

In this HSPA report, quality is one of the pillar of the global analysis which comprise also an analysis from 4 other perspectives, namely, access, equity, efficiency and sustainability. As such there's no report in Belgium dedicated to quality specifically.

Belgian health authorities asked their health administration - scientifically supported by the Health Care Knowledge Centre (KCE), the Institute of Public Health (IPH) and the National Institute for Health and Disability Insurance (NIHDI) – to test the feasibility of a Health System Performance Assessment report.

Two full reports have been already published (2009, 2012) while an intermediate report was published to monitor the evolution (2014).

Belgium publishes HSPA every three years with intermediate reports every two years. The next report is expected to be published in December 2015. A quality chapter is included in each report.

b. Dimensions considered

Conceptual framework

To assess the performance and quality of the health system, a conceptual framework has been draw: this framework includes all domains of the health system.

Firstly, we distinguish three similar interconnected tiers: health status, non-medical determinants of health and the health care system (see Figure 7).

In this model, the health system comprises health promotion, preventive care, curative/acute care, long-term care and end-of-life care. Institutional and primary care are implicitly within the model.

Figure 7: Conceptual framework to evaluate the performance of the Belgian health system
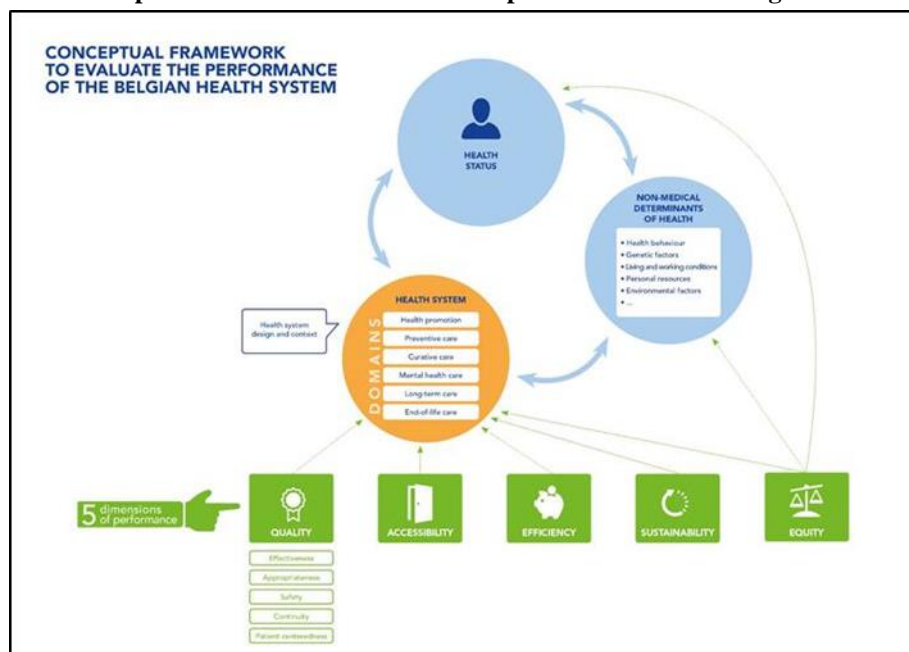
The design of the framework is not driven or limited by existing data and has a broad approach – including social affairs and insurance.

With this kind of approach the necessary balance within the health system between acute and chronic/mental care, between primary and resident care and between health care and social affairs, is taken under account.

Sub Dimensions defining quality of care

Effectiveness, appropriateness, safety, continuity and patient centeredness are essential to define quality, but quality has to be analysed in a comprehensive approach including access/ inequalities and resilience/ efficiency

Sub dimensions of Quality of care

The quality of care is defined as "the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge". Quality in Belgium is subdivided into 5 sub-dimensions: effectiveness, appropriateness, safety, continuity of care and patient- centeredness described in the KCE Report 128.

Effectiveness (see Table 1), is defined as "the degree of achieving desirable outcomes, given the correct provision of evidence-based healthcare services to all who could benefit but not those who would not benefit". All indicators are thus outcome (results) indicators.

Appropriateness (see Table 1), is defined as "the degree to which provided healthcare is relevant to the clinical needs, given the current best evidence". The link between effectiveness and appropriateness reflects the link between outcomes and processes.

Continuity of Care (see Table 1), is a concept that encompasses different dimensions, such as the continuity in information between providers, the planning of contacts with different health providers, the relational aspect of the patient-GP contacts or the coordination between providers or organisations.

Patient-Centeredness (see Table 1), is defined as "providing care that is respectful of and responsive to individual patient preferences, needs, and values, and ensuring that patient values guide all clinical decisions".

Safety (see Table 1), is defined as "the degree to which the system does not harm to the patient".

Other dimensions related to Quality of care

Four other dimensions are also described in the Belgian HSPA: access, equity, efficiency and sustainability: indeed, what would be a high qualitative system which would be not efficient, not accessible, and not affordable?

Equity/ inequalities, in the Belgium report are part of the dimension of equity. It has been approached in analysing indicators by socio-economic position when possible. Which means that each quality indicator is also used to measure inequalities.

Accessibility (see Figure 7 and Table 2) of a health system is a prerequisite for a high-quality and efficient health system. It is defined as the ease with which health services are reached in terms of physical access (geographical distribution), cost, time, and availability of qualified personnel. Underuse, captured by this accessibility dimension is also part of the quality dimension.

Efficiency of the healthcare system, in the Belgium report is defined as "the degree to which the right level of resources (i.e. money, time and personnel, called input) is adequate for the system (macro-level) and is ensuring that these resources are used to yield maximum benefits or results (called output)". Overuse and Misuse captured by this efficiency dimension are also part of the quality dimension.

To summarise, the Belgian definition of quality is very large. It encompasses appropriateness, effectiveness, safety, continuity and patient centeredness. In a broader view, several aspects of quality are also covered by other dimensions, like misuse, overuse, and underuse. In this approach, quality is closely linked to accessibility, efficiency and equity.

Another interaction is also the interconnection between effectiveness, appropriateness and efficiency. Moreover, from the resilience point of view, "good governance" and "adequate costing" are also quality issues which cannot be neglected.

c. Methodology adopted

Belgium selected the indicators for each sub dimensions of quality by requiring them to meet common characteristics (validity, reliability, relevance, sensibility, sensitivity, interpretability, feasibility) and providing they were a limited set, to be manageable for decision makers. The selection of indicators was done through standard methodology (literature research, external independent experts, international set of indicators for benchmarking, Delphi…).

Figure 8: quality indicator selection
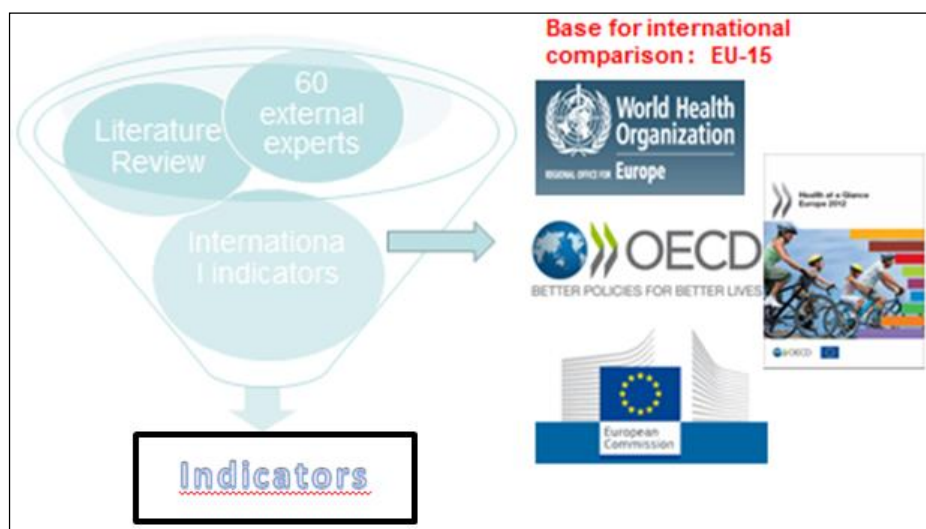
However, the main point on choosing indicators has been the discussion between international comparison versus tailored indicators to the national health system.

The Commission has supported the development of European health core indicators (ECHI), a set of indicators to monitor the health of the population and the performance of health systems. OECD is also developing health system and quality indicators through the HCQI group. Those activities are an important basis to choose indicators to measure health system performance, since benchmarking and differences can help to point out some specific problems in a country. However, methodological issues are important (comparability, not the best indicators chosen, not actionable …).

But specificities of health systems could not be covered by international comparison (e.g. medical irradiation). For all these reasons, Belgium's national set have both national and international indicators.

Hereby the list of 40 quality indicators selected in the Belgian report (Table 1)

We mention in this list
- dimensions: the quality sub-dimension to which the indicator refers
- indicator: name of the indicator
- international versus national: I = international indicator or N = National limited indicator
- source of data: cancer register, public health , insurance , survey , …
- institution/ primary care: focus of the indicator HOP= hospital , primary care

- type of care: cancer = indicator specific to cancer, 65+ = indicator specific to older people
- use for inequalities: is the indicator used to measure the inequality dimension ?
- use for another sub-dimension of quality
- use to measure another dimension of performance

Table 1: set of quality indicator in HSPA by sub-dimension of quality

dimensions	Indicator	international versus national	source of data	institution/ primary care	type of care	use for inequalities	use for another quality dimension	use for another dimension
effectiveness	5-years relative survival rate colon cancer (2008)	I	cancer register	HOP	cancer			
effectiveness	Hospital admissions for asthma (/100 000 pop aged 15+) (2010)	I	insurance	primary care				efficiency
effectiveness	Suicide rate (number /100 000 pop) (2009)	I	public health					
effectiveness	Employment ratio of people with mental health disorder	N	social affairs					
effectiveness	Involuntary committals (% of all psychiatric hospitalizations) (2010)	N	public health					
appropriateness	Mammograms outside target group (%)Women aged 40-49 years old (2011)	N	insurance	primary care	cancer	inequalities		efficiency
appropriateness	Mammograms outside target group (%)Women aged 71-79 years old (2010)	N	insurance	primary care	cancer	inequalities		efficiency
appropriateness	Breast cancer screening organised program (% women aged 50-69 years) (2011)	N	insurance	primary care	cancer	inequalities		efficiency
appropriateness	Use of antibiotics (total DDD/1000inh /day) (2011)	I	insurance	primary care				
appropriateness	Use of antibiotics (% of population at least once/ year) (2011)	N	insurance	primary care	65+	inequ	safety	
appropriateness	Antibiotics (% amoxicilline compared to amoxyclav) (2011)	N	insurance	primary care	65+	inequ	safety	
appropriateness	Cephalo and quinolone compared to all DDD AB (2011)	I	insurance	primary care	65+	inequ	safety	
appropriateness	Appropriate follow up of adult diabetic patients * (%) (2008)	N	insurance	primary care		inequalities		efficiency
appropriateness	Caesarean sections (per 1000 live births) (2010)	I	insurance	HOP				
appropriateness	Prescription of (average daily quantity/1000 pop) Antidepressants (2011)	I	insurance	primary care				
appropriateness	Prescription of (average daily quantity/1000 pop) Antipsychotics (2010)	I	insurance	primary care				
appropriateness	Use of antidepressants (% of pat.) (2011)	N	insurance	primary care	65+	inequ	safety	
appropriateness	% of patients with short terms antidepressants (<3 months) (2011)	N	insurance	primary care	65+	inequ	patient centerdness	
appropriateness	Cancer patients receiving chemotherapy in the last 14 days of life (%) (2011)	N	insurance	primary care	cancer			efficiency
safety	Medical radiation exposure of the Belgian population (MSv/capita) (2011)	N	insurance	primary care				
safety	Medical radiation from obsolete medical imaging exams (msv/capita) (2011)	N	insurance	primary care			appropriateness	
safety	prevalence acquired infection (/ hospitalised) (2010)	I	survey	HOP				
safety	Incidence of hospital-acquired MRSA infections (/1000 admissions) (2012)	I	survey	HOP				
safety	prevalence MRSA in nursing/ residential (2011)	I	survey	Resthome	65+			
safety	Incidence of postoperative sepsis (/100 000 discharges) (2007)	I	survey	HOP				
safety	Incidence of pressure ulcers in hospitals (%) (2012)	I	RAI	HOP				
safety	In-hospital mortality after hip fracture (%) (2010)	I	public health	HOP				
safety	Patients prescribed anticholinergic antidepressant drug (% of patients aged 65+ on antidepressants) (2011)	N	insurance	primary care	65+	inequ	appropriateness	
continuity	Patients with a global medical record (%) (2011)	N	insurance	primary care		inequalities		
continuity	Patients with cancer discussed at the multidisciplinary team meeting (%) (2010)	N	insurance	HOP	cancer			
continuity	GP encounter within the week after hospital discharge (% patient aged 65+) (2011)	N	insurance	primary care	65+	inequalities		
continuity	Proportion of contacts with the usual GP (%)(UPC iii index) (2011)	I	insurance	primary care		inequalities		
continuity	Readmission within 30 days in the same psychiatric hospital (%) diagnosis of schizophrenia (2009)	I	public health	HOP				
continuity	Readmission within 30 days in the same psychiatric hospital (%)diagnosis of bipolar disorder (2009)	I	public health	HOP				
continuity	Patients having a contact with their GP during the last week of their life (%) (2005)	N	insurance	primary care				
patient centerdness	Satisfaction with healthcare services (% good or very good)	I	insurance	primary care		inequalities		
patient centerdness	Pain always controlled during hospitalization (% of patients)	N	survey	HOP				
patient centerdness	Persons with Terminal cancer who received palliative care (%) (2011)	N	cancer register	primary care	cancer			
patient centerdness	Persons dying in their usual place of residence (%) (2011)	N	cancer register	primary care	cancer			

Other indicators use to describe other dimensions can also be used to describe quality issues:

Table 2: set of indicator in HSPA by sub-dimension which could be related to quality

dimensions	Indicator	international versus national	source of data	institution/ primary care	type of care	use for inequalities	use for another quality dimension	use for another dimension
health status	Premature mortality (potential years of life lost before 75 years old/ 100.000pers (2009)	I	public health				appropriateness	
health status	Amenable mortality (potential years of life lost before 75 years old/ 100.000pers (2009)	I	public health				appropriateness	
accessibility	Delayed contacts with Health S for financial reasons (%) (2008)	I	insurance			inequalities		
accessibility	Cancer screening Breast (% women aged 50-69) (2011)	I	insurance	primary care	cancer	inequali	appropriateness	
accessibility	Cancer screening Cervix (% women aged 25-64) (2011)	I	insurance	primary care	cancer	inequali	appropriateness	
accessibility	Cancer screening Colorectal(% aged 50-74) (2011)	I	insurance	primary care	cancer		appropriateness	
accessibility	Vaccination coverage children % DTP-Hib (4) (2012)	I	public health		child		appropriateness	
accessibility	Vaccination coverage children % MMR (1) (2012)	I	public health		child		appropriateness	
accessibility	Vaccination coverage children % hepatitis B (2012) (4d)	I	public health		child		appropriateness	
accessibility	Influenza vaccination (% of the 65+) (2009)	I	insurance	primary care	65+	inequali	appropriateness	
accessibility	% 65+ with long term care at home (2011)	N	insurance	rest home	65+			efficiency
accessibility	Timeliness of palliative care: deaths within one week after start of palliative care service (%) (2011)	N	cancer register		cancer		appropriateness	
efficiency	Surgical day,case (%) (2008)	N	insurance	HOP	surgery		appropriateness	
efficiency	Average length of stay for normal delivery (days) (2008)	I	insurance	HOP	child		appropriateness	
efficiency	Share of organised programm for breast cancer (2011)	N	insurance	primary care	cancer		appropriateness	
sustainability	% of the GPs using an electronic medical file (2012)	N	insurance	primary care			appropriateness	
health promotion	Coverage of DMG+ (¨% 45-75 with DMG) (2011)	N	insurance	primary care			appropriateness	
health promotion	Decayed, missing, filled teeth at age 12-14 (mean score) (2010)	I	public health h	primary care	child			

d. Quality of data

In Belgium data are mainly collected form administrative databases routinely available (e.g. in administrative databases or in national registries): the Health Interview Survey (HIS), the hospital administrative discharge data (RHM – MZG collected by ministry of health), databases from the health care insurance RIZIV–INAMI, registry of hospital-acquired infections, Belgian Cancer Registry (Table 1).

It was important in Belgium to inventories all databases which could be relevant to the performance analysis. The use of routinely available data entails no additional cost for data collection and solves many problems like comparability, completeness, reliability and trends. Moreover, the use of billing information means that any control, audit is regularly made on those data and that gaming is avoided.

One of the issues in Belgium to minimise the burden of data collection set was to provide indicators from a national database based on health consumption (permanent sample survey). With this kind of national database multiple breakdowns are possible to find issues for quality improvement or understand inequalities (see Figure 9).

Figure 9: Permanent health sample database
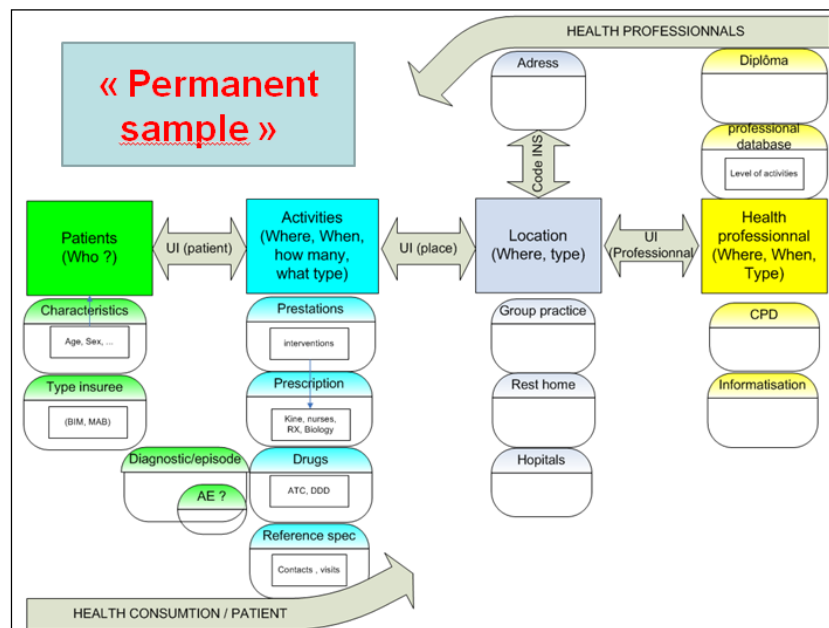
Utilisation data poorly reflect outcomes or quality: in some cases, indicators relevant to patients/consumers (e.g. quality of life) do not exist in administrative data and should be collected by other means (health interview survey, patient experience survey, quality register…)

In Belgium, the choice of indicators is independent of data availability. It's an important signal to improve data collection. It was also important to avoid any limitation in analysing the health system.

But it is also important to have a clear set of indicators: in Belgium, only measured indicators are retained in the current set. Indicators for which we could not find data are discussed in a specific section of the report, referred to as "data available soon" or "indicators under development".

e. Use for policy actions

One important thing to consider in data collection and quality reporting in Belgium is the need for action. This brings to the need to have tailored and attractive reporting

Hereby are different tips from Belgian experience to improve policy actions:

1.   indicators should ideally be related to concrete themes:

This does not mean however that indicators should immediately refer to concrete actions: HSPA reports should remain a global and helicopter view evaluation rather than be used to monitor programs. This kind of paradox is important to understand (see later, monitoring).

2.   Reduce the size of the set of indicators,

Composite indicators can be an issue (e.g. follow-up of diabetes). It is also interesting to assess progress over time on complex issues and to summarise messages for communication. However, composite indicators should be used carefully, because they can be difficult to understand and increase the difficulty of identifying proper remedial action ("actionability"). According to us, a condition for such an indicator is the availability of separate indicators related to the theme explored.

3. Universal message but in tailored reporting

Another question raised is, if HSPA and quality indicators should only be addressed to policy makers or also to the field and to professionals. The answer is obviously policy makers even if every health actor is part of the improvement. HSPA should be an excellent tool to align priorities and make commitments to solve problems. However, specific dimensions can be more dedicated to specific actors (e.g. effectiveness, appropriateness are dedicated to health workers, while financial access is specific to policymakers).

In Belgium, the possibility exists to have information both on patient consummation and the health worker who provides this health activity. This permit to send feedbacks, benchmarks to each health worker or health care unit on its own activity. Those feedbacks can be discussed within peer review and are one of the tools used for improvement.

4. Easy to understand

The way data are published and comparisons are made is critical: it must be attractive, understandable, and adjusted to the different types of audience who will make use of the information found in the joint report. The presentation should provide warning signals to facilitate the prioritizing of needed actions and/or further studies. In Belgium, synoptic tables with colour codes have been developed to allow a quick and easy overview of the results and of their interpretation; it also allows the comparison of indicators. It's also important to standardize the presentation, using the same structure: evolution over time, international benchmarking, sub-group analyses by socio-economic characteristics and by geographic distribution. As previously said, only measured indicators are retained in the current set.

Methodological issues for policy making and monitoring

As quoted in the KCE Report 196, "The ultimate goal of the health system is to be a high-performing system that contributes to improve the health of citizens living in Belgium. This means that the information produced, should help policy makers to formulate new health-related objectives.

The formulation of health (-related) objectives is a key-step in the process of assessing performance, since it would allow, in the next reports, to compare stated objectives to actual measures.

Several issues could be identified from Belgium experience, i.e.: (1) making decisions on outdated data, (2) performance against which target? International benchmarking does not solve the problem, (3) be concrete in addressing recommendations

1.   Monitoring on outdated data?

Some data are clearly outdated. This is inherent to the use of administrative data or registries. For international comparison, we sometimes had to rely on data from many years ago. Monitoring outdated data is an issue which implicates that a short periodicity between two reports maybe not relevant.

2.   Improvement against which target? International Benchmarking doesn't solve the problem

In Belgium very few specific and measurable objectives have been defined. When such targets exist, the value of the indicator was assessed by comparing it to the value of the objective. Otherwise, the judgment was based on external (e.g. WHO-defined) targets, or by comparing with the results of other countries. Whenever it was possible, the indicators have been compared with the average of the EU-15 countries. This allows us to position Belgium compared to its neighbours, but the 2012 Belgium report noticed that it does not solve the question of "are our results good or bad?" Indeed, some results can be good when compared to other countries, whilst they are not when confronted with the country objective. Moreover, interpreting the results of international comparisons of performance is still under debate, and there are many pitfalls, such as methodological and contextual variations, making meaningful comparisons difficult.

3.   Address concrete recommendations

Besides adequate reporting, to improve the usefulness of the report concrete recommendations are needed. For example, Belgium's reports made concrete recommendations to policymakers, point out priorities, also for data collection.

4.   Recommendations follow-up

How did we use the report for policy improvement in Belgium? It's certainly too early to show some results. Concretely, health ministers demanded special attention for priorities shown by the report and requested for a special monitoring of these. These priorities are linked to health promotion (obesity, tobacco, alcohol), screening strategy (breast, colorectal), mental health (suicides, antidepressive medication), chronic care (quality of the follow up), safety (medical irradiation, antibiotics), GP's reinforcement policy (new enrolees, burnt out, ward, patient registration) and accessibility (investigate the delay for financial reasons). An intermediate report was published early 2014 focusing on inequalities, quality of care in rest home and mental care.

f. General conclusion

From this quick overview, some key points to bear in mind for Belgium are:

1. A quality report should provide a global balanced overview which enables aligning views between all actors, especially the field and decision makers;

2. It's essential to analyse the quality of the health system as a whole encompassing

   - acute, and also chronic and mental care,

   - hospital (residential) care and also primary care,

   - health system and also health promotion and health in all policies

3. The set of quality indicators should remain comprehensive and elaborated enough to assess the system as a whole

4. The quality report must lead to recommendations which should be translated into action(s).

5. Many issues still need further development, like

   - Interaction between quality and other dimensions (outcome, efficiency, inequalities, …)

   - ways to improve data collection (upi, electronic data , linking data)

   - further elaborate good indicators for primary care, mental care, chronic care , end of life

   - improve international benchmarking

   - improve data reporting

   - ways to improve health systems (prioritise, targets, incentives).

Finland

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a. Background

The Finnish health policy is founded on the principle that all people living in Finland, irrespective of their socio-economic status, financial position or where they live, have access to high-quality services that are sufficient to meet their health needs. Social and health care is the largest municipal sector and an integral part of the Finnish welfare system. Municipalities are by law responsible for organising the social and health services that are included in the basic civil rights.

The municipalities can either provide the services themselves or purchase them from NGOs or private service providers. The Finnish service delivery system is cost-effective, it is of high quality, and it has the support of the general public. However, the sustainability gap in public finances and the demographic change put considerable pressure on social and health services both in terms of restructuring of services and reforming of practices.

Larger municipalities and hospitals have already taken initiative in investing in better health care quality. Quality management incorporates the management, planning, evaluation, and development of activities to obtain defined quality targets. Various kinds of models are in use in Finland to improve quality management, including the ISO quality management system, the EFQM award, the Common Assessment Framework (CAF), the Lean quality method, and the Social and Health Quality Service SHQS programme.

Finnish experts have taken active part in various OECD and EU projects to develop quality management, quality indicators and patient safety. Finnish experts have also been developing Nordic health care quality and patient safety indicators under the Nordic Council of Ministers. Moreover, there are several strong patient organisations with large memberships in Finland that have contributed significantly to the development of treatment for certain diseases. Other important actors in the health care field include government agencies that monitor the health care professionals and the guaranteed access to treatment.

b.   Dimensions considered

Health care quality work started in Finland already in the 1990s with the establishment of a Quality Committee that was to draft a quality policy for Finland as well as to set targets and develop health care quality. In 1995, the Ministry of Social Affairs and Health published a health care quality glossary as well as the first Finnish quality recommendation in social and health care. Since then quality recommendations have been brought up to date, and a more systematic approach has been adopted in quality management.

Several service-specific recommendations have been published after a national quality recommendation was issued in 1999. This national quality recommendation highlighted the need for separate quality recommendations and criteria for services targeting older people, families with children, substance abusers, and mental health clients, among other client groups.

These service-specific quality recommendations have aimed to promote a client-oriented approach, to lend support to high-quality service provision and to encourage service providers to comply with set targets and principles. They have also served as a policy steering mechanism, and they have stirred debate in the media and among the general public.

An example of such quality recommendations is the 2001 and 2008 quality recommendation on services for older people that took into account the latest evidence as well as the ongoing changes in the steering and operating environment. This recommendation was further revised in 2013. It aims to promote support for older people's functioning as well as to bolster the implementation of the 2013 act on care services for older people.

Due to the demographic change, resources are especially needed to develop home care for older people and to support informal care. Several quality recommendations have been issued also in the fields of social services and prevention. Moreover, several surveys have been carried out to find out how different recommendations have been implemented at the national level.

Feedback surveys targeting health centre clients across Finland have been developed in recent years. The first such survey was carried out in 2014 for maternity and child welfare clinics in the whole country and for oral health care units in the 50 largest municipalities/regions. In 2016, these surveys will be replicated across the country and surveys targeting physicians' and nurses' clinics in health centres will be carried out in at least part of the country.

The aim is to replicate the surveys every two years and to conduct the surveys mainly electronically: clients are informed of the survey when they visit the services and then use their own computers to give their feedback.

Evidence-based service and treatment practices aim to ensure both the quality and the suitability of activities. Continuous improvement of hospital care quality requires that the associated health benefits are monitored. The Managed Uptake of Medical Methods (MUMM) Programme provides decision-makers in hospital districts with essential information about the uptake of new methods. It also aims to increase knowledge about new methods and their role in all decision-making in health

care as well as to encourage actors in hospital districts to become committed to evidence-based activities.

The Current Care guidelines published by the Finnish Medical Society Duodecim are independent and evidence-based national clinical practice guidelines that deal with the treatment and prevention of health issues and medical conditions common in the Finnish population. Guidelines are drawn up for the most common conditions with the aim of improving treatment quality.

The authors of the Current Care guidelines have aimed to increase awareness of regional variations in treatment practices, to curb the growth of health care costs as well as to guide decision-making among health care professionals.

c. Focus of the evaluation

Finland is currently planning to restructure all health and social services and to transfer the responsibility of financing and organising the services to stronger regional actors. This will not, however, diminish the need for national monitoring and steering mechanisms. There is a need for systematic development of new quality standards and of the registers that collect quality data.

At regional level, the management in social and health care organisations and units has the responsibility for risk management and safety systems. The management must safeguard that the operating environment ensures occupational safety, safe client service, as well as safe, high-quality treatment. Efficient management and decision-making require sufficient, correct and timely information as well as appropriate internal control systems.

In Finland, there is no comprehensive national system of disease-specific quality registers. Instead, the work has been largely done in individual units, hospitals or hospital districts, resulting in a situation where the indicators and monitoring mechanisms for several diseases vary across the country, defeating efforts to compare treatment practices.

The most extensive common set of indicators for monitoring effectiveness was created as part of the PERFECT project launched in 2004. PERFECT stands for PERFormance, Effectiveness and Cost of Treatment episodes and it aims to measure treatment costs and effectiveness of hospital districts in ten major disease groups in specialised health care. In addition to traditional outcome measures, information is also collected about self-reported changes in patients' health with the help of general and disease-specific quality-of-life indicators.

The project focused on the following medical conditions and procedures: stroke, low-birth-weight infants, hip fracture, breast cancer, hip and knee replacements, acute myocardial infarction, as well as bypass operations and angioplasty.

Figure 10: Annual mortality by major group of diseases
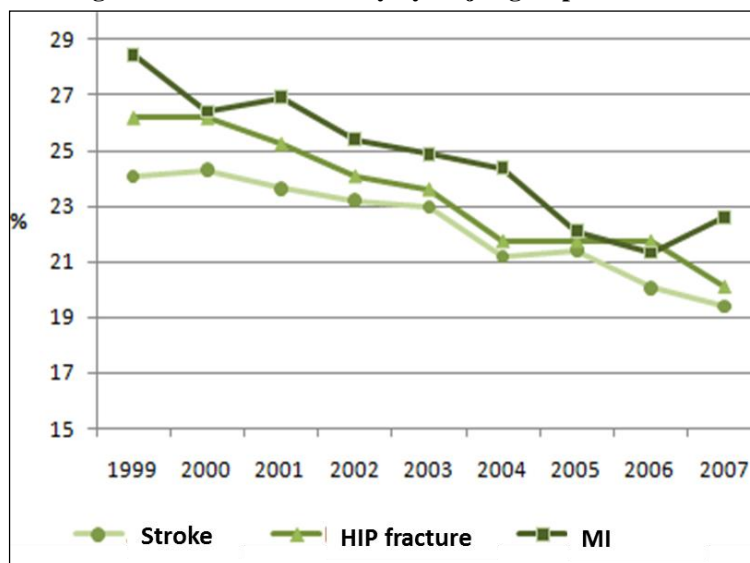
Annual mortality is one of the most frequently used indicators in PERFECT (Figure 10). Mortality trends have been positive throughout the country for three major disease groups in 1999–2007 [stroke, hip fracture, and acute myocardial infarction].

Disorders of the cerebral circulation (with 4 874 deaths in 2001) are the second most important cause of death after cardiovascular diseases and the first most important cause of disability in Finland. Some 50 000 Finns have had a disorder of the cerebral circulation. The treatment chain for disorders of the cerebral circulation from acute care to rehabilitation and discharge to home or institutional care is a significant challenge and a resource drain in health care.

Figure 11: Annual mortality for disorders of the cerebral circulation by category of provider
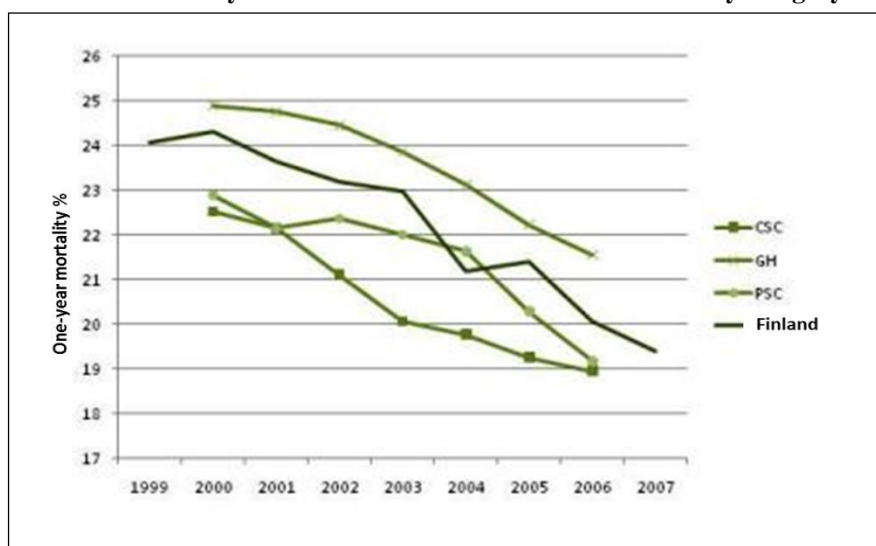
Trends in annual mortality have been positive in Comprehensive Stroke Centres (CSCs), Primary Stroke Centres (PSCs) and General Hospitals (GH) as well as at national level 1999–2007 (risk-adjusted figures; 3-year moving average for CSCs and PSCs). Variations between CSCs and PSCs still persist, however (Figure 11).

d. Quality of data

Patient data are collected electronically from hospital discharge registers and from the health insurance system. The Care Registers for Social Welfare and Health Care (HILMO) is a hospital discharge register that covers most of the institutional care and housing services provided in Finland. In 2011 the discharge register was extended to cover also primary health care.

The Finnish mechanisms for monitoring population health and well-being are reliable, according to international comparisons. The monitoring of access to treatment has been developed especially from the perspective of legislation and supervision. Data are also available extensively on treatment costs and hospital productivity. Other data sources include the cancer register, the arthroplasty register, the hospital infection register programme (SIRO) and the cause-of-death statistics.

An example of a uniform reporting mechanism is the web-based HaiPro tool for reporting patient safety incidents. Over 200 social and health care units across the country are using the HaiPro tool, and the total number of users exceeds 140 000. The aim is to improve internal practices in health care units to ensure patient safety. The HaiPro tool was first introduced in Finland in October 2007. By 2015 all specialised care units and most of the primary care units in the public sector were using the HaiPro tool. Even private health service providers are using it. Nearly one million patient safety incident reports have been filed so far.

Occupational safety and health incidents, too, can be reported using the HaiPro tool. Moreover, the tool is linked to the statutory system for reporting malfunctioning and patient safety incidents relating to medical devices. Even patients or patients' friends or relatives can use the tool to report patient safety incidents or near misses.

The HaiPro tool will soon be supplemented with different kinds of assessment tools for risk management purposes, such as risk assessments for malnutrition and pressure ulcer. Incident reports are processed by heads of unit, but where necessary the reports can be transferred to a higher level of management for processing and further measures.

Incident reports in the HaiPro system can also lead to investigations of serious patient safety incidents. A patient safety incident report can be filed anonymously, and it should not lead to official repercussions unless the incident is the result of gross negligence of existing guidelines.

Finnish health care quality and outcomes have been compared as part of the EuroHOPE (European Health Care Outcomes, Performance and Efficiency) project. The project concept has also had international use. There are also different kinds of benchmarking tools and models in use in specialised health care and old-age care, for example.

e. Use for policy actions

Health care quality work in Finland is based on the 2011 Health Care Act, the subsequent decree, as well as on the Finnish Patient Safety Strategy for 2009–2013. There is also legislation on the status and rights of patients, on health care professionals, as well as on the use and safety of medical

devices. Provisions on quality management are also found in the Communicable Diseases Act, the Medicines Act and the Rescue Act.

Legislation on guaranteed access to treatment was adopted in 2005, defining maximum waiting times for access to non-urgent examinations and treatment. The aim was to ensure equal access to health care across the country and cut down long waiting times.

The 2013 Act on Supporting the Functional Capacity of the Older Population and on Social Health Care Services for Older Persons aims to ensure the well-being of the older population as well as the access to social and health care services for older persons. Data were collected on social and health care services for older persons as well as on older persons' functioning and perceived service needs in 2013 and 2014, i.e. before and after the entry into force of the act. The goal is to continue to collect similar data regularly. Data were also collected on the costs of the new act.

The professional practice rights of a health care professional can be checked by anyone using the public access version of the Terhikki register. Terhikki is the central register of health care professionals in Finland. It is maintained by the National Supervisory Authority for Welfare and Health (Valvira) on the basis of the Act and Decree on Health Care Professionals.

The importance of training for the improvement of quality in health services has been emphasised by public authorities and trade organisations in the field. Maintaining and developing the professional skills that form the foundation for better health care quality are the responsibility of both the employer and the employee, according to the Act on Health Care Professionals.

Quality management is also part of all basic, further and continuing training of social and health care professionals. Moreover, quality management should be a separate study module in the basic training. The aim of specialist and further training of physicians, nurses and other practitioners is to ensure that health care personnel have the necessary quality and level of professional skills, according to a recommendation by the Association of Finnish Local and Regional Authorities.

Valvira is also responsible for controlling that service providers invest in self-monitoring. The aim is to improve the quality of health care and the legal safety of patients. Each service provider should have a self-monitoring plan that includes all key measures by which the service provider monitors its own operating units, its own staff and the quality of its services.

A national patient safety programme was launched in September 2011 and lasted until 2014. Its long-term goal was to halve both the mortality amenable to health care and the number of adverse events by 2012. A short-term goal was to promote the incorporation of a patient safety culture in all health care as well as to provide high-quality, easy-to-use ways to promote patient safety, including information, peer experience, best practices, development programmes and other tools. An online training site, launched as part of the programme, provides workplaces with basic information and practical tools for promoting patient safety.

The training is principally designed for professionals working with patients, i.e. physicians, nurses and service managers, but it can also be used by other professionals in social and health care.

Already some 100 000 health care professionals have completed the training. Significant patient safety improvements have been achieved in Finland over the past few years. However, more detailed guidelines are needed for the development and monitoring of patient safety. The patient safety strategy is being revised, and an action plan for patient and client safety is on the way.

f. Quality reporting for the general public / Quality data supporting patients' decision-making

Client orientation is currently seen as a key element in service provision, and patient involvement in service development is desired. The amount of information available online is increasing, and new, digital services are becoming more common, to some extent replacing visits to health services. There is an interest for large-scale use of the new types of services in primary health care and a hope that such services can help to curtail costs.

The various reforms that have aimed to expand patients' freedom of choice have shown that simple comparative data about the quality and availability of services improve patients' opportunities to choose their service provider. Without this kind of information, patients would not be able to select the service unit that would best meet their needs, and the freedom of choice included in the Health Care Act would not be realised. Comparative data are also necessary for health care professionals as well as for both administrative and political decision-makers.

THL has created the online service Palveluvaaka to help people find, compare and evaluate social and health services. The website contains information about the services and service units of public and private service providers. It also gives clients and patients the opportunity to give structured feedback on service units. Another feature of the website is the public access to quality data, including the above-mentioned PERFECT data as well as the results of client feedback surveys from health centres across the country.

Other upcoming tools include methods of self-care, patient guidebooks as well as self-care portals, such as the Finnish website Omahoitopolut.fi that provides people with reliable, evidence-based information about health and well-being. The website also contains evidence-based tests for measuring functioning and disease risk factors, and also professionals in social and health care can use its tools and information as part of their work. Making the risk factor test with a patient gives an opening for discussion and, at the same, provides links to useful information.

THL has also created a web-based patient safety guide for patients and their friends and relatives. The aim is to encourage patients to take an active part in their care as well as to help patients and their friends and relatives improve patient safety. From the very beginning, patients and patient organisations took active part in the planning of the guidebook that focuses on the things patients should know about at different stages of their care process and after discharge.

The services of the National Archive of Health Information, or Kanta services, form a unique set of statutory services made accessible to citizens, health service providers and pharmacies in 2010–

2016. The services include the electronic prescription, the Pharmaceutical Database, the Patient Data Repository, the Data Management Service, as well as the My Kanta pages for citizens' access to their electronic prescriptions and medical records.

The greatest challenges of quality management in future are associated with indicator work as well as with enabling patients to have a bigger role in decision-making. The citizen's role as a service user becomes stronger. This requires, however, extensive investment in information dissemination. Information must also be transparent and meet the citizens' information needs, thus better enabling comparisons and evaluations of services.

Research results indicate that people in Finland are satisfied with health care quality and services. More than half of the population rate the quality of health services as excellent. The availability of high-quality services even in future requires, however, investments in primary health care, old-age care and specialised health care as well as a continuous and constantly developing process of quality improvement and evaluation.

France

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This chapter addresses the Ministry of Health effort to develop and use quality and safety indicators for hospital care. It will describe the continuous advances in the breadth (dimensions of quality assessed) and depth (use of indicators from public reporting to financial incentives) of the policy over the last two decades. The main focus is on the paying for performance (P4P) scheme that will be generalised in 2016. Therefore, the indicators developed by the French National Health Insurance Fund for Salaried Workers and used in individual contract for general practitioner quality improvement are out of the scope of this report.

a. Background

The first set of mandatory quality indicators that was released is related to the reduction of hospital-acquired infections. The objectives of the Ministry of Health were to promote transparency towards patients and to provide metrics to monitor quality and target improvement initiatives, internally and externally.

Based on voluntary reporting on activities related to fight against hospital-acquired infections, the indicators were developed from 2000 onwards. Experts and stakeholders were consulted. The feasibility and the validity of the indicators were tested in a set of voluntary hospitals by a research program, COMPAQH, before the generalisation of public reporting in 2006.

The first indicator, named ICALIN, was intended to monitor the prevention of hospital-acquired infection, followed by others indicators related to surgical site infections and antibiotic resistance. These indicators were mainly process indicators, and were based on administrative data. Hospitals were grouped for comparison purpose. Hospitals were ranked in five categories, from A for the best to E for the worst. The cut offs for each grade were based on the distribution observed in 2004 for each group.

The quality indicators were further developed to assess effectiveness of care, coordination between hospital and ambulatory care, patient safety, and patient experience.

The French hospitals financing model did not specifically took quality into account. Under the financing model based on DRGs, the facilities may have to balance between improving efficiency and offering the highest quality of care. Although no empirical evidences exist to date, the example of bloody discharge, reducing care intensity and fragmentation of treatment are often mentioned. A financial incentive to improve results on the quality indicators can be a tool to mitigate this risk.

Because it is based on the weighted average of the production costs observed each year, the current level of hospital tariffs is sufficient to finance a level of quality in accordance to the state of the art. Therefore, the approach adopted was a financial incentive distinct from the tariffs, as specific bonus on top of the current payment of hospitals.

The French context was favourable to the introduction of a pay for performance scheme. Firstly the panel of indicators was large, with the development of a new dimension: the patient experience. Secondly, the appropriation of the quality indicators was deemed sufficient after almost a decade of public reporting. Thirdly, in a context of free choice of provider, competition on quality can occur. Fourthly, the ability to deliver robust information on the level of quality can be perceived as a health democracy issue.

Therefore, a research program on financial incentive for improvement of quality and safety of care (*Incitation à l'amélioration de la qualité et de la sécurité des soins –IFAQ*) was launched in 2012. The process was transparent. The steering committee was co-chaired by the Ministry of health and the HAS. A working group was set up, with experts appointed by all the hospital federations and was consulted for the model specification. COMPAQH, an independent research team expert in the field of quality indicators, was selected.

The objective was to develop the P4P program (metrics, incentive structure and incentive size), to evaluate its effects and the appropriation by the professionals.

The working group was set up in 2012. The Ministry of Health launched a call for application in July 2012. Out of 450 hospitals, a panel of 222 hospitals was randomly selected for the experimentation.

b. Dimensions considered

The compulsory quality indicators assess the fight against hospital-acquired infections, the effectiveness of care, coordination between hospital and ambulatory care, patient safety, and patient experience.

The set of indicators related to hospital-acquired infections have been presented in the previous section.

The largest group of hospital quality indicators are named IPAQSS (*indicateurs, pour l'amélioration de la qualité et de la sécurité des soins*). They are process indicators. Hospitals are ranked in 4 categories, based on the attainment of the target set by the Ministry of Health: A is the target exceed, B is the target is reached, C is the target is not reached. The fourth category D is used when the hospital did not comply with the reporting obligation. There is no risk adjustment.

These indicators are compulsory for acute care hospitals, and some of them for psychiatric hospital, rehabilitation hospital, and hospitalisation at home. They are based on medical records (paper and/or electronic) and currently collected every two years. The results are publicly reported online and hospitals have the legal obligation to inform their patients on their results.

Patient experience indicators, based on survey, are compulsory since 2014. The methodology used is currently revised and will use an online questionnaire. By the end of 2015, every acute care hospitals will have submitted the email of their patients so they can fill in an online survey.

The developments of results indicators are underway. Patient safety indicators, using administrative billing data, are being finalised. Research on standardised hospital mortality rate is ongoing.

c.   Focus of the evaluation

This report focus only on hospitals' quality indicators. The level used for collecting and reporting is the facility, based on the legal definition.

d.   Methodology adopted

Methodology for the development of quality indicators

The development process of indicators was conducted under the supervision of the health authorities, namely Ministry of Health and the National Health Authority (HAS).

The COMPAQH project team (Coordination for Measuring Performance and Assuring Quality in Hospitals; Laboratory of Health Management Research – EA 7348 M0S/French School of Public Health), a French national initiative for the development and use of QIs, was responsible to develop the methodology for indicators selection and development.

Nine priority areas for quality improvement were assigned: (1) pain management; (2) continuity of care; (3) management of patients with nutritional disorders; (4) patient safety; (5) taking account of patients' views; (6) implementation of practice guidelines; (7) promoting motivation, accountability and evaluation of skills; (8) access to care and (9) coordination of care.

QIs were identified after a literature review, out of which 42 were selected by healthcare professionals using a two-round Delphi technique.

The trade-off was similar as the one faced by other countries, between burden of data collection and cost of producing the indicators on one hand, and validity of the measurement on the other hand. The strategy for the data collection was a manual data extraction from a random sample of 60–80 medical records per hospital and per year. To ensure method validity, the metrological qualities were assessed with regards to feasibility, reliability and discriminative power by a pilot test on 50 to more than 100 hospitals (depending on the QI).

Methodology for the development of P4P programme

The guiding principles of the program were to develop a composite score able to discriminate hospitals, to reward both effort and excellence, to ensure coherence and consistency with other policies regarding quality of care, to limit the cost of the program for the hospitals and the administration, and to use only positive incentive without financial penalty.

Accreditation is a compulsory procedure for all public and private hospitals every four years. It was decided to strongly link the incentive and the accreditation results. A minimum level was required to be eligible for remuneration. Furthermore, results on some priority criteria from the accreditation

were included in the score calculation. The other variables used for the score calculation are the results on the national quality and safety indicators and an indicator related to the digitalisation of medical records. These indicators presented previously are compulsory and for the most part publicly disclosed. Therefore, no extra burden for data collection or efforts for appropriation by the actors were necessary.

In order to reward hospitals that over-invest the quality dimension, the methodology developed must target hospitals with the best results on quality indicators and hospitals showing faster improvement.

A score is computed for each variables based on the grade obtained by the hospitals the current year and the previous measure if available. The matrix used is presented in Table 3.

Table 3: final scores for each variable

Results Year Y-2	Results Year Y	Level attained	Evolution	Bonus/malus	Somme score (scale from -10 to 20)	Final score (scale from 0 to 10)
A	A	10	0.0	+ 10.0	20.0	10
A	B	5	- 3.5		1.5	3.8
A	C	0	- 7.0		-7.0	1.0
B	A	10	+ 3.5		13.5	7.8
B	B	5	0.0		5.0	5.0
B	C	0	- 3.5		-3.5	2.2
C	A	10	+ 7.0		17.0	9.0
C	B	5	+ 3.5		8.5	6.2
C	C	0	0.0	- 10.0	-10.0	0.0
D	A,B,C			- 10.0	-10.0	0.0
NA	A					10
NA	B					5
NA	C					0

NA: non applicable

The composite score is computed as the weighted sum of each component shown in Table 4.

Table 4: weights of components

Categories	Variable	Weight*
Quality and Safety indicators	Medical record content - TDP	12,6
	Delay in sending hospitalisation summary to general practitioner - DEC	10,9
	Traceability of pain assessment - TRD	15,1
	Screening for nutritional disorders in adults – DTN3	8,4
	Conformity of anesthetic records - TDA	11,8
	Multidisciplinary meetings in oncology- RCP2	11,8
prevention of nosocomial prevention	Composite index for evaluation of activities against nosocomial infections - ICALIN	11,8
Meaningful use of medical records	Composite index on information system infrastructure and level of digitalisation of medical records - HN	3,4
Accreditation	Composite index based on list of priority criteria - PEP	14,3

*Weights in case the hospital is concerned by every variable

Experts appointed by each hospital federation were consulted using a Likert scale and a final consensus meeting was held to determine the weights. Multiple combinations of variables exist. Indeed, some of indicators are related to specific activities, for example cancer treatment or surgery. Therefore the number of variable per hospital varies. However, each variable retains the same relative weight in the final score, regardless of the number of applicable components. The formula used, for a hospital with nine variables applicable, was:

$$S_{IFAQ} = 12{,}6TDP + 10{,}9DEC + 15{,}1TRD + 8{,}4DTN + 11{,}8TDA + 11{,}8RCP + 3{,}4HN + 11{,}8ICALIN + 14{,}3PEP$$

Hospitals were ranked based on their composite score. The eligible hospitals with a score above the median were rewarded. The reward was a function of the score and the hospital revenue generated by in-patients, was capped and could not be lower than 50k€.

The three levels of rewards were:

- Top third : 0.5 % of revenue (max 500k €)
- Middle third : 0.4 % of revenue (max 400k €)
- Bottom third : 0.3% of revenue (max 300k €)

In December 2014, 185 hospitals were eligible. Thirty seven have been excluded due to failure to report at least on one indicator (n=8), insufficient level of accreditation (n=28) and one hospital was closed. 93 hospitals were rewarded for a total of 12.4 M€.

A quantitative and qualitative evaluation of the experimentation was undertaken. The score had a good discriminative power. In order to determine if some hospital or patient characteristics could explain the differences between facilities from the panel, uni and multivariate analyses were performed.

The major explanatory variable was the diversity of the cases treated. However this result may be linked to the nature of the indicators, mostly organisational in 2014 and was not found in 2015 with a score including clinical indicators. The evaluation of appropriation by hospitals found a good level of information of the direction level but the information did not trickle-down to clinicians or nurses.

In order to improve the level of appropriation, a detailed information document was released, personalised reports were sent to each participating hospitals and a national information seminar took place.

The 2015 Social Security Finance act introduced a financial incentive based on quality indicators. The policy will be implemented in two phases. In 2015, the program will expand to a total of 490 voluntary hospitals and will include a new set of indicators: patient satisfaction; clinical indicators (myocardial infarction; stroke; Prevention and management of postpartum haemorrhage; Support for haemodialysis patients). The incentive will be extended to every acute care hospital in 2016.

e. Quality of data

Control of the quality of data occurs during the data collection process with quality checks procedures, and before the publication of the results with audits in a sample of hospitals, half selected randomly, half selected by the regional health authorities. The audit procedure set the threshold of discrepancies tolerated. Above it, the result for the indicator is not deemed valid. Therefore, it is neither publicly disclosed nor used during hospital accreditation or for financial incentives.

To prevent gaming, a tighter control of the validity of data and sanctions were enforced for participating hospitals. The hospitals were excluded if the data were not validated during the general quality control campaign. Every hospital rewarded was controlled for one variable randomly selected. If the data were not validated, the hospital was excluded of the program the next year.

f. Use for policy actions

The objectives of the policy regarding the hospital quality indicators are to:

- improve transparency towards patients, to inform them on the level quality of the services provided with public reporting of the results
- monitor and manage intervention policies at the national and regional level
- promote benchmarking and provide tools for hospital to target improvement initiatives; each hospital has access to its results per indicator, if he reached or exceed the national target, their evolution over the years, and how it compares to the average results of hospitals in the same region and hospitals in the same category

The indicators are:

- used during the accreditation process by the National Health Agency (HAS)
- included in the contracts with the Regional Health Agency
- the basis on which the financial incentives for quality improvement was build

Germany

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a. Background

Numerous organisations have a role in quality assurance in healthcare in Germany. Statutory national quality assurance and improvement, however, is largely established and regulated by the Federal Joint Committee for Healthcare. The Federal Joint Committee is the highest decision-making body of the corporatist, self-governing system of physicians, dentists, hospitals and health insurance funds in Germany.

The government predominantly provides the legal framework for regulation of the delivery of healthcare by the self-governing system. The Federal Joint Committee was established on 1st January 2004 as a result of the Healthcare Modernisation Act, and took over the mandate of its predecessor organisations.

Patient involvement is regulated by law (Social Code Book, Book Five). Since 2004 leading national patient interest groups have been entitled to send representatives to all bodies of the Federal Joint Committee. They have no voting rights, but they are entitled to fully participate in discussions and to file petitions.

The Federal Joint Committee is charged with health policy-making in a variety of areas within a legal framework (Social Code Book, Book Five). It translates the legal framework into detailed regulation to be implemented in practice. It exercises its power through directives that are binding for health service providers, social insurance funds and indirectly for patients.

The Federal Joint Committee is under legal supervision by the Federal Ministry of Health. Within the legal framework the Federal Joint Committee is charged with comprehensive regulative tasks with regards to quality assurance and improvement in healthcare such as requirements for continuous medical education of specialist hospital doctors, requirements for minimum volumes of selected typically complex procedures, improving patient safety and preventing healthcare associated infections, establishing highly specialised outpatient services, requirements for disease-management programmes, quality assessment of care delivered by office-based doctors e.g. quality assessment of chronic renal dialysis services, requirements for internal quality management, and minimum standards for structures and processes in selected healthcare areas.

Below the focus will be, however, on the national external, data-based quality assurance programme and the reporting of hospital quality data. Both are within the Federal Joint Committee's responsibility and represent a fundamental part of quality assurance and improvement in Germany.

Figure 12: Players of the German system of quality assurance in healthcare
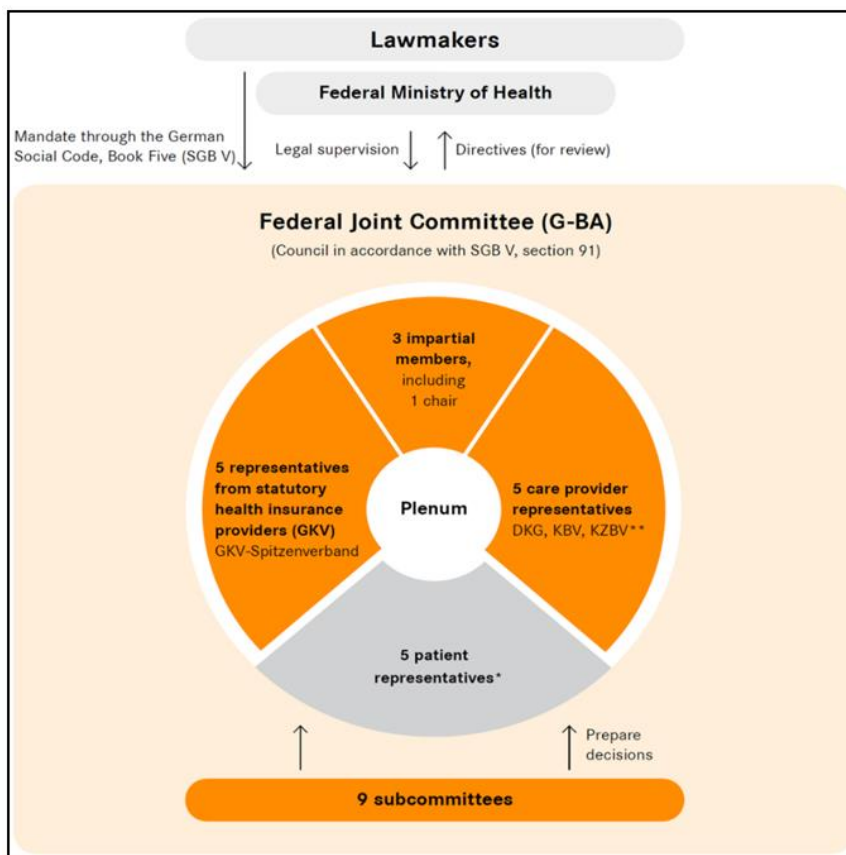
Source: www.g-ba.de

The national external, data-based quality assurance programme in Germany was originally established in 2001 based on quality assurance systems that had been developed by medical scientific societies since the 1970s. Since 2004 it aimed to detect and prevent unintended consequences following the introduction of a hospital reimbursement scheme based on diagnosis-related groups. From 2001 to 2009 the Federal Office for Quality Assurance (*Bundesgeschäftsstelle Qualitätssicherung* BQS), commissioned by the Federal Joint Committee and its predecessor organisations, was in charge for implementing the programme.

Since 2010 the Institute for Applied Quality Improvement and Research in Health Care GmbH (AQUA Institute) has taken over processing the programme. The AQUA Institute is a private institute contracted by the Federal Joint Committee following a tendering process. Recent legislation, however, has changed the legal framework for the institute supporting the Federal Joint Committee in the area of quality assurance and improvement. In January 2015 the Federal Joint Committee established therefore a new institute, the Institute for Quality Assurance and Transparency in Health Care (IQTiG), as a foundation and independent scientific institute. From 2016 the IQTiG will be commissioned by the Federal Joint Committee with various tasks in quality assurance including running the national external, data-based quality assurance programme.

b.   Dimensions considered

Since 2004 the Federal Joint Committee has been regulating the national external, data-based programme through a directive that makes participation compulsory for all hospitals in Germany. Data on specifically developed quality indicators for interventions or diseases in about 30 selected clinical areas including data for risk-adjustment and for administration purposes are collected. Hospitals transmit data to the *Länder* administration offices for quality assurance (for high-volume clinical areas, e.g. total hip replacement) or to the AQUA Institute (for low-volume clinical areas, e.g. transplantation procedures) for analysis (Figure 13).

The Federal Joint Committee has not agreed an explicit quality of care model or framework that should be used. However, applying the Institute of Medicine's[68] six aims of high quality care (safety, effectiveness, patient-centeredness, timeliness, efficiency and equity) quality indicators within the external, data-based quality assurance programme aim at assessing quality of care in the dimensions of patients safety, effectiveness, patient-centeredness, timeliness, whereas direct focus on efficiency and equity has been limited so far.

Figure 13: National external, data-based programme on quality assurance
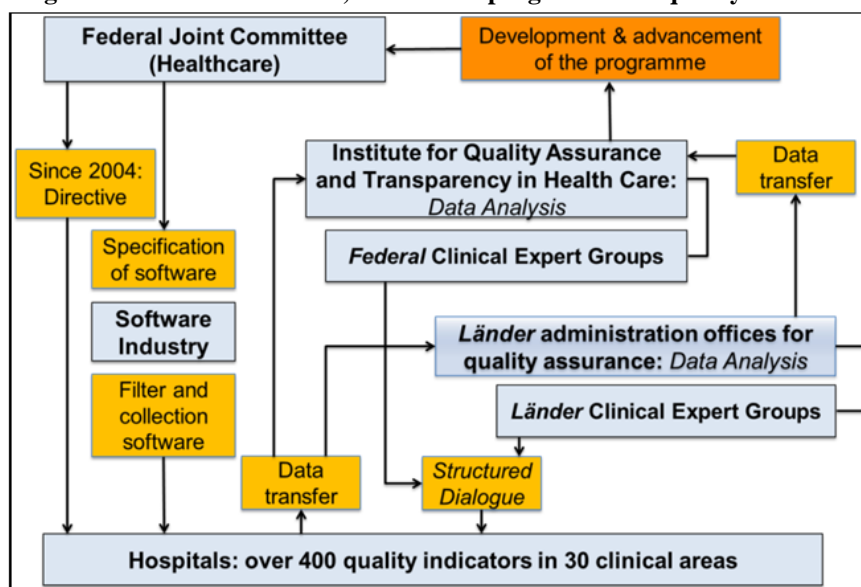
However, efficiency of care is considered to be indirectly included as the programme assesses quality of care that is being reimbursed based on diagnosis-related groups. Equity issues play a role in risk-adjustment models within the programme, whereas no indicator explicitly aims at assessing equity of healthcare so far. In Germany, equity issues in health are considered by programmes outside the Federal Joint Committee's area of work.

Examples for a quality indicator focusing on patient safety are "Postoperative wound infection" and "revision due to complications" after total hip replacement. Examples for indicators assessing effectiveness are "mortality among live births at-risk" and "ratio of the observed to the expected

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[68]   Committee on Quality of Health Care in America, Institute of Medicine. Crossing the Quality Chasm: A New Health System for the 21st Century. Washington, D.C.:National Academies Press, 2001

rate (O / E) of necrotizing enterocolitis (NEC) in very small preterm infants < 1500g birth weight" in neonatal care.

The indicator "inability to walk at discharge" after treatment of femoral fractures aims at patient-centeredness, whereas the indicator "preoperative length of stay > 48 hours after hospital admission" before treatment of femoral fractures could be considered to be assessing timeliness.

Quality indicators used in the programme can also be categorised into indicators assessing structure, process and outcome of care according to Donabedian's concept. The large majority of indicators in the programme aim at process and outcome of care. Examples for process indicators are "use of the left internal mammary artery" in coronary artery surgery or "Perioperative antibiotic prophylaxis in caesarean section" in obstetrics.

Examples for outcome indicators are "in-hospital- mortality" in coronary artery surgery and "inability to walk at discharge" after total hip replacement. In addition, patient surveys are being developed that will be assessing the patient's experience of care and health related quality of life aspects specifically in the clinical areas included in the programme.

c. Focus of the evaluation

The focus of the national external, data-based quality assurance programme is the hospital level. Data on quality indicators for interventions or diseases in about 30 selected clinical areas are collected. Clinical areas include community acquired pneumonia, obstetrics, gynaecological operations, breast cancer surgery, carotid artery revascularization, total knee replacement, total hip replacement, femoral fractures, cardiac pacemakers, implantable cardioverter defibrillators, coronary angiography and percutaneous coronary intervention (PCI), aortic valve surgery, coronary artery surgery and combined coronary and aortic valve surgery, cardiac transplantation and combined lung and heart-lung transplantation, liver transplantation and living liver donation, kidney transplantation and living kidney donation, pancreas and pancreas-kidney transplantation, neonatal care, prevention of pressure ulcer and cholecystectomy.

Around 3.2 million records (2013[69]: 3,153,099; 2014[70]: 3,245,142) - nearly 20% of all inpatient cases - from 1,557 hospitals using over 400 quality indicators (2013: 434; 2014: 416) were collected. The large majority of these indicators allow conclusions on changes over time.

Since 2010 considerable work has been done by the Federal Joint Committee to extend the external, data-based programme from the hospital sector to the outpatient sector of office-based general and specialist doctors as well as dentists (so-called cross-sectoral quality assurance).[71]

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[69] German Hospital Quality Report 2013 (English). Available at https://www.sqg.de/quality-report/index.html

[70] German Hospital Quality Report 2014 (German). Available at https://www.sqg.de/ergebnisse/qualitaetsreport/qr_2014/qr2014.html

To comply with data protection legislation in Germany a data trust centre has been established specifically for quality assurance data. The trust centre will remove all patient identifying information from a data set and attach a unique patient identifier to allow following a patient over time and collecting quality data from different treatment episodes and different service providers. The goal is to improve cooperation between the hospital and outpatient sector (office-based doctors) with regards to treatment of individual patients and, by doing so, to improve efficiency of healthcare.

To date the external quality assurance programme has been limited to quality indicators collected during the patient's hospital stay. Only for transplantation procedures follow-up indicators such as 1-year, 2-year and 3-year survival are being collected by the treating hospital. The extension of the programme to cover treatment episodes over longer periods of time as well as different sectors and service providers is considered to be essential to adapt to shorter lengths of hospital stay, increasing number of chronic diseases with long-time treatment and procedures that can be performed in hospitals as well as in ambulatory settings.

Currently, concepts for including data from administrative claims data from the health insurance funds and data from patient surveys into the external (cross-sectoral) quality assurance programme are being developed.

d. Methodology adopted

The Federal Joint Committee defines a topic for quality assessment and improvement. Each year it decides on the clinical areas, procedures or diseases that are included into the programme and which changes are to be made such as the development of new quality indicators.

For the development of new quality indicators a systematic stepwise procedure is applied[72]. First a systematic review of published research on available indicators, including lists of indicators developed by international organizations, is carried out. Second a modified RAND/UCLA procedure with a multidisciplinary panel is performed. In three 1–2-day group meetings and two written rounds the panel selects indicators from a list and adapts them if necessary. This results in the final set of indicators. All panel members have to declare their potential conflicts of interest.

Around one third of the all indicators is risk-adjusted to various degrees, and therefore account for patient-related factors such as age and comorbidity that influence the results (quality of care). A first step towards risk-adjustment is taken by carefully defining the target population from which a quality indicator is being collected. This increases the comparability of cases and, subsequently, results between hospitals.

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[71] Pötter-Kirchner K, Höchstetter R, Grüning T. Die neue datengestützte Qualitätssicherung des Gemeinsamen Bundesausschusses: Chancen und Herausforderungen (Chap. 8). In: Langkafel P (Hrsg): Big Data in der Medizin und Gesundheitswirtschaft. Heidelberg: medhochzwei Verlag; 2014

[72] Szecsenyi J, Broge B, Eckhardt J, Heller G, Kaufmann-Kolle P, Wensing M. Tearing down walls: opening the border between hospital and ambulatory care for quality improvement in Germany. Int J Qual Health Care 2012; 24(2):101-104

Stratification methods and then subgroup analysis is carried out for around 18% of all quality indicators. For example, the indicator "in-hospital mortality" after treatment of femoral fractures is stratified by ASA classification. In around 18% of all indicators risk-adjustment is done by applying multiple logistic regression (or Poisson regression) analysis that allows for adjusting for a greater number of factors influencing the result. For a small number of indicators additive scores are used for risk-adjustment.

e. Quality of data.

The majority of data are collected specifically for quality assurance purposes. Data collection on quality indicators is included into data collection systems (software) that are used by healthcare providers in Germany. This also allows using data that are primarily collected for other purposes, e.g. clinical and administrative use. In future, administrative claims data (i.e. mortality) from the health insurance funds and patient surveys will be added.

The AQUA Institute provides a software specification that defines the hospital case that is subject to mandatory documentation using inclusion and exclusion criteria such as the diagnostic (ICD) and procedural (OPS) codes. For most clinical areas all cases are included that have an admission date within the collection year and a discharge date prior to 31st January of the following year. A second software specification defines the precise content for collection, the technical requirements, plausibility testing, and data transmission.

The case completeness rate (number of transmitted cases / expected cases) is measured at the level of each hospital and for each clinical area. The overall case completeness rate is with 99 to 100% usually very high. There is a financial penalty if hospitals fall below a rate of 95% (100% for transplantation procedures).

A data validation programme for correctness and completeness is performed each year. The data validation programme consists of two parts: First, there is a basic statistical testing using criteria for plausibility, record completeness (data completeness of individual cases) and case completeness rate.

Hospitals outside the expected range are suspected to have data collection (documentation) practises of low quality and therefore become subject to an appraisal procedure (the so-called "*structured dialogue*"). Second, a validation procedure for a random sample of hospitals is used to appraise documentation quality in detail. The Federal Joint Committee decides on three to four clinical areas each year that will be subject to data validation by random sampling.

A sample of 5% of hospitals per selected clinical area is drawn and hospital documentation (transmitted data) is checked by comparison with the patient's medical records during an on-site visit. If data collection is considered to be of low quality, individual measures are discussed and agreed with the hospital to improve data quality.

Since quality indicators do not *measure quality* but can only indicate that there *may be* poor quality, data analysis of the external, data-based quality assurance programme is followed by an appraisal process ("*structured dialogue*") if results are outside the normal range.

This peer review-like process follows a pre-defined schedule and starts with sending a demand note to the hospital or requesting a written statement from the hospital with respect to the quality indicators outside the normal range, followed by a colleague-to-colleague talk and an on-site inspection at the hospital, if deemed necessary.

Currently, around 7000 demand notes are sent to and statements on around 10,000 results are requested from hospitals each year and, subsequently, colleague-to-colleague talks with around 100 hospitals and on-site inspections at 10-12 hospitals are carried out each year.

This *structured dialogue* is considered to be essential for finally deciding whether there is deficient quality of care or not, and for finding the cause of deficient quality if present. If deficient quality of care is identified, hospitals are supported, measures are introduced to improve quality of care and targets for quality improvement are agreed.

If a hospital repeatedly fails to meet quality targets, further measures, e.g. informing the regional health authority and publicly reporting on the hospital's quality deficiencies, are available.

f. Use for policy actions.

Results from the national external, data-based quality assurance programme are sent back to healthcare providers (hospitals) yearly as benchmarking information that allows comparison among (anonymous) hospitals. Individual provider results are used within their internal quality management systems. In addition, anonymous results are published on the website of the AQUA Institute in detail as well as in a summarizing report.

The reporting also includes comparison of results with previous years. Typically, this shows a large number of indicators with improved results (e.g. 65 of 416 indicators in 2014), a small number with declined results (e.g. 14 in 2014) and the majority with unchanged results (e. g. 330 in 2014). Some indicators (7 in 2014) are new or have been changed and therefore cannot be compared with previous years. For example, in the area of community-acquired pneumonia improvements have been achieved over the years with regards to the process indicator "Determination of respiratory rate on admission" (87.7% in 2011, 91.2% in 2012, 93.4% in 2013, and 94.8% in 2014).

Since 2005, hospitals in Germany have been required by law to publish a quality report every two years. Since 2013 a yearly publication has been mandatory. A directive issued by the Federal Joint Committee defines the procedure of report preparing and publishing, and the content, scope and data format of the reports.

Results of the external, data-based quality assurance programme are also included in the reports. This represents "public reporting", i.e. publishing quality (including outcome) data of individual

hospitals in non-anonymous form. 295 of 434 (in 2013) respectively 270 of 416 (in 2014) indicators have been included in the public reporting system. The reports aim at informing patients and doctors about hospital specialties and services, presenting hospital performance and quality data (including outcome data) to the public and providing a basis for benchmarking and quality improvement.

In addition, the recently established Institute for Quality Assurance and Transparency in Health Care (IQTiG) is charged with increasing transparency of the healthcare sector: from 2016 the IQTiG, commissioned by the Federal Joint Committee, will publish the results of the national external, data-based programme in a form that is comprehensible for the public and that allows comparison of hospitals in selected clinical areas.

Other user groups of the results of the external, data-based quality assurance programme are the Federal Joint Committee, the federal and regional governments, the *Länder* administration offices for quality assurance, health insurances, and regional and national bodies of health professionals. These stakeholders can use the information as guidance for quality programmes and health policies.

Recent draft legislation proposes a mandate for the Federal Joint Committee 1) to define clinical areas or procedures that are suitable for a careful introduction of pay-for-performance elements, 2) to develop specific quality indicators that can be used as criterion for health service planning on the regional level, 3) to increase mandatory case completeness of data collected within the national external quality assurance programme to 100% in all clinical areas (95% to date) with financial penalties if hospitals fall below 100%, and 4) to define and establish further measures to strengthen data validation of the national external quality assurance programme and control of compliance with quality requirements defined by the Federal Joint Committee. This may, however, substantially change the character of the national external, data-based quality assurance programme.

Italy

The Italian National Health Service is based on the principles of universal coverage, social financing by general taxation and aims to create an effective and uniform health system covering the entire population, irrespective of income or contributions, employment status or pre-existing health conditions.

Italian regions have the responsibility for the provision of health care to their residents, through the local health units, while the central level has the responsibility of identifying and monitoring the essential levels of care, which are meant to be guaranteed by the SSN to all citizens.

The Ministry of Health is responsible for monitoring the provision of the essential levels of care at regional level, and the outcome of care at hospital and local health units level, through the National Outcome Programme, developed by the National Agency for Regional Health Services. The regions do adopt their own monitoring systems in order to measure at local level compliance to the essential levels of care.

The present chapter is organised in three sections:

1) the National Monitoring system of the essential levels of care;

2) the National Outcome Programme;

3) the Inter-Regional Performance Evaluation System (IRPES)

MONITORING PROVISION OF ESSENTIAL LEVELS OF HEALTHCARE (LEA): CURRENT AND FUTURE SYSTEM

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a.   Background

Essential Levels of Healthcare (LEA) are represented by the basket of healthcare services and activity ensured to all citizens, free or co-paid, affiliated to the Italian National Health Service. With State-Regions agreement dated 23rd March 2005, Italian Regions subscribed commitment to ensure the homogenous provision of LEA under appropriateness and efficiency conditions, consistently with the economic resourced planned for the National Health Service.

Permanent Committee for Monitoring Provision of Essential Levels of Health Care (LEA Committee) was established within the Ministry of Health (within the General Directorate for Health Planning) through Ministerial Decree (DM) of November 21 2005, based on the art. 9 of above mentioned State-Regions agreement. Its mission is to assess that Essential Levels of Health Care (LEA) are homogenously provided under appropriateness and efficiency conditions and, also, to verify consistency between provided services and economic resources. This mission is currently pursued through a system aimed at verifying the implementation and regional compliance with the provision of LEA. Among the plurality of domains covered by this monitoring system, LEA Committee verifies and certifies, for example, the implementation of policy oriented to de-hospitalisation, outpatient and community care, control of pharmaceutical expenditure, containment of waiting lists, implementation of national plans of active prevention and training of health personnel. Outcomes of this monitoring system enable Regions to receive the full fund for healthcare. Regions not complying with LEA provision are subjected to "Realignment Plans", subscribing specific actions of improvement.

The "LEA Grid" is a quantitative system designed to monitor the actual provision of LEA homogeneously within the Italian territory: it consists of a system of indicators monitoring regional performance in providing the LEA and focusing on 4 levels of care: prevention, outpatient, hospital and emergency care.

b.   Dimensions considered and focus of the evaluation

A panel of experts annually reviews the "LEA Grid" indicators pertaining to each level of care. The last version of the tool (2013, 32 indicators) includes the following indicators:

1. prevention: vaccination coverage, access to cancer screening programs, controls for animal and food safety;

2. <u>hospital care</u>: organizational and clinical appropriateness, general efficiency and outcomes of specific processes (caesarean sections, elderly femur fractures operated within 48 hours);

3. <u>outpatient care</u>: home care, residential care activity (for elderly, disabled, terminally ill patients), activity of mental health services, avoidable hospitalisation (as indirect effect of quality of primary care), volume of specific diagnostic services;

4. <u>emergency care</u>: efficiency of the territorial system.

LEA Grid is implemented for all Italian regions, ensuring evaluation of homogenous LEA provision for all Italian citizens. All indicators are measured at the regional level and are calculated with reference to the resident population, with the exception of hospital indicators of efficiency and appropriateness, which take into account the activity performed by all the hospital structures located within each region, independently on residence of cases treated.

c. Methodology adopted

Range of each indicator is collapsed into 5 possible categories:

1. compliance with reference value (standard based on regulation or scientific literature or according to the median of the regional distribution);

2. small departure from the reference;

3. larger departure with favourable trend;

4. larger departure with unfavourable trend;

5. missing data.

Scores are attributed to each category, with higher score corresponding to compliance with reference; negative score is given when data are missing. A weight is assigned to each indicator, mainly based on national health fund allocation across levels of care. Then, a regional score is computed as a sum of the weighted scores attributed to each indicator (range between -25 and 225). Finally, the regional total score is collapsed into three general categories, allowing classification of the region as either "Fulfilling" (i.e. with total score >=160), "Fulfilling with commitment" (i.e. with total score <160 and >=130) or "Critical" (i.e. with total score <130) with regard to LEA provision.

For each region, circular sector diagrams (rosoni) are used to provide a graphical overview of indicators. The position and colour of the label allow easy identification of the strengths (green) and increasing levels of criticality (from yellow to purple, to red) with respect to their relevance (amplitude of the circular sector); see Figure 14 and Figure 15 for regional classification and overview of indicators in two regions.

Figure 14: LEA grid: map with regional classification and circular sector diagrams (rosoni) in two regions; year 2012 and 2013
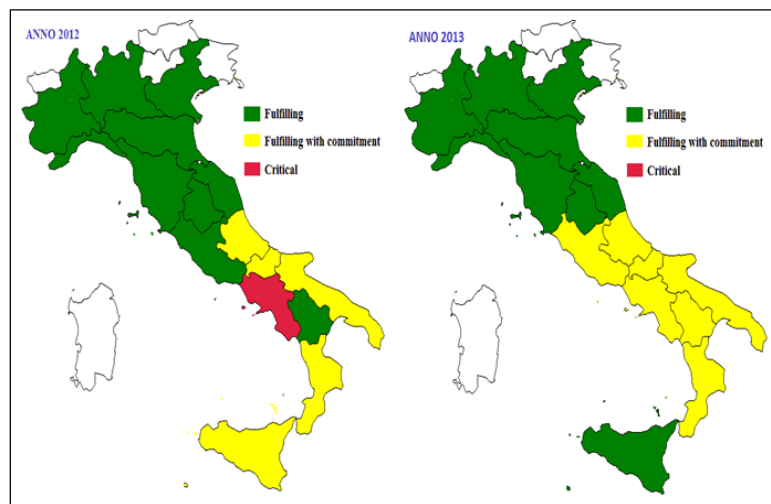
Figure 15: "Rosoni 2013"
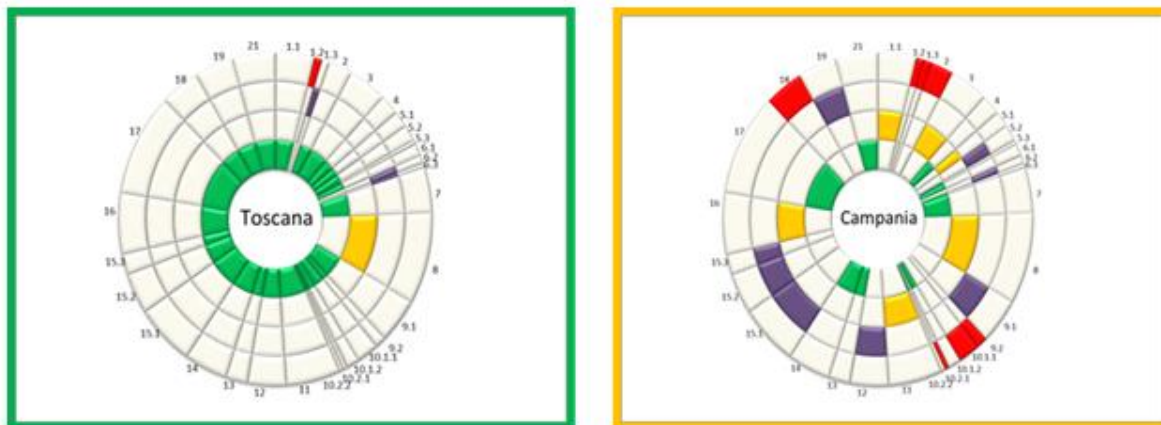
Results on fulfilment in LEA provision in 2013 show northern, central (with the exception of Lazio and Abruzzo) and Sicilia regions reaching the higher score levels, while southern regions, with Lazio and Abruzzo, classified as "Fulfilling with commitment". No region is classified as "Critical". With respect to 2012, Campania and Sicilia regions improved their total score, reaching the "Fulfilment" category; vice versa, Lazio and Basilicata decreased their total score.

d. Quality of data

Indicators are measured through data from national health information systems, covering all the healthcare services or supply, dependently on the specific indicator, across the levels of care considered. For each region and each indicator, coverage and quality of source information system are verified, before considering it for evaluation: in case of negative check, -1 score is assigned, consequently decreasing the regional total score.

e. Use for policy actions and future improvement of the system

Regions classified as "Fulfilling with commitment" or "Critical" are required to plan specific actions addressed to critical indicators and corresponding sectors of healthcare, to be verified by LEA Committee in the subsequent year. For regions subjected to Realignment Plans, critical indicators are related to the objectives and targeted actions planned by the Regions and monitored by the State level.

Currently, a new wide monitoring system assessing all Regions and Autonomous Provinces is being designed: the project includes indicators for all levels of care (prevention and public health, outpatient care, hospital care); the dimensions considered are efficiency, clinical and organizational appropriateness, safety, perceived quality/patient humanization and equity. This system also aims at monitoring specific integrated care pathways across different levels for specific clinical conditions, or services provided to specific population subgroups (i.e. immigrants). Within this wide system, a dynamic core set of indicators will be selected to evaluate the regional performance in providing the LEA, through assessment of regional and sub-regional compliance with reference values. This new system will provide a more detailed overview of the LEA provision across regions, enabling each individual region to identify those critical areas where provision of healthcare needs to be improved.

THE NATIONAL OUTCOME EVALUATION PROGRAM

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a. Background

Advances in methods of study design and statistical analysis and the increasingly widespread availability and validity of health information systems and databases have highlighted the role of comparative effectiveness research[1], meant as a comparative evaluation of observational services and health interventions. Comparative assessments of hospitals are specific cases of application of the methods of comparative effectiveness research[2].

Starting from 2010, the Italian National Agency for Health Services (Agenzia per Nazionale per i Servizi Sanitari - Age.Na.S.) on behalf of the Ministry of Health, carried out the National Outcome Evaluation Program (Programma Nazionale Esiti – PNE)[3]. In August 2012, a National Law marked the transition from the experimental phase of PNE to an institutional function. The application of this law also allowed the development and estimate of new and more robust indicators by integration of information from NHS information systems. The integration of Health Information Systems (HIS) allowed not only further development and improved validity of the estimates of outcome of hospital care, but also the development of valid outcome indicators of primary care, outpatient and continuity of care.

The organizational structure of the PNE consists of:

- Scientific management, secretarial and coordination.

- PNE Committee (representatives of Italian regions, provinces and scientific institutions).

- Department of Epidemiology of the Regional Health Service - Lazio Region (DEP) as referring centre for planning, management, design and data analysis, and website management.

- Network of regional outcome evaluation programs.

The Ministry of Health guarantees the integrity and independence of the evaluations of the PNE.

b. Dimensions considered

The aim of PNE is the evaluation of the outcomes of health care interventions in the Italian Health Service. The outcome measures of PNE represent evaluation tools to support clinical audit programs aimed at improving effectiveness and equity in the national health system. The aim of the program is not ranking of hospitals, but the identification of potential critical points in quality of health care provided by health structures.

c. Focus of the evaluation

The main objectives of PNE is the benchmarking among health providers, useful in the identification of potential critical organizational or clinical factors and the benchmarking among areas for the evaluation of health protection of residents and equity in access to effective care. Therefore, PNE evaluates both the health care production function (hospitals) and the health care protection function (local health units). PNE investigates the heterogeneity of access to health care across both geographical areas and hospitals, focusing on those health care interventions for which evidence of effectiveness is available.

d. Methodology adopted

The PNE indicators are defined on the basis of a systematic review of scientific literature and review of scientific societies or panels of clinical experts. The protocols of PNE indicators are available in the website of the program, available also in English (http://95.110.213.190/PNEed14_EN/index.php).

Four type of indicators are calculate in the PNE: outcome indicators, process indicators, volume indicators and indicators based on "ambulatory care sensitive conditions" (ACSC)[4]. The outcome indicators measure the result of a process of care in terms of clinical outcomes (e.g. mortality, morbidity, hospitalizations). The process indicators measure the adherence of the care process to the standards of best clinical practice based on evidence. For this reason, they are considered proxies of health outcomes and their predictivity of clinical outcomes depends on the strength of recommendation and level of clinical evidence on which they were based[5]. We calculated volume indicators for health interventions or clinical conditions for which there is scientific evidence of association between volume of care and clinical outcomes[6,7]. The ACSC indicators are calculated for conditions for which the risk of hospitalization can be reduced, either through better outpatient management of chronic diseases (e.g., asthma, CHF, diabetes)[8] or through more timely diagnosis and effective treatment of acute conditions (e.g., pneumonia).

The PNE indicators can be biased by random and systematic errors. The risk adjustment used in PNE consists in the construction of a severity measure that describes the "clinical complexity" of the patient, based on personal characteristics, the severity of the disease and the comorbidities of patients. The use of this methodology produces adjusted risks and relative risks and allow a valid comparison among hospitals or LHUs.

The comparison among hospitals or among LHUs is made applying a direct standardization. This method uses the distribution of the risk factors of a reference population as the basis for all comparisons. For each of the PNE indicators, the reference population is the set of all Italian admissions. The risks adjusted are calculated through the parameters estimated by the statistical models for each structure or each LHU of residence. The risks can be interpreted as if all the hospitals or LHU had the same distribution of risk factors (age, sex, severity of illness and risk factors) of the reference population.

e. Quality of data

The data sources are the Hospital Information Systems validated by the "*Anagrafe Tributaria*". The Hospital Information System collects information from all hospital admissions (in acute and post-acute care) for each patient discharged from public and private hospitals institutions. The "*Anagrafe Tributaria*" is a tax register used for gathering fiscal information and verifying the vital status of all Italian patients. The data from electronic archives in different files in the same archive or in different periods are merged by a record linkage procedure.

Quality of data is routinely checked. The section "Audit Tools" of the PNE website shows a list of the hospitals identified for the audit on quality of data. The objective of the audit process is the evaluation of potential misclassification of the criteria defined in the protocols of the indicators: the diagnosis and procedure codes used in the selection of admissions, the variables used in the adjustment models and the criteria used to define the outcome. Age.Na.S. and DEP provide active support to regions and hospitals in the audit processes. In particular, the DEP provides methodological support, additional data analysis and defines the sample of admissions to be verified in the audit process.

f. Use for policy actions

Data are published annually with more recent data available for the previous year (i.e, in 2014 we published data until the year 2013). Before the publication of results, we plan a preview phase, during which a draft version of PNE is available to the members of the PNE Committee and to a short list of professionals belonging to scientific societies, for the early identification of possible inconsistencies in data analysis. After the preview phase, the results of PNE are published in a dedicated website (http://95.110.213.190/PNEed14/index.php) and are available upon registration.

The 2014 edition of the PNE has introduced many innovations and a new web design, carried out in order to make navigation easier and information more accessible. The web site is explicitly made for professionals and not for the public.

The 2014 edition of PNE (data updated to 2013) included 58 outcome/process indicators, 50 volumes indicators and 23 hospitalisation indicators.

For each indicator data are presented as temporal trend, heterogeneity across hospitals within and among regions, and heterogeneity among health care units. We use some examples to show how data are presented.

Figure 16: Hip fracture: surgery within two days. Italy 2008 - 2013
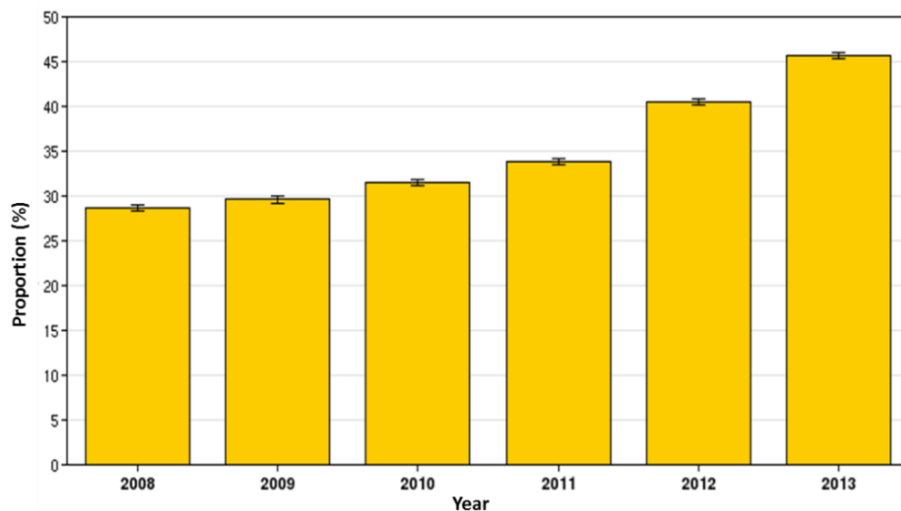
Figure 17: Hip fracture: surgery within two days. Analysis by hospital and region. Italy 2013
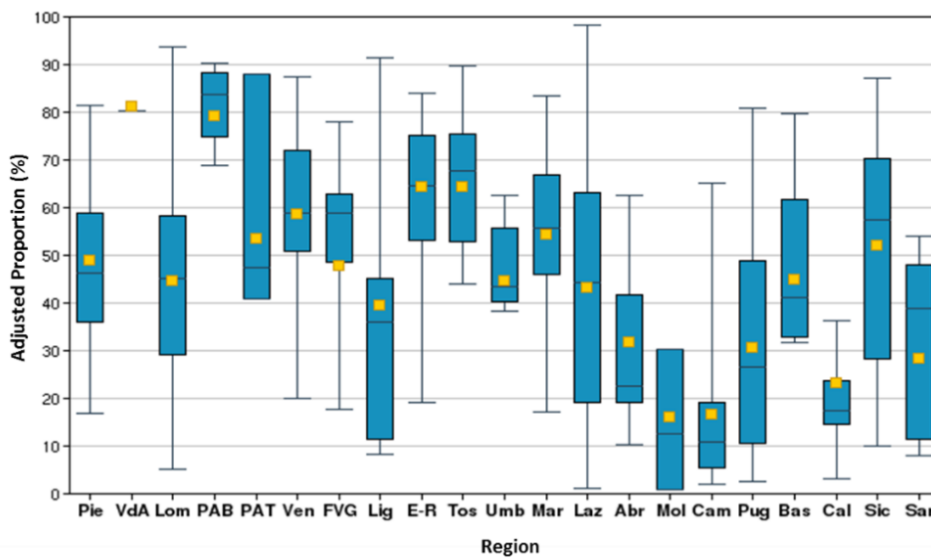
Figure 18: Hip fracture: surgery within two days. Analysis by hospital. Italy 2013
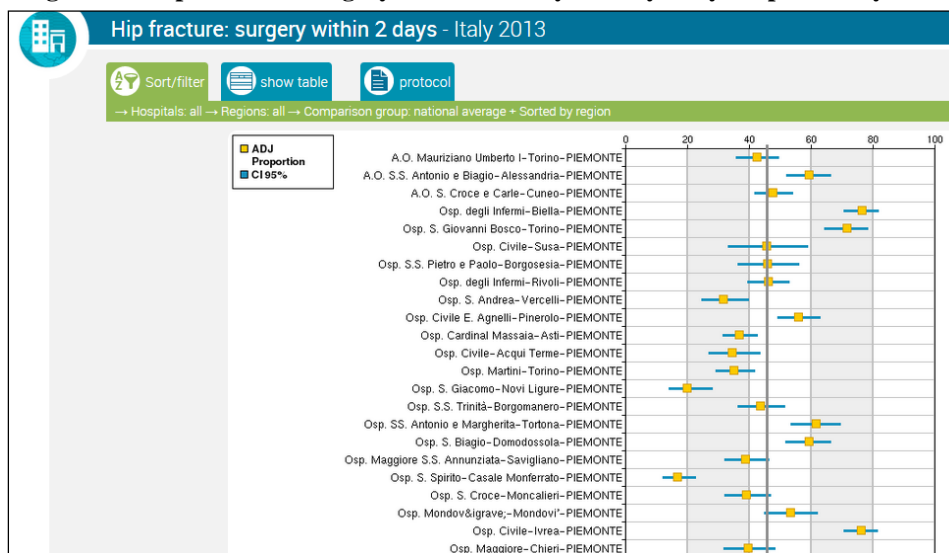
Figure 19: Hip fracture: surgery within two days. Analysis by area of residence. Italy 2013
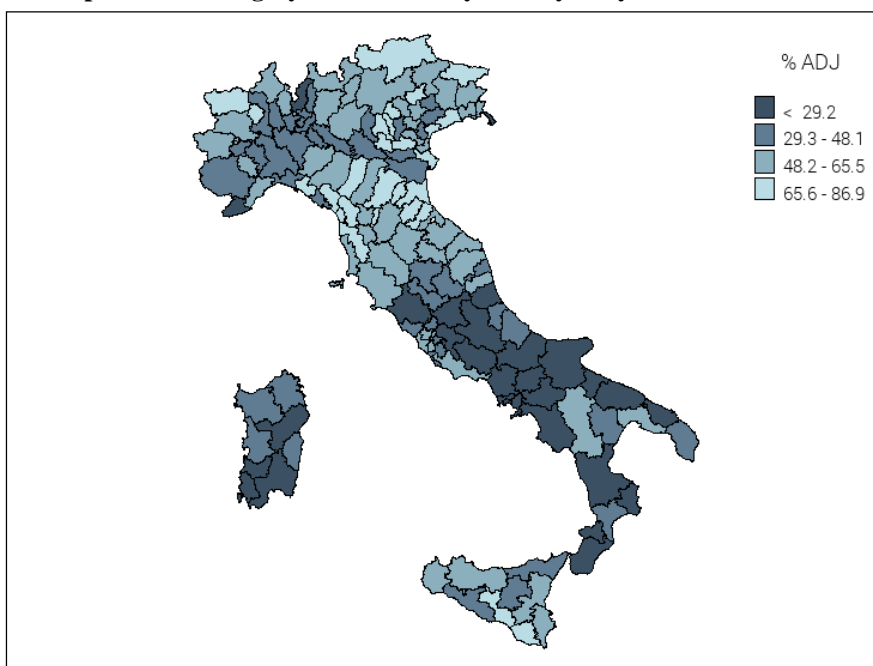
The indicators of volume of care are shown as number of cases treated by each hospital. As an example Figure 20 shows that in 2013, only 116 (24%) of 490 Italian hospitals perform more than 150 surgical interventions for breast cancer per year.

Figure 20: Volume of breast cancer surgery. Italy 2013
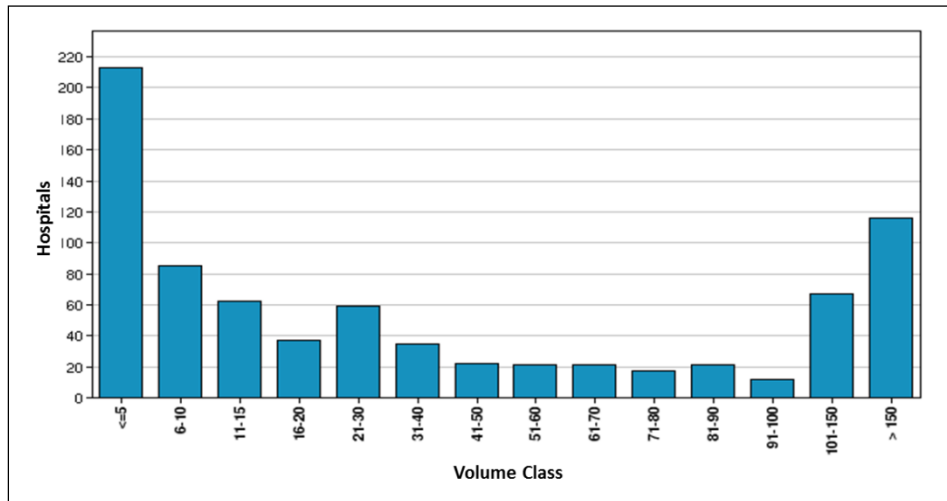
g. Conclusions

1. Outcome of care is an essential dimension of quality of health care

2. The health information systems are powerful instruments to measure quality of care systematically across hospitals and health care units

3. Quality of data is a critical point and should be monitored to identify potential opportunistic behaviours

4. The use of outcome measures to support the programs of clinical and organizational auditing is essential for ensuring continuous improvement in the quality of health care

The results of PNE show that the systematic publication of indicators can have a positive impact on quality of care, especially when these results are used as an instrument of governance of the system[9], for example in the assessments of the objectives of the CEOs[10,11]. The positive impact is mainly determined by the effect of public reporting[12] that, even in systems with a high degree of internal competition, generates significant effects on changes in efficiency and quality of care of health services and professional[13] and minimal effects on the choices of patients of the location and type of care[14]. The "reputation effect" can be a strong determinant of clinical, professional and organizational behaviours, but it is important to underline that using outcome measures to define uncritically incentives or sanctions can cause side effects and opportunism in coding clinical data, which may introduce biases and reduce the validity of the assessments[15,16].

THE INTER-REGIONAL PERFORMANCE EVALUATION SYSTEM (IRPES)

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Since 2008, a growing number of regions have adopted the same Inter-regional Performance Evaluation System (IRPES), which was designed and implemented for the first time in 2005 in all of Tuscany's local health authorities by the Laboratorio Management e Sanità (MeS) of the Scuola Superiore Sant'Anna, to measure and monitor indicators of quality, efficiency, appropriateness, continuity of care, patient satisfaction and staff satisfaction (Sabina Nuti and Bonini 2013; Sabina Nuti and Bonini 2014; Sabina Nuti, Seghieri, and Vainieri 2013). In 2014, there were 10 regions in the network: Basilicata, Liguria, Marche, the Autonomous province of Bolzano, the Autonomous province of Trento, Toscana, Umbria, Veneto, Emilia Romagna and Friuli-Venezia Giulia. Lazio, Lombardy, Calabria and Sardinia joined the network in 2015. The regions joined the network in different years, as reported in Figure 21.

Figure 21: Regions joining the network

IRPES-adhering regions	2008	2009	2010	2011	2012	2013	2014	2015
Aosta Valley		▓	▓					
AP Bolzano		▓	▓	▓	▓	▓	▓	▓
AP Trento		▓	▓	▓	▓	▓	▓	▓
Basilicata			▓	▓	▓	▓	▓	▓
Calabria								▓
Emilia-Romagna						▓	▓	▓
Friuli-Venezia Giulia								▓
Lazio								▓
Liguria	▓	▓	▓	▓	▓	▓	▓	▓
Lombardy								▓
Marche		▓	▓	▓	▓	▓	▓	▓
Piedmont	▓	▓	▓					
Tuscany	▓	▓	▓	▓	▓	▓	▓	▓
Umbria	▓	▓	▓	▓	▓	▓	▓	▓
Sardinia								▓
Veneto					▓	▓	▓	▓

The Laboratorio MeS develops the performance evaluation framework and promotes the benchmarking processes as an independent research unit. It coordinates and manages information sharing and data acquisition. The 14 regions in the network agree on the criteria of the indicators. Each region is responsible for processing its own data, in order to increase the awareness and the expertise of the regional managers and their staff.

The aim of the IRPES is to assess and monitor health system performance at a regional and local level: the results are shown by region and by Health Authorities (HA) (both Local Health

Authorities (LHAs) and Teaching Hospitals (THs)). In 2015, IRPES is monitoring the performance of about 150 HAs.

In order to have a better focus on their healthcare processes, some regions decided to go beyond the Health Authority level and to upload data at the hospital and at the health district level too.

The regional network integrates a longitudinal (the trend) with a cross-sectional perspective, based on the benchmarking process. It provides the regions with valuable information in order to define priorities and fix appropriate targets, considering the results in benchmarking. In addition, given that they follow the same PES, the regions can evaluate, share and spread best practices (Barsanti and Nuti 2014; Sabina Nuti and Seghieri 2014; Sabina Nuti and Vainieri 2014).

Indicators are defined by endorsing a "managerial" perspective aimed at organizational improvement (Mannion and Davies 2008). The rationale behind the selection of each indicator is the informational contribution it can offer the managers and policy makers. Indicators are chosen because they measure quality, efficiency and appropriateness of care delivered in regions/Local Authorities, but also because they detect best (organisational) practices or, on the contrary, flawed clinical processes.

Indicators are defined in regular meetings with regional representatives that include both managers and clinicians. For an evaluation system to be able to influence and change behaviours, it must actually win support from clinicians on the rules and criteria their performance is measured against (Locke and Latham 2013).

PES encompasses a large set of indicators that are up-to-date because they are calculated and disseminated in a six-month period. The indicators are grouped into 60 indexes and classified in six dimensions (a letter is used to indicate each dimension):

(A)   Population health.

(B)   Regional strategy compliance, to guarantee that strategic regional goals are pursued in the time and manner indicated.

(C)   Quality, appropriateness, continuity of care, patient safety and managing supply to match demand.

(D)   Patient satisfaction, the patients' experience and level of satisfaction with health services.

(E)   Staff satisfaction, results of surveys on the satisfaction level of staff with their working conditions and management.

(F)   Efficiency and financial performance.

PES measures results in quantitative terms and then assesses performance for about 100 of the 200 indicators: excellent, good, sufficient, poor, or very poor. These five evaluation tiers are associated with different colours, from dark green (excellent performance), to red (poor). Regions use the same

reference standards for evaluation, based on the scientific literature, national standards or, where these are lacking, on the median of the 150 HAs. Figure 22, as an example, displays the indicator of voluntary discharges against the clinical advice in 2014.

Figure 22: voluntary discharges against the clinical advice (2014)
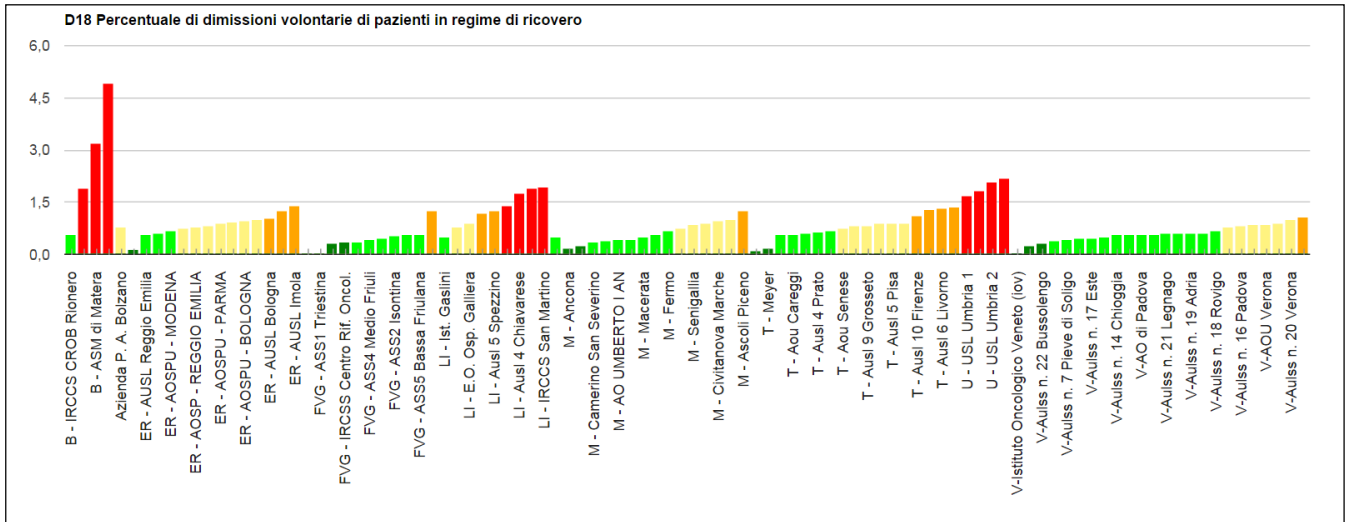
In order to show the performance of each region or HA, a chart with the six dimensions is used (see Figure 23). The chart is also divided into five evaluation bands, associated with different scores and colours as explained above. Each indicator is positioned on the chart and there is no overall unique ranking for regions/HAs. When the result has a high score, it is displayed close to the centre (dark green), and when the score is low, it is displayed far from the centre (red).

Figure 23: population health status in Basilicata Region (2010-2012)
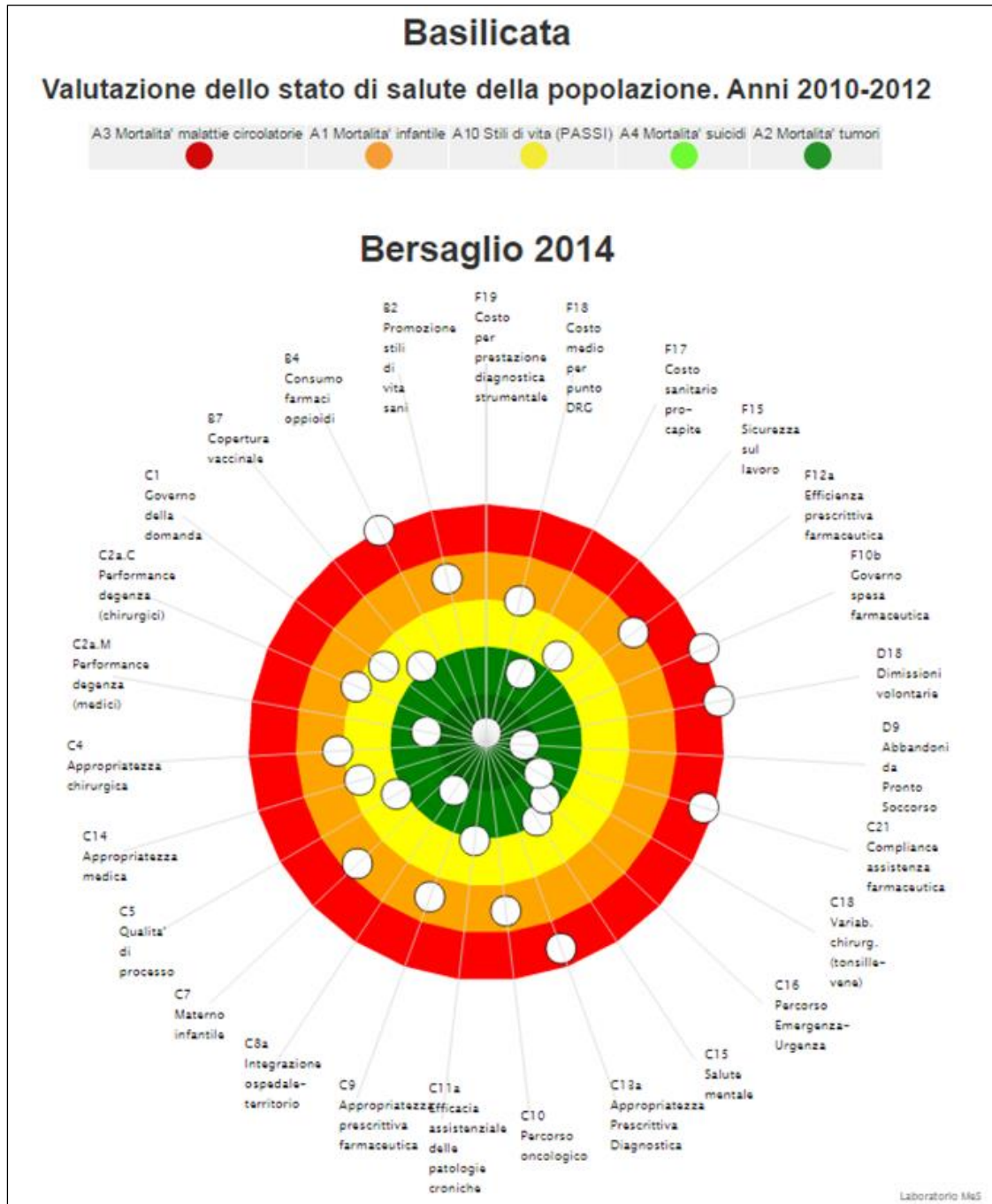
The number of indicators varies by region, because each region chooses which ones to include, with reference to local context and strategies. However, there is a core group of indicators that all the regions consider mandatory for the main pillars of the healthcare system. Indeed, the majority of indicators are common to all the regions because the main objectives are the same at the national level. The IRPES structure also allows regions to choose different indicators to reflect the different regional strategies. The inclusion of a specific indicator within IRPES signals the strategic relevance the indicator is deemed to have, for all the regions or for a subset of them.

From the beginning, the regional network agreed on transparency for public accountability. An annual performance report is published and the web platform where data are stored is public (www.performance.sssup.it/netval). The report includes all the regions, and local performance (HAs) is also shown.

There are regular meetings between the regional representatives to share the results of the assessment system, identify best practices and compare outcomes of different regional strategies. Working groups are established as issues arise to discuss the different impacts of policies and to develop new indicators.

IRPES as a governance tool

Several governance models can exploit IRPES data (Brown et al. 2012; Sabina Nuti, Vainieri, and Vola 2015; Sabina Nuti, Seghieri, and Vainieri 2013; Sabina Nuti et al. 2011):

1. IRPES has been linked to strategic planning and health authorities' goal setting so that it is integral to political accountability. The IRPES provides a basis for regions to identify priorities and to set challenging targets. It can therefore be used as a tool to sanction managers according to their performance (Sabina Nuti, Seghieri, and Vainieri 2013; S Nuti et al. 2012).

2. In some regions, IRPES has been linked to the CEOs' financial reward system. Indeed, it is largely acknowledged that reward schemes reinforce orientation and directions. Hence, performance indicators monitored and assessed by IRPES can be included in CEO schemes in order to better align CEO objectives with those of the institution and of the healthcare system in general.

3. Regions can use IRPES information as an improvement tool to leverage their reputation, by publicly disclosing data to all the stakeholders within the regional health system. Regions disseminate results through public events, such as press conferences, meetings and internal periodic monitoring. To enable peer review mechanisms, the performance results are regularly discussed in contexts such as managerial training activities for top and middle management, in order to stimulate feedback from professionals who are the basic operators of change (Murante et al. 2014).

4. IRPES has been widely used as a tool to align the three above-mentioned governance mechanisms (mainly addressed to managers) to the operative units of the regional healthcare systems. IRPES results have also been integrated within the budgeting process of health authorities.

The integration and the joint adoption of all these strategies provide a boost to improve performance, as demonstrated by the comparison of Lazio and Tuscany regarding hip fractures operated on within two days (Pinnarelli et al. 2012) but also to reduce avoidable variation.

Malta

Kenneth Grech, Ministry for Energy and Health

a.   Background

Quality of care is an established Government priority which over the past years has been given heightened consideration. Quality, together with affordability and sustainability, is one of the three pillars on which all Government policies are based.

Quality in health care in Malta came to the forefront for the first time when Malta participated in an international hospital benchmarking exercise in 2003-4. This then led to the launch of several new quality policies and initiatives linked with the commissioning of Malta's new main acute general hospital in the mid-2000s and later to the formation of a Patient Safety and Quality Improvement Team (PASQIT) within Malta's main acute general hospital. Various other patient safety and infection control measures were also instituted, aimed, in the main, at reducing MRSA prevalence and infection rates in hospitals and at inculcating a renovated culture of safe clinical practice.

The Superintendent of Public Health, in its role as regulator and standards setter, is responsible for determining and measuring the quality of care within service providers such as hospitals, nursing homes and other clinical establishments. Through the Directorate of Health Care Standards, it manages a national programme of inspection, monitoring and licensing of clinical service providers based on quality criteria and standards. It is also responsible for the development of national standards such as the National Standards for the Use of Medicines, national standards for blood transfusion and national standards for homes for the elderly amongst others.

In terms of quality assessment, at a national level, although the measurement of quality indices could be traced back to the early 1990s, the assessment of quality and other parameters has been formalised for the first time with the development of Malta's first national HSPA report which is due to be published in the near future. Quality is one of several dimensions that are assessed as part of this HSPA report. For the purpose of Malta's HSPA report, quality of care has been defined as the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge.

b. Dimensions considered

During the formulation of Malta's first HSPA model, several dimensions were considered for inclusion. These were derived primarily from the international literature and other international models. The Donabedian framework was chosen to anchor the methodological process and the final model reflects the input, process and output components of the Donabedian framework. Malta's HSPA model contains 9 dimensions, as ascertained in the table below. As can be seen, quality is considered as one of these dimensions and incorporates 10 national indicators. Other quality related dimensions such as efficiency, access and responsiveness also contain quality measures and indicators.

Table 5: Mapping of final list of indicators with dimensions

	Dimension	Total - Main Indicators	Total - Main and Sub-Indicators
Drivers	Stewardship	6	6
	Resources	4	5
	Financing	3	5
Intermediate Goals	Efficiency	4	4
	Access	6	7
	Responsiveness	5	5
	Quality	10	12
Goals	Health Status	11	17
	Determinants of Health	5	5
Socio-demographic		3	3
Total		**57**	**69**

The model chosen for Malta's first HSPA is depicted below:

Figure 24: HSPA Framework adopted in Malta

Several indicators fall under the Quality and other related dimensions. These include Hospital readmission rates within 30 days, Five year Cancer Survival Rates, Annual incidence rate of diabetic patients with complications, Incidence of MRSA Hospital Acquired Infection, Incidence rate of AIDS per 100,000 population, Thirty (30) day in-hospital mortality rate for specific clinical conditions, Influenza vaccine coverage in over 65 years, Potential years of life lost from all causes, Potentially avoidable hospital admission rates for asthma, Cardiac Heart Failure and COAD and Maternal Mortality Ratio. The results of these indicators were reproduced in the first HSPA report, an example of which is shown below:

Figure 25: Potential Years of Life Lost from all-causes among those aged 0-69 years
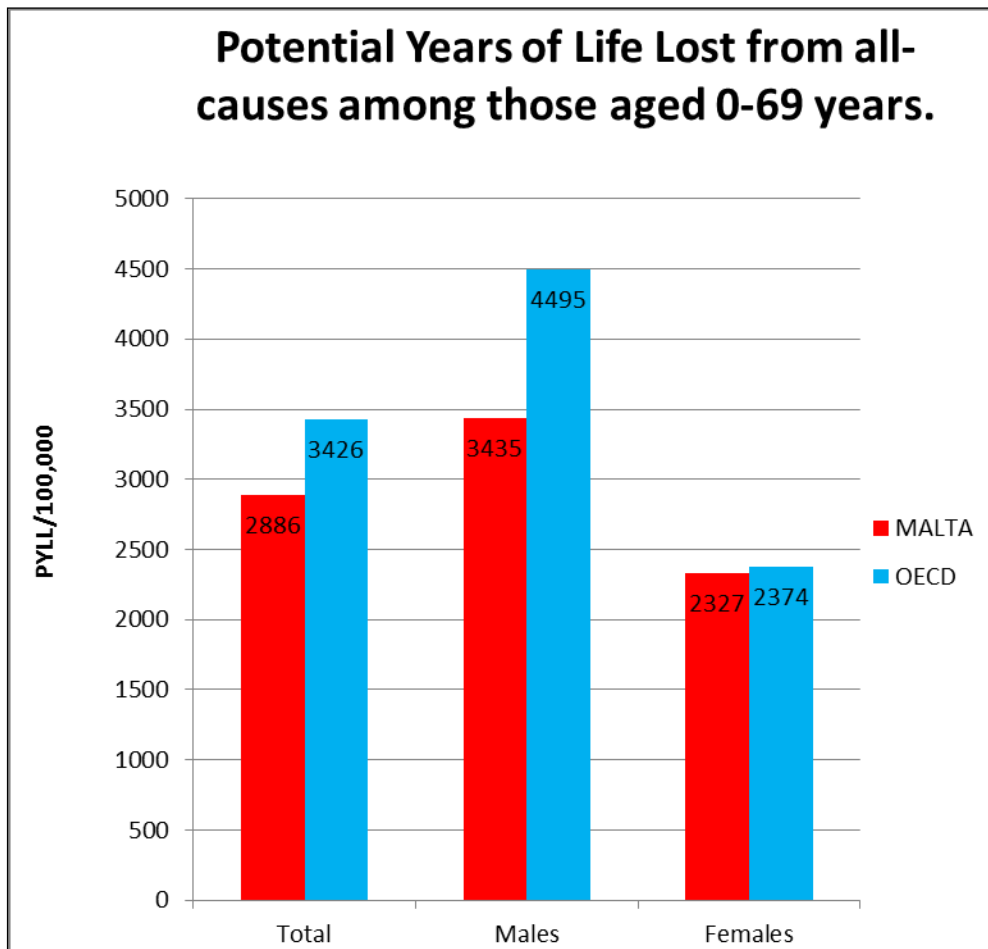
Indicator 38: Potential years of life lost from all causes (Years lost, /100 000), aged 0-69 years
Owner of Data: Directorate of Health Information and Research

Figure 26: Trend of Potential Life Years Lost (aged 0-69 years) per 100,000 population
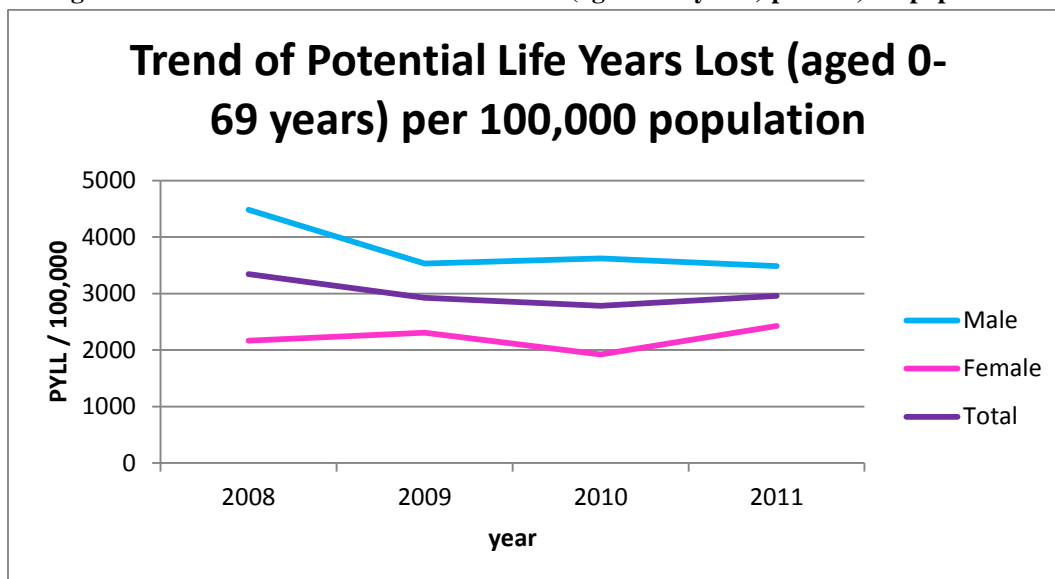
At a local hospital level, through the Clinical Performance Unit, similar dimensions are used as a measure for quality, incorporating several key performance indicators that are relevant for hospital care. These include Average Length of Stay, Day Surgery Rates, Hospital Mortality Rates, Re-Admission Rates, Percentage of patients diagnosed with acute MI having a PCI, Caesarean Section Rate and Infection Control KPIs such as Hand Hygiene Compliance, Clostridium difficile and MRSA Bacteraemia Incidence and Surgical Site Infection (SSI) Rates. Patient Satisfaction KPIs are also measured routinely.

c. Focus of the evaluation

The focus for the assessment of quality in Malta is driven by national considerations as well as local needs. Give that quality is one of the government's explicit priority areas, quality initiatives and programmes are developed at national level whilst the policies emanating from such initiatives then permeate to the level of the local service provider. The creation of the first Malta HSPA report allowed for the development of a national assessment model and the measurement and reporting of an official set of national indicators for the first time. The exercise to complete this task generated a renewed interest in performance assessment and various stakeholders were involved in the compilation of the model and the collection and reporting of the indicators. It also highlighted areas of weakness and other areas which required improvement and consolidation.

At a hospital level, the most significant development of recent times was the work carried out by PASQIT and the Infection Control Unit, both based at Mater Dei Hospital, Malta's main acute general hospital. Over the past two years, PASQIT was tasked with several important quality and patient safety initiatives. These included the development of care bundles as a quality of care initiative within the ICU setting, Patient hand over protocols, prevention of falls in hospital, new scoring systems and the introduction of preventative devices to for pressure ulcer prevention, and a new Safety Alert System for Learning for the reporting of incidents and near misses using a

'reporting for learning' approach. However the most important and challenging task for hospital management was introducing models of best practice in quality of care and patient safety amongst clinical staff. This required a slow but unceasing change in culture and attitude, the fruits of which are now becoming evident. A salient example is the reduction of MRSA infection rates in hospital by half over the last 4 years, mainly through hand hygiene and stringent surveillance methods.

d. Methodology adopted

An expert working group was commissioned by the Ministry for Health to develop Malta's first HSPA model and indicators. The process undertaken consisted of developing the draft framework and model, first by analysing current international health system performance frameworks and testing them for their appropriateness to the Maltese health care setting. A draft framework was then developed clearly distinguishing inputs (e.g. funding mechanisms), intermediate goals (e.g. quality of services) and the ultimate goals of the health system (e.g. health outcomes). The model was then tested using a discussion panel of local and foreign experts.

The next stage consisted of the selection and screening of key performance indicators. The first task was to extract indicators from existing national policies and strategies. The extracted indicators (n=350) were then mapped onto the draft framework to obtain an idea of the 'spread' of these indicators across the different dimensions of the model. This initial list of indicators was cleaned and filtered for duplication and clarity in definitions and a list of candidate indicators was produced (n=250). These candidate indicators were then scored using various tools, included a criteria matrix and algorithm adapted from OECD. Detailed scoring was initially carried out internally by two independent expert raters, reducing the indicators to 80, the results of which were then compared with the scores of 8 external experts and that of all senior health managers, senior clinicians and health care professionals and academics from the Faculties of Medicine, Dentistry and Health Sciences.

The shortlisted indicators (n=34) were then mapped again onto the HSPA framework and gaps were identified. Additional indicators were drafted to close these gaps and to match the requirements for reporting by the Social Protection Committee and DG ECFIN. The final set of indicators (n=57) were then measures and reported upon.

One the main methodological challenges faced was the adoption of a national HSPA which was relevant for Malta using, as models, foreign and international frameworks which were not necessarily suited for Malta's unique circumstances. A bespoke model in fact emerged, assimilating the experience of international models with Malta's specific requirements. Also given Malta's potential insularity, one of the initial deliberations of the Expert Working Group focused upon the best method to be adopted for identifying the ideal set of indicators. The choice lay between extracting indicators from local sources or utilising 'off the shelf' internationally available indicators. The dilemma lay between standardisation on the one hand and obtaining a set of indicators that was relevant to Malta's needs. We opted to go for the local approach, however using international comparability as one of the main criteria to score these indicators. Another challenge, especially towards the end of the process, was to retain scientific objectivity in identifying and

defining the indicators and 'shielding' our choices from external non-scientific influences. Suitable compromises were reached following extensive discussions and consensus building, keeping in mind that the HSPA needed to remain relevant to the public in general and policy makers in particular.

e. Quality of data

The collection and analysis of health data in Malta has been established for many decades. At a national level, the Directorate for Health Information and Research is responsible for the collation of national data of relevance and for reporting to our international partners. National registries also reside within this directorate. All the same, the measurement of the HSPA indicators still showed certain gaps in our data collection methodology and IT systems which require addressing. Data from national registries such as the cancer registry is robust and comprehensive, whilst routinely collected data from hospitals and other service users is also deemed reliable. Whilst data from surveys present the usual drawbacks of timeliness and appropriateness, the greatest challenge was in those areas where no data was readily available or data was not immediately comparable with international sources. Adjustments to the original set of indicators needed to be made to accommodate these gaps. Another peculiarity for Malta is the distinction between local and national. Given our small size and small number of health care operators on the local scene, locally produced data may also be used for national purposes, especially for data emanating from Malta's only acute general hospital. Whilst this in itself does not present any difficulties for local data collection and analysis, the difficulty arises for international comparability. Benchmarking our results with foreign systems is essential since we cannot create internally comparable benchmarks. Another challenge that became apparent was to separate the collection of the data with its analysis and interpretation. All the resources and skills reside within the Ministry for Health and hence an independence analytical and interpretative approach could not be achieved. This was partly overcome by having foreign external auditors to review our work at every stage of the process.

Other difficulties linked to our small size are due to small denominator for certain indicators such as the maternal mortality ratio, leading to possible large time trend variations, requiring careful interpretation of the data, as can be seen in the graph below. Also some data and results could be traced to source, hence creating confidentiality and data protection issues.

Figure 27: Maternal deaths per 100 000 live births
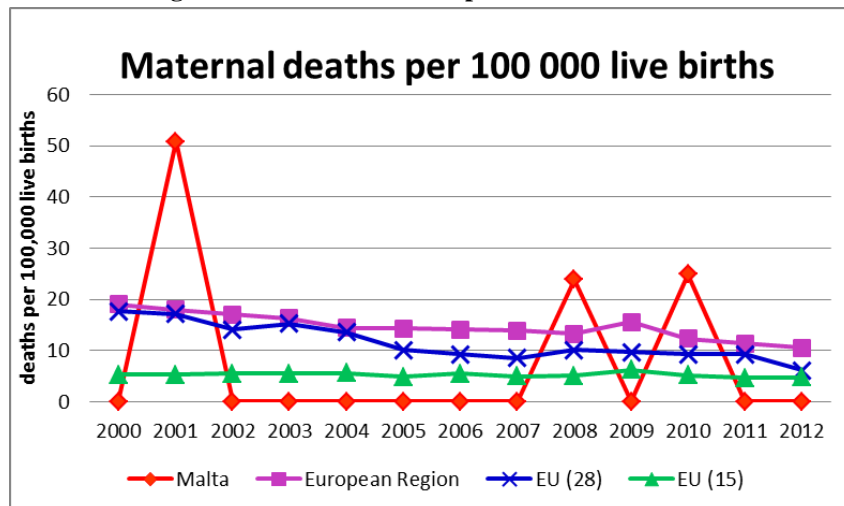
f.   Use for policy actions

Although it is still early days to gauge the impact of Malta's first HSPA report on policy development and improvement, Government is already taking action in certain areas that have been highlighted by this process, such as introducing a national campaign to mitigate against binge drinking and spearheading the development of a national diabetes strategy, including commissioning a national prevalence study on diabetes in Malta. Although the report is of a technical nature, we have tried to create a model and set of indicators that are relevant and of interest to a wide audience, including professionals, the general public, politicians and patient interest groups. Indeed patient associations have participated, through their feedback, in the drawing up of this first report and are eager to follow up upon the results, in that this process should serve to monitor strategy implementation across the health sector in Malta.

The challenge to link such reporting to policy action lies in setting targets and standards and in the timeliness of the data and its reporting. The robustness of data is also important so as to serve as an evidence base for policy decisions. However one must also acknowledge that there are other variables affecting policy formulation besides performance data, especially in a culture such as Malta's, considering the inherent proximity between practitioners, researchers and policy makers.

Norway

Beate Margrethe Huseby, PhD - Head of Department, Economy and Analysis, Norwegian Directorate of Health

In Norway, National Statistics on Health was first published in 1856. The Cancer Registry of Norway was established in 1952. Following a long tradition of data collection on mortality and quality of care, indicators on patient satisfaction and mortality after hospitalisation were introduced by HELTEF[73] in 1997. Today's system of quality indicators (NQIS - The Norwegian Quality Indicator System) was established in March 2012 by the Norwegian Directorate of Health after receiving regulatory instructed responsibility to develop, publish and maintain Norwegian National Quality indicators.

The Norwegian Quality indicators for health care services have many aims. They give patients, users and relatives a basis for making qualified and informed choices, they provide general public information about the quality in the healthcare services. They are also used for control and quality improvement in healthcare services.

The goal is to develop the Norwegian Quality Indicator System to become a sustainable and health political relevance Quality indicator system for realistic comparisons at local, regional, national and international levels. By the end of 2015 there were a total of 97 National Quality Indicators covering healthcare areas such as physical and mental health, infections and primary care services[74].

a. Background

According to the Law of Primary Care Services published 01 January 2012[75], the Norwegian Directorate of Health is responsible for developing, publishing and maintaining Norwegian National Quality Indicators.

As a part of further development of the Quality indicator System and follow-up of White Paper nr.10, 2012-2013 (St. Meld.10 God kvalitet – trygge tjenester (2012 – 2013)[76]), a 3-year Action

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[73] Stiftelsen for Helsetjenesteforskning

[74] The National Quality Indicator results are published on the internet portal Helsenorge (Healthcare in Norway), www.Helsenorge.no/kvalitetsindikatorer.

[75] §12-15 i Lov om kommunale helse- og omsorgstjenester; "The Norwegian Directorate of Health shall develop, publish and maintain National Quality Indicators as a tool for management and quality improvement within municipal Health Care, and as a basis for patients and users to be able to safeguard their legal interests. Quality indicators shall be made availability to the public."

[76] Meld.St.10 (2012-2013) God kvalitet – trygge tjenester. Kvalitet og pasientsikkerhet i helse – og omsorgstjenesten. http://www.regjeringen.no/nb/dep/hod/dok/regpubl/stmeld/2012-2013/meld-st-10-20122013.html?id=709025

Plan has been developed. The Action Plan describes focus areas and presents 20 concrete steps for further developing the National Quality indicator system, and is available at our webpage[77].

The vision of the Norwegian National Quality Indicator System is to *visualise the quality in a health care sector under development*.

The high level goals for the system are to:

- Include all relevant sectors and disciplines

- Present a balanced set of Indicators within all the dimensions of quality and for all services

- Measure quality of services, fulfilment of patient's rights and practises in accordance with existing, guidelines, regulations and laws

- Measure effects of the implementation of new policies and changes in practise

- Analyse the development, visualise results to the target groups, notify any negative trends and support continuous quality improvement

The target groups and their indented use of the system are to:

- Give healthcare providers a basis and an incentive for local quality improvement

- Provide the patients and users with qualified and quantified information to enable them to make sound choices

- Give management and owners at all levels a sound basis for decision making

- Give political leadership a sound basis for prioritisation in the health care sector

- Contribute to transparency and openness in the general public/society

b. Dimensions considered

The Norwegian National Strategy of Quality in Health Care Services[78] characterises health care services of good quality as:

- being effective

- being safe and secure

- involving the Patients/Users and secure their influence

- being coordinated and "seam-less"

- utilising the resources in an efficient manner

- being available and equally accessible

This definition of services of good quality is the baseline for the Norwegian National Quality Indicator System. These key elements must be used in the development of Quality Indicators

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[77] Treårig handlingsplan 2014-2017 for nasjonalt kvalitetsindikatorsystem; www.helsedirektoratet.no
[78] https://helsedirektoratet.no/Lists/Publikasjoner/Attachments/233/Og-bedre-skal-det-bli-nasjonal-strategi-for-kvalitetsforbedring-i-sosial-og-helsetjenesten-2005-2015-IS-1162-bokmal.pdf

considering the patients/users need for health care services in a lifelong perspective; stay healthy, get well, handle life with sickness and handicap, and handle the end of the life.

The Norwegian National Quality Indicator System is based on the OECDs model for quality indicator development (Health Care Quality Indicator Project). The OECDs model shows how to define indicators for quality in health care, public health and determinants that effects public health. The six key elements mentioned are incorporated in the OECDs model (Figure 28).

Figure 28: Concept model for Norwegian National Quality indicator system
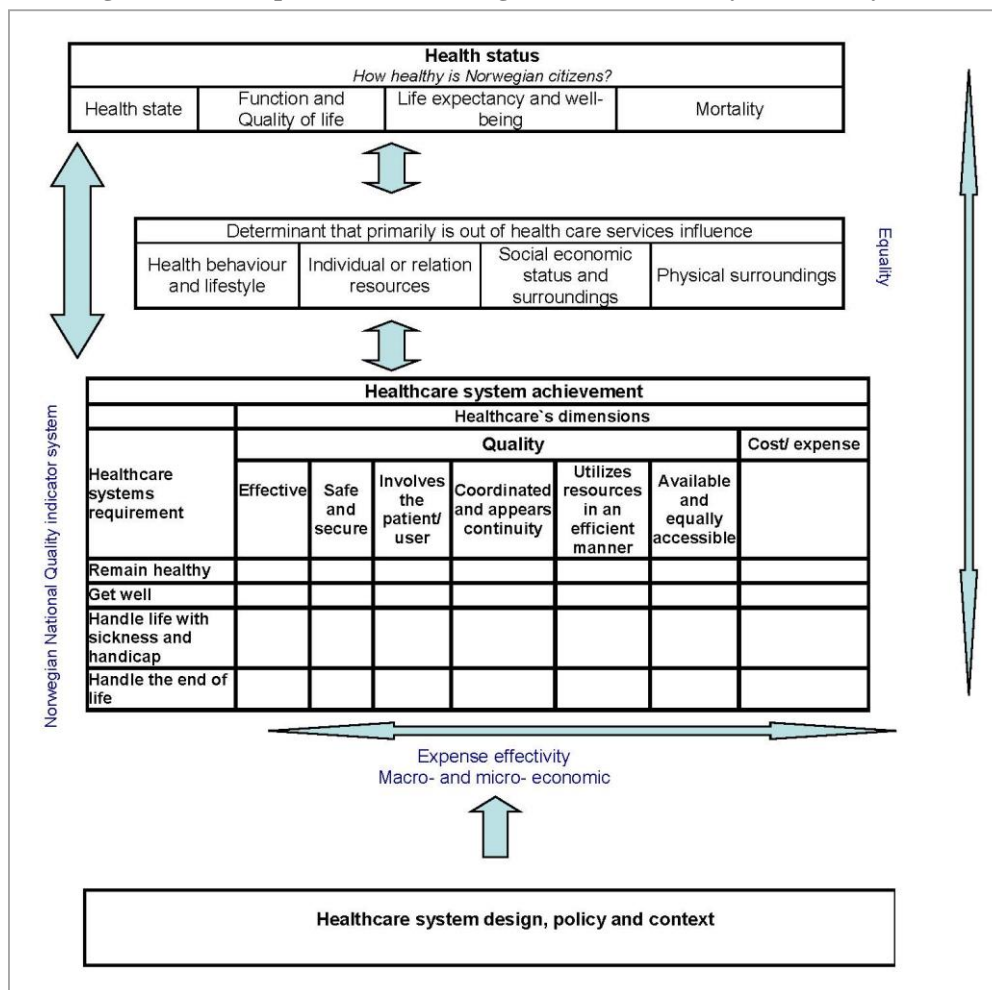
c. **Focus of the evaluation**

To achieve the desired effects of quality improvements, it is crucial that the results can be evaluated and compared over time for the different health care providers i.e. hospitals, regions and countries. It is also important to be able to evaluate the complex correlations that provide good quality. The three types of quality indicators (according to OECD):

Structure indicators describe health care`s framework and recourses. Examples are health personnel competence and the availability of medical devices, technological equipment and facilities. In other words this type of indicators quantifies the framework for prevention, diagnostic, treatment, care and rehabilitation.

Process indicators describe concrete activity in patient treatment processes. This type of indicators is normally developed on the basis of clinical guidelines and best practices, and as such evaluates whether the patients have received the health services they should according current best practise.

Outcome indicators describe the patient's outcome in form of i.e. survival, symptoms, laboratory characteristic, physical conditions or ability to live with chronic disease, and include satisfaction with received treatment.

The most know and used international model for quality improvement is developed by G. Langley and T. Nolan[79]. The model consists of two parts. The first part consists of three basic questions to ask before starting an improvement initiative:

- What do we want to achieve?
- When is a change an improvement?
- Which change can initiate improvement?

The next part is the improvement circle, also known as Deming cycle and PDSA cycle (Plan, DO, Study, ACT). Deming cycle can be used for improvement at political-, administrative- and service-level in the healthcare sector (Figure 29). The different levels need different number material/ data (Quality indicators) to solve their tasks.

Figure 29: Deming Cycle
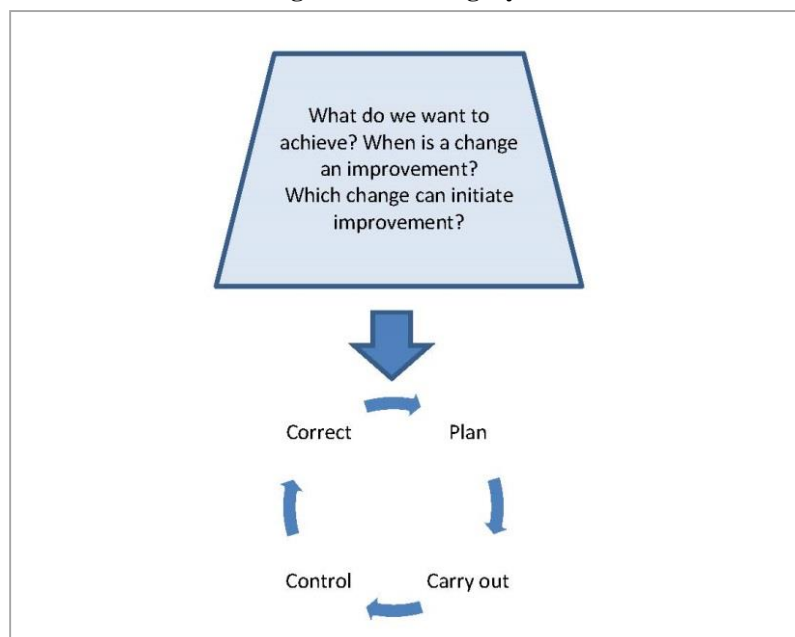
Another Performance Indicator system in Norway: SAMDATA (=Comparison data)

In addition to the NQIS, the Health Directorate of Norway publishes comparative statistics and performance indicators in publications entitled SAMDATA (=comparison data"). The main goal for this project is to present management information and performance indicators on health care

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[79] Langley , Nolan, Nolan, Norman, Provost: The Improvement Guide, New York; Jossey Bass,1996.

services to health authorities at national and regional levels, to service providers and the public. Analyses and data are published through reports (download and printed edition) and through a report generator on the web for visualization and extraction of data. The report «SAMDATA Specialist health services» is published annually. Furthermore, 2-5 reports on mental health care and addiction services are also published as part of the project.

The first publication in the SAMDATA-series came in 1988, and since 2007, the reports include both somatic specialist health care, specialist mental health care and interdisciplinary specialized substance abuse treatment (TSB).

Content and dimensions considered

In SAMDATA, various types of information are assembled to get an overall picture of the development in the specialist health care and to compare service providers and geographical areas. Figures and indicators comprise selected input, - process, and output-indicators. The main objectives for indicators presented in SAMDATA are to illuminate issues of system efficiency, variation in utilisation of services and equal geographical access to health services (equity).

Perspectives; Hospital performance and geographical variations

The indicators that are analysed in SAMDATA covers two perspectives in the assessment of the health services. First, to present data and indicators to compare hospital performance and characteristics of the individual health care organisations. Secondly, to compare the utilisation and access to services among various geographical areas.

Examples of indicators at organisational level (hospital performance):

  - Productivity indicators based on the ratio between costs, personnel, beds/places, weighted activity (DRG) etc.

  - Process and output indicators: Length of stay in hospital, readmission rate, share of day surgery, patient circulation, waiting time, involuntary admissions in mental health care

Population based indicators:

  - Beds in hospital per capita (adjusted)

  - Expenditure/Cost per capita

  - Utilisation of hospital services per capita. Totally and for selected patient groups and age groups. The numerator of the indicator can be number of patients treated, number of discharges from hospital, number of outpatient visits, number of patients treated with specific surgical procedures etc.

The analyses and indicators in SAMDATA are mainly based on data from the Norwegian Patient Register (NPR) and data from Statistics Norway, but additional data sources can be used when

focusing on selected topics. The information covers all publicly funded health care, including data from private providers regarding publicly financed services.

d. Methodology adopted

Standardised processes are important for the National Quality Indicators System to measure, compare and benchmark. Methods and processes are established to ensure that the National Quality Indicators are used according to their purpose. Process descriptions used to develop, publish and revise quality indicators are shown in Figure 30.

Figure 30: Process descriptions used to develop, publish and revise quality indicators
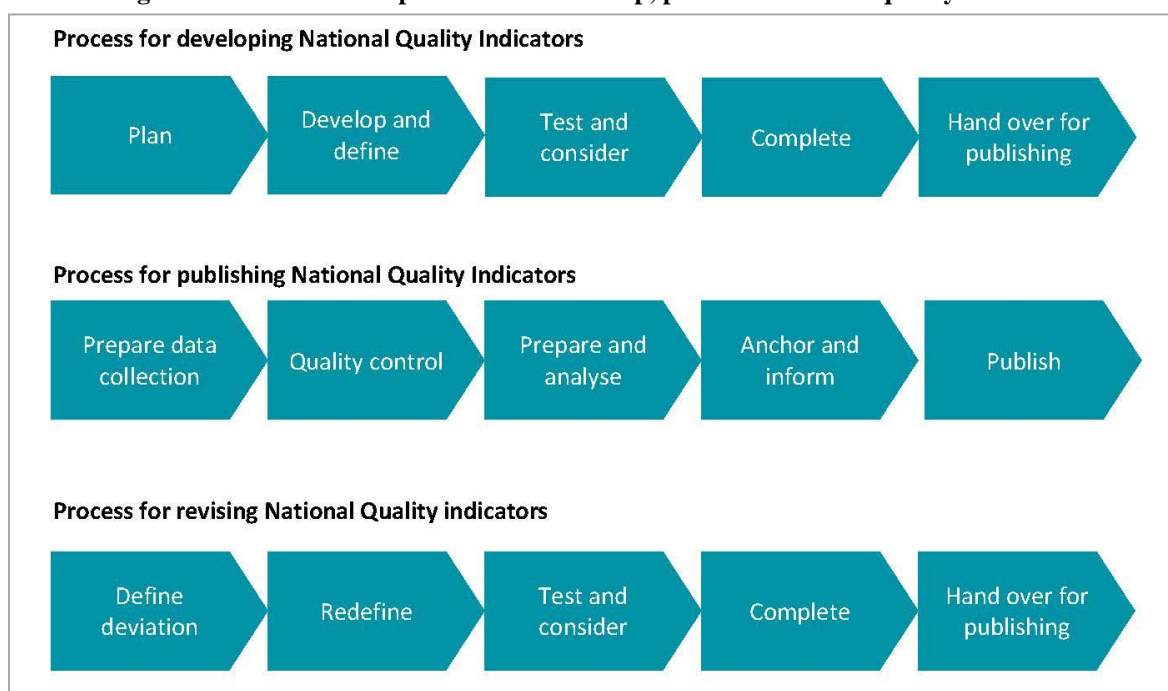
A standardised process for developing National Quality Indicators is necessary to obtain valid and reliable information about the Norwegian healthcare system`s quality and achievement, concerning status, trends and effects. The process is carried out in close collaboration with the health care sector, registries, researchers and patients/users.

Political trends indicate areas where it is necessary to measure quality. Healthcare laws and regulations, white papers and national strategies points to important areas where quality should be measure. National guidelines offers a more detailed basis for what needs to be measured and why, and desired effects.

The following criteria are used for the prioritisation of areas that will be covered by the Norwegian National Quality Indicator System:

- Relevance of the condition of health and clinical interventions: lack of prevention/ diagnostics/ treatment/ follow-up that leads to prognosis of high loss like shortened lifetime and considerable reduced quality of life

- Resource demanding diagnostics, treatment and/or follow-up (includes resource demanding patient groups by volume)

- Risk exposed or vulnerable patients groups (includes patients groups with high level of comorbidity)

- Lack of consensus regarding treatment practise and/or lack of knowledge base when implementing new technologies

The following criterial guides the development, testing and selection of National Quality Indicators. The National Quality Indicators should be:

- Of importance: Health political and social importance should be documented.

- Scientifically sound: Should measure established practice in healthcare services based on existing laws, regulations, guidelines and research.

- Useful: The target groups should be able to use the indicators for their intended purpose and able to influence the output and result.

- Feasible: Indicators should be based on available data and relevant reports.

- Published at regular intervals: Frequency of publishing of indicators should ensure timeliness.

Online publishing of the National Quality Indicators is necessary in order to make the results both visible and accessible. The main aim of the NQIS is that the results can be used to improve quality management and local healthcare services. By publishing the indicators the results can be evaluated and compared over time – whether this is locally, between hospitals, regions, local government or between countries. The results can further be used for benchmarking, where the performance of different health care providers can be compared and best practises can be developed[80].

A thorough revision process of the National Quality Indicators is necessary in order to ensure a relevant and updated set of indicators that is in accordance with changes in legislation, national guidelines, improvements in registration processes and updates in coding and terminology etc.

e. Quality of data

Whenever possible, the Norwegian National Quality Indicator System shall use data from existing registries. Challenges connected to the development and publishing of the Quality Indicators are therefore primarily connected to either lack of data or variable quality of the available data. An important part of the development of each Quality Indicator is therefore to identify data sources of adequate quality, or, if this is lacking, to contribute to the development of the necessary information.

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[80] The National Quality Indicators are published on the webpage www.helsenorge.no

The National Health Register Project[81] aims to modernise and further develop the Norwegian health registries.

The sources must also be in accordance with existing laws and regulations for the treatment of health data.

Data sources for the National Quality Indicators shall be considered using the following criteria:

- Adequate coverage service providers and patients/users on a national level
- Completeness of information
- Possibility for data analysis on relevant levels (e.g. hospital or municipality)
- Availability of data and consistency over time
- Correctness and traceability
- Relevance

These criteria lead us to conclude the following:

- Standardised Medical Coding and Classification practice is necessary to obtain reliable assessment of the service.
- Administrative Coding is a requirement to identify service providers, and to show quality measurements on the lowest level.
- Health registries are a requirement to access data groundwork for developing and publishing quality indicators. In addition is collecting and quality securing of number material a time demanding activity.

The Norwegian National Quality indicator system increases the attention and need for improvement in coding practises, availability of data, quality and completeness of data.

f. Use for policy action

National Quality Indicators are a set of indicators describing structures, processes and outcomes. Combined they can describe the overall level of quality in the healthcare services. The Norwegian Quality Indicator system aims to establish "packages" of Quality Indicators that combined will show the outcome of treatment, availability of healthcare services and resources and user experiences within defined areas. By establishing such "packages" of Quality Indicators, the system can give a more holistic view of the quality in the healthcare services within a defined area.

The following principals are used for viewing and further developing of viewing of results:

- Flexible viewing and publishing solutions with possibility to adjust viewing and grouping of indicators and results for each unique target group

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[81] http://www.helseregistre.no/eway/default.aspx?pid=277&trg=Main_6250&Main_6250=6329:0:2319

- Good description and accessibility of what is measured and why customised for each target group

- Clustered viewing of quality indicators with basis in e.g. service provider, geography, discipline and dimensions of quality

- Facilitate presentations of complex correlations and statistical variance

Good accessibility of the results for the different target groups is a prerequisite for the system to be used for quality management and improvement, and further to enable all target groups to make informed decisions.

On the webpage of the NQIS it is possible to see the all National Quality Indicators currently available for the healthcare sector at a national-, regional-, county- municipality-, local government- level and for the different health care providers. Results are shown for the last reporting period as well as historical development and it is possible to compare results on the national, regional and local levels.

Portugal

DQS, Departamento da Qualidade em Saúde – Direção-Geral da Saúde

a.   Background.

In Portugal, the Ministry of Health approved and published the National Strategy for Quality in Health in 2009[82]. This 10-year strategy identified, as strategic priorities, the following areas:

- Clinical and organisational quality;
- Transparent Information to the citizen;
- Patient safety;
- National qualification and accreditation of health units;
- Integrated disease management and innovation;
- Management of international mobility of patients;
- Evaluation and orientation of the complaints and suggestions of citizens from the National Health Service.

Between 2009 and 2014, the implementation phase of the Strategy, annual reports were presented by the Directorate of Health, updating the evaluation of the implementation of the above-mentioned actions.

In 2015, in the beginning of the consolidation phase of the Strategy, the Ministry of Health decided to reinforce the national patient safety initiatives by publishing the National Plan for Patient Safety 2015-2020[83], and renew National Strategy for Quality in Health for 2015-2020[84] which will focus, for the next five years, the following areas:

- Upgrading of Clinical and organizational quality.
- Improvement of clinical guidelines accomplishment
- Reinforcement of Patient safety.
- Regular accountability quality and patient safety.
- National qualification and accreditation of health units.
- Transparent Information to the citizen and empowerment.

b.   Dimensions considered.

In order to guarantee the quality of the different elements involved in the delivery of healthcare, this National Strategy aimed to promote and disseminate, in institutions providing healthcare, a culture of continuous improvement of the quality, through the following actions:

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[82] Order N.º 14223/2009, June 24, of the Ministry of Health
[83] Order N.º 1400-A/2015, February 10, of the Ministry of Health

[84] Order N.º 5613/2015, May 27, of the Deputy Secretary Office of the Ministry of Health

- Dissemination of clinical guidelines to help health professionals using best professional practices in different areas of practice.
- Implementation of a national indicators system to monitor levels of clinical and organizational quality of units providing health care.
- Creation of a national system for notification of adverse events and incidents, not punitive, but rather educational in learning with the error.
- Dissemination of rules of procedure to avoid most frequent causes that endanger patient safety, especially the clinical error, the surgical error and the medication error.
- Coordination of the healthcare-associated infections.
- Adoption and adaptation of a national, independent model for accreditation of health services and implementation through a national accreditation programme in health.
- Design, monitoring and evaluation of new experimental models of management of more prevalent, more disabling and more onerous diseases.
- Establishment of criteria and rules for the creation of units providing highly differentiated health care of national and international reference;
- Monitoring and evaluation of health projects in the fields of innovation and research.
- Creation of mechanisms for the management of flows of foreign patients who receive health care in Portugal and Portuguese patients receiving healthcare in different centres abroad.
- Implementation of systems for periodic monitoring of the degree of satisfaction of users of the health system and of its professionals.
- Management of complaints and suggestions from citizens, users of the National Health Service.

c. Focus of the evaluation.

All those above mentioned actions include projects that are evaluated by different methods, at all levels, national, regional and local.

The evaluations performed take into consideration both health date and demography in order to identify patterns and to estimate incidence and prevalence of disease.

d. Methodology adopted.

In order to develop the indicators and risk adjustment methods, there were created working groups involving experts in the several areas and after the analysis of the data available, indicators were defined. After this 1st stage, the indicators are submitted to quality test to assure that the measures are being correctly collected and presented.

In order to clarify, we may give examples of the information that is collected in order to evaluated projects at national and international level: annual Healthcare Associated Infections (HAI) Incidence on Intensive Care Units, Surgery and HAI prevalence (ECDC); Antimicrobial resistance surveillance (ECDC) and antimicrobial consumption (ESAC/ECDC); Healthcare professional hand hygiene compliance (WHO); Healthcare operating rooms compliance on the WHO project Save surgery saves lives; Number and type of Incidents reported by Healthcare Professionals and by

Citizens (Portugal); Satisfaction of the National Health System users (Portugal); indicators of the clinical guidelines at acute care and primary care (Portugal).

e. Quality of data.

The entity responsible for the data collection, the definition of coding procedures and the implementation and development of quality checks and audit on the quality of the information is the Central Administration of the Health System.

The definition of coding procedures usually involves professional groups (eg: medical doctors and nurses), and follows international standards like the international Statistical Classification of Diseases and Related Health Problems, the Diagnosis Related Groups, and others.

f. Use for policy actions.

In the context of improving the quality of the health system, the Medical Association and the Directorate-General of Health, signed a protocol in September 2011, involving all medical specialties and aiming, in particular, the implementation and monitoring of the impact of clinical guidelines, as well as the development of clinical orientations, including prescription of medications and medical tests, evaluation of the applicability of Clinical Guidelines (AGREE Test), training of physicians as clinical auditors, identification of reference centres, development of the integrated care pathways for chronic disease and health problems and clinical audits.

The Directorate-General of Health assumed the responsibility for issuing clinical guidelines and orientations, being the Clinical Councils of Groups of Health Centres responsible for the dissemination, implementation and appropriate monitoring, at the primary care level, and the Clinical Directors at the secondary care level.

In accordance with the referred Protocol, from September 5, 2011, until August 28, 2015, were performed 279 clinical audits, for a total of 7 Clinical Guidelines. These audits were performed both in Primary Health and Secondary Care units.

This process involved the collaboration of 53 audit doctors, and the compliance rate for Primary Health Care was 32% and 58% for Secondary Care (Hospitals).

For these units where issued recommendations that where later evaluated by follow up audits. The results of the follow up clinical audits revealed rates of implementation of the recommendations of 55% for Primary Health Care and 60% for Secondary Care (Hospitals).

Within the framework of this partnership, annual reports on the evaluation of follow-up/monitoring activities and of the implementation of clinical audits are produced and published: "Clinical Governance. System of Clinical Audits".

Sweden

Ingrid Schmidt, Birgitta Lindelius, Mona Heurgren - The National Board of Health and Welfare

a.   Background

The basic prerequisites for monitoring care quality and outcomes in the Swedish health system have improved the over the latest decade latest not least through the intensified establishment of national quality registers. Sweden is developing its HSPA model, at present consisting of different parts. At present, these parts include:

- regional comparisons based on indicators in regular reports primarily targeting the regional level;

- national evaluations based on clinical guidelines;

- more general follow up on the national level (yearly "state of health care reports")

The HSPA is based in the overriding goals stipulated in The Health and Medical Services Act, which devolves the responsibility for providing healthcare and public health services to county councils/regions and municipalities. Health care is predominantly financed through regional and local taxes, supplemented by grants from the national government and patient fees.

- The law strives to:

- Achieve good health on equal grounds for the entire population

- Be accessible and of high quality

- Prevent illness

Additionally, the law stipulates that people with the greatest need should be prioritized. Moreover, quality and safety should systematically and continuously be developed and monitored by the health care providers.

On the national level, The National Board of Health and Welfare (NBHW) has the duty of monitoring and guide and supervises the implementation of new policies.

b.   Dimensions included

How can processes, results and costs of health care be monitored? Which objectives and criteria's should serve as guidelines? These questions are top of the agenda for most health-care systems in the world. International models have inspired to the development of the concept "Good health care" in Sweden – a concept that the National Board of Health and Welfare introduced in 2005. It serves as a framework for HSPA in Sweden when it comes to how processes, results and costs of health care can be monitored. The concept or framework defines six main areas or aims for health care

delivery. These aims were explicitly defined in the regulations for management systems for quality and patient safety in health care, a system that now is revised. The model is also an application of the OECD framework for quality assessment, in which these aims or dimensions also are present. Below is a recently developed illustration of the model used in the Swedish context.

Figure 31: Conceptual framework to evaluate quality in the Swedish system
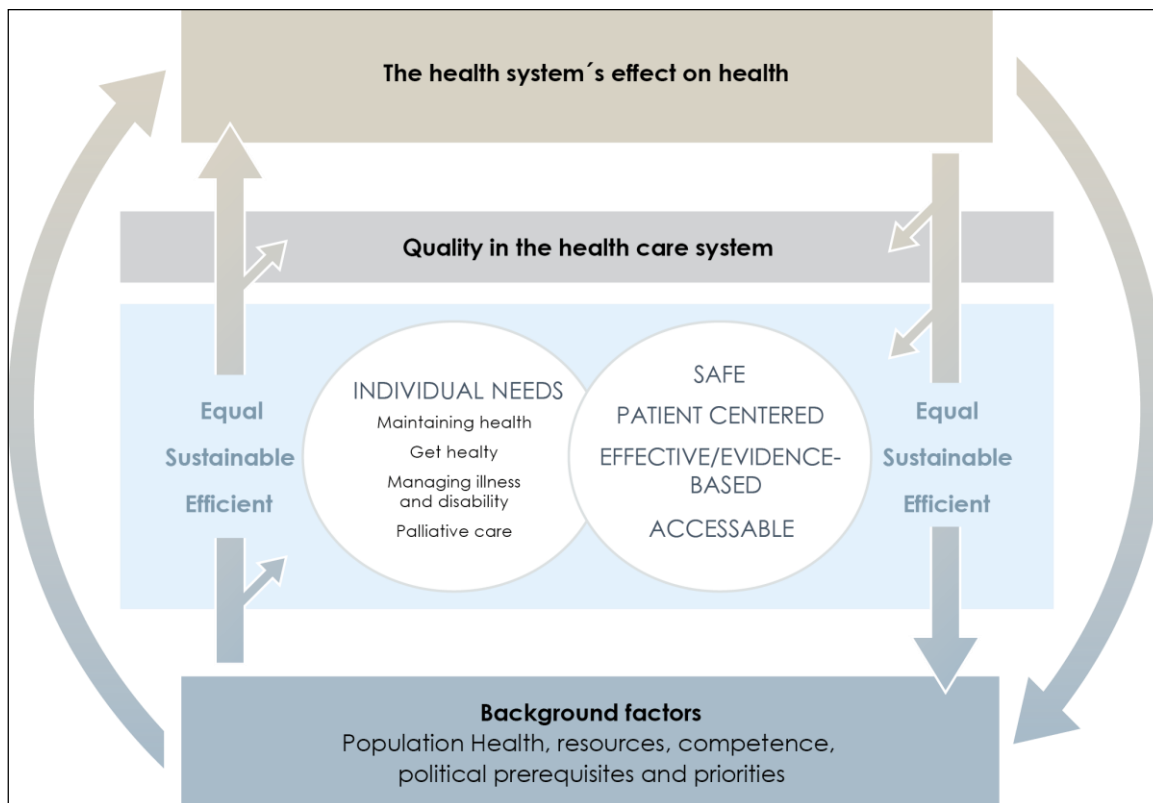
c. Focus of evaluation

Follow-up and evaluation has been systematically developed over the past, about 20 years, but more extensively since around 2000.

Health care in Sweden is decentralized to a major degree: thus the development of HSPA has increasingly developed based on extensive cooperation national level, the county councils and the medical professions.

In 2006, the first indicator based report with regional comparisons report of quality and efficiency in Swedish health care was published, based on cooperation between NBHW and the Swedish Agency of Local authorities and Regions (SALAR). Open regional comparisons has over the years grown to include several hundred of indicators, both general and thematic reports, such as cancer and equal care. Open comparisons are descriptive reports that serve multiple purposes. In part to act as a basis for improvement for health care providers, and in part to support further analysis that can be used in health care management and regulation.

The first indicator based evaluation on compliance to national guidelines was published in 2009 by NBWH. This report covered cardiac care and after this around 10 reports are published, for example on diabetes and stroke. The evaluations delineate the quality and efficiency within health care,

assess the outcomes and provide recommendations for further work. Some of the evaluations are published in English.

Both open regional comparisons and evaluations present data on county council and hospital level, and in certain cases display distribution related to education level and country of birth. The main focus, however, has so far been primarily on the county council population level.

d. Methodology and data sources

There is good accessibility of data sources for the follow-up of healthcare in Sweden, even if it is lacking in some areas, for example primary care. NBHW manage and are responsible for many registries for example

- Hospital discharge register

- Prescribed drug register

- Cause of death register

Aside from this a large number of quality registers have been developed within different health care settings by the medical professions. The first ones started as early as the 1980s. A quality registry contains in general individualized data on patient safety and complications, medical interventions, and outcomes after treatment. The registers are now annually monitored and approved for financial support by an Executive Committee. The last few years the government has financed a substantial part of the development.

Indicators are developed primarily in the context of the reporting system in "regional comparisons" and national evaluations, as described below. On the local level, indicators are developed also within the context of quality registers.

How are the indicators published?

Regional Comparisons in printed reports consists of ranked regional data from the latest year possible and often of another year to provide a sense of development. Data is always presented by sex on the NBHW website. The figure below shows deaths from ischaemic heart disease for women with the names of county councils on the left, with two bars representing 2012 and 2013, including a confidence interval.

Figure 32: avoidable deaths from ischaemic heart disease for women

FIGURE 8.4 – REGIONS, WOMEN: Avoidable deaths from ischaemic heart disease per 100 000 inhabitants 1–79 years old, 2012–2013. Age-standardised.

Jämtland	19.4
Uppsala	19.5
Halland	21.3
Kronoberg	22.3
Stockholm	22.4
Värmland	23.2
Blekinge	24.2
Skåne	24.8
SWEDEN	26.7
Sörmland	26.9
Kalmar	27.5
Västmanland	28.2
Västra Götaland	28.4
Västerbotten	29.4
Östergötland	30.4
Norrbotten	30.5
Gävleborg	30.6
Gotland	31.4
Dalarna	32.2
Örebro	33.1
Jönköping	33.6
Västernorrland	34.2

■ 2012–2013   □ 2010–2011   Number per 100 000 inhabitants

Source: The Swedish Cause of Death Register, the National Board of Health and Welfare.

When possible, indicators are presented with national trends.

Figure 33: national trend in deaths from ischemic heart disease per 100 000 inhab age 1-79. Age-standardised

FIGURE 8.1 – SWEDEN: Avoidable deaths from ischaemic heart disease per 100 000 inhabitants age 1–79, 2010–2011. Age-standardised.

Number per 100 000 inhabitants

— Total   ···· Women   – – Men

Source: The Swedish Cause of Death Register, the National Board of Health and Welfare.
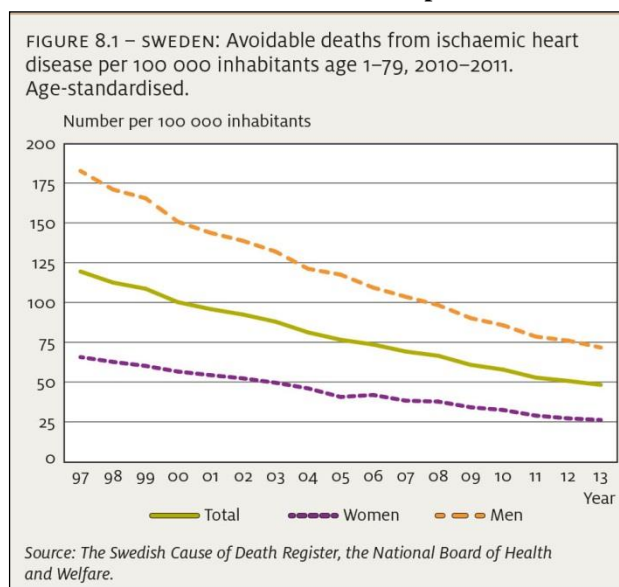
Figure 34: national trend in deaths from ischemic heart disease per 100 000 inhab age 1-79. Age-standardised

FIGURE 8.3 – EDUCATION: SWEDEN, MEN: Avoidable deaths from ischaemic heart disease per 100 000 inhabitants 35–79 years old. Age-standardised.

Number per 100 000 inhabitants

Pre-upper-secondary · · · Upper-secondary – · – Post-secondary

Source: The Swedish Cause of Death Register, the National Board of Health and Welfare.
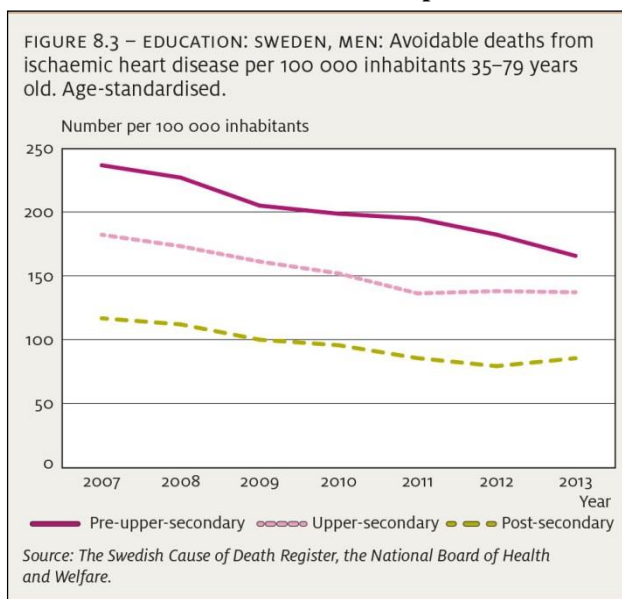
Figure 33 shows the national trends by sex, Figure 34 shows the trends by education level.

On the NBHW website it is possible for each county council to view and compare their own trends with others. When possible, the indicators are age-standardized. Where national goal levels have been set, have such been included in the figures. Figures include a confidence interval when possible and relevant.

The last few years many registers have tried to include PROM as indicators but there are still only quite few examples that are possible to publish. One example is from gynaecological care, as shown in the next figure.

Figure 35: % women having no or almost no uterine prolapsed symptoms 1-year after surgery by county council

DIAGRAM 63 – KVINNOR: Andel kvinnor som anger att de aldrig eller nästan aldrig har framfallssymtom 1 år efter operationen, 2013. Mätperioden avser tid för uppföljning.

County	Value
Gotland	88,2
Örebro	85,6
Norrbotten	81,9
Kalmar	81,2
Halland	81,0
Östergötland	80,6
Blekinge	79,6
Västra Götaland	78,9
Jämtland	77,8
Kronoberg	77,5
RIKET	76,6
Värmland	75,8
Stockholm	75,5
Sörmland	75,3
Dalarna	75,0
Skåne	74,4
Västerbotten	73,8
Gävleborg	73,2
Västernorrland	69,9
Jönköping	69,4
Uppsala	66,4
Västmanland¹	

¹ Uppgift saknas   Procent

Källa: Nationella kvalitetsregistret inom gynekologisk kirurgi samt Gyn-KvalitetsRegistret.

When it comes to equity, indicators are stratified on certain groups, for example socio-economic groups. Another example is to study if patients with a psychiatric diagnose receive recommended cardiac care in the same way as other patients.

During the years the reports and indicators have been widely used for different purposes, such as performance assessments and quality improvement. The reports are now recognized sources of information regarding healthcare in Sweden. Media, most notably local media, often utilize data from the reports.

The NBHW has also developed a model for monitoring efficiency that includes the Donabedian concept for indicator development. One of the challenges ahead is to develop better case mix models when it comes to hospital comparisons. Currently DRGs are being tested as a possible method to use.

e. Quality of data

The process of developing indicators differs depending on which publication it is to be included in. Indicators produced for evaluation of guidelines are based on the central recommendations made within the guideline. These are developed using a proven method with scientific studies as a basis and an assessment of evidence in accordance with GRADE. Regional open comparisons use indicators from guidelines but are also complemented by other indicators based on suggestions from those who are responsible for the different registers that are at hand, including the registers at NBHW. They are included after consideration concerning coverage and overall quality.

The registers are responsible for data quality and the relevance of the indicator. Aggregated data is delivered to NBHW and SALAR for processing and publication. Some quality control is also performed when data has been delivered. The regional, open comparisons are published on a yearly basis and use indicators related to both process and outcome in a descriptive, rather than analytical, way. In 2014 six different reports with various themes were published, including reports on public health and somatic care given to patients with mental illness. In 2015 there were three reports published. The evaluations are made more scarcely.

In the recent years a large number of indicators have been developed, and Sweden has good access to data from various sources.

The present challenges is concerned with how to prioritize among different measures, is everything equally important to measure? Which are the most important indicators? How do we actually use all the information to actually transform into improvement of health care?

In 2013, the different stakeholders at national and regional level agreed on an action plan on developing HSPA activities with 2 main aims:

- Make more use of data and indicators for improvement clinical praxis and support professional in their day to day work;

- Make data more data and indicators more easily available to different actors including patients.

Moreover, the opportunities for monitoring and analysis are still mainly limited to specialized somatic care, while many other important areas still are lacking behind. This applies to primary care psychiatry, among others.

f.   Use for policy action

The HSPA activities and reports are used both in decision-making and development on county council-level, and serve as base for policy initiative on national level. When the different reports are published, the results are also communicated to the public.

The HSPA reporting has demonstrated both lack of information and relatively large regional differences in structure, process and outcomes in a number of areas. This includes, for example, both access and outcomes of cancer care, as well as outcomes of care for a number of a chronic and long-term conditions such as diabetes, chronic obstructive lung disease and hypertension. Furthermore, the monitoring of care for the elderly and patients with mental health problems has demonstrated a number of challenges.   In addition, indicators of patient centeredness have demonstrated that both communications with patients as well as patient participation must be improved. Moreover, the reporting as also revealed that despite universal health care plan, disparities among different socioeconomic groups is evident in many areas and the differences in some overall health outcomes has increased in recent years.

The these conclusions and results based on e.g. extensive HSPA- reporting has contributed to a number of policy initiatives on both national/governmental and regional level.

Examples of policy initiatives from the governmental level includes

- A new legislation emphasising patents perspective and rights.

- A number of national strategies have been launched, targeting different areas including:
    - improved health and social care of older adults with complex health conditions.
    - mental health
    - cancer
    - chronic diseases
    - equity

g.   Conclusions

Sweden has a long tradition of monitoring and evaluating health care. The use of indicators for monitoring and evaluation has evolved significantly over the past decade. The indicators are used for different purposes and methods for developing indicators are different depending on the purpose.

Health system performance assessment through transparent benchmarking among regions as well as units has contributed to a clearer focus on the quality and outcomes of health services. The results

have become a natural part of the debate on health care and the basis for a number of strategic decisions.

We can also conclude that:

- In many areas we can see big improvements and that some of the differences between county council and units decreases, but challenges still remain;

- A large number of indicators are developed and used for both improvement, deeper analyses and as a basis for policy action.

The missions for the future development should particularly focus on

- Increase the use of indicators that reflect near patient activities. For example patient reported outcome measures and indicators on patient involvement

- Improve the availability of indicators and data and develop targeted reports for different stakeholders

Bibliography

Chapter 3 and Appendix I

1. Vrijens, F., F. Renard, P. Jonckheer, K. Van den Heede, A. Desomer, C. Van de Voorde and e. al., *Performance of the Belgian Health System. Report 2012. .* 2012, Belgian Health Care Knowledge Centre Brussels.

2. van den Berg, M., D. de Boer, R. Gijsen, R. Heijink, L. Limburg and S. Zwakhals, *Dutch Health Care Performance Report 2014.* 2015, National Institute for Public Health and the Environment: Bilthoven.

3. International Diabetes Federation, *Diabetes in Europe. Policy puzzle. The state we are in.* 2014, European Coalition for Diabetes.

4. International Diabetes Federation, *IDF Diabetes Atlas, Seventh edition.* 2015, International Diabetes Federation: Brussels.

5. van Riet, E.E., A.W. Hoes, K.P. Wagenaar, A. Limburg, M.A. Landman and F.H. Rutten, *Epidemiology of heart failure: the prevalence of heart failure and ventricular dysfunction in older adults over time. A systematic review.* Eur J Heart Fail, 2016.

6. Cowie, M., S. Anker, J. Cleland, G. Felker, G. Filippatos, T. Jaarsma, P. Jourdain, E. Knight, B. Massie, P. Ponikowski, and J. López-Sendón, *Improving care for patients with acute heart failure Before, during and after hospitalization. .* 2014, Oxford PharmaGenesis: Oxford.

7. Neumann, T., J. Biermann, R. Erbel, A. Neumann, J. Wasem, G. Ertl and R. Dietz, *Heart failure: the commonest reason for hospital admission in Germany: medical and economic perspectives.* Dtsch Arztebl Int, 2009. **106**(16): p. 269-75.

8. Belgian Healthcare Knowledge Centre, *Performance of the Belgian health system. Report 2015.* 2016, Belgian Health Care Knowledge Centre, forthcoming: Brussels.

9. Ministero della Salute. *L'Agenzia nazionale per i servizi sanitari regionali. National Outcome Evaluation Program. (accessed December 2015).* 2015 [cited 14/12/2015]; Available from: http://95.110.213.190/PNEed14_EN/index.php

10. Nuti, S., F. Vola, A. Bonini and M. Vainieri, *Making governance work in the health care sector: evidence from a 'natural experiment' in Italy.* Health Econ Policy Law, 2016. **11**(1): p. 17-38.

11. Maltese Ministry for Energy and Health, *A national health systems strategy for Malta 2014-2020.* 2014, Ministry for Energy and Health: Valetta.

12. OECD, *Cardiovascular Disease and Diabetes: Policies for Better Health and Quality of Care*, in *OECD Health Policy Studies*. 2015, OECD Publishing: Paris.

13. OECD. *Health Care Quality Indicators - Primary Care*. 2015 [cited 09/12/2015]; Available from: http://www.oecd.org/els/health-systems/hcqi-primary-care.htm

14.   Gibbons, D.C., A.B. Bindman, M.A. Soljak, C. Millett and A. Majeed, *Defining primary care sensitive conditions: a necessity for effective primary care delivery?* J R Soc Med, 2012. **105**(10): p. 422-8.

15.   WHO Regional Office for Europe, *Ambulatory care sensitive conditions in the Republic of Moldova*. 2015, World Health Organization: Copenhagen.

16.   WHO Regional Office for Europe, *Ambulatory care sensitive conditions in Latvia*. 2015, World Health Organization: Copenhagen.

17.   Bindels, J., B. Ramaekers, I.C. Ramos, L. Mohseninejad, S. Knies, J. Grutters, M. Postma, M. Al, T. Feenstra, and M. Joore, *Use of Value of Information in Healthcare Decision Making: Exploring Multiple Perspectives.* Pharmacoeconomics, 2015.

18.   Tong, A., P. Sainsbury and J. Craig, *Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups.* Int J Qual Health Care, 2007. **19**(6): p. 349-57.

19.   Thygesen, L.C., T. Christiansen, S. Garcia-Armesto, E. Angulo-Pueyo, N. Martinez-Lizaga, E. Bernal-Delgado and E. Consortium, *Potentially avoidable hospitalizations in five European countries in 2009 and time trends from 2002 to 2009 based on administrative data.* Eur J Public Health, 2015. **25 Suppl 1**: p. 35-43.

20.   Weeks, W.B., B. Ventelou and A. Paraponaris, *Rates of admission for ambulatory care sensitive conditions in France in 2009-2010: trends, geographic variation, costs, and an international comparison.* Eur J Health Econ, 2015.

21.   Purdy, S., T. Griffin, C. Salisbury and D. Sharp, *Ambulatory care sensitive conditions: terminology and disease coding need to be more specific to aid policy makers and clinicians.* Public Health, 2009. **123**(2): p. 169-73.

22.   Bardsley, M., I. Blunt, S. Davies and J. Dixon, *Is secondary preventive care improving? Observational study of 10-year trends in emergency admissions for conditions amenable to ambulatory care.* BMJ Open, 2013. **3**(1).

23.   Rosano, A., C.A. Loha, R. Falvo, J. van der Zee, W. Ricciardi, G. Guasticchi and A.G. de Belvis, *The relationship between avoidable hospitalization and accessibility to primary care: a systematic review.* Eur J Public Health, 2013. **23**(3): p. 356-60.

24.   Rosano, A., P. Peschel, J. Kugler, W. Ricciardi, G. Guasticchi and J. van der Zee, *Preventable hospitalization and the role of primary care: a comparison between Italy and germany.* J Public Health, 2013. **21**(5): p. 445-454.

25.   Burgdorf, F. and L. Sundmacher, *Potentially avoidable hospital admissions in Germany: an analysis of factors influencing rates of ambulatory care sensitive hospitalizations.* Dtsch Arztebl Int, 2014. **111**(13): p. 215-23.

26.   Gibson, O.R., L. Segal and R.A. McDermott, *A systematic review of evidence on the association between hospitalisation for chronic disease related ambulatory care sensitive conditions and primary health care resourcing.* BMC Health Serv Res, 2013. **13**: p. 336.

27.   Sagan, A., D. Panteli, W. Borkowski, M. Dmowski, F. Domanski, M. Czyzewski, P. Gorynski, D. Karpacka, E. Kiersztyn, I. Kowalska, M. Ksiezak, K. Kuszewski, A.

Lesniewska, I. Lipska, R. Maciag, J. Madowicz, A. Madra, M. Marek, A. Mokrzycka, D. Poznanski, A. Sobczak, C. Sowada, M. Swiderek, A. Terka, P. Trzeciak, K. Wiktorzak, C. Wlodarczyk, B. Wojtyniak, I. Wrzesniewska-Wal, D. Zelwianska, and R. Busse, *Poland health system review.* Health Syst Transit, 2011. **13**(8): p. 1-193.

28.   Harrison, M.J., M. Dusheiko, M. Sutton, H. Gravelle, T. Doran and M. Roland, *Effect of a national primary care pay for performance scheme on emergency hospital admissions for ambulatory care sensitive conditions: controlled longitudinal study.* BMJ, 2014. **349**: p. g6423.

29.   Iezzi, E., M. Lippi Bruni and C. Ugolini, *The role of GP's compensation schemes in diabetes care: evidence from panel data.* J Health Econ, 2014. **34**: p. 104-20.

30.   Gonseth, J., P. Guallar-Castillon, J.R. Banegas and F. Rodriguez-Artalejo, *The effectiveness of disease management programmes in reducing hospital re-admission in older patients with heart failure: a systematic review and meta-analysis of published reports.* Eur Heart J, 2004. **25**(18): p. 1570-95.

31.   Peytremann-Bridevaux, I., P. Staeger, P.O. Bridevaux, W.A. Ghali and B. Burnand, *Effectiveness of chronic obstructive pulmonary disease-management programs: systematic review and meta-analysis.* Am J Med, 2008. **121**(5): p. 433-443 e4.

32.   Knight, K., E. Badamgarav, J.M. Henning, V. Hasselblad, A.D. Gano, Jr., J.J. Ofman and S.R. Weingarten, *A systematic review of diabetes disease management programs.* Am J Manag Care, 2005. **11**(4): p. 242-50.

33.   Rizza, P., A. Bianco, M. Pavia and I.F. Angelillo, *Preventable hospitalization and access to primary health care in an area of Southern Italy.* BMC Health Serv Res, 2007. **7**: p. 134.

34.   Cartier, T., M. Naiditch and P. Lombrail, *[Avoidable hospitalizations: the sole responsibility of primary care?].* Rev Epidemiol Sante Publique, 2014. **62**(4): p. 225-36.

35.   Agabiti, N., M. Pirani, P. Schifano, G. Cesaroni, M. Davoli, L. Bisanti, N. Caranci, G. Costa, F. Forastiere, C. Marinacci, A. Russo, T. Spadea, C.A. Perucci, and C. Italian Study Group on Inequalities in Health, *Income level and chronic ambulatory care sensitive conditions in adults: a multicity population-based study in Italy.* BMC Public Health, 2009. **9**: p. 457.

36.   Gajewska, M., A. Gebska-Kuczerowska, P. Gorynski and M.J. Wysocki, *Analyses of hospitalization of diabetes mellitus patients in Poland by gender, age and place of residence.* Ann Agric Environ Med, 2013. **20**(1): p. 61-7.

37.   Freund, T., S.M. Campbell, S. Geissler, C.U. Kunz, C. Mahler, F. Peters-Klimm and J. Szecsenyi, *Strategies for reducing potentially avoidable hospitalizations for ambulatory care-sensitive conditions.* Ann Fam Med, 2013. **11**(4): p. 363-70.

38.   Saver, B.G., C.Y. Wang, S.A. Dobie, P.K. Green and L.M. Baldwin, *The central role of comorbidity in predicting ambulatory care sensitive hospitalizations.* Eur J Public Health, 2014. **24**(1): p. 66-72.

39.   Purdy, S. and A. Huntley, *Predicting and preventing avoidable hospital admissions: a review.* J R Coll Physicians Edinb, 2013. **43**: p. 340-4.

40.   van Loenen, T., M.J. van den Berg, G.P. Westert and M.J. Faber, *Organizational aspects of primary care related to avoidable hospitalization: a systematic review.* Fam Pract, 2014. **31**(5): p. 502-16.

41.   Eggli, Y., B. Desquins, E. Seker and P. Halfon, *Comparing potentially avoidable hospitalization rates related to ambulatory care sensitive conditions in Switzerland: the need to refine the definition of health conditions and to adjust for population health status.* BMC Health Serv Res, 2014. **14**: p. 25.

42.   van den Berg, M.J. and T. van Loenen, *Primary care and avoidable hospitalization for diabetes.* 2013, National Institute for Public Health and the Environment.

43.   Stone, M.A., G. Charpentier, K. Doggen, O. Kuss, U. Lindblad, C. Kellner, J. Nolan, A. Pazderska, G. Rutten, M. Trento, K. Khunti, and G.S. Group, *Quality of care of people with type 2 diabetes in eight European countries: findings from the Guideline Adherence to Enhance Care (GUIDANCE) study.* Diabetes Care, 2013. **36**(9): p. 2628-38.

44.   Liebl, A., M. Mata, E. Eschwege and O.D.E.A. Board, *Evaluation of risk factors for development of complications in Type II diabetes in Europe.* Diabetologia, 2002. **45**(7): p. S23-8.

45.   OECD, *Health at a Glance 2015: OECD Indicators.* 2015, OECD: Paris.

46.   WHO Euro, *Health for All Database (released October 2015).* 2015.

47.   WHO. *Health for All Database* 2015   [cited 08/10/2015]; Available from: http://data.euro.who.int/hfadb/.

48.   Berrie, N., *How does the NHS compare with health systems in other countries?* 2015, The Health Foundation.

49.   Kossarova, L., I. Blunt and M. Bardsley, *Focus on: International comparisons of healthcare quality. What can UK learn?*, in *QualityWatch.* 2015, The Health Foundation; Nuffield Trust.

50.   Kringos, D.S., W. Boerma, J. van der Zee and P. Groenewegen, *Europe's strong primary care systems are linked to better population health but also to higher health spending.* Health Aff (Millwood), 2013. **32**(4): p. 686-94.

51.   The World Bank Group, *The State of Health Care Integration in Estonia. Summary Report.* 2015, The World Bank Group; Estonian Health Insurance Fund.

52.   Barsanti, S. and S. Nuti, *The equity lens in the health care performance evaluation system.* Int J Health Plann Manage, 2014. **29**(3): p. e233-46.

53.   QualityWatch. *International comparisons of healthcare quality* 2015   [cited 21/12/2015]; Available from: http://www.qualitywatch.org.uk/indicator/international-comparisons-healthcare-quality

54.   OECD. *OECD Statistics.* 2015 [cited; Available from: http://stats.oecd.org/.

55.   OECD, *OECD Reviews of Health Care Quality: Italy 2014. Raising Standards*, in *OECD Reviews of Health Care Quality.* 2014, OECD: Paris.

56. Gini, R., M.J. Schuemie, P. Francesconi, F. Lapi, I. Cricelli, A. Pasqua, P. Gallina, D. Donato, S. Brugaletta, A. Donatini, A. Marini, C. Cricelli, G. Damiani, M. Bellentani, J. van der Lei, M.C. Sturkenboom, and N.S. Klazinga, *Can Italian healthcare administrative databases be used to compare regions with respect to compliance with standards of care for chronic diseases?* PLoS One, 2014. **9**(5): p. e95419.

57. Visca, M., A. Donatini, R. Gini, B. Federico, G. Damiani, P. Francesconi, L. Grilli, C. Rampichini, G. Lapini, C. Zocchetti, F. Di Stanislao, A. Brambilla, F. Moirano, and D. Bellentani, *Group versus single handed primary care: a performance evaluation of the care delivered to chronic patients by Italian GPs.* Health Policy, 2013. **113**(1-2): p. 188-98.

58. Agobiti, N. and D. M., *Measuring outcomes of care pathways for chronic disease: the experience of the Regional Health Care Evaluation Program (P.Re.Val.E.) in Lazio Region (PPT presentation).* 2014, The Department of Epidemiology of the Lazio Regional Health Service.

59. Department of Epidemiology of the Regional Health Service - Lazio. *Programma Regionale Valutazione Esiti - P.Re.Val.E.* 2015, cited; Available from: http://www.deplazio.net/en/activities/94

60. Nuti, S. and G. D'Orio, *Variation in primary care: first insights from the Tuscany Region (PPT presentation).* 2015, Institute of Management - Scuola Superiore Sant'Anna di Pisa.

61. Nuti, S., B. Bini, T. Grillo-Ruggieri, A. Piaggesi and L. Ricci, *Bridging the gap between theory and practice in Integrated Care: the case of the Diabetic Foot Pathway in Tuscany.* International Journal of Integrated Care, 2016. **(under review)**.

62. Socialstyrelsen, *Nationella riktlinjer – Utvärdering 2015. Diabetesvård. Rekommendationer, bedömningar och sammanfattning*. 2015.

63. Sveriges Kommuner och Landsting. *Open Comparisons*. 2015 [cited 15/01/2016]; Available from: http://skl.se/tjanster/englishpages/activities/opencomparisons.1280.html.

64. Norwegian Ministry of Health and Care Services, *NCD-Strategy 2013 – 2017 For the prevention, diagnosis, treatment and rehabilitation of four noncommunicable diseases: cardiovascular disease, diabetes, COPD and cancer*. 2013, Norwegian Ministry of Health and Care Services.

65. Helsedirektoratet, *Samhandlingsstatistikk 2011-12* 2013, Helsedirektoratet: Oslo.

66. Helsedirektoratet, *Samhandlingsstatistikk 2012-13* 2014, Helsedirektoratet: Oslo.

67. Helsedirektoratet, *Samhandlingsstatistikk 2013-14* 2015, Helsedirektoratet: Oslo.

68. Helsedirektoratet. *Behandling i somatiske sykehus: Ikke-smittsomme sykdommer* 2015 [cited 15/12/2015]; Available from: https://statistikk.helsedirektoratet.no/HtmlViewer.ashx?Dd_ContentId=cd7ed1e6-72b5-42a2-9134-05c5d3c8293c

69. Helsenorge. *Amputasjoner blant pasienter med diabetes*. 2015 [cited 15/12/2015]; Available from: https://helsenorge.no/Kvalitetsindikatorer/behandling-av-sykdom-og-overlevelse/amputasjoner-blant-pasienter-med-diabetes.

70. Nationella Kvalitetregister, *The National Quality Registries in Sweden*. 2015.

71. Cooper, J.G., T. Claudi, H.B. Thordarson, K.F. Lovaas, S. Carlsen, S. Sandberg and G. Thue, *Treatment of type 1 diabetes in the specialist health service--data from the Norwegian Diabetes Register for Adults*. Tidsskr Nor Laegeforen, 2013. **133**(21): p. 2257-62.

72. Sund, R. and S. Koski, *FinDM II. On the register-based measurement of the prevalence and incidence of diabetes and its long-term complications. A technical report*. 2009, Finnish Diabetes Association

73. Ministry of Health of Malta, *Diabetes: A National Public Health Priority. Proposal for a National Strategy for Diabetes 2015-2020*. 215, Ministry of Health, Malta.

74. Richardson, E., J. Zaletel and E. Nolte, *National Diabetes Plans in Europe (Policy Brief)*. 2016 (forthcoming), on behalf of Joint Action on Chronic Diseases and Promoting Healthy Ageing across the Life Cycle (JA-CHRODIS), .

75. Forssas, E., K. Manderbacka, M. Arffman and I. Keskimaki, *Socio-economic predictors of mortality among diabetic people*. Eur J Public Health, 2012. **22**(3): p. 305-10.

76. Forssas, E., R. Sund, K. Manderbacka, M. Arffman, P. Ilanne-Parikka and I. Keskimaki, *Increased cancer mortality in diabetic people treated with insulin: a register-based follow-up study*. BMC Health Serv Res, 2013. **13**: p. 267.

77. Manderbacka, K., R. Sund, S. Koski, I. Keskimaki and M. Elovainio, *Diabetes and depression? Secular trends in the use of antidepressants among persons with diabetes in Finland in 1997-2007*. Pharmacoepidemiol Drug Saf, 2011. **20**(4): p. 338-43.

78. Venermo, M., K. Manderbacka, T. Ikonen, I. Keskimaki, K. Winell and R. Sund, *Amputations and socioeconomic position among persons with diabetes mellitus, a population-based register study*. BMJ Open, 2013. **3**(4).

79. Barengo, N.C., R. Antikainen, M. Peltonen and J. Tuomilehto, *Changes in all-cause and cardiovascular disease mortality in three different Finnish population cohorts with and without diabetes*. Int J Cardiol, 2013. **168**(5): p. 4734-8.

80. Ikonen, T.S., R. Sund, M. Venermo and K. Winell, *Fewer major amputations among individuals with diabetes in Finland in 1997-2007: a population-based study*. Diabetes Care, 2010. **33**(12): p. 2598-603.

81. Dahlstrom, U., J. Hakansson, K. Swedberg and A. Waldenstrom, *Adequacy of diagnosis and treatment of chronic heart failure in primary health care in Sweden*. Eur J Heart Fail, 2009. **11**(1): p. 92-8.

82. de Groote, P., R. Isnard, P. Clerson, G. Jondeau, M. Galinier, P. Assyag, N. Demil, A. Ducardonnet, J.F. Thebaut, and M. Komajda, *Improvement in the management of chronic heart failure since the publication of the updated guidelines of the European Society of Cardiology. The Impact-Reco Programme*. Eur J Heart Fail, 2009. **11**(1): p. 85-91.

83. Hulsmann, M., R. Berger, D. Mortl and R. Pacher, *Influence of age and in-patient care on prescription rate and long-term outcome in chronic heart failure: a data-based substudy of the EuroHeart Failure Survey*. Eur J Heart Fail, 2005. **7**(4): p. 657-61.

84. Lainscak, M., J.G. Cleland, M.J. Lenzen, F. Follath, M. Komajda and K. Swedberg, *International variations in the treatment and co-morbidity of left ventricular systolic dysfunction: data from the EuroHeart Failure Survey.* Eur J Heart Fail, 2007. **9**(3): p. 292-9.

85. Lip, G.Y., C. Laroche, G. Boriani, G.A. Dan, M. Santini, Z. Kalarus, L.H. Rasmussen, M.M. Oliveira, G. Mairesse, H.J. Crijns, E. Simantirakis, D. Atar, A.P. Maggioni, and L. Tavazzi, *Regional differences in presentation and treatment of patients with atrial fibrillation in Europe: a report from the EURObservational Research Programme Atrial Fibrillation (EORP-AF) Pilot General Registry.* Europace, 2015. **17**(2): p. 194-206.

86. Cleland, J.G., A. Cohen-Solal, J.C. Aguilar, R. Dietz, J. Eastaugh, F. Follath, N. Freemantle, A. Gavazzi, W.H. van Gilst, F.D. Hobbs, J. Korewicki, H.C. Madeira, I. Preda, K. Swedberg, J. Widimsky, I.o.H.F.P. Committees, e. Investigators. Improvement programme in, management, and C. Study Group on Diagnosis of the Working Group on Heart Failure of The European Society of, *Management of heart failure in primary care (the IMPROVEMENT of Heart Failure Programme): an international survey.* Lancet, 2002. **360**(9346): p. 1631-9.

87. McMurray, J.J., S. Adamopoulos, S.D. Anker, A. Auricchio, M. Bohm, K. Dickstein, V. Falk, G. Filippatos, C. Fonseca, M.A. Gomez-Sanchez, T. Jaarsma, L. Kober, G.Y. Lip, A.P. Maggioni, A. Parkhomenko, B.M. Pieske, B.A. Popescu, P.K. Ronnevik, F.H. Rutten, J. Schwitter, P. Seferovic, J. Stepinska, P.T. Trindade, A.A. Voors, F. Zannad, A. Zeiher, and E.S.C.C.f.P. Guidelines, *ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure 2012: The Task Force for the Diagnosis and Treatment of Acute and Chronic Heart Failure 2012 of the European Society of Cardiology. Developed in collaboration with the Heart Failure Association (HFA) of the ESC.* Eur Heart J, 2012. **33**(14): p. 1787-847.

88. Maggioni, A.P., S.D. Anker, U. Dahlstrom, G. Filippatos, P. Ponikowski, F. Zannad, O. Amir, O. Chioncel, M.C. Leiro, J. Drozdz, A. Erglis, E. Fazlibegovic, C. Fonseca, F. Fruhwald, P. Gatzov, E. Goncalvesova, M. Hassanein, J. Hradec, A. Kavoliuniene, M. Lainscak, D. Logeart, B. Merkely, M. Metra, H. Persson, P. Seferovic, A. Temizhan, D. Tousoulis, and L. Tavazzi, *Are hospitalized or ambulatory patients with heart failure treated in accordance with European Society of Cardiology guidelines? Evidence from 12,440 patients of the ESC Heart Failure Long-Term Registry.* Eur J Heart Fail, 2013. **15**(10): p. 1173-84.

89. Hancock, H.C., H. Close, A. Fuat, J.J. Murphy, A.P. Hungin and J.M. Mason, *Barriers to accurate diagnosis and effective management of heart failure have not changed in the past 10 years: a qualitative study and national survey.* BMJ Open, 2014. **4**(3): p. e003866.

90. Lainscak, M., M. Letonja, D. Kovacic, L.M. Hodoscek, A. Marolt, C.M. Bartolic, M. Mulej, M. Penko, J. Poles, T. Ravnikar, M.S. Iskra, C.S. Pusnik, and B. Jug, *General public awareness of heart failure: results of questionnaire survey during Heart Failure Awareness Day 2011.* Arch Med Sci, 2014. **10**(2): p. 355-60.

91. Socialstyrelsen, *Nationella riktlinjer – Utvärdering 2015. Hjärtsjukvård. Rekommendationer, bedömningar och sammanfattning. .* 2015, Socialstyrelsen.

92.   Socialstyrelsen, *Nationella riktlinjer – Utvärdering 2015. Hjärtsjukvård. Indikatorer och underlag för bedömning* 2015, Socialstyrelsen.

93.   Galvin, R.S. and E.A. McGlynn, *Using performance measurement to drive improvement: a road map for change.* Med Care, 2003. **41**(1 Suppl): p. I48-60.

94.   Smith PC, Mossialos E, Papanicolas I and L. S., *Performance Measurement for Health System Improvement; Experiences, Challenges and Prospects.* . 2009, European Observatory on Health Systems and Policies. Cambridge University Press.

95.   Westert, G., M. Van den Berg, S. Zwakhals, R. Heijink and H. Verkleij, *Dutch health care performance report 2010.* . 2010, Bohn, Stafleu, van Loghum, Houten.

96.   van den Berg, M.J., D.S. Kringos, L.K. Marks and N.S. Klazinga, *The Dutch Health Care Performance Report: seven years of health care performance assessment in the Netherlands.* Health Res Policy Syst, 2014. **12**: p. 1.

Belgium

1.   La performance du système de santé Belge. Rapport 2012 KCE Reports 196B Vrijens France, Renard Françoise, Jonckheer Pascale, Van den Heede Koen, Desomer Anja, Van de Voorde Carine, Walckiers Denise, Dubois Cécile, Camberlin Cécile, Vlayen Joan, Van Oyen Herman, Léonard Christian, Meeus Pascal

2.   Un premier pas vers la mesure de la performance du système de soins de santé belge; Vlayen Joan, Vanthomme Katrien, Camberlin Cécile, Piérart Julien, Walckiers Denise, Kohn Laurence, Vinck Imgard, Denis Alain, Meeus Pascal, Van Oyen Herman, Léonard Christian KCE Reports 128B 2009

3.   Etude 2013-32 (HSR) La performance du système de santé belge - Rapport 2015, rapport intermédiaire KCE 2014

4.   Health at a Glance 2012, OECD 2012

5.   Joint Report on Health Systems, occasional paper 74, European Commission and the Economic Policy Committee (AWG) EU 2010

6.   Social Protection Committee, Indicators Sub-group, 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 SPC EU 2013

7.   Pathways to health system Performance assessment a manual to conducting health system Performance assessment at national or sub-national level. WHO Europe 2012

8.   Case studies on health system performance assessment: a long standing development in Europe. WHO Europe 2012

9.   Peer review on HSPA: EU, DG employment, social affairs, and inclusion, http://ec.europa.eu/social/main.jsp?langId=en&furtherNews=yes&newsId=1890&catId=89

Finland

1. **Sosiaali- ja terveydenhuollon laadunhallinta 2000-luvulle: Valtakunnallinen suositus** [Quality management in social and health services in the 2000s: a national recommendation]. Ministry of Social Affairs and Health, 1999.

2. Pekurinen Markku, Räikkönen Outi, Leinonen Tuija et al. Tilannekatsaus sosiaali- ja terveydenhuollon laatuun vuonna 2008 [Status report on the quality of social welfare and health care 2008]. Stakes, Helsinki, Finland 2008.

3. Publications of the Ministry of Social Affairs and Health 2009:3. Suomalainen potilasturvallisuusstrategia [Finnish patient safety strategy]. Helsinki 2009.

4. Klavus J. Suomalaisten terveyspalveluiden käyttö [Health service use in Finland]. Helsinki, 2010.

5. Terveydenhuollon laatuopas [Health care quality guideline]. Association of Finnish Local and Regional Authorities, Helsinki 2011.

6. OECD health care quality indicators in Finland 2011–2013.

7. Pia Maria Jonsson. Lausunto valtiovarainvaliokunnan kunta ja terveysjaokselle. Hoitoon pääsyn ja hoidon laadun mittaaminen ja tietojen julkistaminen [Statement to the local government and health section of the Parliamentary Finance Committee. Measuring access to treatment and care quality and publishing the results]. 2013.

8. Häkkinen U, Iversen T, Peltola M, et al. Health care performance comparisons using a disease-based approach: The EuroHope project. Health policy 05/2013; 112(1-2).

9. Vuori H. Terveydenhuollon laatutyön kehitys Suomessa [Development of health care quality work in Finland]. Sosiaalilääketieteellinen aikakauslehti 2013;50 (87-95)

France

1. French Ministry of Health (Ministère des affaires sociales, de la santé et du droit des femmes). Incitation financière à l'amélioration de la qualité (IFAQ). (accessed 7 Jan 2016).

2. National Authority for Health (Haute Autorité de Santé). Scope Santé, qualité des hôpitaux et des cliniques. France.http://www.scopesante.fr (accessed 7 Jan 2016).

3. Grenier-Sennelier C., Corriol C., Daucourt V., Michel P. Minvielle E. Développement d'indicateurs de qualité dans les établissements de santé : le projet COMPAQH. Revue d'Epidémiologie et de Santé publique, 2005, 53 : 1S22-30.

4. Bras PL., Duhamel G.« Rémunérer les médecins selon leurs performances : les enseignements des expériences étrangères », rapport Igas RM2008-047P, juin 2008.www.ladocumentationfrancaise.fr

5. Corriol C., Daucourt V., Grenier C., et al. How to limit the burden of data collection for quality indicators based on medical records? The COMPAQH experience. BMC Health Serv Res, 2008;8:215.

6. Couralet M., Leleu H., Capuano F., Marcotte L., Nitenberg G., Sicotte C. Minvielle E. Method for developing national quality indicators based on manual data extraction from medical records, BMJ Quality and Safety. 2012, 22-2:155-162.

Italy

1. Hernán, Miguel A. (2011) With Great Data Comes Great Responsibility: Publishing Comparative Effectiveness Research in Epidemiology. Epidemiology. 22(3):290-291.

2. Ministero della Salute, AGE.NA.S. (2014) Programma Nazionale Esiti (http://95.110.213.190/PNEed14/index.php). Last accessed: July 2015. Tu JV, Brien SE, Kennedy CC et al. (2003) Introduction to the Canadian Cardiovascular Outcomes Research Team's (CCORT) Canadian Cardiovascular Atlas project. Pilote L, Ghali WA; Canadian Cardiovascular Outcomes Research Team. Can J Cardiol. Mar 15;19(3):225-9

3. Agency for Healthcare Research and Quality. (2015) AHRQ quality indicators (http://www.qualityindicators.ahrq.gov/). Rockville (MD): Agency for Healthcare Research and Quality, 2007. Last accessed: July 2015.

4. Filizcan U, Kurc E, Cetemen S et al. (2010) Mortality Predictors in ST-Elevated Myocardial Infarction Patients Undergoing Coronary Artery Bypass Grafting. Angiology 62(1):68-73.

5. Davoli M, Amato L, Minozzi S et al. (2005) Volume di attività ed esito delle cure: revisione sistematica della letteratura. EpidemiolPrev. 29(3-4 Suppl):3-63.

6. Amato L, Colais P, Davoli M, et al. (2013) Volumi di attività ed esiti delle cure: prove scientifiche dalla letteratura e dalle valutazioni empiriche in Italia. Epidemiol Prev. 37 (2-3), March-June.

7. National Institute for Clinical Excellence. (2011) Type 1 diabetes: Diagnosis and management of type 1 diabetes in children, young people and adults. NICE clinical guidelines CG15. London. National Institute for Health and Clinical Excellence. http://publications.nice.org.uk/type-1-diabetes-cg15. Last accessed: July 2015.

8. Pinnarelli L, Nuti S, Sorge C et al. (2012) What drives hospital performance? The impact of comparative outcome evaluation of patients admitted for hip fracture in two Italian regions. BMJ QualSaf. 21(2):127-34.

9. Lindenauer PK, Remus D, Roman S et al. (2007) Public reporting and pay for performance in hospital quality improvement. N Engl J Med 356(5):486-96.

10. Colais P, Pinnarelli L, Fusco D et al. (2013) The impact of a pay-for-performance system on timing to hip fracture surgery: experience from the Lazio Region (Italy). BMC Health Serv Res. 7;13:393.

11. Mannion R, Goddard M. (2003) Public disclosure of comparative clinical performance data: lessons from the Scottish experience. J EvalClinPract 9(2):277-86.

12. O'Dowd A. (2011) Cardiac surgeons call for more doctors to use outcome data to improve care. BMJ 22;342.

13. Hibbard JH, Stockard J, Tusler M. (2003) Does publicizing hospital performance stimulate quality improvement efforts? Health Aff (Millwood) 22(2):84-94.

14. Petersen LA, Woodard LD, Urech T et al. (2006) Does pay-for performance improve the quality of health care? Ann Intern Med 145(4):265-72.

15. Di Martino M, Fusco D, ColaisP et al. (2014) Differential misclassification of confounders in comparative evaluation of hospital care quality: caesarean sections in Italy.BMC Public Health. 2014 Oct8;14:1049.

16. Barsanti, Sara, and Sabina Nuti. 2014. "The Equity Lens in the Health Care Performance Evaluation System." International Journal of Health Planning and Management 29 (3). John Wiley and Sons Ltd: 233–46.

17. Brown, Adalsteinn, Tom Closson, Terrence Sullivan, and G Ross Baker. 2012. "The Journey toward High Performance and Excellent Quality." Healthc Q 15 (Special Issue CP - PB -). Canada: 6–9.

18. Locke, Edwin A, and Gary P Latham. 2013. "Goal Setting Theory. The Current State." In New Developments in Goal Setting and Task Performance, edited by Edwin A Locke and Gary P Latham, 623–30. New York and London: Routledege Taylor & Francis Group. doi:10.4324/9780203082744.

19. Mannion, Russell, and Huw T O Davies. 2008. "Payment for Performance in Health Care." BMJ (Clinical Research Ed.) 336 (7639): 306–8.

20. Murante, Anna Maria, Milena Vainieri, Diana Rojas, and Sabina Nuti. 2014. "Does Feedback Influence Patient - Professional Communication? Empirical Evidence from Italy." Health Policy 116: 273–80.

21. Nuti, S, C Seghieri, M Vainieri, and S Zett. 2012. "Assessment and Improvement of the Italian Healthcare System: First Evidence from a Pilot National Performance Evaluation System." Journal of Healthcare Management 57 (3): 182–98.

22. Nuti, Sabina, and Anna Bonini, eds. 2013. Il Sistema Di Valutazione Della Performance Dei Sistemi Sanitari Regionali: Basilicata, Liguria, Marche, P.A. Bolzano, P.A. Trento, Toscana, Umbria, Veneto - Report 2012. Pisa: ETS.

23. ———. , eds. 2014. Il Sistema Di Valutazione Della Performance Dei Sistemi Sanitari Regionali: Basilicata, Emilia-Romagna, Friuli Venezia Giulia, Liguria, Marche, P.A. Bolzano, P.A. Trento, Toscana, Umbria, Veneto - Report 2013. Pisa: Pacini Editore.

24. Nuti, Sabina, Cinzia Daraio, Chiara Speroni, and Milena Vainieri. 2011. "Relationships between Technical Efficiency and the Quality and Costs of Health Care in Italy." International Journal for Quality in Health Care : Journal of the International Society for Quality in Health Care / ISQua 23 (3): 324–30.

25. Nuti, Sabina, and Chiara Seghieri. 2014. "Is Variation Management Included in Regional Healthcare Governance Systems? Some Proposals from Italy." Health Policy 114 (1). Elsevier Ireland Ltd: 71–78. doi:10.1016/j.healthpol.2013.08.003.

26. Nuti, Sabina, Chiara Seghieri, and Milena Vainieri. 2013. "Assessing the Effectiveness of a Performance Evaluation System in the Public Health Care Sector: Some Novel Evidence from the Tuscany Region Experience." Journal of Management and Governance 17: 59–69. doi:10.1007/s10997-012-9218-5.

27. Nuti, Sabina, and Milena Vainieri. 2014. "Strategies and Tools to Manage Variation in Regional Governance Systems," 1–23. doi:10.1007/SpringerReference_306587.

28. Nuti, Sabina, Milena Vainieri, and Federico Vola. 2015. "Priorities and Targets: A Methodology to Support the Policy-Making Process in Healthcare."

29. Pinnarelli, L., S. Nuti, C. Sorge, M. Davoli, D. Fusco, N. Agabiti, M. Vainieri, and C. a. Perucci. 2012. "What Drives Hospital Performance? The Impact of Comparative Outcome Evaluation of Patients Admitted for Hip Fracture in Two Italian Regions." BMJ Quality & Safety 21 (September 2011): 127–34. doi:10.1136/bmjqs-2011-000218.

Malta

1. https://health.gov.mt/en/sph/Pages/Standards-Guidelines.aspx - assessed on 27th July 2015

2. Grech Kenneth, Podesta Maya, Calleja Antoinette, Calleja Neville. Performance of the Maltese Health System. Ministry for Energy and Health (Health), Valletta, Malta. 2015

3. Patient Safety and Quality Improvement Team, Mater Dei Hospital - Annual Report 2014

4. Clinical Performance Unit, Mater Dei Hospital Key Performance Indicators, July to December 2014 (Term 2 – T2, 2014).

Appendix I – Complementary analysis from the policy focus group on variations in CVD and Diabetes indicators.

The policy focus group brought together experts with in-depth knowledge of their respective health systems performance assessment process from 13 countries in Europe who, by means of a semi-structured facilitated discussion coordinated by representatives of the European Observatory on Health Systems and Policies and the OECD, sought to explore observed variations between countries on two indicators of quality of care (hospital admissions for diabetes and for heart failure) in order to inform this first HSPA report on Quality of Care.

Participants of the policy focus group were invited to respond to a set of specific questions as well as interact with each other to share their country experiences. The focus group approach is an established methodology in qualitative research seeking to gather well-informed and rich insights, as well as explore varied views on a given topic, drawing on direct responses to the set questions and further interaction among participants.[17, 18]

The focus group took the 2015 OECD report on cardiovascular diseases and diabetes as a starting point for this exploration.[12] The OECD report was chosen because it included, at the time of the conception of this report, the most recent data from the Health Care Quality Indicator work of the OECD; it also provides further analytical insights into observed variations with respect to selected indicators of health care quality as it relates to cardiovascular disease and diabetes. The policy focus group sought to take the analyses presented in the 2015 OECD report on cardiovascular diseases and diabetes a step further to help countries understand the range of reasons that might explain their particular positioning on a given indicator.

The objective of the focus group was to generate in-depth discussion and gather views on:

1) The potential reasons for observed variations in selected indicators of quality of care for cardiovascular disease and diabetes;

2) Proposed policy action/s countries undertook or would suggest to address identified issues.

Focus group participants were provided with a brief overview of the national and international evidence seeking to describe or raise hypotheses explaining observed variations for each indicator as it relates to the quality of care. The overview also included an assessment of trends over time to set observed variation in context, where this data was available. This material was shared with participants in advance of the policy focus group meeting, held on 3 November 2015.

Focus group participants were given the opportunity to consult with other experts in their countries and provide additional comments and insights and, where appropriate and relevant, documented empirical evidence subsequent to the policy focus group meeting. Additional comments and suggestions received were incorporated into the present report to ensure that it appropriately reflects the countries' experiences.

Box 1 Burden of disease associates with diabetes and heart failure in high income countries

An estimated 8.5% of the adult population in the European region, or some 56 million people, are living with diabetes, and this is forecast to rise to 68.9 million by 2035. [3] For countries in the European Union the estimated diabetes comparative prevalence in 2015 ranged from around 4 to 4.5% in Lithuania and Estonia to just under 10% in Cyprus, Malta and Portugal. Approximately 9% of total health expenditure can be attributed to diabetes across the European region. The average diabetes-associated expenditure per adult person with diabetes in the European Union in 2015 was estimated to be over €3,000 per person, ranging from €1,040 in Romania and €1,270 in Bulgaria to around €6,050 in the Netherlands and €7,500 in Luxembourg. [4]

The estimated prevalence of heart failure is lower than that for diabetes, affecting approximately 1–2% of adults in high-income countries, rising to 12% among those aged 60 years and older,[5] and the number of people with heart failure is projected to increase as a consequence of an ageing population, improvements in treatment and the survival of patients with heart problems.[6] The burden placed on health systems is substantial, because of the high hospitalisation rates for heart failure, with an estimated 1-2% of all hospital admissions in European countries attributable to admissions with a primary diagnosis of heart failure. Evidence from Germany suggests that by the mid-2000s, chronic heart failure was the most common cause for hospital admission, accounting for 1-2% of the total direct health care expenditure.[7]

a. 'Avoidable admissions': a brief overview of the evidence

Hospital admissions for typically chronic conditions (e.g. asthma, chronic obstructive pulmonary disease, heart failure, complications of diabetes) are commonly considered potentially avoidable if managed appropriately in primary care through adequate measures to control the disease and prevent complications.[19] High rates of admissions for these conditions may be viewed as an indication of poor access to primary care, or of lack of coordination between primary and secondary care, or both, among other factors. The rate of admissions that is considered avoidable varies across countries.[20]

The literature on avoidable admissions, and the related concept of 'ambulatory care sensitive conditions' is considerable, and it is challenging to draw direct comparisons between studies, in particular where the types or lists of hospital admissions or of ambulatory care sensitive conditions considered differ. It is against this background that the following summary overview of the published evidence has to be interpreted.

Available evidence examining cross-country variations in admissions for selected conditions that are considered 'avoidable' in the presence of high performing primary care systems, proposes a range of health system and population-specific factors that can potentially impact on the overall rates of avoidable admissions: [19]

Health system-related factors

- **Data quality and reliability** (definitions, coding, completeness). The use of differing definitions and diagnostic codes impacts on the proportion of admissions considered avoidable.[21] For example, use of solely primary diagnoses to define avoidable admissions led to a 5 percentage point difference in the reduction of the number of these rates in England between 2001 and 2011.[22]

- Primary or ambulatory care:

  o A systematic review suggested that **gatekeeping** may be associated with lower rates of avoidable admissions.[23] A comparison of Italy and Germany concluded that the role of

GPs as gatekeepers in Italy may have helped shift care from the inpatient to the outpatient setting.[24]

o Evidence from Germany highlighted **physician (GP) density** as a potential determinant for admissions for selected chronic conditions, but the direction of the association varied: a higher number of GPs per population was associated with a reduction in hospital admissions for heart failure and an increase of admissions for diabetes.[25] Conversely, an increase in office-based **specialists** in ambulatory care was associated with a reduction in the rate of admissions for diabetes among men.[25]

o A systematic review by Gibson et al. (2013) found that higher **primary care service use** can lead to a higher rate of admissions considered to be manageable in primary care.[26]

o Available evidence suggests that Poland has consistently had high rates of admissions for chronic conditions that are considered avoidable and this has been attributed to shortcomings in primary care, [27] although the precise nature of these shortcomings has not been studied in detail.

o There is some evidence on the impact of **incentives schemes** on admissions that are considered avoidable. For example, Harrison et al. (2013), in an analysis of a national primary care pay for performance scheme in England, found the scheme to be associated with a decrease in emergency admissions for conditions considered manageable in primary care.[28] Evidence from Italy showed that every 100 euros of financial incentives paid to GPs for diabetes care reduced the number of hospital admissions by 1%.[29]

o Evidence from two systematic reviews demonstrated that improved **access to quality primary care** resulted in fewer admissions for conditions considered manageable in primary care.[23, 26]

o Gonseth et al. (2004), in a systematic review of structured care approaches, found these to be effective in reducing the risk of readmission among patients with heart failure, [30] while evidence on the impacts of such approaches on admissions for COPD was less clear-cut,[31] and absent for admissions for diabetes patients.[32] In all cases it was unclear which aspects of the programmes contributed to higher quality of care.

- Secondary care

o Evidence from France and Germany found higher rates of admissions considered 'avoidable' in regions with higher **supply of hospital beds**.[20]

Population-related factors

- **Demographic characteristics**. Avoidable admissions were associated with age and sex in Italy, with higher rates seen among older patients and men.[33]

- Studies across Europe found that avoidable admissions rates showed stronger associations with **socio-economic characteristics** of patients than with different aspects of services.[34] For example, lower **income levels** were associated with higher rates of avoidable admissions in France [20] and Italy.[35]

- **Burden of disease**. Gajewska et al. (2013), in a study of diabetes admissions in Poland, found an increasing number of admissions to be related to a growing disease prevalence; at the same

time, the authors highlighted the importance of health system-related factors as an important contributor to comparatively high admission rates observed in the country (see above).[36]

- A qualitative study of primary care physicians in Germany assessing patients with ambulatory care sensitive conditions highlighted **co-morbidities and medical emergencies** as frequent causes for hospitalisations that were considered to be unavoidable.[37] Similarly, an analysis of Medicare data in the USA found co-morbidities to be a strong predictor of avoidable admissions, suggesting that data on the quality of care based on avoidable admissions should always account for co-morbidities.[38]

It is not always possible to explain the variations on the basis of the available evidence. The evidence base is mixed, largely suggesting that the rate of hospital admissions for selected conditions that can be considered 'avoidable' tends to be affected by specific aspects of provision of care and resource availability.[39, 40] A study of geographical variations in the number of admissions considered 'avoidable' in Switzerland concluded that after taking into account many known factors, including health expenditure, supply of primary care physicians, specialists, hospital beds, pharmacies, as well as income, education and unemployment, and after adjusting for co-morbidities, the geographical variations in admission rate remained "substantial but unexplained by supply or demand".[41]

b. Hospital admission for Diabetes: Insights from the published literature

The review of the literature showed a number of factors which may influence hospital admissions for diabetes. For example, van den Berg and van Loenen (2013) examined the quality of primary care in 35 European countries seeking to ascertain the association between the role, task profile of, and access to, primary care with admissions for uncontrolled diabetes and for long-term complications.[42] They found a lack of correlation on most measures across countries, with two exceptions, namely the number of activities fulfilled by GPs (e.g. first contact, treatment and follow-up, prevention, performing medical procedures) and ease of access (patient-perceived barriers in registering new patients). Specifically, in countries such as Finland and Norway, the number of tasks performed by GPs was higher than that observed for Poland, Austria and Germany, while the rate of admissions for long-term complications for diabetes was almost three times lower. At the same time, the range of tasks performed by GPs in Portugal and Italy was also lower than in Finland and Sweden, yet the rate of admissions for long-term complications was similar. Regarding ease of access, the authors observed a positive correlation between patient-perceived access to primary care and the rate of admissions for long-term complications for diabetes. This means that better access as perceived by patients was associated with higher admission rates, which was for example observed for Austria and Germany, compared to Spain, Finland and Portugal. Evidence from Italy indicates that higher rates of diabetes admissions were associated with higher number of patients per GP practice, as well as with higher number of hospital admissions in the previous year.[33]

It remains challenging to relate the evidence on diabetes admissions to other indicators of outcomes of diabetes care. For example, while on the indicator of diabetes admissions, Italy appears to be performing well compared to countries such as Germany and France as shown in evidence from the

GUIDANCE study suggests that Italy performs less well on the proportion of patients with controlled blood sugar levels as measured by HbA1c.[43] Specifically, Italy was found to have the lowest percentage of patients with controlled HbA1c (36%), followed by Germany (49%), Sweden (57%), Belgium (60%) and France (65%). Importantly, the proportion of diabetic patients with controlled blood pressure was found to be low in all countries included in the study, ranging from 7% in Germany, followed by France (15%), Belgium (18%), Italy (21%) to 27% in Sweden. At the same time, and in line with trends shown in, there was an overall improvement in diabetes care indicators during the 2000s, with results from matching studies showing that HbA1c-levels fell from 7.5% in 1998-99 to 7.1% in 2009-10 while blood pressure levels fell from 146/82 to 136/78 mmHg during the same period.[43, 44] Arguably, data are not directly comparable given their differing origins. However, the authors of the GUIDANCE study noted that while diabetes outcomes may be influenced by structural factors associated with the organisation of care, they highlighted a lack of evidence relating an observed variation in outcomes to the management of diabetes in primary or specialist care.

The 2015 OECD Health at a Glance Report presents data on the proportion of patients with diabetes that were prescribed medication to control cholesterol and hypertension.[45] This indicator can be considered to be a proxy for the quality of primary care because national guidelines generally recommend angiotensin-converting enzyme (ACE) inhibitors or angiotensin receptor blockers (as first-line treatment for diabetic individuals with hypertension so as to reduce the risk of developing cardiovascular and renal disease. Available data showed that, in 2013, countries varied in relation to prescribing practices for cholesterol-lowering medication for diabetes patients, ranging from 27% in the Slovak Republic to 81% in Ireland whereas the proportion of those with a prescription for antihypertensive agents tended to be fairly high in most countries for which data was available, ranging from 74% to 92% of people with diabetes (with the exception of the Slovak Republic at 12%).[45] This suggests that the quality of diabetes care, measured as adherence to guidelines, can be considered to be moderate (as in the case of cholesterol-lowering medication) to high (antihypertensive agents). Comparable data were only available for twelve OECD countries (ten EU Member States) and it is therefore difficult to generalise from this data across the European Union.

Country disease prevalence can be a contributing factor to the number of admissions. While diabetes prevalence has increased in most countries over the past decade, data on incidence, where available, is largely inconsistent, fluctuating by more than 40% over 1-2 years in Portugal, Finland and Malta.[46] Comparable data is lacking for many countries, however overall, in 2013 Portugal had the highest estimated diabetes prevalence and incidence in the EU (prevalence of 9.5%, incidence 556 per 100,000 population).[47]

These findings provide some degree of explanation for observed variations in admission rates for diabetes. Overall it remains challenging to interpret these observations, as other factors that have not been measured or cannot be observed might also be at play and may have an important impact on admissions for diabetes.

Box 2 Using diabetes admission data to inform improvement: Examples from Italy

In Italy regional health care information systems allow a region to estimate the size of the population affected by diabetes through linkage of hospital discharge records, drug claims data, and disease specific tax exemptions, which is not yet possible at national level. Hospitalization rates and adherence to evidence-based guidelines can then be estimated using the diabetic population as the denominator, which allows taking account of geographical differences in disease prevalence. Different regions have tested and adopted this methodology. The National Agency for Regional Healthcare Services (AGENAS) is now starting the implementation phase of the MATRICE project, which allows regions to assess processes of care and to monitor pathways for chronic diseases in a comparable way.[55] The pilot phase (2011-2014) assessed the feasibility of monitoring indicators of adherence to standards of care for some chronic diseases using existing administrative databases. These indicators were found to correspond well with similar measures computed from clinical primary care data. Evidence from a sample of regions helped to identify areas of improvement by combining GP- and regional level data: for instance, in 4 out of 5 regions more than half of the GPs had tested more than 60% of their diabetic patients for HbA1C at least once a year, but among low-performing GPs this proportion was less than 30% in two regions, clearly pointing to areas for improvement.[56] A similar approach has been used by AGENAS to evaluate the impact of regional or national policies in primary care and recent work found that GPs working in group practices did not show superior performance compared to GPs working in solo practice.[57]

The Lazio Region adopted the same methodology to systematically evaluate care for diabetes patients, using findings of the health care evaluation programme (P.Re.VAL.E.) at the regional level to inform the development of evidence-based pathways to integrated care.[58] The pathways are monitored by linking patient data using a personal identifier across various registries and information systems. Lazio Region uses prevalence-adjusted diabetes admissions for monitoring purposes, although there is awareness of the limited utility of the data in terms of capturing diabetes as the primary diagnosis for admission only, thus underestimating the 'true' admission burden associated with diabetes. Nevertheless, analyses found that the number of admissions for diabetes with long-term complications fell over a period of two years, from 81 per 1,000 diabetes patients in 2011 to 71 per 1,000 in 2013. Analyses further revealed geographic and institution-level variations in the number of admissions for diabetes with long-term complications, ranging from 54 to 104 per 1,000 diabetes patients across districts within Lazio. This observation was linked to the supply of specialist services, raising the question of the appropriateness of this indicator to assess the quality of primary care. Indicators such as admissions for short-term complications, along with the frequency of HbA1c and cholesterol measurement were seen to more closely reflect (process) quality of primary care. The system provides an overall composite indicator for guideline adherence for localities within the region.[59]

Research on primary care in Tuscany suggested that in order to evaluate the quality of primary care there is a need to move away from a geographic population denominator to GP-practice-based populations.[60] In addition, recent work on the Diabetic Foot Pathway in Tuscany suggests that epidemiological surveillance of diabetic foot may provide a suitable indictor to highlight the quality of integrated care for those with diabetes.[61]

Italy is currently developing a more advanced information system which is expected to help identifying previously undiagnosed patients and track their care across different registries and systems.

Box 3 Using diabetes admission data to inform improvement: Examples from Sweden

Sweden has observed a steady fall in admissions for diabetes in recent years, which has been attributed to improvements in primary care, indicating a shift from secondary care into the community. It uses performance indicators that allow distinguishing 'avoidable' admissions, attributed to failures in primary care, from 'unavoidable' admissions, which are seen to result from complex co-morbidity. The latter should not be prevented, as admissions for these will be necessary and can be seen as an indicator of good quality of care.

The national report on diabetes care uses a number of indicators to assess performance.[62] Hospital admissions for long-term complications are distinguished into lower extremity amputations and the number of patients with diabetes who have started dialysis treatment. Drawing on these data, the 2015 report found that between 2007 and 2013 there has been a decline in the number of patients with both types of complications, while the prevalence of diabetes has increased. The majority of admissions were attributed to uncontrolled diabetes and other diabetes complications, implying that most of these admissions should be avoidable through better management in primary care and adherences to care standards.

There has been an increased use of protocols and guidelines that are linked to process and outcome indicators and, increasingly, targets. These, along with the policy of Open Comparisons, which seeks to stimulate comparisons and contribute to a greater openness concerning results and costs for the activities that are run by municipalities and county councils in Sweden,[63] aim to reduce geographical variations within the country. National guidelines for diabetes include 21 indicators, mostly focusing on processes, and of which five are associated with specific targets (control of HbA1c levels and of blood pressure; frequency of foot and eye checks; the proportion of non-smokers among diabetes patients). The aforementioned 2015 national report on diabetes care uses showed improvements in blood pressure control and foot examination for patients with type 2 diabetes nationally between 2007 and 2013, while the proportion of patients without retinopathy who underwent eye screening fell slightly over the same period, while remaining at around 90% in primary care.[62]

Box 4 Using diabetes admission data to inform improvement: Examples from Norway

In Norway diabetes care is part of the general non-communicable disease strategy 2013-2017 (which follows on from previous specific National Strategy for Diabetes 2006-2011).[64] The strategy contains a set of aspirations, including that Norway seeks to be a pioneer in the prevention of diabetes, the reduction in the number of people with latent diabetes and of diabetes complications and the promotion of equitable care. The existing diabetes register allows data linkage to identify population groups at higher risk of diabetes; registers-based analyses identified immigrant groups to have a particularly high prevalence of diabetes. These findings informed the strategy, which highlights the importance of equitable access and adequate diabetes prevention and treatment among immigrant populations, who are known to be at higher risk of diabetes.

In recent years, attention has been directed towards hospital admissions of patients with diabetes at the administrative level. This indicator was among those used to assess the impact of the 2012 reform of integrated care in Norway.[65-67] The indicator is used in conjunction with other administrative data, for example the number of GP consultations and outpatient visits, density of health workers, etc. Among other things, related analyses found that a higher number of nurses was associated with fewer emergency admissions for patients with chronic conditions.[66] Trends in the number of consultations for patients with type 2 diabetes show that outpatient and inpatient rates had remained stable between 2010 and 2014.[68]

Norwegian health authorities use data on amputations among patients with diabetes as an indicator of the quality of care. Related data is available to the public, showing that, in 2013, amputation rates varied from 2.2 to 2.8 per 1,000 diabetic patients across four regions, with a national average of 2.3, increasing to 2.4 in 2014 in 2013.[69]

Box 5 Use of diabetes registry data to evaluate the quality of diabetes care in Finland

In Finland, the Development Programme for the Prevention and Care of Diabetes 2000-2010 (DEHKO) aimed to prevent type 2 diabetes and diabetes-related complications, to improve the quality of diabetes care, and to support the self-care of people with diabetes.[74] Objectives included a reduction in people with diabetes and cardiovascular diseases by at least one third, a reduction in amputations of the lower extremities by at least half, a reduction of reticular diseases by at least a third and a reduction of kidney diseases by at least a third between 2000 and 2010.[72] The programme involved multiple stakeholders, including patients and the public, primary and specialized health care, NGOs and the private sector, academia, as well as policy makers at the local and national levels.

As part of the programme, a research register was created, which harmonised available data on diabetes prevalence and incidence in order to monitor diabetes and its long-term complications. The establishment of the register prompted a variety of research projects around diabetes and the quality of care provided to people with diabetes.[75-79] For example, one study that used register information found a marked increase of 86% in the incidence of diabetes between 1997 and 2007, and this was attributed to early diagnosis and initiation of treatment and a change in treatment guidelines initiated by the DEHKO programme, along with a increase in obesity in the population, poor dietary patterns and population ageing.[72] Register data also allowed assessing amputations as a consequence of diabetes, and this revealed that there was an almost 50% reduction in the incidence of amputations between 1997 and 2007; over half of this reduction was attributed to improved care linked to the DEGKO progamme.[80]

c. Hospital admissions for heart failure: Insights from the published literature

There are numerous challenges associated with measuring and interpreting heart failure admission rates. Key problems concern the accuracy of the diagnosis and appropriateness of treatment for heart failure in a number of countries in Europe. For example, research from Sweden found that diagnostic criteria for heart failure were fulfilled for 30% of patients, while evidence-based treatments were vastly underused, especially in terms of medication dosing.[81] Similar challenges have been noted in France, where some improvement in prescribing adequate medication was seen after the introduction of the European heart failure guidelines in 2005.[82] Age has been identified to be an independent predictor of failure to prescribe necessary medication for heart failure across Europe.[83]

A number of international studies explored differences in patient profiles and treatment practices. However, available evidence only provides limited insight into country-specific patterns. Data from the EuroHeart Failure survey showed wide variation internationally in patterns of treatment of patients with heart failure, although part of the variation was also attributable to co-morbidities.[84] A pilot study investigating differences in patient characteristics, treatment and management options for atrial fibrillation showed that the most common cause for admissions of patients with atrial fibrillation was heart failure.[85] Heart failure was particularly common in eastern European countries (Poland, Romania), while co-morbidities (hypertension, peripheral artery disease and chronic kidney disease) were more common in countries in southern Europe (Greece, Italy, Portugal), where patients were also older. Co-morbidities predicted a higher rate of heart failure admissions that were considered to be avoidable.[84]

Cleland et al. (2002), reporting on an international survey of heart failure patients in primary care, found that, in 1999, out of 11,062 patients in 15 European countries, 3,023 (27%) were admitted to hospital for heart failure, and this ranged from 15% in the Netherlands and 20% in Germany and Poland to 35% in Hungary and 40% in Belgium.[86] They also showed wide variation in the use of diagnostic procedures for patients with heart failure; for example, the use of echocardiograms ranged from 10% of physicians requesting the test in the Netherlands and 19% in Poland to 65% in Belgium and 73% in France. It further reported that Hungary had recorded a high proportion of patients treated with ACE inhibitors and Beta-Blockers, while Spain had recorded the lowest proportion among all countries included in the survey. Across all countries, while about 60% of patients were receiving an ACE-inhibitor, the proportion fell 3-fold when considering a combination with Beta-blockers, suggesting substantial short-fall in treatment; the number was particularly low in Spain. Overall the survey suggested that, in practice, 90% of patients managed in primary care had received appropriate investigation while treatment was judged to be suboptimal. However, data reported in this study date to 1999 and it is conceivable that treatment of heart failure has changed and improved considerably since. For example, recent evidence from the pan-European European Society of Cardiology (ESF)-Heart Failure Long-Term Registry showed continued heterogeneity of treatments of patients with acute heart failure although drug treatment of chronic heart failure was found to be largely adherent to recommendations of the 2012 ESF guidelines,[87] when the reasons for non-adherence were taken into account.[88] At the same time, other evidence

highlights that diagnosis and treatment of heart failure continues to be suboptimal, as for example reported for the North East of England[89] and Slovenia.[90]

Box 6 Evaluating the quality of care for people with heart failure in Sweden

Heart failure has been identified to be the main cause of hospital admission and readmission in Sweden, with little change seen over time (2007-2013).[54] A recent assessment of the performance of cardiac care services in Sweden highlighted that while overall services were seen to be of good quality, adherence to the national guidelines and treatment recommendations varied between counties; there were also significant variations in terms of outcomes.[91] The 2015 report drew on indicators such as mortality or readmission after discharge due to heart failure, double therapy in heart failure, mineralocorticoid receptor antagonists for heart failure and cardiac resynchronization therapy (CRT). It found 30-day mortality and readmission rates to be high, at 11% and 10%, respectively, and that this was partially attributable to an increasing disease burden as well as population ageing. However, the observation of large county differences suggested further variation in the quality of care. It is also thought that the availability of hospital beds could play a role in the observed high readmission levels. Interpretations, however, are complicated by differences in treatment practices as well as the lack of standardized diagnostic algorithms.

Other indicators showed that little progress was made for patients with heart failure on double therapy over the past five years, with only four counties achieving a target of 65%. The trend for CRT showed a small overall increase in the use of treatment nationally, while there was almost 3-fold variation between counties for CRT rate, indicating that CRT use is still low relative to need. Possible barriers include the high cost of the CRT device, shortage of hospital beds, as well as inadequate referrals for CRT from primary care.[92]

The report provides specific recommendations for county councils to improve the quality of heart failure treatment, including:
- use of standardised guidelines and treatment protocols;
- increase the proportion of patients, particularly women, on double therapy;
- increase the number of CRT implants, through increasing referrals for patients with indication for CRT to specialists.

The example of Sweden shows the importance of understanding the causes of variations in the treatment of heart failure in order to inform policy development to improve the quality of care for people with the condition.

Appendix II – List of members

A. Members of the Expert Group on HSPA

Chair persons

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DG SANTE:	Andrzej Rys

Members

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Bulgaria:	Ivelina Georgieva, Petko Salchev, Ivian Benishev
Croatia:	Dijana Cimera, Sanjica Dolovski
Cyprus:	Pavlos Pavlou, Anna Demetriou
Czech Republic:	Martin Dolezal, Petra Votavova
Denmark:	Mads Bager Hoffmann, Charlotte Hougaard Clifford
Estonia:	Eleri Lapp
Finland:	Liisa-Maria Voipio-Pulkki, Ilmo Keskimäki
France:	Félix Faucon, Eric Trottmann, Adrien Dozol
Germany:	Stefan Paulsen, Friederike Botzenhardt
Greece:	Nikolaos Maniadakis
Hungary:	Péter Mihalicza
Ireland:	Muiris O'Connor
Italy:	Marina Davoli
Latvia:	Kristine Klavina
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Malta:	Kenneth Grech
Norway:	Beate Margrethe Huseby
Poland:	Tomasz Pawlega, Barbara Więckowska
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Spain:	Paloma Lajo

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The Netherlands:	Patrick Jeurissen, Michael van den Berg
United Kingdom:	David Vizer, Becky Henderson

| The OECD: | Gaetan Lafortune, Niek Klazinga, Ian Forde |
| The WHO/Euro | Hans Kluge, Juan Tello, Elke Jakubowksi |

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DG ECFIN:	Christoph Schwierz, Benedetta Martinelli
DG EMPL:	Boriana Goranova
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