

6 Health Services Research related to performance indicators and benchmarking

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6.1 Introduction

Benchmarking and performance indicators have become key challenges in health care policy in European countries. Accountability and transparency are central notions in today's ideas about health system governance and stewardship (Commonwealth Secretariat, 2000; WHO, 2000; Arah et al, 2006).

The notion of stewardship and governance through performance indicators has been endorsed by ministers of health in the WHO/Euro region in the Tallinn declaration in 2009 and more recently ministers of health of OECD countries (which include the majority of the EU member states) stated in the final communiqué of their ministerial meeting in Paris on October 7 and 8th the following:

We welcome the development of a set of indicators which help us to compare the quality of health care across countries and we look forward to them being further improved in the future. However, this will require better health information systems, and more effective use of the data that are already collected. The Forum on Quality of Care held before our meeting shows that we must reconcile the legitimate concerns of our citizens to protect their privacy with the need to monitor health care episodes involving multiple care providers. In addition, we must use information on quality of care to improve health sector performance. If all health care providers match the quality achieved by their better-performing peers, the gains would be of benefit to all health system users and funders. Although quality of care has improved in some areas, we need to address remaining barriers which stop us from realizing gains in the quality of care.

Whether looking towards health care from an economic perspective, a public health perspective, a medical perspective or a legal perspective; in all cases the actual performance of health care services and systems needs to be made explicit and used as the basis for optimization strategies. This assumes that the performance of health care services (meso level) and health care systems (macro level) should be measured by valid, reliable and relevant performance indicators (performance measurement) (Kelly & Hurst, 2006) and that this information is interpreted correctly to assess the relative position of health services or health care systems towards each other (benchmarking) (Zairi & Leonard, 1994; Camp, 1989; Benson, 1994) thus resulting in appropriate decision making to improve and optimize the outcome of health services and health systems. Measuring and managing performance is thus not only essential for policies that aim to improve the quality of health care (defined in this paper as effectiveness, safety and patient-centeredness) but is also a pre-condition for policies focusing on increasing efficiency and value creation.

Health Services Research in the countries in the European Union is related to the enrolling agenda of benchmarking and performance indicators in many different ways. The emphasis seems to be on performance measurement; trying to validate measures that tell us something about the performance of specific services or health care systems. These lines of research are closely linked to available health care statistics. Other lines of HSR focus on the actual embedding of performance measurement in policy making and health care management. These lines of research are closely linked to the wider agenda of implementation research in health care and the application of theories and methods developed in other industrial and public sectors to the health care sector.

The aim of this paper is not to give a complete overview of all ongoing Health Services Research activities in Europe related to benchmarking and performance indicators. It rather tries to identify the

main themes and focuses on the opportunities to improve the HSR evidence base behind the policy developments indicators. On the bases of that information priorities identified and recommendations provided for setting the research agenda in the field performance indicators and benchmarking.

Two limitations of this paper should be noted:

- When we operationalize performance the emphasis will be on quality (effectiveness, safety and patient centeredness) and, although to a lesser extent, on costs. These two domains, quality and cost, were chosen because these are the terms used in the definition on Health Services Research that is used in the EU project for which this paper is written and they cover the area of expertise of the lead author. As a consequence the paper does not address performance related to equity or access to health care.
- Emphasis will be put on the possibilities to improve the information infrastructure for measuring performance. Mortality statistics, specific registries, administrative data-bases, electronic health records and systematic population and patient surveys are essential data sources for indicators. National governments and international organizations such as the EU can play an important role in assuring that these data-sources are actually fit for performance measurement and consecutive benchmarking.

6.2 Concepts and method

6.2.1 Concepts

Which type of research questions are asked in HSR related to performance indicators and benchmarking?

In the Dutch handbook on Health Services Research, based on the work of AD de Groot, five types of questions are identified in Health Services Research; descriptive questions, explorative questions, instrument building related questions, hypotheses testing questions and theoretical/interpretative questions (Plochg et al, 2007). When we look at HSR related to performance indicators and benchmarking it seems fair to state that at present a lot of the work in Europe can be grouped under the heading of “research to build instruments cq measures”. Performance indicators are in essence measures and instruments for measurement. Thus research on performance indicators often addresses issues as validity (does this indicator actually measures what it is supposed to measure), reliability (quality of data-sources and thoroughness of data-collection methods) and relevance (usefulness for managers and policy makers). Especially when dealing with outcome indicators on effectiveness, research tends to focus on the need for case-mix –adjustments and ways how to present the indicator information in an easy to interpret way to policy makers (i.e. funnel plots, scoring systems). Descriptive research also takes place when performance in a specific area still needs to be operationalized. Deciding on concepts, definitions and categories forms an important part of this work. Different HSR methods are used to develop common descriptions of quality of care for example focus groups, nominal group techniques and concept mapping. An important lesson here is that for performance indicators to be useful the subjects being measured and/or the subjects being the potential users of the indicators should be actively involved in the process of indicator development. In all countries descriptive research efforts seem to be going on to develop commonly agreed on sets of performance indicators.

As part of the validation of indicator sets, research is also exploring the relations between measures on structure, process and outcome in health care. The type of HSR questions addressed here could be labelled as explorative.

HSR really focusing on hypotheses testing in the areas of performance indicators and benchmarking is rarer. It usually related to the evaluation of the effectiveness of specific strategies in which the use of indicators is embedded and thus related more to the overall area of implementation research in health care.

Theoretical interpretative work is also ongoing, and focuses mainly on the various concepts behind operationalizing (sets of) performance indicators and reflection on the normative and ethical aspects of trying to govern health care services and systems through performance measures.

In short, most HSR work related on performance indicators and benchmarking seems to address instrumental, descriptive and explorative research questions. Hypotheses testing research questions are less common.

Which kind of research methods are used in HSR related to performance indicators and benchmarking?

As a consequence of the type of research questions that should be addressed the appropriate methodologies focus on systematic group processes to identify relevant themes, reaching agreement on definitions, development of data collection instruments (surveys, strategies to derive specific data-sets from existing administrative data bases, registries or medical records), statistical analyses to validate indicators and establish their discriminative power, determine the necessity of case-mix adjusters, exploring relations between various sets of indicators (structure, process, outcome) and evaluation of the effectiveness of strategies to use indicators for performance improvement (experimental with or without control groups). The competences to do this type of Health Services Research are quite distinct from the research competences needed for bio-medical research. The methodological research qualities needed for this type of research asks for a mix of (clinical) epidemiological and social-sciences skills. Furthermore a high sensitivity for application of findings in practice is needed as performance indicators and benchmarking should primarily be owned by the users, manager and policy makers, themselves. HSR can help them to develop the tools but health services researchers in this area should be aware of the various interests of parties in the outcome of their work. Thus the need to integrate the opinions and wishes of the subjects of measurement and the subjects who are going to use the measurement, in the research activities, this sensitivity for the use of research results in practice is a generic competence that all health services researchers should have.

6.2.2 Methods

Different information sources were used to receive a broad picture of ongoing research activities in EU countries.

6.2.2.1 Database search

In order to identify the main themes and opportunities to improve evidence behind health services research related to performance indicators and benchmarking, we conducted an iterative search. Firstly, we searched for literature on the basis of key authors in the field. Expertise of the key authors was determined by expert opinion as well as impact of their studies on European policy in health care. From these scientific publications more specific search terms were derived and subsequently enrolled in a snowball search strategy using the Pub med search database

www.pubmed.org, provided by the US National Library of Medicine. Doing so further identified search terms and relevant literature.

In order to be as thorough as possible within the chosen approach, we checked whether a systematic search would add any significant literature that had not been identified yet. Therefore search terms derived from the already identified literature were used in the Thesaurus of Medical Subject Headings (MeSH) Database in Pub med. Unfortunately, the relatively low number of articles that were identified suggests that the search terms we used (e.g. quality indicator) were too specific for the relatively young and developing HSR field. However, broadening the MeSH term decreased specificity in such a way that analyzing the data was not feasible within our detailed approach. See Appendix 5 for a detailed description of all the search terms used.

The time span of the search period ranged from the 1st of January 2000 to the 1st of January 2010. References on research not from the EU (identified through manual scan), were removed. In a later step articles were further analyzed on their content. Doing so eight different subtopics could be identified by our research team (HSR on mortality based indicators, cancer care related indicators, hospital care related indicators, patient safety indicators, primary care related indicators, indicators based on patient experiences, research on concepts and performance frameworks, research on benchmarking and performance improvement.

6.2.2.2 Project search

- A search was conducted in the project database CORDIS, the information service on current and past Framework Programmes.
(<http://cordis.europa.eu/search/index.cfm?fuseaction=proj.advSearch>). The search reached from January 2000 till January 2010. The search terms benchmarking, quality indicator and research were used in different combinations.
- The database of the EAHC- executive agency for health and consumers
(<http://ec.europa.eu/eahc/projects/database.html>) was searched from the period of January 2000 until January 2010. The combination of the search terms "quality indicator" and "benchmarking" was used.
- Internet search engine "Google" was used with the terms "quality indicator" and "benchmarking".
- Websites of European organisations were consulted in search for projects.

All projects identified were classified based on the topic areas of the sample of articles as described in Appendix 7.

6.2.2.3 Expert meeting/ conference discussion

At the working conference Health Services Research in the Hague in April 2010 participants discussed in a carousel format the future direction on health services research related to benchmarking and performance indicators. In particular the validity of performance indicators, their use and misuse and the requirements needed for national information structures came up as points of discussion. This led tentatively to lines of research: research on the validity of indicators and research on the use of indicators through embedding in governance, monitoring and management structures and linkages to other quality strategies.

6.2.2.4 Online Stakeholder survey

As an additional source of information a stakeholder survey among researchers and decision makers was performed. The survey was conducted with the aim to collect and evaluate current opinions on upcoming Health Services Research priorities and to study ways to improve the

translation of Health Services Research into policy and practice. Country consultants and identified experts through the country consultants from the European Member States as well as the countries, Croatia, Iceland, Macedonia, Norway and Turkey, were contacted per e-mail and were asked to fill out a questionnaire. More detailed information on the country stakeholder survey can be found in chapter 2.

6.3 Results

6.3.1 Database and project search

A total number of 1.448 articles were identified and used to draw conclusions on overall research activities in the last ten year period in EU countries. Table 6.1 illustrates that the number of publications increased annually on average by 17,3%. Figure 6.1 presents the cumulative number of references between 2000 and 2009. The year 2010 was not taken into account in the calculations because the literature search was conducted only on the first month of 2010.

Identified articles were screened on the main focus, which resulted eventually in eight categories. Those are presented below in Figure 6.2 in percentages of references per topic category. In a further step of analyzing the articles in some categories (performance indicators and benchmarking related to mortality and cancer, performance indicators on care delivered in hospitals, patient safety indicators), subthemes could be identified (see figure 6.3).

Table 6.1 Publication distribution over time (2000 - 2010)

Year	Number of publications	Absolute difference to previous year	Difference to previous year in %
2000	61		
2001	67	6	9,8%
2002	80	3	4,5%
2003	98	18	22,5%
2004	126	28	28,6%
2005	141	15	11,9%
2006	141	0	0%
2007	176	35	24,8%
2008	240	64	36,4%
2009	281	41	17,1%
2010	27		
	1448		

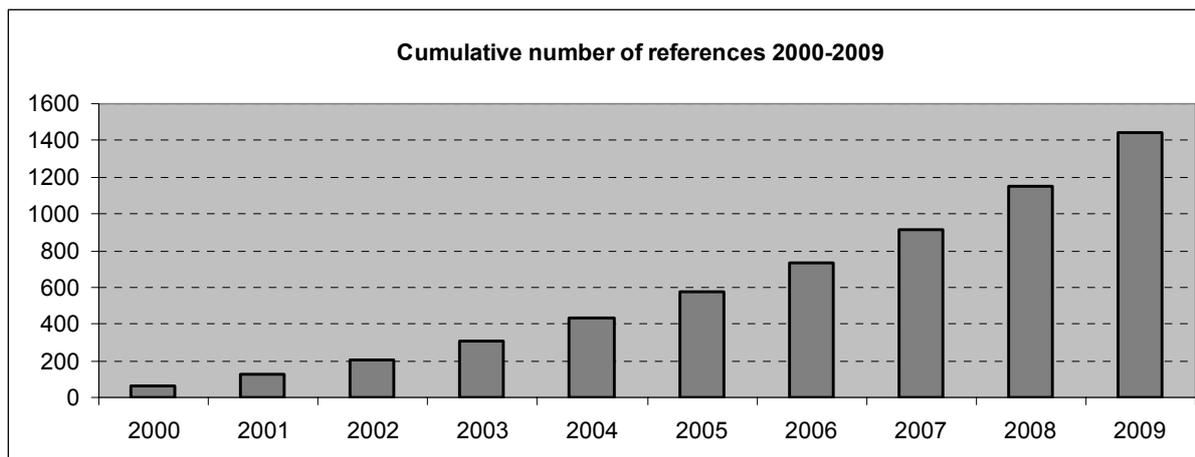


Figure 6.1 Cumulative number of references 2000 - 2009

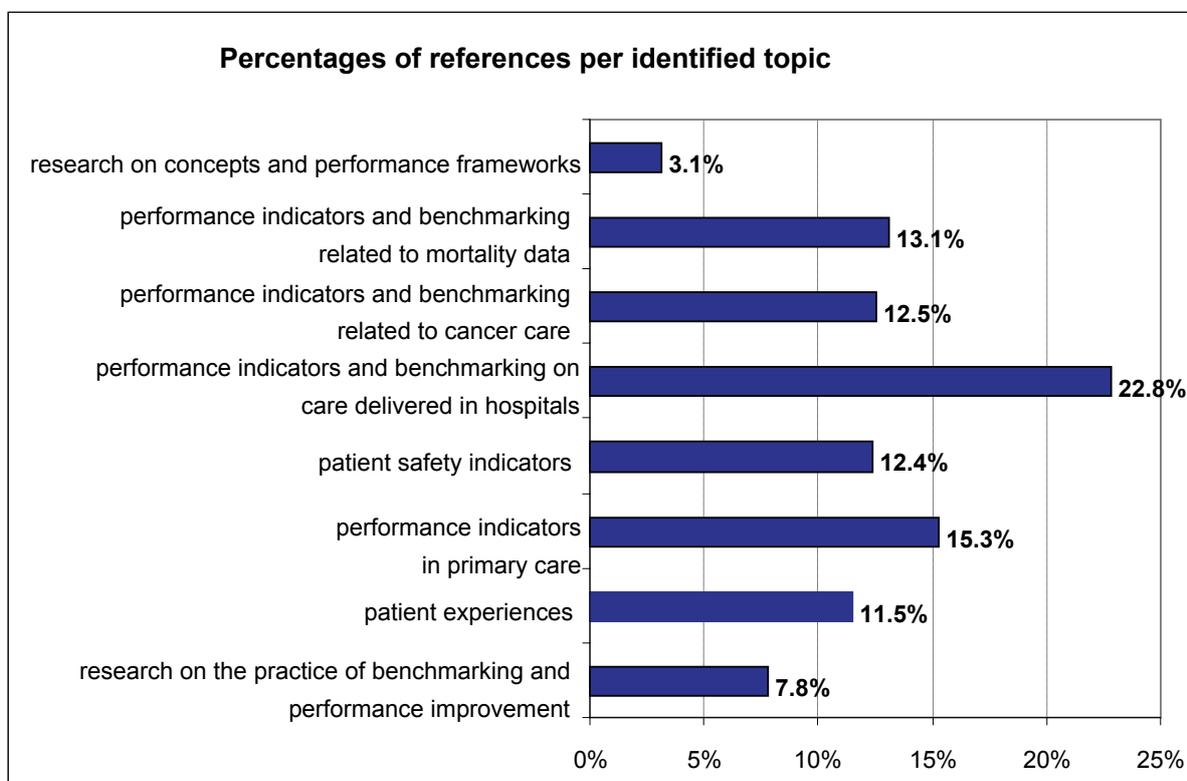


Figure 6.2 Percentages of references per identified topic

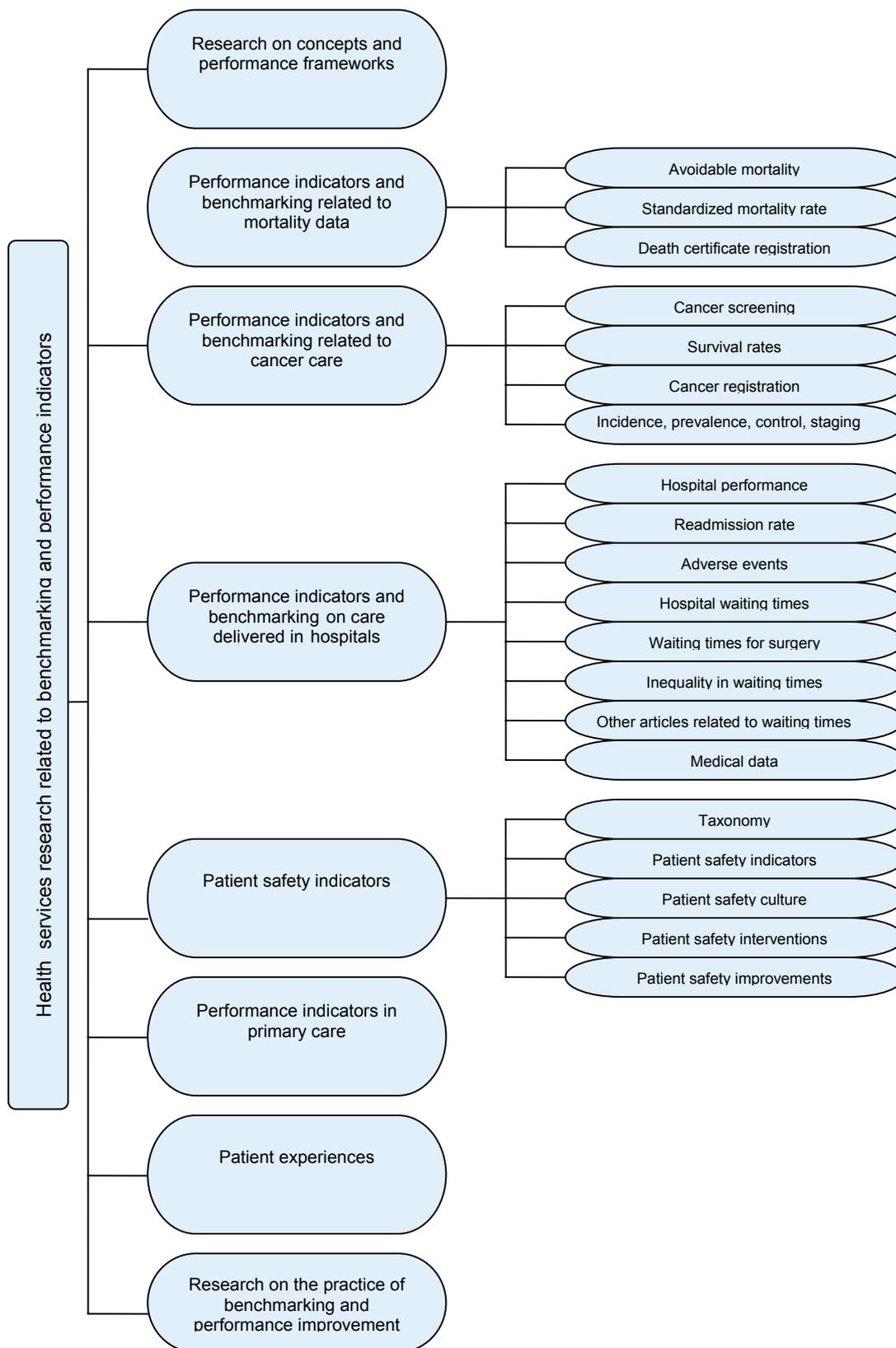


Figure 6.3 Identified themes and subthemes in health services research related to performance indicators and benchmarking

The following paragraphs describe in more depth the identified eight fields of Health Services Research related to performance indicators and benchmarking.

6.3.1.1 Research on concepts and performance frameworks

Performance indicators are never a goal in itself but derive their meaning from the management cycle and context they are part of. As a consequence one should be very careful to assume that an indicator that is useful for one goal (selective contracting, public accountability) can also be useful for another goal (internal quality improvement). As such, performance indicators are not, as in biomedical research, aiming for universal truths, but for truths within a specific context and setting for a specific goal. This also explains why it is often difficult to get HSR studies published in mainstream journals as they are often considered as less relevant for a broad international audience, or, erroneously so, considered less scientific because of the (intentionally created) limited generalisability.

Given this dependency on context and goals, the work of performance measurement has become embedded in a growing body of research work on concepts and frameworks used for performance measurement and benchmarking. One obvious line of research here is linking specific quality aspects to specific sets of indicators (what is a balanced set), another line of research looks at how sets of indicators can be grouped in broader conceptual frameworks to keep an overview over the performance on all aspects and being able to derive strategic meaning from developments on performance on various domains and aspects at the same time. Frameworks from industry, such as the Balanced Score Card are taken as examples. This type of frameworks can be found for assessing the performance of whole health care systems and quality of health care (i.e. OECD, WHO) but also for individual services such as hospitals (PATH/WHO). Theoretical and explorative HSR can underpin the policy need to develop and test conceptual frameworks that are consistent with the management and governance goals policy makers have with using performance indicators. Strengthening this line of thought and research remains necessary to enhance appropriate embedding of performance indicators and prevent dysfunctional use and bureaucratization.

A specific area of research seems to be the linkage between quality and costs, as two domains of health services and health systems performance they are most of the time considered separately. The measurement of costs has its own processes of standardization, often materialized in (national) accounting schemes and international efforts such as the 12 systems of health accounts work of OECD, EU and WHO. Linking quality and costs as part of overall performance management seems less common although work in this area has been reported (Ontario). On health services levels quality/cost methods from industry have been applied (Custers et al¹) but were in the reported cases not congruent with the external financial incentives; i.e. in many cases there does not seem to be a business case for quality. This notion has already been recognized by policy makers and performance indicators on quality are at present increasingly used in Pay for Performance schemes and (selective) contracting. Evaluation research on these policy interventions, although quite prevalent in North America, is in Europe still limited. It should, however, be a promising area for future HSR given the increased interest by policy makers and health care managers. Thus the present more theoretical and explorative work might be extended to hypotheses testing research on experiments with financial incentives and contracting.

¹ References of the authors, documents and projects addressed in the text as well as further supporting literature can be found in Appendix 7 under the corresponding topic section.

6.3.1.2 Performance indicators and benchmarking related to mortality data

Historically death statistics have been the basis for assessment of the performance of health care systems. Life expectancy and perinatal death are in many international reports still used to compare the relative performance of health care systems e.g WHO and World Bank (WHO, 1995; WorldBank, 2010) and several adjustments have been made to refine the measures (for example the use of Disability Adjusted Life Years).

With respect to performance indicators and benchmarking the following two research lines are interesting to note.

After initial research in the eighties by Holland et al. recently avoidable mortality has become again a topic of interest. Following research done by Nolte and Mc Kee, at present an EU funded project (AMIEHS) is looking again at the avoidable mortality lists and refining the measurement methodology and the international comparability. Several European countries seem to be using this method for comparison of performance within their country and the OECD has recently started to look into the opportunities of reporting on avoidable mortality rates as part of their international comparative work.

A second line of mortality statistics based research is the growing popularity of the Hospital Standardized Mortality rates. Initially developed by Jarman, this methodology to compare the performance of hospitals based on adjusted hospital mortality rates has been taken up in a series of countries. Methodological debates are focusing on the (lack of) international comparability of these data given the differences in hospital systems and recording. However, policy interest is substantial.

Possibilities to use mortality statistics for performance indicators and benchmarking seem to be hampered by still existing differences in coding practices around causes of death but also in the varying possibilities in countries to link for example mortality statistics from hospital administrative data bases (in hospital mortality) with the overall death statistics. Possibilities for using Unique Patient Identifiers and linkage of data-bases are the key for making further progress in this area.

6.3.1.3 Performance indicators and benchmarking related to cancer care

Apart from becoming the major cause of death in EU countries, cancer is also the area where relative complete statistics are available for the performance of cancer care for various types of cancer such as breast cancer, cervical cancer and colon cancer. Quite often these “outcomes” are related to discussions to have national screening programs when valid screening methods are available. Recent work of the CONCORD group has reported on cancer world-wide (Coleman) but also the EU (Eurocare) and the OECD are active in improving the measures for the international comparability on the performance of cancer care. For this work to progress, the quality of the (national) cancer registries is of key importance. As long as countries don't have cancer registries that cover their whole population, valid performance data are difficult to produce. Furthermore for cancer data to be useful for benchmarking, apart from mortality data the cancer staging data are essential. And, as with mortality data, linkages between cancer registries and administrative-data bases such as on hospitals are essential to do meaningful research on the relation between the quality of cancer care and the use of services and resources. Although the coding practice in this field, in comparison with other disease areas has already been internationally standardized, further standardization is warranted to increase the potential for benchmarking.

6.3.1.4 Performance indicators and benchmarking on care delivered in hospitals

A lot of indicator development work is undertaken in the field of hospital indicators. Indicators are developed and tested (i.e. Spain, Italy, Portugal, France, Germany, UK, Netherlands, Belgium, Denmark). Popular categories for indicators are 30-day case fatality rates (for example in AMI and Stroke), re-admission rates, complication rates in surgery, hospital infection rates, bedsores, volume of specific treatments, waiting times, systematic measurement of patient experiences, systematic measurement of experiences of hospital staff). Most of the HSR research in this area focuses on the development and testing of indicators. Sources for indicators are mainly administrative data-bases and medical records. Generic problems identified in these projects and international comparative work of the WHO (PATH project) and the OECD (HCQI project) with respect to administrative data bases seem to be:

- Quality of coding practices for administrative data-bases (ICD9-10)
- Lack of (internationally) standardized procedure codes
- Lack of coding of secondary diagnoses
- Lack of coding whether a certain condition was present at admission
- Lack of opportunities to link the administrative data bases of individual hospital with other data bases; for example by using a Unique Patient Identifier

Apart from the present limitations with using administrative-data bases for doing HSR on performance indicators and benchmarking, deriving the appropriate data from medical records also poses problems. Although the techniques of doing audits based on medical and nursing records have been improving, methodological flaws are still reported. The approach taken in the US by McGlynn et al in their study on the quality of care for adults holds important lessons for Europe. Furthermore, progress made with the implementation of Electronic Health Records is in most countries not developed enough to use these as a prime source for data to calculate performance indicators. Most of the problems around optimizing EHR's for population based statistics are not technical but political. Privacy legislation and insufficient focus on standardization of data-requirements from a public information perspective seem to hinder further growth of HSR in this area. If the potential of the EHR for helping monitoring quality of care is to be fulfilled, Health Services Researchers should keep on addressing policy makers with the message that the performance data they want can only be acquired when they make sure the necessary legislation on minimal data requirements and privacy is in place. Given the fact that some countries in Northern Europe seem to have overcome these problems, there is potential for mutual learning.

6.3.1.5 Patient Safety Indicators

Patient Safety has become a major focus point of health policies over the past ten years. The EU, after the US report *To Err is Human*, has initiated several activities to coordinate policy development and research in this area. In 2007 a meeting was held in Porto to provide an overview of the ongoing research efforts. At present the EU funded EUNETPass project tries to coordinate various national efforts. Also WHO, on a global scale has launched programs which include inventories of ongoing research. Many European countries have executed studies to assess the magnitude of adverse events in their country, mostly based on detailed audit studies on medical records. Also several countries have set up national patient safety agencies that are mostly also involved in running adverse event reporting programs. Furthermore a growing body of knowledge has been created on studying safety culture, the implementation of safety systems and implementation programs for specific safety project on topics such as handovers, medication-errors and reduction of hospital infections. In the area of patient safety indicators, the example of the PSI reporting

system of AHRQ in the US has been broadened to 17 other countries, including many European ones, in the work of OECD's Health Care Quality Indicator program.

The type of Health Services Research applied in all these efforts is not fundamentally different to the types of questions and methods discussed earlier in this paper and focuses on measurement of risks, adverse events and errors and their contexts as well as implementation research evaluating the effectiveness of interventions.

With respect to data collection similar problems as with data collection for quality indicators on hospital care can be identified:

- Many studies depend on the quality of medical records
- Electronic Health Records are often an insufficient source for the necessary data
- Administrative systems often don't have sufficient secondary diagnoses coded to calculate Patient Safety Indicators
- Administrative data bases often don't record whether relevant conditions (i.e. infections, bedsores) were present at admission
- Linking with other data bases within the hospital (i.e. laboratory, pharmacy) or outside the hospital (data bases in primary care) is often not possible or not allowed.

When these data-availability problems are not solved the possibilities and impact of HSR in the area of patient safety will remain limited with respect to performance measurement and benchmarking.

6.3.1.6 Performance Indicators in Primary Care

Traditionally the design and functioning of primary care is, alongside hospital care, an important focal point of health policies. A well functioning primary care system is considered to help contain costs and improve the quality of care. HSR on the organization of primary care is discussed in a separate paper elsewhere. As a part of the assessment on HSR related to performance indicators and benchmarking, it suffices to state here that monitoring data on the quality of primary care are still relatively scarce and heterogeneous. This is partly due to the fact that the information infrastructure in primary care is often still patchy and less developed than the administrative data-bases and (electronic) health record availability in hospital care. Although there are notable examples of countries that have some part of their PHC information infrastructure more developed for governance purposes, an assessment made by the OECD in 2007 showed that national data bases were not developed and comparable enough to merit cross national collection and comparison of performance indicators on primary care. As a conclusion the OECD is at present assessing the quality of primary care by looking at the rates of avoidable hospital admissions derived from the hospital administrative data bases. Despite the limitations of the data systems, a lot of HSR is going on in primary care, often focusing on specific diseases (especially chronic diseases) and the related care arrangements (i.e. disease management) or implementation of guidelines. Reported benchmarking studies in primary care seem to be rare.

6.3.1.7 Patient Experiences

The systematic measurement of patient experiences has become a fundamental element of assessing the performance of health care services and systems. Health Services Research in this area consists of methods to determine the domains and topics that are considered to be important for performance (methods such as focus groups, interviews, concept mapping) and all types of questionnaire development and testing. Instrumental research on valid methods to assess and report on patient experiences seems to be the core of the HSR in this area. After the example of the

US (CAHPS) and UK (Picker) a growing number of European countries is standardizing and institutionalizing the systematic measurement of patient experiences. Apart from the validation of patient questionnaires, work has been reported on population based surveys to measure the experience and opinions of citizens on health care (i.e. Eurobarometer, Common Wealth Fund surveys, WHO). Apart from the ongoing validation of sets of questions, work is going on the use of vignettes to capture opinions. Overall this seems a fruitful area for further exchange of instruments and methods on a 11

European level as this area of performance measurement and management is at the core of the EU values to create transparency in the health care markets and strengthen the position of the health care consumer.

6.3.1.8 Research on the practice of benchmarking and performance improvement

Although HSR specifically focusing on the technique and methods of industrial benchmarking in health care is still rare, the body of evidence on implementation and innovation in health care is substantial. It seems wise to take the implementation of strategies to use performance indicators not as a separate research topic, but consider the use of indicators as one strategy alongside others to improve the quality of health care. The EU funded Marquis Project demonstrated in a group of 489 hospitals the synergy between strategies to use indicators, measure patient experiences, perform audits, clinical guidelines, patient safety systems and TQM. HSR on benchmarking and the use of performance indicators could therefore borrow and become complementary to the already existing theories and study results on quality improvement.

6.3.2 Expert meeting/ conference discussion

On the working conference HSR Europe in April 2010 conference participants discussed in a carousel format at a workshop three predefined topics in the field of benchmarking and quality indicators, which are summarized below:

6.3.2.1 Research on the validity of indicators

Conference participants discussed the underlying data for calculating indicators as an essential component of constructing performance indicators. The way of collecting data as well as for which reason that is happening needs to be assessed in terms of validity issues. A further discussed topic was the low or rather lacking number of secondary data in most clinical registries and administrative data-bases. A great variation of available secondary diagnoses can be found nationally, international comparison seems thus to be hampered. A lot of uncertainty seems to exist in the amount of variation in the interpretation of definitions of indicators and related coding practices, which therefore must be studied more in detail.

In this context of the validity of indicators, used research models and techniques to assess indicators lead to the conclusion that a lot of cross sectional design are currently used. The participants agreed that more longitudinal data based on sound databases are needed to study the validity of indicators. The discussants agreed that indicators can be used for very different purposes (accountability, selective contracting, choice, quality improvement) and that the ultimate use of the performance indicators should be taken into account when studying their validity.

6.3.2.2 Requirements for national information infrastructures

Conference participants agreed that information sharing is hampered by a great European-wide difference in information infrastructures. For example, only a few countries allow the linkage of patient level data through Unique Patient Identifiers, which is of great importance for a comprehensive picture of quality of care. There is a clear need for uniformity of registration software

to allow data linkage. At this moment a great variance in software systems and software providers is present. Participants also concluded that the evaluation of the quality of electronic databases for deriving population statistics is an area that is underresearched. On a regional level the ownership of data (e.g. Germany) and the interregional differences of coding can be a problem. More EU involvement in supporting the (international) comparability of information on health care through data infrastructures was considered useful (e.g. coherent definitions, similar software systems and coding system) as well as on policies to balance privacy and data-protection concerns with availability of data for calculating population based performance indicators.

6.3.2.3 Use and misuse of performance indicators

There is a broad experience of misuse (e.g. league tables, gaming) or non-use of indicators among the conference participants, leading to the observation that research on use/misuse is rare and in its infancy in Europe. There are doubts on how far performance indicators are used by patients. The meaning as well as the indicators embedding in governance and managerial structures and processes must be known to be able to identify misuse of an indicator. For enhancing the use of indicators, the indicator should be integrated in an established system thus the linkages with other quality strategies such as practice guidelines, accreditation, audit and quality systems should be sought.

6.4 Discussion

Health Services Research can help both in the development of performance indicators and the actual use through benchmarking. Literature study and expert consultations identified a large number of existing research initiatives within the EU although the distribution of research initiatives over the EU member states seems quite uneven. The discussions during the The Hague conference on Health Services Research confirmed that on performance indicators and benchmarking:

- Research should focus on the development of indicators (validity, reliability, relevance) as well as on the actual use (effective embedding in policy and management).
- As a consequence of the above, health services research on these topics should always involve participation of the potential users
- Both scientific approaches from bio-medicine/epidemiology and the social sciences are needed

Further progress of HSR on performance indicators and benchmarking is hampered by data-availability. Experts agreed that the following issues need addressing:

- use of Unique Patient Identifiers to facilitate linkages between separate data-bases
- further standardization of coding
- use of present-at admission codes in administrative databases
- recording of secondary diagnoses in administrative data-bases
- facilitate secondary data use from Electronic Health Records
- facilitate standardized measurement of experiences by patients and citizens
- continued collaboration between Eurostat, WHO and the OECD to facilitate the availability of international comparable performance information

HSR research on benchmarking and performance indicators on European level would benefit from strengthening the clearinghouse function on research findings, training of researchers and appropriate scientific publication media. Results of HSR research on benchmarking and performance indicators should be systematically shared with policy makers and managers of health

services and systems to assure a fit with local contexts. Networking should be stimulated on European level between the research groups involved in this kind of work and the growing number of national/regional institutes involved in quality measurement and reporting.

6.5 Conclusion

Health Services Research providing the evidence base for Performance Indicators and Benchmarking is a field that has been expanding rapidly in EU countries over the past ten years. It is par excellence an area that would benefit from EU broad initiatives as this would enlarge the comparability between the member states and thus the potential of benchmarking between countries. Apart from policy initiatives to address the quality and comparability of national information infrastructures in health care through the kind of initiatives that are mentioned in this report, it also constitutes a potentially fruitful area for HSR in the foreseen 8th Framework. Research themes that could be addressed are European studies on the validity of performance indicators in various areas' (notably mortality, cancer care, hospital care, primary care, palliative care, mental health care, patient safety and long term care and social care). Furthermore European wide research could be conducted on how to embed effectively performance indicators in governance, monitoring and management structures and how to link them to (national) quality strategies and policies such as accreditation/certification, practice guidelines, audits, quality systems, patient safety strategies, national standards on volume and/or quality, public reporting, pay-for-performance and patient/consumer involvement.

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