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Forum on Quality of Care



Improving Value in Health Care: Measuring Quality

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Improving Value in Health Care: Measuring Quality

Quality of care cannot be taken for granted and medical errors harm and kill patients.

The landmark Institute of Medicine (IOM) report, *To Err is Human*, brought to light a worrying statistic: according to their calculation, medical errors probably killed more people than traffic accidents in the US. The 1999 IOM study was one in a series of studies over the past 40 years worldwide, showing the underuse, overuse, and misuse of many medical services. This growing body of evidence questions common assumptions about the quality of health care. For example:

- Nordic data show that over 12% of hospitalised patients experience adverse events, 70% of which were preventable and over half of which lead to disability and increased length of stay.
- An English study shows that over 40%, or nearly 1.9 million hospital emergency admissions, could have been avoided if better primary care had been provided.
- Comparative analyses shown in the *OECD Health at a Glance*, show considerable variations in health care quality.

Poor quality of care affects everyone. Most importantly, patients suffer, but beyond this, health care costs are higher than they need to be.

Growing complexity makes measuring quality even more important.

Populations in industrialised countries are ageing, with an increasingly complex case mix of chronic diseases with multiple co-morbidities and disabilities. Increasing medical knowledge, new technological possibilities and fragmented care delivery systems make evaluation of the quality of health care processes and outcomes increasingly important. Yet these very same developments make delivering care and evaluating its quality more difficult.

Policymakers need to measure, evaluate and compare the quality of care systems for three main reasons: to promote accountability, to inform effective policy development, and to help health care providers learn from one another. Indeed, there is now scarcely a healthcare policy initiative that does not seek to improve the quality of care, or that does not depend on being able to measure the quality of care. However, to achieve ‘quality-led governance’, it is necessary to measure whether or not the system is delivering effective, safe and patient-centred care.

Progress has been made in measuring clinical effectiveness, patient safety and patient experience.

Since its inception in 2001, the OECD Health Care Quality Indicators (HCQI) Project, in partnership with leading organisations and countries, has been instrumental in providing a conceptual framework and methodological basis to provide the required information on quality. Although data limitations exist, it has produced useful data covering the dimensions of clinical effectiveness, patient safety, and patient experience.

Four questions are addressed in this note:

- Why do we need information on quality of care?
- What is the internationally-comparable evidence on quality of care?
- How can we get more and better data, so that ministers, policymakers and practitioners are accountable, informed and can learn from experience?
- How should we use information on quality to improve health care?

Improving quality of care lies at the heart of most health policy initiatives...

...including improving the co-ordination of care to avoid problems occurring at the interface between different providers...

...and ensuring that prevention efforts are delivered in a timely and appropriate manner.

Patient-centred care puts patient experience at the heart of what the health system is trying to achieve...

Why do we need information on quality of care?

Measuring quality of care is a key component of many policies that seek to improve the performance of health care systems, for example, through better co-ordination of care, prevention, patient-centred care, the use of health technology assessments and pay-for-performance.

Improving the co-ordination of care

With increasing numbers of patients receiving care from multiple providers for both acute and chronic conditions, there is an urgent need to integrate governance functions within and across health systems. This relates directly to measuring quality of care – fragmentation within health systems results in poor patient experience, coupled with ineffective and unsafe care. Integrated care is therefore now at the heart of reform efforts in an increasing number of countries.

Prevention

Advances in our understanding of individual risk factors, and in the availability of effective preventive interventions have given health care providers new reasons to put prevention at the centre of their systems, gradually shifting away from reactive care of the sick, towards more proactive and preventive health care. Thus health care systems turn into health systems. To achieve this transition requires careful monitoring of population health, life-style (smoking, nutrition, alcohol use) and the quality of (preventive) care, particularly when provided at the primary care level.

Patient-centred care

The Institute of Medicine's influential 2001 report, *Crossing the quality chasm*, identified patient-centred care as one of the main, and most important domains of quality. It calls for health systems to respect patient values and preferences, coordinate and integrate care across silos, provide information, communication and education, and guarantee the physical comfort, emotional support and involvement of informal caregivers. Orienting a health system around the preferences and needs of patients improves patient satisfaction and health outcomes, and even contributes to improved efficiency.

...and measures of patient experience are already used to improve health system performance.

Patient empowerment and strengthening of self-management could help deliver efficient management of health systems. In this context, measuring patient experience can become an essential component of health services evaluation. A multitude of national and international surveys (e.g. Commonwealth Fund, Picker Institute Europe and US Consumer Assessment of Healthcare Providers and Systems) measure patient experience, the results of which can be used to drive accountability, strategy development and quality improvement.

Clinical effectiveness is the backbone of quality...

Making use of health technology assessment and clinical evaluations in a systematic manner

Health technology assessment (HTA) and clinical evaluation can inform health care decisions by providing evidence on the comparative effectiveness, cost-effectiveness, benefits and harms of different treatment modalities, such as diagnostic testing, surgery, drugs, medical devices and even the organisation and management of health care services. For example, should aspirin be used for the primary prevention of cardiovascular disease? What age groups of women should be screened for breast cancer, and at what intervals? Are oral hypoglycaemic agents cost-effective, or even effective, for treatment of type 2 diabetes, compared to conventional therapy? Is screening for cervical cancer worthwhile, now that HPV vaccines have been developed?

...and many countries have developed a capacity to disseminate good practice.

To help answer such questions, many countries have established HTA organisations, such as the Danish Centre for HTA, the Canadian Agency for Drugs and Technologies in Health, the French Haute Autorité de Santé, the German Institute for Quality Efficiency in Health Care and the Institute for Applied Quality Improvement and Research in Health Care, and the UK National Institute for Health and Clinical Excellence (NICE). The US has recently allocated \$1.1 billion to establish the Federal Coordinating Council for Comparative Effectiveness Research, to compare the effectiveness of thousands of medical treatments. The past 20 years have shown that HTA results are used increasingly for decisions on benefit packages and practice guidelines. Measuring the quality of care in practice, however, is key in establishing whether the rational assumptions made by HTA studies and practice guidelines live up to their promise in daily life.

A new approach to improving quality is to pay for it.

Pay-for-performance

In all OECD countries, there are many schemes in primary care, hospital care, and prevention that try to encourage the use of evidence-based protocols and decrease variation in health care. Pay-for-Performance schemes go beyond encouragement and exhortation to *reward* providers to increase the quality of health care. For example, in the United Kingdom, the Quality Outcomes Framework (QOF) measures quality and then rewards general practices that have achieved pre-determined quality thresholds.

To use quality in payment systems requires good indicators with comparative information to allow benchmarking. However, these indicators need to be integrated into a wider health system context, and it is important not to turn them into targets that force providers to neglect other important areas. The

Quality led governance is key to improving quality.

If providers of poor quality care improve their performance to match the best, the health gains would be significant.

UK QOF project has shown the benefits of using a wide range of indicators, so as to avoid creating perverse incentives that would result in narrow approaches to improving health care quality.

Quality-led governance

Quality-led governance is now becoming a driving principle in health systems. Alongside information on the costs of health care and population health, governments need to use information on quality of care to improve health system performance. Cross-nationally comparable quality data are now often included in national performance reports, and are linked to national quality improvement initiatives and policies. The next section gives comparative information on how quality of care differs across countries and areas of the health system.

What is the internationally-comparable evidence on quality of care?

The need for reliable indicators has led to improvements in national data collection infrastructures. There are now good examples of using national data to monitor quality performance: well-known studies include the Netherlands Health Care Performance Reports, Danish Hospital Sector Reports, English NHS Quality Accounts, provincial performance reports in Canada, US national reports on quality and disparities and national health care quality reports by Belgium and Sweden.

Alongside these national studies, there is also value in looking at comparisons of health care quality in an *internationally-comparable* way. Comparative research at the international level has largely been confined to comparisons of cost and utilisation of care and health status (such as mortality rates and life expectancy). These, however, depend not only on the performance of the health care system, but also on social and economic developments. They do not relate closely enough to the quality of care provided to be able to say whether a system is performing well or not. This deprives policymakers of the ability to analyse and assess the impact of their policies. International comparisons provide countries with benchmarks against which they can compare themselves. Such internationally-comparable data has the potential to allow analysis of why one country has a different level of quality of care than another.

The main objective of the OECD HCQI project has been to provide comparable cross-national data on the quality of care, focusing on effectiveness, patient experience and safety of care. The following section provides snapshots of HCQI's work in primary care, acute care, mental health care, cancer care, and patient safety.

Box 1. The OECD Health Care Quality Indicators project

The HCQI project has been conducted in collaboration with OECD countries, a number of international partners, such as The Commonwealth Fund, the Nordic Council of Ministers Quality Project, and the International Society for Quality in Health Care (ISQua). The HCQI programme collects readily available care process and outcome indicators, and conducts collaborative research and development on priority indicator areas (particularly primary care, mental health, patient safety and patient experience). The project also promotes the improvement of international information systems and indicator comparability. Data are mostly compiled from administrative databases, registries and population surveys. Currently, approximately 40 health care quality indicators are considered suitable for cross-national data collection. These have been reported in working papers and the bi-annual OECD publication *Health at a Glance* in 2007 and 2009 (HCQI website, 2010). The HCQI project has made good progress in improving the quality and comparability of the data it collects from various sources. International expert panellists actively review potential quality of care indicators using criteria such as relevance, scientific soundness and feasibility. Indicator development is also subjected to structured consultation using internationally recognised guidelines and procedures and extensive pilot testing. Furthermore, strict data quality criteria have been defined to ensure minimal variation in the quality of data collected from individual countries. These steps are critical to ensure that reported variations in quality of care are valid and reliable for cross-national comparisons and learning.

Primary care is a critical entry point for improving quality of care.

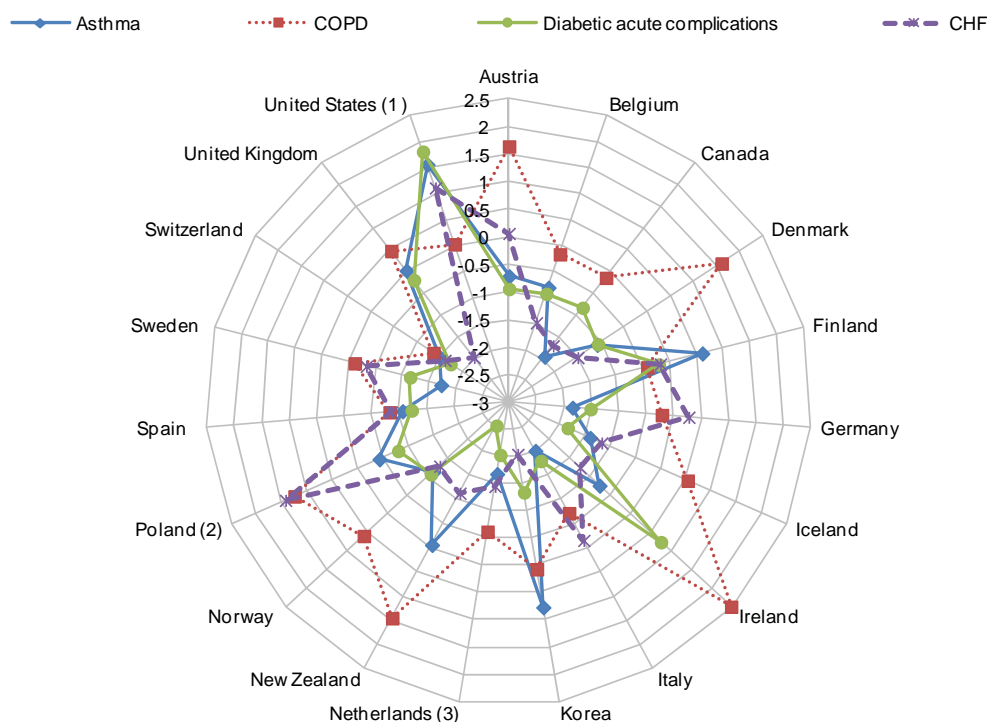
Primary care

Good-quality primary care is a vital component of an effective health system. However, measuring its quality is fraught with difficulties because information systems are patchy and less developed than the administrative databases and electronic health records available in hospital care. Nevertheless, there are some excellent indicators of how well primary care systems are performing.

Monitoring potentially preventable hospital admissions is a good indicator for primary care quality.

For example, good quality primary care prevents people from going to hospital unnecessarily. This is particularly true for chronic conditions like asthma, emphysema/chronic bronchitis, heart failure and diabetes that are typically best managed in the primary care setting. High rates of unplanned hospital admissions for these conditions may indicate failings in the care of these patients at the primary care level.

Figure 1 shows 2007 admission rates for four major conditions, with rates expressed in terms of deviation from the OECD average. The closer the lines are to the centre, the lower the rates of potentially preventable admissions. The figure shows significant variations. Some countries, such as the US and Poland, have relatively high rates across all conditions, while others, like Canada and the Netherlands, both of which place great emphasis on primary care, have lower rates.

Figure 1. Avoidable hospital admission rates, 2007

CHF: Congestive heart failure.

COPD: Chronic obstructive pulmonary disease.

Note: The number of hospital admissions of people aged 15 years and over per 100 000 population, age and sex standardised rates in relation to OECD average. Values have been normalised for ease of interpretation. Data from Austria, Belgium, Italy, Poland, Switzerland and the United States refer to 2006. Data from the Netherlands refer to 2005.

1. Data does not fully exclude day cases.
2. Data includes transfers from other hospitals and/or other units within the same hospitals, which marginally elevate the rates.
3. Data for CHF includes admissions for additional diagnosis codes, which marginally elevate the rate.

Source: OECD Health Care Quality Indicators Database, 2009.

Improving quality in hospitals can decrease the number of people dying from heart attacks and strokes.

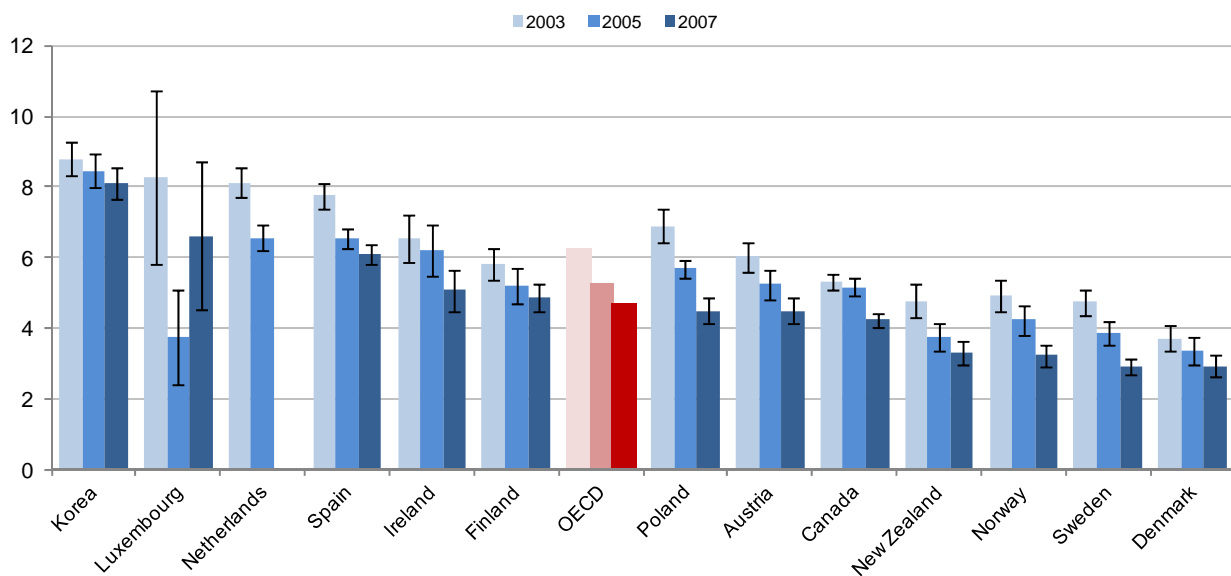
Acute care

Acute hospital care accounts for the biggest share of health expenditure in OECD countries. Care provided in an acute care setting has a major impact on the performance of the whole health care system. One example of this is cardiovascular diseases, such as AMI and stroke, which are the leading causes of death in most industrialised countries, and which also account for up to 14% of global health expenditure. Figure 2 shows that case-fatality rates for AMI have declined significantly across OECD countries between 2003 and 2007, and all countries have also recorded a similar decrease in mortality from both forms of stroke. This success story reflects better and more reliable processes of care, in particular with respect to rapid treatments. The results are all the more remarkable as data suggest that the incidence of AMI has not declined. Research in many countries, such as Canada, has explicitly linked those process improvements to better survival rates (see Box 2).

Box 2. Using quality indicators to improve outcomes – an example from Ontario, Canada

Higher than average in-hospital heart attack mortality rates in Ontario prompted action by the Ottawa Heart Institute and its partners. The Institute brought together key representatives from the hospitals, paramedic and Health Ministry organisations to redesign the heart attack care protocol. Critical success factors in reducing the time to treatment (a key prerequisite to reducing the heart attack mortality rate) include direct access for qualifying patients to a catheterisation laboratory rather than to the emergency department and training paramedics to recognise a heart attack wave form on an echocardiogram.

Figure 2. In-hospital case-fatality rates within 30 days after admission for AMI, 2003-07 (or nearest year available)



Source: OECD Health Care Quality Indicators Data 2009. Rates age-sex standardised to 2005 OECD population (45+). 95% confidence intervals represented by H.

Improving quality in mental health is critical, but we have a long way to go in measuring it.

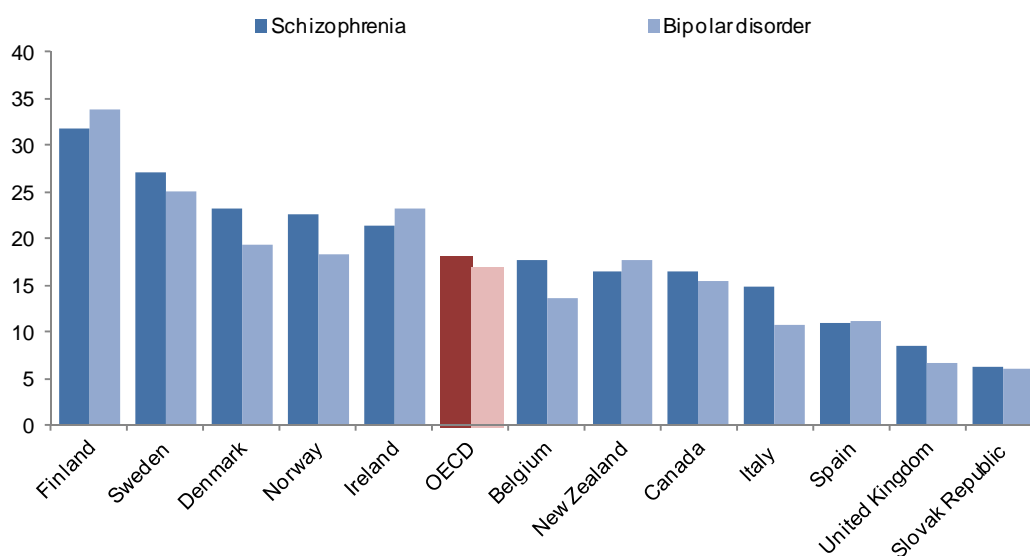
Mental health care

The burden of mental illness on the health system, on the economy through lost productivity, and on the health of populations is substantial. Schizophrenia and bipolar disorder alone are now among the top ten global causes of lost disability-adjusted life years. Mental health care is therefore a policy priority in many OECD countries, reflected by wide-scale reforms towards community-based mental health care. However, the de-institutionalisation of care has also made it harder to track patients, as few countries have health information infrastructures suitable for following patients across delivery settings.

Unplanned hospital re-admission rates may indicate poor care coordination following a hospital stay for psychiatric disorders. Longer lengths of stay, appropriate discharge planning, good-quality community-based care, and follow-up visits after discharge may lead to fewer re-admissions. Figure 3

shows widespread, and largely unexplained variations between OECD countries in hospital re-admissions for bipolar disorder and schizophrenia. However, this example illustrates one of the problems of making international comparisons of care quality. The variation shown here is probably partly caused by differences in documentation systems. For example, Nordic countries are able to track patients across care settings using unique patient identifiers (UPIs) and so are better able to identify readmissions than many other countries.

Figure 3. Unplanned mental health re-admissions to the same hospital, 2007



Note: The data for Belgium, Italy and the Slovak Republic refer to 2006. The data for Canada refer to 2005. The total rates are age-sex standardised per 100 patients to the 2005 OECD population.

Source: OECD Health Care Quality Indicators Database, 2009. OECD average is a simple unweighted average.

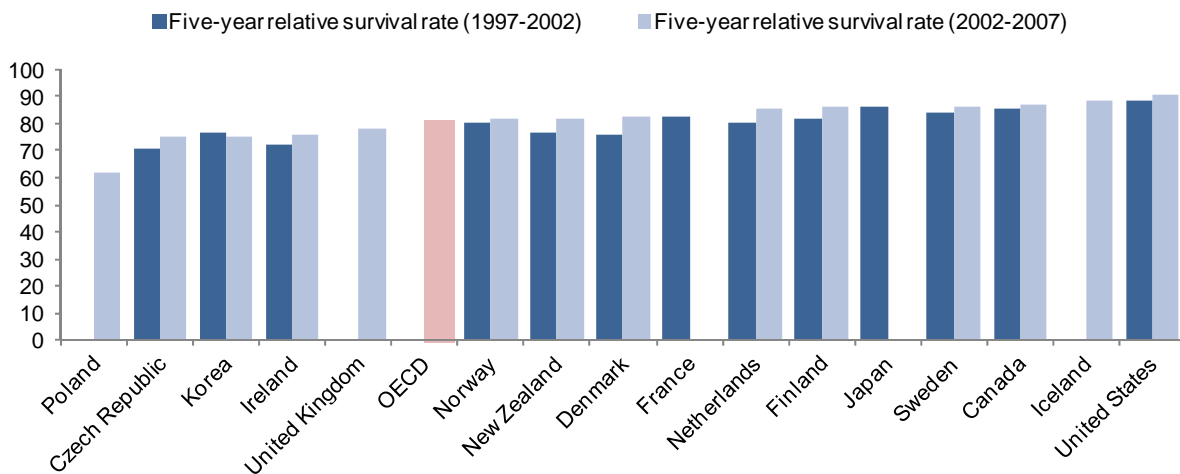
The quality of cancer care has been improving...

...and preliminary evidence suggests good governance is one of the reasons.

Cancer care

Cancer is a leading cause of morbidity and mortality. It accounts for more than a quarter of all deaths in many OECD countries. Because some cancer outcomes are amenable to improvements in health care, so variations in mortality and survival rates are good indicators of the quality of a health system.

The survival prospects for women with breast cancer have improved (see Figure 4). Now over 80% of women diagnosed with breast cancer (and over 90% of American women) can expect to be alive five years after first being diagnosed. There are a number of contributory factors to this success story, including good quality screening programmes but also appropriate standards, guidelines, registries, access and service continuity. The importance of good governance is confirmed in recent analytical work involving 24 OECD countries.

Figure 4. Breast cancer five-year relative survival rate, 1997-2002 and 2002-2007 (or nearest period)

Note: OECD average is a simple unweighted average.

Source: OECD Health Care Quality Indicators Database, 2009.

Reducing the number of health care errors needs to be a priority.

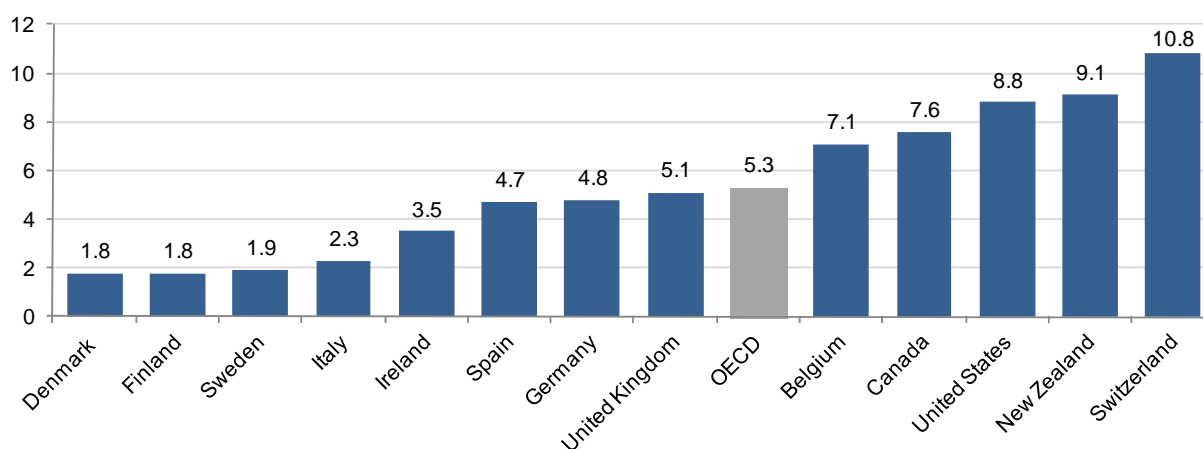
Patient safety

Recent studies have shown that healthcare errors occur in over 10% of hospital stays, nearly half of which can be prevented or avoided. In response to the growing interest in improving the safety of medical care, HCQI has started to collect *patient safety* indicators, including catheter-related bloodstream infections, postoperative pulmonary embolism or deep vein thrombosis, postoperative sepsis, accidental puncture or laceration, foreign body left in during procedure and obstetric trauma after vaginal delivery with or without instrument.

Variations across countries are large, though data limitations are serious.

Wide variations in these patient safety measures have been found across countries. However, these differences have created a dilemma that is often encountered when looking at data on quality of care: are the differences observed indicative of real quality variations or are they artefacts of the willingness of professionals to report errors, or the way in which data are collected? For some areas, such as catheter-related bloodstream infections and postoperative sepsis, it is not yet possible to be sure those variations in rates across countries reflect underlying differences in quality of care.

Figure 5 shows data on rate at which foreign bodies are left in patients following their surgery. The OECD average stands at 5.3 events per 100 000. There is a 6-fold difference across countries. Interpreting these differences is difficult because high values, while worrying from a patient safety perspective, may also be indicative of assiduous, quality-motivated, data recording. Low rates may result from good patient safety practices or may simply be an artefact of poor data recording. Health system managers need to look behind the raw data to be able to interpret what they mean.

Figure 5. Foreign body left in after procedure rate per 100 000 discharges, 2007

Note: Data for Denmark refer to 2008 and for Belgium and the United States, data refer to 2006. Cases with the critical incident present on hospital admission are excluded in the Canadian data.

Source: Health Care Quality Indicators Database, 2009.

Box 3. Developmental work on patient experience

No reliable cross-national data yet exist to allow the *patient experience* of different health care systems to be compared. Capturing the patients' perspective of health care is increasingly important as health systems strive to be more responsive to patient needs and preferences. The HCQI project, in collaboration with the Commonwealth Fund, has been seeking to fill this knowledge gap. To this end, we are working with 21 OECD countries to validate a core set questions on patient experiences. HCQI has developed a set of principles on setting up a nationally standardised approach for the systematic measurement of patients' experiences. The CAHPS in the US is such an approach and in the UK systematic measurement of patient reported outcomes (PROMS) is taking place.

The lack of comparable data limits our ability to improve quality of health care.

How can we get more and better data on quality of care?

Policymakers are very interested in introducing measures to improve quality, but their good intentions are often hampered by the absence of data, the lack of record linkage or poor data quality. The following table provides a summary of the major obstacles.

Table 1. Some problems associated with generating internationally comparable domain-specific quality indicators

Primary care	Data infrastructure is severely lacking in most countries Coding can be strongly influenced by reimbursement
Acute care	Poor quality of coding practices for administrative databases Lack of secondary-diagnosis coding and present-on-admission coding Electronic health records are not well developed
Mental health care	Lack of data infrastructure to track patients across care settings Lack of comparable measures of outcomes across countries
Cancer care	Lack of national representativeness of cancer registries Cancer staging data are not available in most countries Data linkages between cancer registries and administrative databases (e.g. hospitals) are lacking
Patient safety	Lack of electronic health records, and poor quality of medical records Lack of secondary diagnoses and present-on-admission flags in administrative databases (e.g. infections & bed sores) Data linkage within hospitals (i.e. laboratory or pharmacy) or outside hospitals (i.e. primary care) is lacking
Patient experiences	Lack of nationally standardised measurement systems of patient experiences

There are five main type of information sources for data on quality of care.

The HCQI project has identified five main types of information sources that can be used for population-based quality of care monitoring. These are: birth and death statistics (e.g. mortality data); registries (e.g. disease or speciality specific registries such as cancer or communicable disease); administrative databases (e.g. hospital data bases linked to payment systems or pharmaceutical databases linked to prescribing patterns); electronic health records, and population and patient-based surveys (e.g. focusing on patient experiences). Each information source has its particular merits and weaknesses. For example, it transpires that sometimes data on cancer survival rates, AMI case fatality rates and diabetes care are only available for part of a country or for intermittent time periods. Improving the representativeness and timeliness of data collection is important. Furthermore, by understanding the limitations of current data sources, lessons can be learned on how to improve the measurement and comparability of quality of care data. Below, we provide a synopsis of these insights.

We can improve information if unique patient identifiers are introduced while protecting patient privacy...

Developing unique patient identifiers and improving data linkage

Health care treatments often involve a series of different episodes of care, provided by different health care providers. What matters is often not just the quality of each individual part of the health system, but how they work together. For example, someone who is treated in an acute care setting often requires rehabilitative services provided in a separate setting. Recording whether this takes place in a timely and appropriate manner is an important dimension of quality of care. Unique patient identifiers permit data linkage, allowing monitoring of each aspect of the care process over time and across care settings. The development and implementation of health systems that can accommodate unique patient identifiers is now a priority for many OECD countries.

...as these would allow data to be linked across providers.

Access to data for research and system monitoring is necessary while respecting the need for patient privacy.

We also need to improve the way that care episodes are recorded and coded.

Getting the data infrastructure for measuring quality of care right does not sound ‘exciting’, but it is important and essential work.

Improved data linkage is particularly important and useful for countries currently lacking unique patient identifiers, providing a cost-effective tool for health services research. By linking and reconciling data kept by different sources such as hospitals and government departments, this provides a more complete picture of the health of populations, and yields valuable insight into the quality and safety of care. For example, a study linking health and ethnic census data of 4.6 million people in Scotland has uncovered important information on incidence and survival rates for AMI among South Asians.

Protecting privacy

Demands to improve the information infrastructure must be balanced with the demands for privacy. Issues related to patient privacy have been addressed and reconciled through robust privacy legislation in the Nordic countries and the Nordic experience in this regard provides a valuable template for other countries considering similar issues. Efforts to improve information systems will require careful and systematic consideration including guideline development and recommendations, standard operating procedures and pilot studies. Information is sometimes collected which could, if analysed appropriately, improve health system performance – by identifying poor-quality providers of health care, for example, or identifying effective innovations in care. Such secondary use of health data is sometimes prevented because of concerns about patient privacy. A balance is needed between recognising the need to protect the public interest in avoiding breaches of confidentiality, and providing access to data for legitimate research and system monitoring purposes.

Improving and standardising coding practices.

Despite attempts to standardise coding practices, there inevitably are variations that affect the utility of quality of care indicators. Correctly recording pre-existing conditions is particularly important, as this helps identify where the responsibility for any lapse in quality lies. The US Medicare system has started to address this by only paying for cases in which appropriate coding on admission was present. This type of initiative could usefully be adopted elsewhere and would have the welcome side-effect of improving international comparability.

The way forward in measuring and using quality of care indicators

Getting more and better measures of quality of care requires more than technical agreement among experts: it requires political will and action. In some countries, there is a need to reassess whether the balance between legitimate privacy concerns and the need to generate information to improve the performance of the health care system is correct. Other countries have recognised the pressing need to develop unique patient identifiers and the means to link data across providers. In still others, much more attention is needed to make sure that providers report appropriately on what they are doing and why, to allow effective governance of the health system. These measures will improve the data infrastructure for measuring quality of care. They are not only essential steps to take to improve quality-led governance domestically, but are also necessary if we wish to learn from the successes – and failures – of attempts to improve the quality of care in different countries.

Quality indicators are rarely perfect, and need to be handled with care.

How should we use information on quality to improve health care?

Policymakers are increasingly interested in learning how to actively use quality indicators to improve system performance. Experience has shown that quality indicators should be handled with care and Box 4 provides some key principles that should be considered when using quality indicators.

Box 4. Handle with care: seven principles to take into account when using quality indicators

1. **FIT FOR PURPOSE:** the choice of quality measures should proceed from clear definitions of their purpose. External use (oversight, accountability, identifying outliers, patient choice) requires different indicator characteristics than internal use (quality improvement). For external use the quality measures should, for example, be sensitive to for example safety risks, signal changes over time and show meaningful differences between services. For internal use more specific quality measures are necessary to measure progress over time and also to provide signals that will trigger action for management and professionals who want to improve their services.
2. **CLEAR SIGNALLING:** despite much progress, the validity of outcome measures is often debatable. Collecting information on outcomes like mortality and complications is useful but often it is hard to determine whether differences found are actually the result of differences in quality of care. For example, crude post-surgical hospital mortality rates have been used to measure whether a hospital delivers good or bad quality care. However, without statistical adjustment for complications and co-morbidities, differences between hospitals may not be due to differences in the quality of care provided. One hospital may only deal with straightforward, uncomplicated patients whereas others (such as specialist centres) may treat the most complicated cases.
3. **TRUSTWORTHINESS:** the reliability of quality measures relates to the quality of the data on which they are based. Reliability can be a concern where quality indicators are derived from data-bases that are only indirectly linked to the primary process of care delivery and data recording.
4. **BEWARE OF SINGLE INDICATORS:** quality of care has different dimensions (effectiveness, safety, patient experiences) and one specific health care organisation (like for example a hospital or GP practice) is providing various services through a multitude of processes involving many different professionals and technologies. Conclusions about *all* different quality aspects and *all* underlying services made on the basis of only one indicator are likely to be meaningless. Even a basket of indicators will have limitations. Organisational context and local knowledge of confounding circumstances need to be taken into account in interpreting even well-constructed indicators.
5. **A CHAIN IS ONLY AS STRONG AS ITS WEAKEST LINK:** to overcome the limitations of generalisations, many attempts have been made to construct compound indicators that summarise the findings of a broader underlying set of indicators. Although doing this is understandable to strive for simplicity and clarity, the results can be misleading. Weaknesses of the underlying indicators are often disguised and the weighting between the various constituent indicators is often not based on empirical information or not reported. Thus they can suggest a quantitative strength which is not really there.
6. **A LEAGUE TABLE RAISES INTEREST BUT IS NOT ALWAYS FAIR:** the same methodological limitations that apply to constructing compound indicators also apply to making league tables. Weaknesses of the underlying components may be masked, weighting is not necessarily user based and the ranking suggests real differences between hospitals or countries and without the presence of properly calculated confidence estimates, rank orders that imply absolute differences in quality between one unit and another, may in fact be nothing more significant than chance.. League tables, especially those published through official channels should therefore be handled with care.
7. **BE AWARE OF GAMING AND UNINTENDED CONSEQUENCES:** overall, reporting of information on quality of care can lead to performance improvement. Nevertheless, reporting on certain aspects of care can lead to adverse effects such as gaming or outright cheating. For example, reporting on hospital mortality rates has in the past led hospital professionals to try to improve their rates by promoting that patients die elsewhere. Furthermore, if indicators focus on major diseases like diabetes and Chronic Heart Failure, this may lessen the interest in diseases that are less prominent in reporting and rewarding systems. Also an emphasis on negative outcomes (safety, complications) should be balanced by emphasis on positive outcomes (improved functioning, survival) to assure a balanced culture of risk control and risk taking in health care.

Quality policies on health system input, design, monitoring and improvement should be in place.

Quality indicators are only likely to make a difference to health system performance if they are clearly linked to national strategies and policies that are themselves aimed at improving care quality. There are four points in health systems where strategies can influence the quality of health care: by targeting inputs; health system design; quality monitoring; and ongoing quality improvement (see Table 2 for examples).

Table 2. How to improve Quality of Care

Policy type	Examples
Health system input (professionals, organisations, technologies)	Accreditation & certification of health care institutes Professional licensing & credentialing. Assessment and control of pharmaceutical products and medical devices
Health system design (allocation of responsibilities)	Accountability requirements, Quality Governance on the level of hospitals, primary care, social care. Quality as part of contracting and patient choice.
Monitoring (standards & information systems)	National standards and guidelines. Regulation on public reporting (policies towards registries, administrative databases, EHR and patient surveys). National audit studies
Improvement (incentive structures and [national] programs)	Financial incentives such as pay for performance. National programs on patient safety and quality improvement.

Ongoing reassessment of doctors, hospitals and even specific technologies and services is necessary to ensure high quality inputs in the health system.

Competent doctors, high performing hospitals and safe technologies are crucial inputs for health systems. The time has passed that the quality of professionals was guaranteed only through their initial training. All OECD countries have various mechanisms in place to assure the quality of practising professionals. Examples are mandatory continuous (medical) education (CME), peer-review programs and regular assessment of the performance of individual professionals. These mechanisms are related to regulation through licensing and credentialing. For example in The Netherlands all specialists are re-registered every four years based on the extent that they have been practising, fulfilment of CME requirements and assessment of their performance via different forms of peer-review. Quality measures are an important ingredient of measuring their performance.

The quality of hospital care is likewise regularly reassessed through accreditation. The first accreditation programs for hospitals stem from the US (Joint Commission) and have spread widely to, for example, Canada, Australia, France, the UK and Spain. Accreditation programs assess the compliance of hospitals with standards through site-visits by trained accreditation teams. Increasingly hospitals have also to report regularly on quality measures to the accreditation organisation in-between the site visits.

Specific medical technologies or services can also be the focus of quality assurance. Certification programs, often based on ISO norms, have become a regular phenomenon in health care alongside the regulation of the safety of pharmaceutical products and medical devices

A clear division of responsibilities on quality of care is important...

Health system design determines the responsibilities of the various stakeholders in the systems in delivering quality. Quality roles and responsibilities can be assigned to professionals, management, payers (for example insurers or municipalities), governmental bodies and patients and the public at large. Irrespective of the nature of the health care system responsibilities for quality of care need to be allocated and performance needs to be transparent. This involves answering many complex questions. How to balance professional autonomy with accountability? Are managers responsible for the quality of care in the organisations they manage? How transparent is quality of care to the public and patients? Can patients be held responsible for making their own choices in health care? Are financiers responsible for the quality of the care they purchase? To what extent can government be held responsible for the quality of care? Most countries have legislation in place on quality of care in which these responsibilities and the related accountability mechanism are made explicit. For countries with largely regionalised health care systems (US, Spain, Australia, Canada, Italy) general principles are set on federal level and regional reports on quality of care help to compare regional performance.

...as is systematic monitoring of the performance.

Regional and national reports on quality of care are based on monitoring policies that deal with the actual measurement and reporting on quality of care. Monitoring needs to be based on a well functioning national information infrastructure and the challenges in developing such a system have been described earlier in the note. In addition national standards and guidelines can help to calibrate the interpretation of these measures.

Incentives and targeted programmes to improve health system quality are common.

Targets for improving the quality of care are increasingly used by countries. Apart from non-monetary incentives (in particular, the reputation of the provider), monetary incentives such as Pay-for-Performance schemes are used in the US, UK and Korea. National programs such as national patient safety programs or national quality improvement programmes are another system-wide approach to improve quality. Many of these programmes have been inspired by those of the US Institute for Health Care Improvement and safety programs initiated by the WHO. National safety programmes are currently running in, for example Australia, New Zealand, Germany, France, the United Kingdom and the United States.

Box 5. Korea's pay-for-performance approach

More than 99% of Korean hospitals and clinics use electronic data interchange processes and a unique patient identifier is in place. This has provided the infrastructure necessary for an innovative approach to improving the quality of care. The Health Insurance Review and Assessment service (HIRA) of Korea is currently conducting quality assessments for 26 areas including acute myocardial infarction, stroke, coronary artery bypass graft, prophylactic antibiotic use for eight surgical procedures, hemo-dialysis, psychiatric hospitals, long-term care hospitals, eight surgical volume indicators, unnecessary C-section rate, hypertension and prescribing patterns. The publication of quality indicators based on these assessments has led to considerable improvements in quality of care and reduction in quality variations. In 2007 Korea went a step further and initiated an additional pay for performance demonstration program. The new pay for performance scheme is called the HIRA-Value Incentive Programme (VIP). The scheme covers 43 tertiary hospitals and measures their performance in acute myocardial infarction treatment and unnecessary caesarean section rate. Thus far the programme has made a significant impact in terms of quality gains for AMI treatment. The C-section rate has fallen slightly. The economic impact has been estimated to be significant.

Improving quality should be at the centre of all health systems, so we need to work harder in getting the information we need.

Political attention needs to be given to developing a data infrastructure.

No system is perfect: we can learn from one another's successes and failures.

Quality-led governance of health systems is an essential feature of high-performing health systems.

Conclusions and recommendations

Along with huge potential benefits, health care comes with significant risks. Poor quality of care carries the biggest risk, because people's lives and well being are at stake. Poor quality of care undermines every goal of modern health systems, resulting in increased patient dissatisfaction, premature mortality, increased health costs, and possibly even widening health disparities. Many promising policy initiatives either seek to improve quality of care, or assume that we are able to monitor it well. Therefore, it is critical to promote the ongoing monitoring and evaluation of the quality of all major health care approaches, particularly focusing on the key dimensions of effectiveness, safety and patient centeredness. Measuring quality is key to improving value in health care systems.

Measuring quality of care remains complex and challenging. International variations in quality of data restrict meaningful comparisons of health care systems. This lack of health data often stems from a lack of an adequate health information infrastructure. One key conclusion of experience so far in trying to collect information on quality is that political will and attention needs to be paid to improving this data infrastructure: technical work by experts will not be sufficient to find an appropriate balance between access to data and privacy, and a political impetus is needed to ensure that information is coded and reported properly and linked together in a meaningful way. Improving measurement – for example, by promoting secure data linkage, the development and use of unique patient identifiers, standardising coding practices, expanding electronic health records, nationalising the scope of registries, and developing national systems of patient experiences measurement – is a vital precondition to improving quality of care.

Despite data limitations, it is clear that there is true variation in performance between countries, with no national system performing optimally in all areas. One implication is clear: we can learn from each other. Analysing differences in cancer survival rates, to take one example, is showing the importance of various policies, and highlighting the important role of governance of the system. There are, no doubt, many other useful insights to be found, were we to be able to compare health care quality more systematically.

OECD countries all agree that quality-led governance should become a driving principle in ensuring health systems respond to the needs of patients and delivers value for money. By linking the quality indicator agenda to national strategies and policies, countries can improve health system performance and quality of care. Poor quality care rarely persists for long once a spotlight has been shone on it.

Recommendations on the measurement of Health Care Quality Indicators

- Develop legislation that strikes a balance between privacy and data-protection concerns on the one hand and the need for reliable and valid information for quality-led governance on the other
- Fully exploit the potential of (national) registries and administrative databases for measuring quality of care- particularly through the implementation of unique patient identifiers, secondary diagnostic coding and present-on-admission flags.
- Implement the comprehensive use of Electronic Health Records for measuring quality of care as part of population-based statistics
- Set up national systems for patient experiences measurement and surveys based on a common set of principles.

Recommendations on the use of Health Care Quality Indicators

- Assure consistency and linkage of quality measurement efforts with (national) quality policies on health system input (professionals, hospitals, technologies) health system design (distribution of responsibilities for quality and accountability), monitoring (standards, guidelines and information-infrastructure) and health system improvement (national quality and safety programs and quality incentives).
- Seek examples of good performance from other countries, and identify if lessons can be learned.