
Health Care Quality Indicators Project
Conceptual Framework Paper

Edward Kelley and Jeremy Hurst

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**HEALTH CARE QUALITY INDICATORS PROJECT
CONCEPTUAL FRAMEWORK PAPER**

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- Denmark
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- Ireland
- Italy
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- Mexico
- Netherlands
- New Zealand
- Norway
- Portugal
- Slovak Republic
- Spain
- Sweden
- Switzerland
- United Kingdom
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SUMMARY

4. This paper represents an attempt to set out a conceptual framework for the OECD's Health Care Quality Indicator (HCQI) Project. Two main issues are tackled: **what** concepts, or dimensions, of quality of health care should be measured and **how**, in principle, should they be measured. The need for a conceptual framework for the Project was expressed by a large group of participating countries. In interviews by the OECD Secretariat with member countries in April and May 2005, country experts and delegates to the Group on Health reiterated the need for a framework for the OECD's health care quality work. Countries stated that the framework should be: a) based on country experience and b) could be used to guide both current and future work by the OECD in health care quality measurement and monitoring.

5. The OECD Health Care Quality Indicator (HCQI) Project was started in 2001. The long-term objective of the HCQI Project is to develop a set of indicators that reflect a robust picture of health care quality that can be reliably reported across countries using comparable data. The HCQI project has built on two pre-existing international collaborations organised by the Commonwealth Fund of New York (five countries) and the Nordic Group of countries (also five countries). It now involves 23 countries.

6. This document is intended to serve as a guide for the OECD HCQI Project in terms of outlining the relevant immediate and future technical areas for project work. It maps an area of project and management priorities for the OECD and the member countries participating in the HCQI through 2006 and beyond. Readers of this document are encouraged to consult the companion peer-review article on this same topic (Arah, 2005) as well as the rest of the bibliography generated for this paper for additional conceptual detail on topics presented in this paper.

7. On the question of **what** dimensions of quality to measure, it is suggested that the conceptual basis for such technical quality indicators should rest, wherever possible, on the conceptual frameworks for such indicators already developed in a number of member countries. This means that the framework should be multi-dimensional in nature and be based on operational experience by member countries with assessing health systems performance in general and quality of care in particular. The framework, it was agreed, should acknowledge the broad scope of health systems performance assessment, both in this paper and in accompanying reference papers, while at the same time defining relatively narrowly the scope of this particular project's work.

8. On the question of **how**, in principle, quality should be measured, it is suggested that the indicator set should contain both process and outcome measures. Moreover, the indicator set should be based on three main criteria: i) the importance of what is being measured; ii) the scientific soundness of the measure; and iii) the feasibility/cost of obtaining data. This paper reviews types of indicators, the proposed scope of the measure set, criteria for selecting indicators and other issues such as: geographical coverage (national representativeness), overall number of indicators to be considered, changes in the set of indicators over time and composite measures. We present both background information and the project approach to each of these indicator questions.

RESUME

9. Ce document a pour objet de présenter le cadre conceptuel du projet de l'OCDE sur les indicateurs de la qualité des soins de santé (projet HCQI). Deux grandes questions y sont traitées : **quels** concepts, ou aspects, de la qualité des soins convient-il d'évaluer et **comment** ceux-ci doivent-ils en théorie être évalués. La nécessité d'élaborer un cadre conceptuel pour le projet a été exprimée par un grand nombre de pays participants. Lors des entretiens menés par le Secrétariat de l'OCDE avec les pays membres en avril et mai 2005, les experts et délégués nationaux auprès du Groupe sur la santé ont réaffirmé la nécessité d'élaborer un cadre pour les travaux de l'OCDE sur la qualité des soins de santé. Les pays ont indiqué que ce cadre devait a) être fondé sur l'expérience des pays et b) pouvoir être utilisé pour éclairer les travaux actuels et futurs de l'OCDE dans le domaine de l'évaluation et du suivi de la qualité des soins de santé.

10. Le projet de l'OCDE sur les indicateurs de la qualité des soins de santé a été lancé en 2001. Son objectif à long terme est d'élaborer un ensemble d'indicateurs qui rendent fidèlement compte de la qualité des soins de santé en se prêtant à des comparaisons fiables entre pays grâce à l'utilisation de données comparables. Le projet HCQI s'appuie sur deux activités internationales préexistantes de coopération, organisées respectivement par le Commonwealth Fund of New York (cinq pays) et le Groupe de travail du Conseil nordique des ministres sur l'évaluation de la qualité (six pays).¹ Vingt trois pays participent à présent au projet.

11. Ce document vise à fournir des orientations pour la réalisation du projet HCQI en mettant en évidence les éléments techniques sur lesquels faire reposer dans l'immédiat et ultérieurement les travaux qui s'y rapportent. Il définit des priorités pour ces travaux et leur gestion à l'intention de l'OCDE et des pays membres participants pour 2006 et au-delà. Les lecteurs sont invités à consulter l'article sur le même sujet qui est cité en référence (Arah, 2005), ainsi que le reste de la bibliographie élaborée aux fins du présent document, pour obtenir des précisions sur les questions qui y sont traitées.

12. Sur la question de savoir **quels** aspects de la qualité il convient de mesurer, il est proposé de prendre dans toute la mesure du possible comme base conceptuelle pour les indicateurs de la qualité technique des soins de santé, les cadres conceptuels déjà élaborés par plusieurs pays membres. Autrement dit, le cadre doit être multidimensionnel par nature et s'appuyer sur l'expérience pratique acquise par les pays membres à travers l'évaluation des performances des systèmes de santé en général et de la qualité des soins en particulier. Il a été convenu que le cadre tiendra compte du vaste champ couvert par l'évaluation des performances des systèmes de santé, tant dans le présent document que dans les documents cités en référence sur le même sujet, tout en définissant de façon relativement étroite le champ des travaux relatifs au projet.

13. Quant à la question de savoir **comment** mesurer en théorie la qualité, il est proposé de faire figurer dans l'ensemble d'indicateurs à la fois des indicateurs de processus et des indicateurs de résultats. En outre, le choix des indicateurs devrait être fondé sur trois critères principaux : i) l'importance de ce qui

1. Le Groupe de travail international du Commonwealth Fund sur les indicateurs de la qualité comprenait les Etats-Unis, le Royaume-Uni, le Canada, l'Australie et la Nouvelle-Zélande. Le Groupe de travail du Conseil nordique des ministres sur l'évaluation de la qualité comprend le Groenland, la Suède, la Norvège, la Finlande, l'Islande et le Danemark.

est mesuré ; ii) la pertinence scientifique de l'indicateur ; iii) la faisabilité/le coût de l'obtention des données. Le présent document examine différents types d'indicateurs, le champ qu'il est proposé de couvrir à l'aide de l'ensemble d'indicateurs, les critères de sélection des indicateurs et d'autres questions, comme la couverture géographique (représentativité nationale), le nombre global d'indicateurs à prendre en compte, l'évolution de l'ensemble d'indicateurs au fil du temps et les indicateurs composites. Pour chacune de ces questions, nous présentons à la fois des données générales et des informations sur l'approche suivie dans le cadre du projet.

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INTRODUCTION

14. A number of countries have asked for the specification of the conceptual framework which should guide the development of an international set of health care quality indicators at the OECD. Work on devising a conceptual framework was accorded high priority in the responses to a questionnaire concerning future work on health which was circulated to delegates to the Ad Hoc Group on Health in January 2004.

15. This paper represents an attempt by the Secretariat to synthesize the current literature on health care quality frameworks and to synthesize common core elements of quality of care frameworks in use in member countries. The goal of this synthesis is to arrive at an acceptable overall framework for the Health Care Quality Indicators (HCQI) Project that can be modified based on future project needs. In order to describe a framework for the Project, two main issues are addressed in this paper: **what** concepts, or dimensions, of quality of health care should be measured and **how**, in principle, should they be measured?

16. The previous draft of this paper was presented and reviewed at the December 2004 HCQI Experts Group meeting in Paris. This current draft of the paper represents input from the Expert Group given during that meeting and as part of in-depth interviews conducted with each member country over the course of two months from April to May 2005. It also represents considerable work by participating technical experts from one of the OECD HCQI countries, the Netherlands, whose manuscript on this same subject serves as a reference on broader issues of health care performance measurement for this paper.

17. This document is intended not to serve as a comprehensive review of quality of care definitions and concepts. As pointed out in the background section to this paper, these types of reviews have been done more comprehensively elsewhere. Nor is this paper intended to map all the relevant factors that should be assessed in health systems performance measurement in general and in assessing quality of care in particular. A broader review of health system performance areas was conducted for the companion paper to this project paper for peer-review publication (Arah, 2005). Neither is it intended as a guide for how health system performance assessment should be conducted at the OECD or within OECD member countries. This has been done more completely in other OECD publications (OECD, 2002; OECD, 2004b; OECD, 2003).

BROAD AIMS OF THE HCQI PROJECT

18. The OECD Health Care Quality Indicator (HCQI) Project was started in 2001. The long-term objective of the HCQI Project is to develop a set of indicators that reflect a robust picture of health care quality that can be reliably reported across countries using comparable data. The HCQI project has built on two pre-existing international collaborations organised by the Commonwealth Fund of New York (five countries) and the Nordic Group of countries (also five countries). It now involves 23 countries.

19. The project has been divided into two phases. In Phase I, pilot work was carried out on an initial set of 17 indicators to explore the technical issues associated with reporting health care quality internationally. In this current second phase, the project will finalize an overall conceptual framework and report on a broader set of indicators across a range of clinical conditions. The hope is that this second phase will lay the groundwork for the eventual inclusion of a set of HCQI Project indicators in *OECD Health Data*.

20. It is proposed that the project should try to represent the main disease and client groups in the population, and the most important preventive, curative and caring¹ interventions for these groups.² The HCQI project should strive to provide as much transparency as possible on the policy relevance, scientific soundness and international comparability of the proposed indicators.

BACKGROUND

21. Few issues command the worldwide attention of both policymakers and academics as the topic of health system performance (Smith et al., 2002a; Smith et al., 2002b; Johnston, 2004; Murray et al., 2003; Hurst et al., 2001; Arah et al., 2003; Rodella et al., 2003; Mainz et al., 2004; Hussey et al., 2004; Anderson et al., 2001; Mannion et al., 2002). It has understandably become commonplace for countries to formally assess and 'incentivize' the performance of their healthcare system (McLoughlin, et al., 2001; Roland, 2004; Conrad, et al., 2004; Rosenthal, et al., 2004). Umbrella organizations such as the World Health Organization (WHO) and the Organisation for Economic Co-operation and Development (OECD) have taken an international lead in encouraging health system performance measurement (WHO, 2000; Smith, 2002; OECD, 2004a; OECD 2004b).

22. The reasons for the increased interests are well-known: rising costs, technological advancements, aging populations, health market failures, poor quality and variations in practice, medical errors and

1. National initiatives to develop indicators of the quality of long term care have been reviewed recently in the OECD's Project on Long Term Care (see, for example, SG/ADHOC/HEA(2003)18).

2. An example for such priority setting has been provided by the U.S. Institute Of Medicine. (<http://www.ahrq.gov/qual/iompriorities.htm>) accessed 25 October 2004.

injuries, lack of accountability, inequalities, and sheer uncertainty (Smith et al. , 2002a; Bodenheimer, 1999; President's Advisory Commission, 1998; OECD, 2004; Reinhardt, et al., 2004, Westert, 2004). In all of these, there are widespread perceptions of poor value for the money and effort spent on healthcare (Johnston, 2004; Fireman, et al., 2004; Retzlaf-Roberts, 2004; Shortell, 2004; Charenaw et al., 2004; Fishman, et al. 2004). . Health spending across industrialized countries almost doubled in the last thirty years; meanwhile, the highest spending countries are not always the ones with the best results (OECD, 2004b; Anderson, et al., 2003, Leatherman and Sutherland, 2004). Many hold the view that there is room for improvement in most systems, and that 'business as usual' is no longer acceptable (McGlynn, et al., 2003; IOM, 2001; UK Department of Health; 1997). In addition, it is becoming clearer that improvements have to come from both within and beyond the traditional policy boundaries of the healthcare system.

23. Health is determined by a number of factors, one of which is health care. This multideterminant model of health care was advanced principally in the Lalonde "White Paper" in Canada (Lalonde, 1974) and subsequently in many other publications. *Health care* here, therefore, is defined as the combined functioning of public health and personal medical services. A health care system, therefore, is a set of activities and actors whose principal goal is to improve health through the provision of public and personal medical services.³

24. Healthcare systems have made various efforts to manage their problems. The latest of the efforts has been the deployment of performance measurement, monitoring and improvement initiatives (Arah, et al., 2003; Ibrahim, 2001). Many industrialized countries are seeking to measure and raise the productivity of their health systems through *performance measurement*. As a result, there has been a proliferation of health and healthcare indicators. A number of countries have sought to manage this proliferation through the creation of theoretical frameworks through which measures can be organized and prioritized. The OECD has sought to base its work in the HCQI Project closely on these frameworks, as will be presented below.

25. The performance of health care systems in these theoretical frameworks has been classified by certain performance attributes, among them the quality of care, access to care and the cost of care. Given this project's focus on quality of care, we will explore in more depth below the dimensions of quality. *Quality* of care can be 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" (IOM, 1990; OECD, 2004b). This highlights several important points, given our discussion of the key goal of health care being health. Firstly, quality health care should produce outcomes that patients desire and individuals will vary in their preference for different treatment options. Secondly, factors beyond the control of individual providers and provider organizations will influence the final outcome of health, such as environmental hazards. As discussed in this paper, health care systems vary in their response to this challenge in terms of the structure and responsibilities for managing non-health care determinants of health.

3 . While this paper will focus primarily on a framework for assessing health care quality, an in-depth exploration of the role of the health care system and other non-medical determinants of health is made in the companion peer review paper to the manuscript (Arah, 2005)

WHAT DIMENSIONS OF QUALITY OF HEALTH CARE SHOULD BE MEASURED?

26. *Dimensions* of healthcare performance are, therefore, those definable, preferably measurable and actionable, attributes of the system that are related to its functioning to maintain, restore or improve health (JCAHO, 1971). There are a range of dimensions of care that are assessed in existing country frameworks.

27. It is suggested that the conceptual basis for OECD health care quality indicators should rest, wherever possible, on the conceptual frameworks already developed for such indicators by a number of individual OECD member countries. This is done from a pragmatic basis that allows the OECD to build on previous experience in member countries. It should be noted that these frameworks are frequently focused on health care system performance more broadly. This paper shall propose a framework that acknowledges the broader context of dimensions of health care system performance, but shall propose a framework that focuses on health care quality.

28. Extracts from documentation concerning the conceptual frameworks adopted for performance or quality indicators in six member countries, Australia, Canada, Denmark, the Netherlands, the United Kingdom⁴ and the United States, are placed in Annexes 1-6, below, respectively. In the case of Australia, Canada, the Netherlands and the United Kingdom, the extracts relate to frameworks for health system 'performance indicator' sets, as a whole, rather than to quality measures only. In the case of Denmark and the United States, the extracts relate primarily to quality measures. Additional frameworks from the European Community Health Indicators project (Kramers, 2003), the Commonwealth Fund (The Commonwealth Fund, 2004), and the World Health Organization (Murray, 2003) are reviewed separately in the reference paper for this document (Arah, 2005)

29. Table 1 summarises (on the left hand side) which dimensions relating to the technical quality of health care have been used by which countries. In a couple of cases, the specific dimensions are referred to implicitly rather than explicitly in country documentation. The terms are discussed below the table.

4. In the case of the United Kingdom, the documentation in Annex 5 relates to the performance assessment framework used by the Department of Health circa 1999-2001. Responsibility for performance assessment passed to the Healthcare Commission in 2002 and the indicator set has evolved subsequently. Effectiveness indicators are now referred to as 'clinical focus' indicators in the 'star ratings' published by the Commission for NHS Trusts. However, at the time of writing no new conceptual framework for performance indicators in the UK had been identified by the OECD Secretariat.

Table 1. Concepts relating to the technical quality of healthcare found in national documents on performance/quality indicators in selected member countries

Dimensions	UK	Canada	Australia	USA	EHCI	Common-wealth Fund	WHO	Inclusion count
Acceptability		#				#		2
Accessibility	#	#	#	##		#		5
Appropriateness		#	#			#		3
Capacity	#							1
Competence or Capability	#	#	#					3
Continuity		#	#			#		3
Effectiveness or Improving health or Clinical focus	# #	#	#	#	#	#	#	7
Efficiency		#	#	***			###	4
Equity		**	**	*			#	4
Patient-centeredness or Patient focus Or Responsiveness	#	#?	#	#			#	5
Safety		#	#	#				3
Sustainability			#					1
Timeliness	#?*			#				2

* Cross-cutting dimension that applies to all other domains/dimensions

** Still not operationalized, though part of original Institute of Medicine's framework for the US

Present in the country's framework

Operationalized as a dimension of equity

Implied in the calculations and definitions of the attainment indices

#? Implied in the operationalization of "acceptability"

#?* Seen in the operationalization of "patient focus" and in the use of key targets

ECHI European Community Health Indicators

WHO World Health Organization

30. The primary task of this paper is to build a relevant framework for the HCQI Project based on existing country and partner frameworks. Based on the above listing of dimensions, then, we describe and define these dimensions below. The dimensions are grouped according to most commonly used by member countries above and less commonly used. We describe how these less frequently used dimensions could be subsumed under other more commonly used dimensions.

Most commonly used dimensions

31. A key performance dimension is *effectiveness* which is the degree of achieving desirable outcomes, given the correct provision of evidence-based healthcare services to all who could benefit, but not to those who would not benefit (Arah, et al. 2003; WHO, 2000; AHRQ, 2004). Donabedian stresses that effectiveness is the extent to which attainable improvements in health are, in fact, attained (Donabedian, 2003; Donabedian 1980). Juran and other authors cite effectiveness as the degree to which processes result in desired outcomes, free from error (Juran and Godfrey, 2000).

32. The dimension of *safety* means the degree to which health care processes avoid, prevent, and ameliorate adverse outcomes or injuries that stem from the processes of health care itself (National Patient Safety Foundation, 2000). Safety is a dimension that is closely related to effectiveness, although distinct from it in its emphasis on the prevention of unintentional adverse events for patients.

33. *Responsiveness* refers to how a system treats people to meet their legitimate non-health expectations (WHO, 2000; WHO, 2000b). Another term that is often used synonymously with responsiveness is *patient-centeredness*. Patient centeredness is the degree to which a system actually functions by placing the patient/user at the center of its delivery of healthcare and is often assessed in terms of patient's experience of their health care. This experience of care refers to the caring (Scott et al., 1995), communication (Ong et al., 1995; Roter et al., 1997), and understanding that should characterize the clinician-patient relationship. The emphasis here is on the patient's report of her or his experience with specific aspects of care and goes beyond her or his general satisfaction or opinion regarding the adequacy of care.

34. *Accessibility* is the ease with which health services are reached. Access can be physical, financial or psychological, and requires that health services are *a priori* available.

35. *Equity* is a dimension closely related to access, although it is also used as a metric to assess health-system financing and outcomes/health status. Equity (or equitability) defines the extent to which a system deals fairly with all concerned. Equity, in this context, deals with the distribution of healthcare and its benefits among a people.

36. *Efficiency* is the system's optimal use of available resources to yield maximum benefits or results (JCAHO, 1997). It speaks to a system's ability to function at lower costs without diminishing attainable and desirable results (Donabedian, 2003). Past consensus documents from the OECD have used the terms "macro-economic" and "micro-economic" efficiency." Macro-efficiency refers to the overall allocation of public and private expenditures in the health system, i.e. is overall health spending at the "right" level? In some of the country frameworks, macro-efficiency is alternately termed "*sustainability*" or "*affordability*". Micro-efficiency refers to the value for money realized with available resources, i.e. is the health system as productive as possible in light of the system inputs and desired outputs?

Less commonly used dimensions

37. Another set of dimensions of care are present in country frameworks, but they appear less frequently across the range of frameworks surveyed for this paper. This designation of "less commonly used" is not meant to imply that these dimensions are unimportant. On the contrary, many of these dimensions are very important and may be of primary importance in any given country context depending on local political and health system contexts. However, in all cases, these dimensions can be seen as related or subsumed by another, more commonly used dimension. These less common dimensions and their more common "counterparts" are listed below.

- *Acceptability* is conformity to the realistic wishes, desires and expectations of healthcare users and their families (Donabedian, 2003). Since a person's healthcare experiences have a powerful effect on their future utilization of and response to healthcare, responsiveness or patient-centeredness and acceptability are fundamental dimensions to effectiveness and other dimensions. This dimension is most often presented as part of *patient centeredness*.
- *Appropriateness*, as a performance dimension, is the degree to which provided healthcare is relevant to the clinical needs, given the current best evidence. This dimension is most often presented as part of *effectiveness*.
- *Competence or capability*, assesses the degree to which health system personnel have the training and abilities to assess, treat and communicate with their clients. There are many potential aspects of competence in this context, including technical competence as well as cultural competence. This dimension, in terms of its assessment, is assumed to be included in *effectiveness*.
- *Continuity* addresses the extent to which healthcare for specified users, over time, is coordinated across providers and institutions. While there are clinical continuity measures in use in national health system performance measures frameworks (i.e. the percentage of patients with depression who receive a continuous course of antidepressive medication through the acute phase of their illness), the majority of measures are in patient's experience of care. Therefore, this dimension is most often presented as part of *patient centeredness*.
- *Timeliness* is a related concept that is used in several country frameworks and refers to the degree to which patients are able to obtain care promptly (IOM, 2001). It includes both timely access to care (people can get care when needed) (Aday and Anderson, 1975) and coordination of care (once under care, the system facilitates moving people across providers and through the stages of care) (Shortell, 1976). There are clinical elements of timeliness, such as the length of time from admission for heart attack to the administration of thrombolytic therapy, and there are patient centeredness aspects of timeliness, such as patients' perceptions of their ability to get an appointment for needed urgent care as quickly as they wanted. In many country frameworks, this element is linked closely with *patient centeredness*.

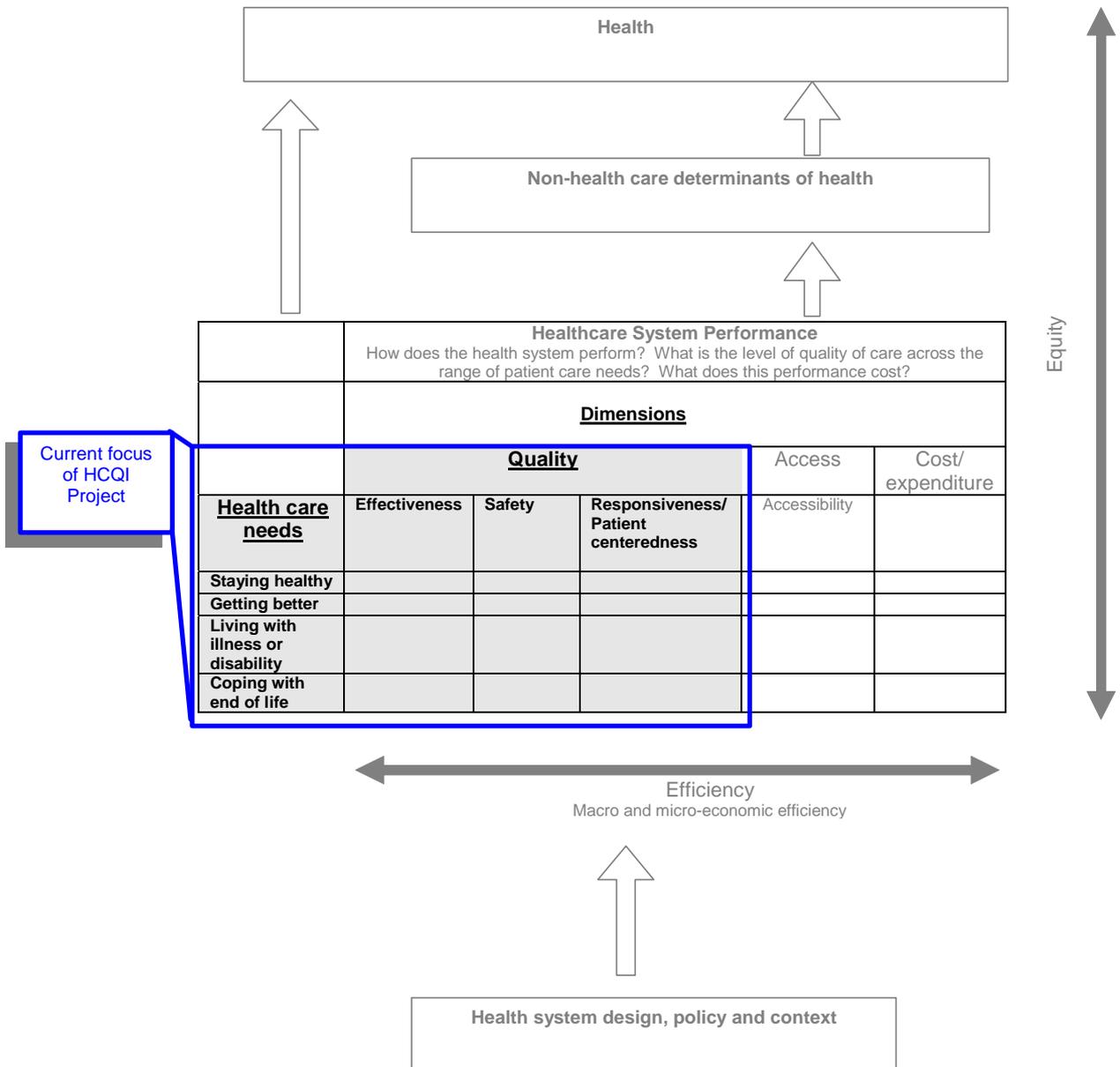
A PROPOSED CONCEPTUAL FRAMEWORK FOR THE HCQI PROJECT

38. Based on the foregoing, we suggest a conceptual framework for the OECD HCQI that optimizes the project's focus on technical quality of healthcare while keeping a broader perspective on health and its other determinants. The conceptual framework suggested for this project takes the most commonly used dimensions of care across the frameworks surveyed and incorporates them into a model that borrows heavily from the Institute of Medicine's national healthcare quality indicator framework developed for the US (see Annexes). In addition, we have relied heavily on a modification of the Canadian Health Indicator Framework and its adaptations seen in Australia and within the ECHI project (see Annexes).

39. The framework below presents a visual summary of the dimensions of health care performance, including: quality, access, cost, efficiency and equity. It also presents a visual picture of factors related to, but distinct from, health system performance, such as: health system design, policy and context; non-health

care determinants of health and overall levels of health. Finally, it highlights the particular dimensions of quality of care that will be the focus on the HCQI Project, namely: *effectiveness, safety and responsiveness or patient centeredness*.

Figure 1. Proposed conceptual framework for HCQI Project



40. For the first (“Health”), second (“Non-health care determinants of health”) and fourth (“Health system design, policy and context”) tiers of the framework (Figure 1), many data elements and indicators from the OECD Health Data and OECD Factbook indicators, for example, could be used to fill in the gaps and give a rounded picture of health progress in a country. The third tier (“Healthcare System Performance”) in Figure 1 is a matrix of dimensions of healthcare performance (‘vertical axis’ or columns) by healthcare needs (‘horizontal axis’ or rows). The represented dimensions are effectiveness, safety, responsiveness/patient-centeredness, utilisation, and cost/expenditure. These map approximately into

structure, process and outcome (from right to left). Effectiveness, safety and responsiveness/patient-centeredness are taken to be the core quality dimensions. They are, in essence, those core attributes of healthcare that increase the likelihood of desired outcomes. Access arguably involves elements of all the dimensions of health care system performance including cost/expenditure (as measured by indicators of health insurance coverage and cost sharing), utilization (as measured by indicators of use of services) and quality (as measured by indicators of responsive care, such as the degree to which there are communication or language barriers for patients to health care to take one example). "Access" has been written across several columns, accordingly.

HOW, IN PRINCIPLE, SHOULD QUALITY OF CARE BE MEASURED?

Structure, process or outcome indicators of quality?

41. Following the discussion of a conceptual framework for the project, this section attempts to operationalize that framework by presenting a categorization scheme and criteria for indicators and clinical condition areas. Also presented are the current project approaches to these same issues. This section reviews types of indicators, the proposed scope of the measure set, criteria for selecting indicators and other issues such as: geographical coverage (national representativeness), overall number of indicators to be considered, changes in the set of indicators over time and composite measures. We present both background and the project approach to each of these indicator questions.

42. Given the framework for the project presented above, the HCQI Project must also define how the dimensions of quality should be measured. How can the concepts of the technical quality of health care, set out in Table 2, above, be put into operational effect? One widely accepted and useful method for categorizing indicators of health care quality is the approach first conceptualized by Donabedian that described indicators as being either structure, process or outcome in nature (Donabedian, 2003; Donabedian, 1980).

43. *Structure indicators* (such as whether doctors are suitably qualified and whether hospitals are appropriately equipped) represent indicators of the characteristics of, or inputs to, health care. They may represent necessary conditions for the delivery of a given quality of health care but they are not sufficient. Their presence does not ensure that appropriate processes are carried out or that satisfactory outcomes are achieved by the health system.

44. *Process indicators* (such as whether children are immunised appropriately, whether, for those at risk, patients' blood pressure is checked regularly by a physician) represent measures of the delivery of appropriate (or inappropriate) health care to the relevant population at risk – where appropriateness should be based on clinical evidence of the effectiveness of the process concerned and 'consistent with current professional knowledge' (IOM, 2001). Of concern with process indicators is the degree to which these measures are related to clinically desirable outcomes. In addition, there is some concern that process indicators are more vulnerable to gaming than outcome or structure measures. However, process measures represent the closest approximation of actual health care offered and are the most clinically specific of the three types of indicators.

45. *Outcome indicators* (such as rates of hospital-acquired infections or rates of 1 year survival following acute myocardial infarction) seek to represent measures of health improvements (or

deterioration) attributable to medical care. The main challenge to outcome indicators is that they may be influenced by other factors but quality of care. To use the same example, survival after AMI also depends on patient-level factors like age, severity of illness and socioeconomic status. The issue, there, is that there has to be sufficient evidence that quality of care makes an independent contribution to the outcome. And other factors that influence the outcomes should be appropriately accounted for by risk adjustment. It has to be acknowledged that the clinical data with the detail necessary for comprehensive risk adjustment is often lacking, especially at the international level. Nevertheless, an effort should be made to adjust indicators to the degree possible and the limitations should be kept in mind when interpreting results.⁵

46. **Project approach:** It is envisaged that the initial OECD QI set will consist mainly or entirely of process and outcome measures since structure measures are not sufficient to assess safety and effectiveness. In addition, measures of avoidable risks observed at a population level may be proposed as indicators of good/poor health promotion and prevention efforts. Future revisions and updates of the HCQI indicator set may consider the use of structural indicators.

Scope of the indicator set

47. An important consideration for assessing health care quality is the scope of the clinical condition areas that should be included in the measure set. It is proposed that the indicator set should be population-based and should continue to strive for representation of the most important disease, risk and client groups and the most important preventive, curative and caring interventions for these groups, by pursuing the criteria for 'importance' listed in Box 1, below.

48. **Project approach:** Following the review of the initial indicator list, the HCQI Expert Group representing the participating member countries has reviewed the initial indicator list and identified gaps in the condition areas being covered by the indicator list. An exercise was carried out to identify additional clinical condition areas based on priorities of the participating countries. Six additional areas were recommended: 1. Cardiovascular care 2. Diabetes mellitus 3. Primary care 4. Prevention/health promotion 5. Patient safety and 6. Mental health. The subcommittees on primary care and prevention/health promotion were consolidated, because an initial assessment of the potential quality indicators in those two areas showed a large degree of overlap. The project therefore addresses the following clinical condition areas:

Table 2. HCQI Conditions and Care Areas

OECD HCQI Conditions and Care Areas	
Phase 1	Phase 2 (currently proposed)
<ul style="list-style-type: none"> • Cancer screening rates and survival • Vaccination rates for children and elderly • Mortality rates for asthma, heart attack and stroke • Waiting times for surgery (hip fracture) • Diabetes control and adverse outcome rates • Smoking rates 	Phase 1 indicators, plus additional indicators on: <ul style="list-style-type: none"> • Promotion, prevention and primary care • Mental health care • Patient safety • Cardiac care (additional indicators) • Diabetes care (additional indicators)

5. Alternatively, if, in the future, sufficient data were to become available across countries on, say: i) AMI survival rates ii) specific medical care procedure rates; and iii) risk factors; statistical analysis might allow estimation of the average effectiveness of those procedures, after controlling for risk. 'Unexplained' variations in survival would then raise questions about variations in the technical quality of care between countries.

Criteria for indicator selection

49. How should indicators be chosen? It is suggested that the criteria for the selection of a set of key indicators should include:

- the importance of what is being measured in terms of the impact on health status and health costs, the policy relevance and the susceptibility of the problem to intervention;
- the scientific soundness of the measure in terms of its validity, reliability, and the explicitness of the evidence base;
- the feasibility and cost of obtaining internationally comparable data for the measure.

50. These three criteria are elaborated in Box 1, which is based on a similar box in the Background Paper for the first meeting of the Expert Group (DELSA/ELSA/WP1/HCQ(2003)1).

Figure 2. Criteria to select indicators

1. Importance of what is being measured

- *Impact of disease or risk on health and on health expenditure.* What is the impact on health and on health expenditure associated with each disease, risk or client group? To help understand these impacts, the OECD has prepared a list of conditions with the highest costs, morbidity, and mortality. Preferably, the measure will address areas in which there is a clear gap between the actual and potential levels of health that can be influenced by improvements in the quality of care.
- *Policy importance.* Are policy makers and consumers concerned about this disease or risk group area?
- *Susceptibility to being influenced by the health care system.* Can the health care system meaningfully address this disease area or problem? The measure should reflect an aspect of health that can be influenced by the health care system as it exists or as it is envisioned. That is, policy makers can take specific actions (generally at the structural or process level) to improve health care in that area and, ultimately, health status. Injuries caused by automobile accidents, for example, are the leading cause of death among young adults, but most remedies (for example, changing car design or reducing the speed limit) lie outside the influence of the health care sector.

2. Scientific soundness of the measure

- *Validity.* Does the measure actually measure what it is intended to measure? The measure should make sense logically and clinically (face validity); it should correlate well with other measures of the same aspects of the quality of care (construct validity) and should capture meaningful aspects of the quality of care (content validity) (Carmines and Zeller, 1991; Nunnally, 1978). In general, measures should be linked to significant processes or outcomes of care as demonstrated by scientific studies. For example, the provision of selected screening tests in a timely manner is a process measure of quality that has construct validity when the screening is linked to earlier detection of disease and a better prognosis or outcome. Outcome measures should be examined for validity in a similar manner.
- *Reliability.* Does the measure provide stable results across various populations and circumstances? The measure should produce consistent results when repeated in the same populations and settings, even when assessed by different people or at different times. Measure variability should result from changes in the subject of measurement rather than from artefacts of measurement (for example, a change in the definition of the measure or, for rare events, restricted sample size or small numbers of cases). This aspect is particularly important for periodic data collection. Most measures will have to be repeated every year, and any changes in the measure should reflect a true change in quality.
- *Explicitness of the evidence base.* Is there scientific evidence available to support the measure? There should be a clearly documented scientific foundation for the measure in the literature. An explicit evidence base could also mean that there is some other specific, formal process by which the measure has been accepted as a valid marker for quality, such as review by an expert panel.

3. Feasibility of obtaining internationally comparable data for the measure

- *Existence of prototypes.* Is the measure in use? A further question is if the measure is in use at the national level, or for sub-national population groups.

- *Availability of internationally-comparable data across countries.* Can internationally-comparable information needed for the measure be collected for sufficient countries in the time frame required? At one extreme, a few indicators of the technical quality of health care can already be found for most countries in *OECD Health Data*. At the other extreme, there will be many potential indicators for which few if any countries could provide any data in the foreseeable future. In between these extremes, there are likely to be some indicators for which data would be readily available at national level for a significant group of countries, but with variations in the precise definitions of numerators and denominators. There are likely to be other indicators for which national data has not yet been assembled (say, from local or clinical databases) and which could be put together according to a common definition only with considerable effort.
- *Cost or burden of measurement.* How much will it cost to collect the data needed for the measure?

This list has been modified directly from the report "Envisioning the National Health Care Quality Report" by the US Institute of Medicine (Hurtado MP, Swift EK, and Corrigan JM, eds., (Washington: National Academy Press, 2001)).

References

Nunnally, J.C. 1978. *Psychometric Theory*. 2nd ed. New York: McGraw-Hill.

Carmine EG and Zeller RA. 1991. *Reliability and Validity Assessment*. Newbury Park, Calif.: Sage Publications.

Geographical coverage

51. The ultimate aim of the project is to enable international comparisons of quality of health care. However, there will be often be a choice in the short term between: confining the indicator set strictly to nationally representative indicators; and allowing for it to include indicators which are representative only for a selected region or area in a particular country. There are several OECD countries which can provide certain quality indicators only for a specific sub-national area, or set of areas, in their country (such as Oxford in the United Kingdom and Western Australia in Australia).

52. Project approach: It is suggested that such locality indicators should not necessarily be excluded from the OECD QI set, provided that it is made clear that they represent only one or more specific geographical areas. This would be consistent with the investigative nature of the exercise in its early stages. Special consideration will need to be made, however, in discussing this non-nationally representative data in order to ensure that presentations of nationally representative and non-nationally representative data are done appropriately.

Number of indicators

53. Given that there are many important disease and client groups, and for each there are many different interventions possible at the different stages of disease, there will consequently be a trade-off between the number of disease and client groups represented in the set and the comprehensiveness with which each disease or client group is covered in terms of interventions.

54. Project approach: Following advice by the Ad Hoc Group on Health, it is proposed that the target number of indicators should be no more than 50, in the first instance. That suggests that there will be a need for considerable prioritisation among the indicators. Moreover, member country experts, in discussions in early 2005, reiterated that fewer, more comparable indicators would be more desirable than a broader, less comparable set of indicators and data restrictions may limit the size of the HCQI final initial set. For these reasons, the final set may be considerably lower than 50 indicators.

Likely changes in the indicator set through time

55. It can be envisaged that the initial indicator set might be defined as much by the availability of data as by the priority which was accorded to the indicators. If so, the indicator set could be expected to change subsequently as more important, valid and accurate data became available. In addition, the content of the preferred set might well change in the medium term as diseases and technologies evolve and as

policy priorities change. For instance, as clinical standards change, indicators – particularly process indicators – may change over time as new cutpoints or target populations are scientifically reviewed and agreed upon.

56. Project approach: It is envisioned that updates to the measure set would be made on a periodic basis agreed upon by the participating countries. Ideally, indicators would be subtracted from the core set to allow for additions to take place if there were an overall target.

Composite measures

57. The use of composite or summary measures is one of the most actively debated issues in quality measurement currently. Questions of how to best summarize quality data for policy audiences in particular have given rise to the use of composite measures. In addition, many audiences are concerned with the care offered to patients across a range of health care processes or outcomes (particularly processes or outcomes are related) However, there are many questions regarding a) which summary measures are most valid presentations of the underlying construct of health care quality and b) how best to construct these composite measures in terms of weighting individual measures. In addition, action-oriented quality improvement typically targets performance as measured by individual indicators, meaning that tracking composite measures can be seen as less useful from a quality improvement standpoint.

58. Project approach: It is not envisaged that summary or composite measures of quality will be employed at this stage because of difficulties of identifying appropriate weighting factors for different indicators. Implicitly, any weighting of will be left to the judgement of member countries

CONCLUSION: HOW SHOULD THIS FRAMEWORK BE USED

59. This paper represents an attempt to set out a conceptual framework for the OECD's Health Care Quality Indicator (HCQI) Project. Two main issues are tackled: **what** concepts, or dimensions, of quality of health care should be measured and **how**, in principle, should they be measured. The need for a conceptual framework for the Project was expressed by a large group of participating countries. In interviews by the OECD Secretariat with member countries in April and May 2005, country experts and delegates to the Group on Health reiterated the need for a framework for the OECD's health care quality work. Countries stated that the framework should be: a) based on country experience and b) could be used to guide both current and future work by the OECD in health care quality measurement and monitoring.

60. This framework is designed to guide both current and future work by the OECD in health care quality measurement and monitoring. It may also be relevant for other health system assessment work being undertaken at the OECD in areas beyond health care quality. The framework should be used as a guide for selecting current indicators. More importantly, it should be used as an organizational tool to help map where gaps exist in the current HCQI indicator set and, therefore, where future indicator work should concentrate..

61. Readers of this document are encouraged to consult the companion peer-review article on this same topic (Arah, 2005) as well as the rest of the bibliography generated for this paper for additional conceptual detail on topics presented in this paper.

REFERENCES

- Aday, Lu Ann, and Ronald M. Anderson. 1975. *Development of Indices of Access to Medical Care*. Ann Arbor, Mich.: Health Administration Press.
- Agency for Healthcare Research and Quality. The National Quality Measures Clearinghouse™ (NQMC™). <http://www.qualitymeasures.ahrq.gov/> (accessed 23 September 2004).
- Anderson G, Hussey PS: Comparing health system performance in OECD countries. *Health Affairs* (Millwood) 2001, 20: 219-232.
- Anderson GF, Reinhardt UE, Hussey PS, Petrosyan V: It's the prices, stupid: why the United States is so different from other countries. *Health Affairs* (Millwood) 2003, 22: 89-105.
- Arah OA, Klazinga NS, Delnoij DMJ, ten Asbroek AHA, Custers T: Conceptual frameworks for health systems performance: a quest for effectiveness, quality and improvement. *International Journal for Quality in Health Care* 2003, 15: 377-398.
- Arah, O, Westert GP, Hurst J, Klazinga, NS. A Conceptual Framework for the OECD Health Care Quality Indicators. *International Journal for Quality in Health Care*. 2005 (submitted).
- Audit Commission: *Aiming to Improve: The Principles of Performance Measurement*. London: Audit Commission for Local Authorities and the NHS in England and Wales; 2000.
- Audit Commission: *On Target: The Practice of Performance Indicators*. London: Audit Commission; 2000.
- Bodenheimer T: The American health care system: the movement for improved quality in health care. *New England Journal of Medicine* 1999, 340: 488-492.
- Canadian Institute for Health Information, *Statistics Canada: Canadian Health Information Roadmap Initiative Indicators Framework*. Ottawa: Canadian Institute for Health Information; 2000.
- Canadian Institute for Health Information. Health Indicators. www.cihi.ca (accessed 26 March 2004).
- Chernew ME, Jacobson PD, Hofer TP, Aaronson KD, Fendrick AM: Barriers To Constraining Health Care Cost Growth. *Health Affairs* 2004, 23: 122-128.
- Conrad DA, Christianson JB: Penetrating the "Black Box": Financial Incentives for Enhancing the Quality of Physician Services. *Medical Care Research Review* 2004, 61: 37S-68.
- Department of Health: *The New NHS - Modern and Dependable*. (White Paper series). London: The Stationery Office; 1997.
- Donabedian A: *An Introduction to Quality Assurance in Health Care*. Oxford: Oxford University Press; 2003.
- Donabedian A: *Explorations in Quality Assessment and Monitoring. Vol. 1. The Definition of Quality and Approaches to its Assessment*. Ann Arbor: Health Administration Press; 1980.

- Fireman B, Bartlett J, Selby J: Can Disease Management Reduce Health Care Costs By Improving Quality? *Health Affairs* 2004, 23: 63-75.
- Fishman PA, Hornbrook MC, Meenan RT, Goodman MJ: Opportunities and Challenges for Measuring Cost, Quality, and Clinical Effectiveness in Health Care. *Medical Care Research Review* 2004, 61: 124S-143.
- Healthcare Commission. http://www.chi.nhs.uk/Indicators_2004/Trust/Overview/acute_overview.asp (accessed 27 September 2004).
- Hurst J, Jee-Hughes M: *Performance Measurement and Performance Management in OECD Health Systems*. Labour Market and Social Policy Occasional Papers N°.47. DEELSA/ELSA/WD(2000)8. Paris: Organisation for Economic Cooperation and Development; 2001.
- Hurtado MP, Swift EK, Corrigan JM, On behalf of the Institute of Medicine's Committee on the National Quality Report on Health Care Delivery: *Envisioning the National Health Care Quality Report*. Washington DC: National Academy Press; 2001.
- Hussey PS, Anderson GF, Osborn R, Feek C, McLaughlin V, Millar J et al.: How does the quality of care compare in five countries? *Health Affairs* (Millwood) 2004, 23: 89-99.
- Ibrahim JE: Performance indicators from all perspectives. *International Journal for Quality in Health Care* 2001, 13: 431-432.
- Institute of Medicine: *Crossing the Quality Chasm: A New Health System for the 21st Century*. Washington DC: National Academy Press; 2001.
- Johnston D: Increasing value for money in health systems. *European Journal of Health Economics* 2004, 5: 91-93.
- Joint Commission on Accreditation of Healthcare Organizations: *National Library of Healthcare Indicators*.™ *Health Plan and Network Edition*. Oakbrook Terrace, IL: Joint Commission on Accreditation of Healthcare Organizations; 1997.
- Juran, J and Godfrey, B. *Juran's Quality Handbook*. (New York: McGraw Hill). 2000.
- Kramers PG: The ECHI project: health indicators for the European Community. *European Journal of Public Health* 2003, 13: 101-106.
- Lalonde M: *A New Perspective on the Health of Canadians*. Ottawa: Office of the Canadian Minister of National Health and Welfare; 1974.
- Leatherman S, Sutherland K: Quality of care in the NHS of England. *British Medical Journal* 2004, 328: E288-E290.
- Mainz J, Krog BR, Bjornshave B, Bartels P: Nationwide continuous quality improvement using clinical indicators: the Danish National Indicator Project. *International Journal for Quality in Health Care* 2004, 16: i45-i50.
- Mannion R, Goddard M: Performance measurement and improvement in health care. *Applied Health Econ Health Policy* 2002, 1: 13-23.
- McGlynn EA, Asch SM, Adams J, Keesey J, Hicks J, DeCristofaro A et al.: The quality of health care delivered to adults in the United States. *New England Journal of Medicine* 2003, 348: 2635-2645.
- McGlynn EA: Introduction and overview of the conceptual framework for a national quality measurement and reporting system. *Medical Care* 2003, 41: I1-I7.

- McLoughlin V, Leatherman S, Fletcher M, Owen JW: Improving performance using indicators: Recent experiences in the United States, the United Kingdom, and Australia. *International Journal for Quality in Health Care* 2001, 13: 455-462.
- Murray CJ, Evans DB, eds.: *Health System Performance Assessment: Debates, Methods, and Empiricism*. Geneva: World Health Organization; 2003.
- Murray CJ, Evans DB, eds.: *Health system performance assessment: debates, methods, and empiricism*. Geneva: World Health Organization; 2003.
- National Health Performance Committee: *Fourth National Report on Health Sector Performance Indicators - A Report to the Australian Health Ministers' Conference*. Sydney: New South Wales Health Department; 2000.
- National Health Performance Committee: *National Health Performance Framework Report*. Brisbane: Queensland Health; 2001.
- National Patient Safety Foundation. Agenda for research and development in patient safety. Chicago, IL: National Patient Safety Foundation, 2000.
- Ong, L. M., J. C. de Haes, A. M. Hoos, and F. B. Lammes. 1995. Doctor-patient communication: A review of the literature. *Social Science and Medicine* 40(7):903-918.
- Organisation for Economic Cooperation and Development. *OECD Health Care Quality Indicators Project*. http://www.oecd.org/document/31/0,2340,en_2649_37407_2484127_1_1_1_37407,00.html (accessed 30 September 2004a).
- Organisation for Economic Cooperation and Development: *Measuring Up: Improving Health System Performance in OECD Countries*. Paris: OECD; 2002.
- Organisation for Economic Cooperation and Development: *OECD Reviews of Health Care Systems: Korea*. Paris: OECD; 2003.
- Organisation for Economic Cooperation and Development: *Towards High-Performing Health Systems*. Paris: OECD; 2004b.
- Quinn RE, Rohrbaugh J: A spatial model of effectiveness criteria: Towards a competing values approach to organizational analysis. *Management Science* 1983.
- Reinhardt UE, Hussey PS, Anderson GF: U.S. health care spending in an international context. *Health Affairs* (Millwood) 2004, 23: 10-25.
- Retzlaff-Roberts D, Chang CF, Rubin RM: Technical efficiency in the use of health care resources: a comparison of OECD countries. *Health Policy* 2004, 69: 55-72.
- Rodella S, Bellini P, Braga M, Rebba V: *Measuring and Comparing Performance of Health Services: A Conceptual Model to Support Selection and Validation of Indicators*. Rome: Commissione per la Garanzia dell'Informazione Statistica (CGIS); 2003.
- Roland M: Linking physicians' pay to the quality of care---a major experiment in the United kingdom. *New England Journal of Medicine* 2004, 351: 1448-1454.
- Rosenthal MB, Fernandopulle R, Song HR, Landon B: Paying for quality: providers' incentives for quality improvement. *Health Affairs* (Millwood) 2004, 23: 127-141.

- Roter, Debra L., Moira Stewart, Samuel M. Putnam, Mack Lipkin Jr., William Stiles, and Thomas S. Inui. 1997. Communication patterns of primary care physicians. *Journal of the American Medical Association* 277(4):350-356.
- Scott, Robert A., Linda H. Aiken, David Mechanic, and Julius Moravcsik. 1995. Organizational aspects of caring. *Milbank Quarterly* 73(1):77-95.
- Shortell SM: Increasing Value: A Research Agenda for Addressing the Managerial and Organizational Challenges Facing Health Care Delivery in the United States. *Medical Care Research Review* 2004, 61: 12S-130.
- Shortell, Stephen. 1976. Continuity of medical care: Conceptualization and measurement. *Medical Care* 14:377-391.
- Sicotte C, Champagne F, Contandriopoulos AP, Barnsley J, Beland F, Leggat SG et al.: A conceptual framework for the analysis of health care organizations' performance. *Health Services Management Research* 1998, 11: 24-48.
- Smith PC, ed: *Measuring up. Improving health system performance in OECD countries*. Paris: Organisation for Economic Cooperation and Development; 2002.
- Smith PC: Measuring health system performance. *European Journal of Health Economics* 2002, 3: 145-148.
- ten Asbroek AHA, Arah OA, Geelhoed J, Custers T, Delnoij DMJ, Klazinga NS: Developing a national performance indicator framework for the Dutch health system. *International Journal for Quality in Health Care* 2004, 16: i65-i71.
- The Commonwealth Fund's International Working Group on Quality Indicators. First Report and Recommendations of The Commonwealth Fund's International Working Group on Quality Indicators. A Report to the Health Ministers of Australia, Canada, New Zealand, the United Kingdom and the United States. 2004. New York, The Commonwealth Fund.
- The President's Advisory Commission on Consumer Protection and Quality in the Health Care Industry: *Quality First: Better Care for all Americans*. Washington DC: US Government Printing Office; 1998.
- US Department of Health and Human Services, Agency for Healthcare Research and Quality: *National Healthcare Quality Report*. Rockville, MD: Agency for Healthcare Research and Quality; 2003.
- Veillard J, Champagne F, Klazinga NS, Kazandjian V, Arah OA, Guisset A-L: *A performance assessment framework for European hospitals: The WHO Regional Office for Europe PATH project*. *International Journal for Quality in Health Care* 2005, (forthcoming).
- Westert GP, Groenewegen PP, Boshuizen HC, Spreeuwenberg PM, Steultjens MP: Medical practice variations in hospital care; time trends of a spatial phenomenon. *Health Place* 2004, 10: 215-220.
- World Health Organization: *The World Health Report 2000. Health Systems: Improving Performance*. Geneva: WHO; 2000.
- World Health Organization: *WHOTERM Quantum Satis. A Quick Reference Compendium of Selected Key Terms Used in The World Health Report 2000* issued by the World Health Organization. Geneva: World Health Organization; 2000b.

ANNEX 1: AUSTRALIA
AUSTRALIA'S NATIONAL HEALTH PERFORMANCE COMMITTEE'S FRAMEWORK

Health Status and Outcomes				
How healthy are Australians? Is it the same for everyone? Where is the most opportunity for improvement?				
Health Conditions	Human Function	Life Expectancy and Well-Being	Deaths	
Prevalence of disease, disorder, injury or trauma or other health-related states.	Alterations to body, structure or function (impairment), activities (activity limitation) and participation (restrictions in participation).	Broad measures of physical, mental, and social well-being of individuals and other derived indicators such as Disability Adjusted Life Expectancy (DALE).	Age or condition specific mortality rates.	
Determinants of Health				
Are the factors determining health changing for the better? Is it the same for everyone? Where and for whom are they changing for the worse?				
Environmental Factors	Socio-economic Factors	Community Capacity	Health Behaviours	Person-related Factors
Physical, chemical and biological factors such as air, water, food and soil quality resulting from chemical pollution and waste disposal.	Socio-economic factors such as education, employment per capita expenditure on health, and average weekly earnings.	Characteristics of the community such as population density, age distribution, health literacy, housing, community support services and transport.	Attitudes, beliefs knowledge and behaviours e.g. patterns of eating, physical activity, excess alcohol consumption and smoking.	Genetic related susceptibility to disease and other factors such as blood pressure, cholesterol levels and body weight.
Health System Performance				
How well is the health system performing in delivering quality health actions to improve the health of all Australians? Is it the same for everyone?				
Effective	Appropriate		Efficient	
Care, intervention or action achieves desired outcome.	Care/intervention/action provided is relevant to the client's needs and based on established standards.		Achieving desired results with most cost effective use of resources.	
Responsive	Accessible		Safe	
Service provides respect for persons and is client orientated: - respect for dignity, confidential, participate in choices, prompt, quality of amenities, access to social support networks, and choice of provider.	Ability of people to obtain health care at the right place and right time irrespective of income, geography and cultural background.		Potential risks of an intervention or the environment are identified and avoided or minimised.	
Continuous	Capable		Sustainable	
Ability to provide uninterrupted, coordinated care or service across programs, practitioners, organisations and levels over time.	An individual or service's capacity to provide a health service based on skills and knowledge.		System or organisation's capacity to provide infrastructure such as workforce, facilities and equipment, and be innovative and respond to emerging needs (research, monitoring).	

Source: National Health Performance Committee 2004. *National report on health sector performance indicators 2003*. AIHW Cat. No. HWI 78. Canberra: Australian Institute of Health and Welfare.

ANNEX 2: CANADA

CANADIAN INSTITUTE FOR HEALTH INFORMATION'S PERFORMANCE FRAMEWORK

Health Status			
Health Conditions	Human Function	Well-Being	Deaths
Alterations of health status, which may be a disease, disorder, injury or trauma, or reflect other health-related states	Alterations to body functions/structures (impairment), activities (activity limitation), and participation (restrictions in participation)	Broad measures of physical/mental/social well-being of individuals	Age or condition-specific mortality rates and other derived indicators
Non-Medical Determinants of Health			
Health Behaviours	Living and Working Conditions	Personal Resources	Environmental Factors
Aspects of personal behaviour and risk factors that influence health status	Socio-economic characteristics and working conditions of population that are related to health	Measures the prevalence of factors, such as social support and life stress, that are related to health	Environmental factors that can influence health
Health System Performance			
Acceptability	Accessibility	Appropriateness	Competence
Care/service provided meets expectations of client, community, providers and paying organisations	Ability of clients/patients to obtain care/service at the right place and right time, based on needs	Care/service provided is relevant to client/patient needs and based on established standards	Individual's knowledge/skills are appropriate to care/service provided
Continuity	Effectiveness	Efficiency	Safety
Ability to provide uninterrupted, coordinated care/service across programs, practitioners, organisations, and levels of care/service, over time	Care/service, intervention or action achieves desired results	Achieving desired results with most cost-effective use of resources	Potential risks of an intervention or the environment are avoided or minimised
Community and Health System Characteristics			
Characteristics of the community or the health system that, while not indicators of health status or health system performance in themselves, provide useful contextual information.			



Source: Canadian Institute for Health Information, *Health Indicators*, 2005.

ANNEX 3: DENMARK

The National Indicator Project⁶

Introduction

62. In 2000 The National Indicator project was established in the Danish Healthcare System. From 2000-2003 quality standards, indicators and prognostic factors will be developed. The quality of care will be measured for six diseases:

- Stroke
- Hip fracture
- Schizophrenia
- Acute surgery
- Heart failure
- Lung cancer

63. It is a basic principle for the project that the development of standards and indicators follows a clear and transparent process. It should be done by specialists who daily work with the diseases in clinical practice.

64. The National Indicator Project is established as a concerted action between The Ministry of Health, The National Board of Health, the counties, The County Counsellors' Association, The Danish Medical Association, The Danish Nursing Association, The Scientific Societies, The Danish Physiotherapist Association and The Danish Occupational Therapist Association.

65. The scientific basis for the project is described in the report "Monitoring and Improvement of medical care" published by The Scientific Societies and The Danish Medical Association in cooperation with Aarhus county.

Aims

66. The aim of the National Indicator Project is to secure mutual grounding and methods for documentation and development of quality in health care for the benefit of the patients.

67. The aims of the project are:

- Improving prevention, diagnostics, treatment and rehabilitation
- Documentation for making priorities
- Information for patients and consumers

Methods

The project focuses on documentation, monitoring and improvement of the quality in health care. The elements included in this are equivalent to steps in the process of quality development in health care:

6. Source: <http://www.nip.dk/nipUK.htm>

1. Problem identification and priority setting
2. Development of evidence based standards and indicators
3. Data collection
4. Data analyses, evaluation and interpretation
5. Feedback
6. Audit
7. Implementation of quality improvements
8. Public release of data

Priority setting

68. In the project important diseases are included on the basis of volume, severity, opportunities for clinical interventions and use of resources.

Development of standards and indicators

69. When the relevant diseases which are to be monitored have been prioritised, the standards for a good clinical practice and good clinical results are determined. The standards should be based on the scientific literature to assure the highest strength of evidence. If there is no scientific evidence available and the clinical problem in relation to the disease is very important the standards will be determined on the base of consensus among experienced and competent clinical experts. Standards and indicators are determined relating to structure, process and outcome. For each disease 5-8 indicators are determined.

Structure indicators

70. Structure indicators assess the characteristics of the health care system that affect the system's ability to meet the health care needs of individual patients or a community (*e.g.* the nurse-to-bed ratio in a hospital).

Process indicators

71. Process indicators assess what the provider did for the patient and how well he or she did it (*e.g.* proper diagnostic approach to symptoms).

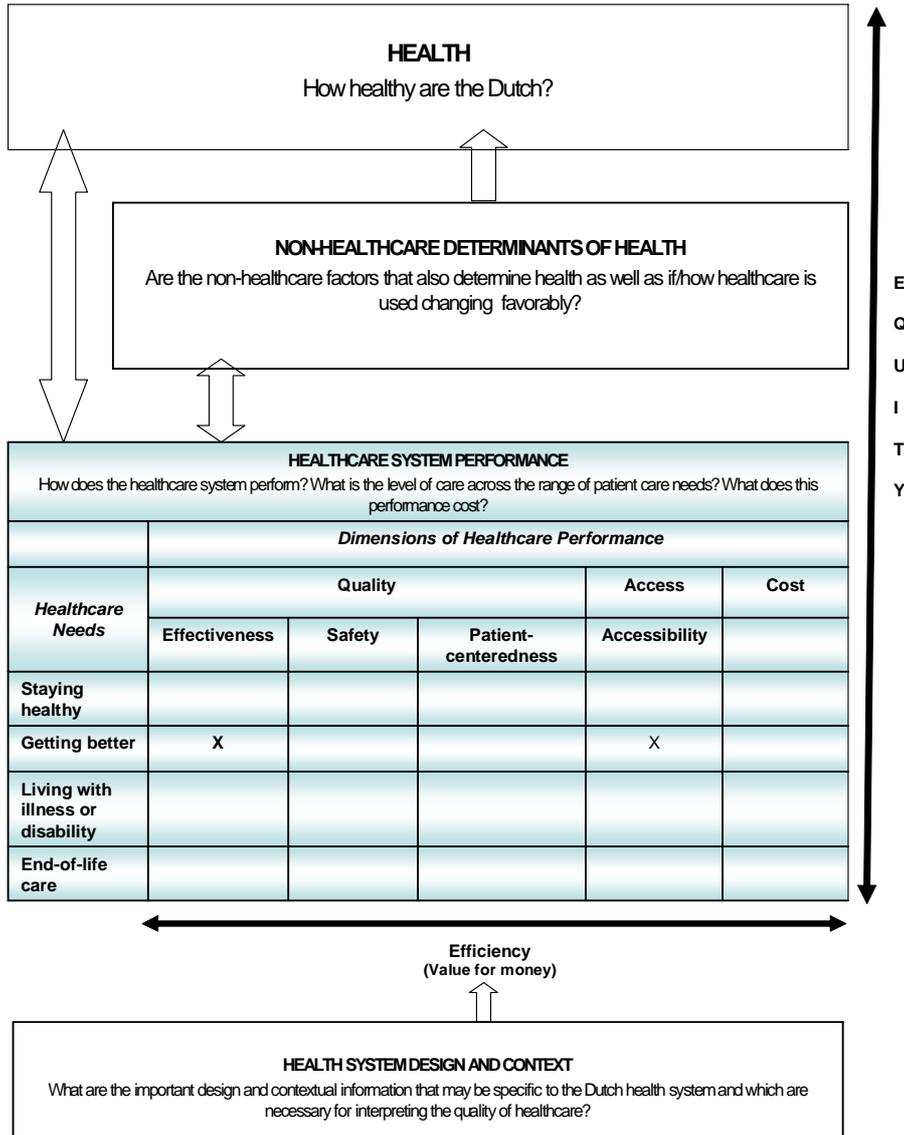
Outcome indicators

72. Outcome indicators assess the influence of the health care delivery process on the individual's health (*e.g.* morbidity and mortality). The health of the patient in relation to survival, morbidity, the patient's functional status and the psychic reaction to the disease and the satisfaction with the treatment are assessed by the outcome indicators. There is a difference between the intermediary outcome and the final outcome. The intermediary outcome indicators assess the short term outcome while the final outcome indicators assess the long term outcome *i.e.* whether the patient is cured or relieved from symptoms.

Adjustment for 'case-mix'

73. To secure the comparability of the collected data at hospital unit, hospital, county and national level, prognostic factors are identified in relation to the defined standards and indicators. These prognostic factors are used as explanation variables and to adjust for case-mix. This is important as it becomes possible to evaluate whether a favourable or unfavourable outcome is due to the health care system or due to conditions the health care system has no influence on, *e.g.* conditions related to the patient or the disease.

ANNEX 4: THE NETHERLANDS



Source: Netherlands National Institute for Public Health and the Environment (RIVM). *De Zorgbalans (Netherlands National Health Care Report) 2005*. (In draft – Not for citation or reproduction.)

ANNEX 5: THE UNITED KINGDOM

NHS High-Level Performance Framework (1999 version)⁷

Health Improvement

Deaths from all causes

- (i) Standardised all cause mortality ratio (ages 15-64).
- (ii) Standardised all cause mortality ratio (ages 65-74).
- (iii) Cancer registrations – the summation of age and sex-standardised rates for the following cancers:
 - malignant neoplasm of the stomach;
 - malignant neoplasm of small intestine, colon, rectum, rectosigmoid junction and anus;
 - malignant neoplasm of trachea, bronchus, and lung;
 - malignant melanoma of the skin;
 - other malignant neoplasm of female breast;
 - malignant neoplasm of cervix uteri.
- (iv) Deaths from malignant neoplasms
 - death rates from all malignant neoplasms (people aged under 75).
- (v) Deaths from all circulatory diseases
 - death rates from all circulatory diseases (people aged under 75).
- (vi) Suicide rates
 - death rates from suicide and undetermined injury.
- (vii) Deaths from accidents
 - standardised mortality ratios from accidents and adverse effects.

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- (i) Surgery rates, composite consisting of age-standardised elective rates for:
 - CABG and PTCA;
 - hip replacement (aged 65 or over);
 - knee replacement (aged 65 or over);
 - cataract replacement.
- (ii) Size of inpatient waiting list per head of population (weighted).
- (iii) Adults registered with an NHS dentist.

7. Source: Department of Health, *The NHS Performance Assessment Framework*, 1999

- (iv) Children registered with an NHS dentist.
- (v) Early detection of cancer, composite consisting of:
 - % of target population screened for breast cancer;
 - % of target population screened for cervical cancer.

Effective Delivery of Appropriate Healthcare

- (i) Disease prevention and health promotion
 - % of target population vaccinated.
- (ii) Early detection of cancer, composite consisting of:
 - % of target population screened for breast cancer (ages 50-64);
 - % of target population screened for cervical cancer (ages 25-64).
- (iii) Inappropriately used surgery, composite consisting of age standardised:
 - rates of D&Cs performed in women under 40;
 - surgical intervention rates for glue ear (grommet surgery).
- (iv) Surgery rates, composite consisting of age standardised elective rates for:
 - CABG and PTCA;
 - hip replacement (ages 65 and over);
 - knee replacement (ages 65 and over);
 - cataract replacement.
- (v) Acute care management, composite consisting of age standardised admission rates for:
 - severe ENT infection;
 - kidney/urinary tract infection;
 - heart failure.
- (vi) Chronic care management, composite consisting of age standardised admission rates for:
 - asthma;
 - diabetes;
 - epilepsy.
- (vii) Mental health in primary care
 - volume of benzodiazepines.
- (viii) Cost effective prescribing composite, consisting of:
 - NIC/PU of combination products;
 - NIC/PU of modified release products;
 - NIC/PU of drugs of limited clinical value;
 - NIC/DDD of inhaled corticosteroids.
- (ix) Discharge from hospital, composite consisting of:
 - rate of discharge to usual place of residence within 56 days of emergency admission from there with a stroke (ages 50 and over);
 - rate of discharge to usual place of residence within 28 days of emergency admission from these with a fractured neck of femur (ages 65 and over).

Efficiency

- (i) Day case rate.
- (ii) Casemix adjusted length of stay.
- (iii) Unit cost of maternity (adjusted for casemix and market forces).
- (iv) Unit cost of caring for patients in receipt of specialist mental health services (adjusted for casemix, quality and market forces).
- (v) % of generic prescribing.

Patient/Carer Experience of the NHS

- (i) Patients who wait less than 2 hours for emergency admissions (through A&E).
- (ii) Patients with operations cancelled for non-medical reasons on the day of, or after, admission.
- (iii) Delayed discharge from hospital for people aged 75 or over, per 1,000 of those aged 75 or over and not in hospital.
- (iv) First outpatient appointments for which patient did not attend, percentage.
- (v) Percentage of outpatients seen within 13 weeks of GP referral.
- (vi) Percentage of those on waiting list waiting 12 months or more.

Health Outcomes of NHS care

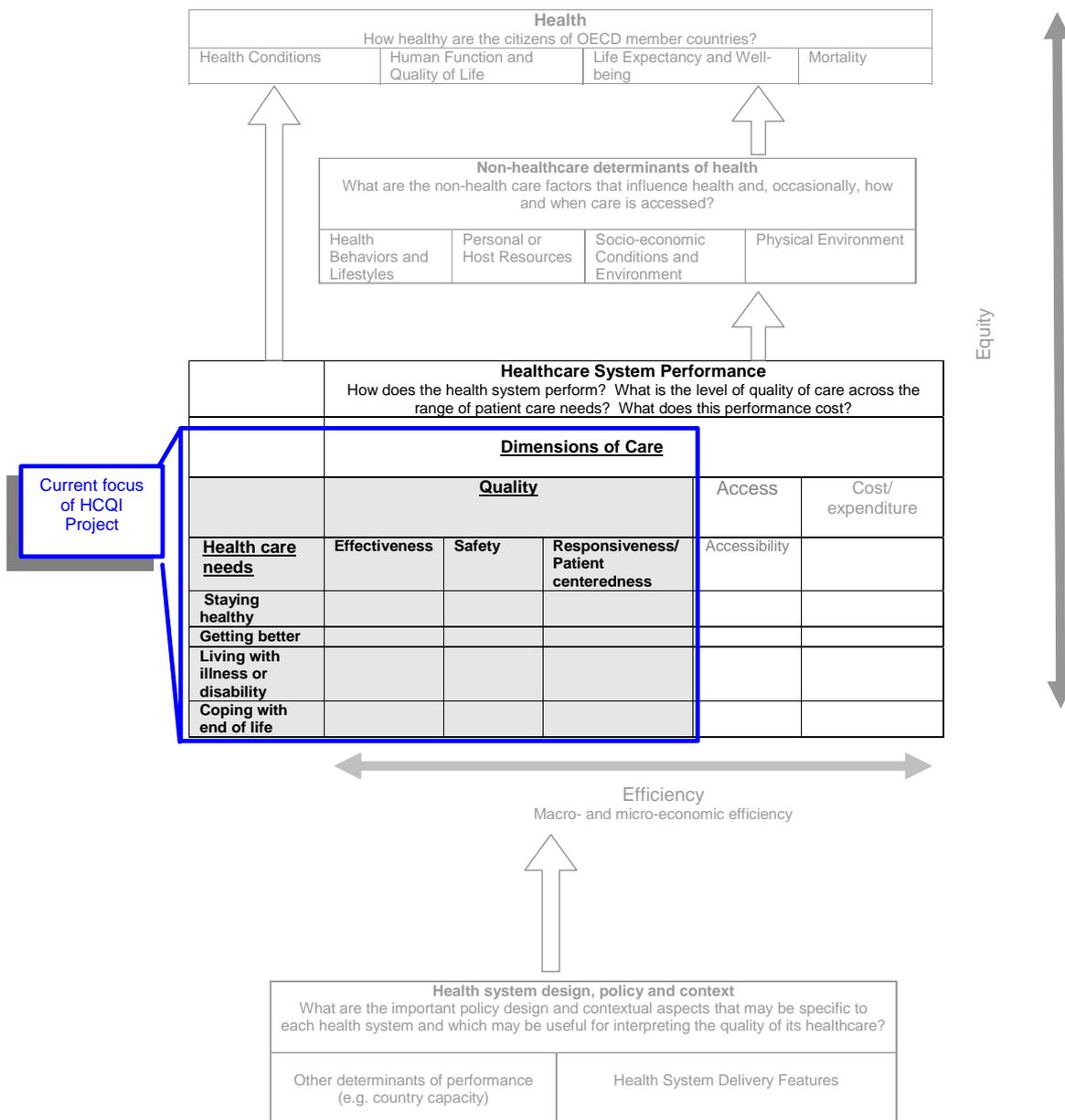
- (i) Conceptions below age 16 (rate, girls aged 13-15).
- (ii) Decayed, missing and filled teeth in five year olds, average number.
- (iii) Adverse events/complications of treatment composite, consisting of age standardised:
 - 28 day emergency readmission rates;
 - rates of surgery for hernia recurrence.
- (iv) Emergency admissions to hospital for people aged 75 or over, per 1000 population.
- (v) Emergency psychiatric readmission rates.
- (vi) Infant mortality composite, consisting of:
 - stillbirth rates;
 - infant mortality rates.
- (vii) Cancer 5 year survival rates - composite indicator, consisting of age standardised:
 - survival rates from breast cancer (ages 15-99);
 - survival rates from cervical cancer (ages 15-99).

ANNEX 6: THE UNITED STATES

	<u>Components of Health Care Quality</u>			
<u>Consumers' Health Care Needs</u>	Effectiveness	Safety	Timeliness	Patient centeredness
Staying healthy				
Getting better				
Living with illness or disability				
Coping with end of life				

Source: US Department of Health and Human Services. *US National Healthcare Quality Report, 2005*. (Rockville, MD: Agency for Healthcare Research and Quality). January 2006.

ANNEX 7: DETAILED HCQI FRAMEWORK



Source: Arah, O, Westert GP, Hurst J, Klazinga, NS. A Conceptual Framework for the OECD Health Care Quality Indicators. *International Journal for Quality in Health Care*. 2005 (submitted).

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