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REVIEW ARTICLE

Time to have a paradigm shift in health care quality measurement

Kuan-Yu Hung [a,b,*], Jih-Shuin Jerng [a,b]

[a] Department of Internal Medicine, National Taiwan University Hospital and National Taiwan University College of Medicine, Taipei, Taiwan
[b] Center for Quality Management, National Taiwan University Hospital, Taipei, Taiwan

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Quality measurement is important to stakeholders in providing valid information for improvement, and has been associated with hospital accreditation in most countries. The commonly used categories of indicators are structure, process, and outcome. Outcome indicators are of foremost importance as they reflect the effect of health care; structure indicators are commonly used for assessing capacities or facilities available for providing services, whereas process indicators assess how well the service is delivered, and provide essential and important information for quality improvement. For a process indicator to be valid, it should be linked to an outcome, whereas a structure indicator must be linked to a better outcome. Although there are no strict rules for usage or selection of indicators, it is important to ensure adequate coverage of relevant domains of the health care services intended to be evaluated. Because the trends in health care services and management are changing, it is time to have a paradigm shift in health care quality measurement. Although evaluating the quality had also been extended to include quality of life and patient satisfaction, the ultimate aim of health care services should be "staying healthy, getting healthy, and living healthy". It is important for physicians to learn how to use these clinical indicators for improving service performance and organizational growth.

Introduction

It has been said, "No measurement, no management."[1] Comprehensive and well-designed data management is important for organization leaders, customers, and regulatory officers in providing trustworthy information for quality improvement.[2–4] In the United States, the Joint Commission (JC) began its development of performance measurements in 1986[5]; later on, the JC initiated a so-called Hospital Core Measure Pilot Project in

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* Corresponding author. Center for Quality Management, National Taiwan University Hospital, Number 7, Zhongshan South Road, Taipei 100, Taiwan.
E-mail address: kyhung@ntu.edu.tw (K.-Y.Hung).

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1999—2001.[6,7] The project aimed to develop, for major diseases or modes of service, a set of indicators, which when evaluated together can provide a robust assessment of the quality of care in a specialized area of health care facilities.[8—10]

In Taiwan, accreditation for teaching hospitals was started in accordance with the guidelines recommended by the Department of Health (DOH) and the Ministry of Education in 1978,[11] and since 1988 all hospitals were required to be accredited by the DOH. In 1999, the Taiwan Joint Commission on Hospital Accreditation (TJCHA), founded by the DOH, was established to take responsibility for hospital accreditations.[11,12] The TJCHA also aimed to promote patient-safety culture and quality management, and therefore, the TJCHA launched the Taiwan Quality Indicator Project system[13] to benchmark and assess health care performance among various hospitals in Taiwan.[13,14]

Because improvements are data driven, and modern medicine is a growing complex and could be delivered by cross-departmental teams, institutional leaders require quality indicators to measure a team's performance.[2,3,7,14—16] The objective of this paper is to provide a brief review of categories and characteristics of clinical indicators for measuring quality in health care systems. Because the Taiwanese health care system accelerated its reform under the current insurance policies[14] or to match trends worldwide,[8,10,16] in the second part of this article we will describe the focus shifting of these indicators in order to cope with future needs. In this work, we would like to show you why it is time to have a paradigm shift in health care quality measurement.

Category of quality indicators

In order to document or compare how health care services are delivered among individual hospitals, it is necessary to implement or develop different categories of quality indicators.[2,3] Through these indicators, we may have a more comprehensive view of how these health care services were provided, what kinds of resources and procedures were allocated, and the relationships linking hospital performance to patients or outcome of diseases.[2,4,17—19] The commonly used categories for classification of performance indicators are structure, process, and outcome.[2,20—22] A simple demonstration of the road map for choosing different domains of quality indicators is depicted in Fig. 1. Different types of indicators can be used either independently or in combination as a bundle for special situations to objectively measure staff performance or outcome for a given purpose. Examples of different types of indicators are shown in Table 1.

Structure

Structure indicators are most commonly used for assessing capacities or facilities available for providing a given type of health care service.[14,22] In hospital accreditations, these indicators usually mean whether the specific accredited hospital has the necessary equipment, program, technology, supplies, or staff to deliver related services.[14,17,18,23,24]

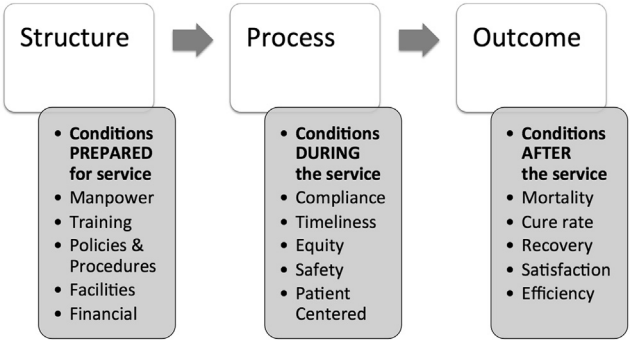

Figure 1 Road map for selection of indicators based on factors that might contribute to different domains of measurement for the quality of health care during the whole process of service.

Structure indicators seem to be more appealing, as they are clearly defined and easy to collect or evaluate; in addition, surveys/questionnaires to evaluate structure indicators are usually in a yes/no pattern.

Process

Unlike structure indicators, process indicators are used for assessing how well a given health care service was

Table 1 Examples of different types of quality indicators.

Indicator type	Example
Structure	Number of board-certified physicians
	Nurse/bed ratio
	Percentage of full-time attending physicians
	Average year of experience at work for staff
Process	Average hospital days for inpatients
	Surgical operation numbers
	Bed-occupation rate for inpatient service
	Rate of thrombolytic therapy for acute ischemic stroke patients
	Rate of coronary intervention for acute myocardial infarction
	Adequate timing for prophylactic antibiotics before surgery
	Rate of admission via emergency department
	Completion rate of discharge summary
Outcome	Mortality rate for all inpatients
	Mortality rate for the intensive care unit patients
	Surgical mortality
	Readmission within 14 d after discharge for inpatients
	Return to the intensive care unit within 48 h
	Revisit the emergency department 72 h after leaving
	Hospital-acquired infection rate
	Incident report numbers
	Adverse drug reaction numbers
	Satisfaction of the patients