



Available online at www.sciencedirect.com

ScienceDirect

journal homepage: www.jfma-online.com



PERSPECTIVES

A conceptual framework for Taiwan's hospital clinical performance indicators



Long-Sheng Chen ^{a,b,*}, Yi-Ren Wang ^b

^a Medical Review and Pharmaceutical Benefits Division, National Health Insurance Administration, Ministry of Health and Welfare, Taipei City, Taiwan, ROC

^b Office of Healthcare Quality Policy, Ministry of Health and Welfare, Taipei City, Taiwan, ROC

Received 30 April 2014; received in revised form 26 January 2015; accepted 29 January 2015

Introduction

The assessment on health care system's performance has become a worldwide issue with the publication of the World Health Report 2000.^{1–4} The increased interests result from rising health care costs, aging populations, medical error/safety, poor quality, inequality, lack of accountability, sustainability, and patient centeredness.^{3,4} Hospitals play a critical role to overcome these challengers.⁴

Quality indicators (QIs) were used to assess health care performance, promote quality improvement activities, benchmark between cross-department team in a single hospital or between hospitals, assist consumers' choice in health care providers,^{5,6} and resulted in the proliferation of QIs.⁵ Some of QIs involved hospital accreditation⁶ at an institution level⁴ and some of them were associated with health system performance at a national level.³

However, these QIs were rarely reviewed in a systematic and scientific fashion.⁵ Most of the QIs were driven by the availability of data, the ease of measurement, or a publicized crisis in the health care system.^{5,7} Only a few were based on clinical evidence⁷ and purpose-designed data systems.⁸ Lacking a national and systematic perspective,

some health care fields received exceeding concerns from others of equal importance.⁵ Furthermore, the development and selections of QIs were completed by an individual project without coordination and scientific rigor, which created a duplication or ambiguous definition of some QIs.

A conceptual framework became necessary to manage these QIs and define "quality of health care" in coherence with policy, target priority area, and find the data collection gap.^{3,5,7} Over the past 2 decades, countries and international organizations have developed their own conceptual framework for health system performance assessment and QIs classified.^{2–4} To manage the QIs, researchers used different categories to classify indicators.^{5,6} The World Health Organization (WHO) performance assessment tool for quality improvement in hospitals (PATH) developed framework with the six dimensions of hospital performance as category of QI. While Organization for Economic Cooperation and Development (OECD) Health Care Quality Indicators Project (HCQIP) formed a framework with a matrix structure that included dimensions of health care performance shown as columns and health care needs shown as rows. Another perspective in classified QIs is the aspects of care provision,⁵ which were applied to view how care services were provided, what kinds of resources were allocated, and the relationships linking performance to patient outcome.⁶ The aspects of care provision contained structure, process, and outcome.^{5,6} Copnell et al's⁵ research also used a matrix with aspects of care provision and dimensions of health care performance shown as columns and domains of application shown as rows. The WHO PATH and OECD HCQIP built up a framework for the international comparisons.

Conflicts of interest: The authors have no conflicts of interest relevant to this article.

* Corresponding author. Medical Review and Pharmaceutical Benefits Division, National Health Insurance Administration, Ministry of Health and Welfare, 140, Section 3, Hsinyi Road, Daan District, Taipei City 10634, Taiwan, ROC.

E-mail address: lschen@nhi.gov.tw (L.-S. Chen).

<http://dx.doi.org/10.1016/j.jfma.2015.01.021>

0929-6646/Copyright © 2015, Elsevier Taiwan LLC & Formosan Medical Association. All rights reserved.

In Taiwan, the blooming quality improving activities accompanied a wide range of QIs applied to measure performance and quality in the past decade. However, there is still no conceptual framework suited for managing QIs.

In 2011, the Advisory Council for Healthcare Quality Policy (ACHQP) of the Department of Health (lately the Ministry of Health and Welfare) had the mission to build up the QI data collection system to manage the rich QIs, target priority areas and ensure coherence with the policy. The Council initially formed an appropriate conceptual framework as a guiding tool. It started with conducting a thorough review of international experience^{2–5} such as WHO PATH⁴ and OECD HCQIP.³

Principles for the conceptual framework

There are several principles on developing the conceptual framework. Firstly, it should provide a vision for future

directions and actions.³ Secondly, it must reflect a balanced view of quality and contemporary state of health care policy on quality.^{2,3} Thirdly, it should be feasible with the existing data reporting systems.²

The proposed conceptual framework

The proposed framework was built as a matrix shown in Table 1. The five quality dimensions include safety, clinical effectiveness, patient centeredness/responsiveness governance, efficiency, and staff orientation are shown as columns, while three application domains—hospital wide, non-surgical, and surgical—are shown as rows.

Safety, clinical effectiveness, and patient centeredness are regarded as the core dimensions of health care quality among the five dimensions.³ *Safety* represents a dimension with appropriate structures, renders services in the system or a hospital, and attains the goal to prevent or reduce risk to patients, provider, or environment.^{3,4}

Table 1 The conceptual framework for Taiwan's hospital clinical performance indicators. Numbers in the cells indicate the number of selected indicators by the end of 2012.

Domains of application	Dimensions of quality					Total
	Safety	Clinical effectiveness	Patient centeredness/Responsive governance	Efficiency	Staff orientation	
Hospital wide						
Adverse event-medication	1					1
Antibiotic prophylaxis	2	2				4
Antibiotic utilization	2					2
Blood transfusion/Device use	2					2
Hospital acquired infection	4	2				6
Manpower			2		2	4
Medical utilization	1	5		6		12
Public health						
Baby-friendly hospital initiative		3				3
New born infant care		2				2
Preventive medicine		10		2		12
Smoking cessation			2			2
Safety event	2					2
Non-surgical departments						
Critical care/Emergency department	1	3		1		5
Pediatrics						
Disease/Conditions	1					1
AMI	2	3				5
Asthma		1				1
Cancer		2				2
Diabetes		11				11
ESRD		4			1	5
Pneumonia		2				2
Stroke	2	2				4
Surgical						
Anesthesia	1					1
Cholecystectomy		1				1
Hysteromyomectomy		1				1
Total	21	54	4	10	2	91

Clinical effectiveness, wherein the system or a hospital, is the degree of achieving desirable outcomes, and appropriately providing evidence-based services to all patients likely to most benefit.^{3,4}

Patient centeredness/responsiveness governance means the degree to which a system or a hospital places the patient at the center of its delivery of health care,^{3,4} respond to community needs, and ensure care continuity and coordination.⁴ According to the OECD HCQI project's experience, these two dimensions were placed equally in this study.³

Efficiency implicates to find the right level of resources for the system and ensure maximum benefits or results.³ Hospitals manage to yield maximum output⁴ with given available resources.

Staff orientation is the degree to which staff are qualified to provide health services, opportunity offered for continuous learning and training, and sense of satisfaction.⁴

To demonstrate the area where policy interventions focused on and reflect the perspectives of most service consumers, the three application domains from Copnell et al's⁵ research are adopted, i.e., hospital wide, nonsurgical, and surgical to classify these rich QIs in a systematic fashion. The nonsurgical has been further categorized as Departments and Disease/Conditions.

The application of this conceptual framework

ACHQP conducted a ground survey on the quality or performance measure activities in Taiwan during 2011–2012. These activities can be divided into four categories: (1) hospital accreditation; (2) clinical performance measure systems (including Taiwan Quality Indicator Project, Taiwan Clinical Performance Indicators, and Taiwan Healthcare Indicator Series); (3) claim-based quality measure systems of National Health Insurance (including provider profile data analysis system, disease-specific pay-for-performance program for diabetes mellitus, tuberculosis, breast cancer, cervical cancer, and asthma); and (4) disease specific surveillance, reporting and registry systems (including Taiwan Cancer Screening Programs, Cancer Registry, Cancer Core Measure Project, Baby-friendly Hospital Initiative and Birth Registry, Adverse Medical Reaction Reporting System, Infection Control Inspection Quality Improvement Project, and the Taiwan Nosocomial Infections Surveillance System).

Up to 558 qualified clinical indicators were carefully reviewed in this study. The Council finally selected 91 participants. According to the Delphi methods, the ACHQP took two rounds of selection process, the first round used to rate candidate quality related projects/activities with four criteria: impact/importance, improvability/actionability, inclusiveness, and evidence hierarchy. In the second round, the panel rated QIs accompanied with projects/activities selected from the first round. The criteria for evaluating candidate quality indicators included impact/importance, improvability/actionability, relevance, and evidence hierarchy. The position of the participants is shown in Table 1.

Discussion

QIs have proliferated in Taiwan. The conceptual framework developed by ACHQP serves as a guidance to identify areas that need to be addressed to improve quality, foster accountability, or fill the data collection gaps among regions or institutes.

This framework lays down an enduring way of measuring quality along scientific and systematic dimensions. It also allows dynamic changes in domains of application over time. However, equity and accessibility as cross-cutting dimensions that apply to all other domains/dimensions³ were not included. This needs to be considered. Under the framework, the Ministry of Health and Welfare further developed consistent data collection and reporting system. In 2013, it published a yearbook for national clinical performance to inform policy makers with updated state of national healthcare quality measures. The data were also publicized via websites for public accountability.

Acknowledgments

We would like to thank all of the members of ACHQP for their contributions and comments. We especially thank Professor Mei-Shu Lai who chaired the Council from 2010 to 2013 and successfully coordinate the participants' opinions.

References

1. Institute of Medicine (IOM). *Crossing the quality chasm: a new health system for the 21st century*. Washington, DC: National Academies Press; 2001.
2. Arah OA, Klazinga NS, Delnoij DM, ten Asbroek AH, Custers T. Conceptual frameworks for health systems performance: a quest for effectiveness, quality, and improvement. *Int J Qual Health Care* 2003;15:377–98.
3. Arah OA, Westert GP, Hurst J, Klazinga NS. A conceptual framework for the OECD Health Care Quality Indicators Project. *Int J Qual Health Care* 2006;18(Suppl. 1):5–13.
4. Veillard J, Champagne F, Klazinga N, Kazandjian V, Arah OA, Guisset AL. A performance assessment framework for hospitals: the WHO regional office for Europe PATH project. *Int J Qual Health Care* 2005;17:487–96.
5. Copnell B, Hagger V, Wilson SG, Evans SM, Sprivulis PC, Cameron PA. Measuring the quality of hospital care: an inventory of indicators. *Intern Med J* 2009;39:352–60.
6. Hung KY, Jerng JS. Time to have a paradigm shift in health care quality measurement. *J Formos Med Assoc* 2014;113:673–9.
7. Evans SM, Lowinger JS, Sprivulis PC, Copnell B, Cameron PA. Prioritizing quality indicator development across the health-care system: identifying what to measure. *Intern Med J* 2009;39:648–54.
8. Chung KP, Lai MS, Cheng SH, Tang ST, Huang CC, Cheng AL, et al. Organization-based performance measures of cancer care quality: core measure development for breast cancer in Taiwan. *Eur J Cancer Care (Engl)* 2008;17:5–18.