

WHAT IS THE DIFFERENCE BETWEEN QUALITY ASSURANCE AND HEALTH OUTCOMES?

Johanna Westbrook, Michael Frommer and George Rubin,
Epidemiology and Health Services Evaluation Branch,
NSW Health Department

The December 1992 issue of the *Public Health Bulletin* introduced the NSW Health Outcomes Program. The overall objective of the program is to reorient the planning, implementation and evaluation of health and related services towards optimal health outcomes within available resources¹. This article outlines the evolution of other initiatives which aim to improve the quality of health services and examines the relationship between the Health Outcomes Program and these initiatives.

THE EVOLUTION OF QUALITY ASSURANCE IN HEALTH

The term *quality assurance* describes efforts designed to improve health services by systematic monitoring and assessment of services, action based on the results of this monitoring, and follow-up evaluation (the so-called 'quality cycle')².

Quality assurance systems seek to promote uniformity in the way things are done. They are designed to detect variations in processes or practices, to understand why variations occur and to discourage them unless there is a very good reason for their existence.

Until two decades ago quality assurance activities in the health services mainly comprised reviews and discussion of unusual instances of morbidity or mortality by small groups of clinicians. In the 1970s more formal quality assurance processes were promoted and in 1973 the Australian Council on Healthcare Standards (ACHS) (then known as the Australian Council on Hospital Standards) was established to provide a mechanism for ensuring the adequacy of hospital care standards. The ACHS conducted its first survey of a NSW hospital in 1977³.

In 1976 the Commonwealth Government invited the Australian Medical Association (AMA) to develop peer review mechanisms addressing the quality and effectiveness of medical care. Two years later the AMA's 17th Federal Assembly endorsed the progressive introduction of formal methods for evaluating health care through peer review. This was followed by the establishment of the AMA/ACHS Peer Review Resource Centre which was funded by the Commonwealth Government to promote peer review programs⁴.

However, organised quality assurance programs did not become widespread until the 1980s. An investigation of 90 short stay acute care hospitals in 1974 revealed none had a comprehensive or organised quality assurance program⁵. The proliferation of formal hospital quality assurance programs in the late 1970s is often attributed in part to rising health care costs when there was increasing concern among consumers and health care professionals about the quality, cost, effectiveness and efficiency of health services⁶⁻⁷.

Two significant landmarks in the development of quality assurance occurred in 1986. The ACHS introduced a requirement for hospitals to have a quality

Continued on page 134 ▶

Contents

Articles

133 *What is the difference between quality assurance and health outcomes?*

135 *An approach to evaluating health outcomes*

137 *Quality and population*

Public Health Abstracts

Infectious Diseases

140 *Notifications*

News and Comment

Correspondence

Please address all correspondence and potential contributions to:

The Editor,
NSW Public Health Bulletin,
Public Health Division,
NSW Health Department
Locked Bag No 961,
North Sydney NSW 2059
Telephone: (02) 391 9218
Facsimile: (02) 391 9232

What is the difference?

► Continued from page 133

assurance program in operation before they could be accredited, and the NSW Government allocated more than \$2 million over three years to promote, establish and develop quality assurance programs in hospitals. This assisted in expanding the range and extent of quality assurance activities in NSW. By 1987, 86 per cent of NSW hospitals were involved in quality assurance activities and more than 60 per cent of public hospitals employed a quality assurance coordinator⁸.

TOTAL QUALITY MANAGEMENT

Since 1990 quality assurance methods known to be effective in industry have been applied in health care institutions. It is difficult to differentiate between the most rigorously promoted of these methods, Total Quality Management (TQM) and Continuous Quality Improvement (CQI). The key characteristics of TQM in a health service context are as follows:

- TQM focuses on processes, and assumes a systematic review of how things are done will identify those that should be changed, leading to improved quality, less waste and lower costs.
- TQM is primarily concerned with understanding how processes work, measuring them and introducing a cycle of continuous improvements and subsequent re-evaluation.
- TQM has a strong customer focus, linking the needs of users of health services to the way in which services are organised.
- TQM often requires a change in the way organisations are managed. It requires a participatory approach to management, with the aim of engendering collective responsibility and participation in the continual improvement of services.
- The object of understanding and measuring processes is to control and eliminate process variation⁹. Process variation is categorised into two groups: chance variation (known as 'controlled' or 'common causes' variation), and variation which can be ascribed to definable causes ('uncontrolled', 'assignable', 'special' or 'attributable' variation). Efforts to minimise variation concentrate on 'uncontrolled' variation⁹⁻¹⁰.
- In dealing with variation TQM differs from other approaches in two ways. First, TQM asserts that variation is due to the way processes and structures are organised, rather than human behaviour. Second, while most quality assurance systems are based on comparisons against established standards of practice, TQM asserts existing standards can constrain continuous quality improvement; it might be possible to do better than any existing standard. Instead, TQM embraces 'benchmarking', which involves comparing current activities "... against the best of the competition, the idea being to develop a product or process that is better than that of the competition"¹¹. A new benchmark is created whenever performance exceeds an existing benchmark.

- In TQM systems, staff members are provided with tools to analyse processes and control variation. Seven tools of data analysis and presentation are advocated: cause and effect diagrams, Pareto charts, histograms, scatter diagrams, flow charts, run or trend charts and control charts. TQM also uses several process techniques such as nominal groups, brain storming, quality circles and quality teams¹¹.

HEALTH OUTCOMES

Almost three decades ago Donabedian¹² suggested that assessments of the quality of health care should examine three components: structure (the adequacy of structural elements of health services, equipment and facilities available), process (defined as the interaction between health personnel and patients receiving care), and outcome (the effect of a health service on people's health with regard to indicators such as morbidity and mortality and measures of satisfaction and quality of life). However, most quality assurance initiatives concentrate on structure and process and neglect outcomes. Perhaps this is not surprising because health outcomes are difficult to measure.

In contrast, outcomes-oriented thinking begins with the question: "What are we trying to achieve?" This leads to a specification of markers of these outcomes that can be quantified with sufficient reliability and precision to detect change. Such markers are called health outcome indicators. Information on health outcome indicators can be used to understand the effects of altering the structure and processes of services on health outcomes, with the aim of finding the best way of organising services to optimise their outcomes in relation to the available resources.

While it is not a new idea to think about health outcomes, the NSW Health Outcomes Program is an innovation because it represents the first comprehensive attempt in NSW to use measures of the impact of health services on people's health in the planning, implementation and evaluation of the health system.

While traditional quality assurance initiatives concentrate on separate services (such as patient care, laboratory quality control and hospital hotel services), health outcomes thinking can be applied to:

- Populations, using a small number of health status indicators, e.g. cause-specific mortality rates, the population prevalence of important conditions such as diabetes, or the prevalence of certain risk factors, and assessing changes over time with repeated measures.
- Services, by monitoring the outcomes of these services in clients or patients.
- Treatments, by comparing health outcomes following different forms of treatment or management for certain conditions.
- Individual patients.

On any of these levels, the aim is to ensure that health resources are used optimally, taking into account the perspectives of clinicians, managers, consumers and public health professionals.

COMMON ELEMENTS

Health system thinking about quality assurance and health outcomes has intersected with other developments, including casemix, customer focus, health goals and targets,

Continued on page 136 ►

Evaluating health outcomes

► Continued from page 135

between the intervention and long-term outcome^{17,18,19}. Surrogates may suggest mortality will be reduced when the opposite occurs^{20,21}. Outcomes or their surrogates need to be unambiguously interpretable as an effect of intervention. This may occur if the effects are large, immediate, or rarely occur in the absence of the intervention, for example post-operative morbidity and mortality. Measuring immediate adverse events such as post-operative mortality may be useful for weighing up long-term benefits, estimated from randomised trials, against the risks in your patients²².

In instances where outcomes will not be unambiguously interpretable as an effect of the intervention, quality assurance should be based on measuring the appropriateness and performance of the intervention, and we will need to assume it will have the benefit demonstrated in randomised trials.

1. Berwick DM. Health services research and quality of care – Assignments for the 1990s. *Med Care* 1989; 27:763-71.
2. Sox HC Jr, Woolf SH. Evidence-based practice guidelines from the US Preventive Services Task Force. *JAMA* 1993; 269:2678.
3. Cotton P. Doctors are asked: Does it work? Determining more good than harm is not easy. *JAMA* 1993; 270:153-8.
4. Thomas D, Stram D, Dwyer J. Exposure measurement error: Influence on exposure-disease relationships and methods of correction. *Ann Rev Publ Health* 1993; 14:69-93.
5. Jenkins CD. Assessment of outcomes of health intervention. *Soc Sci Med* 1992; 35:367-75.
6. Barratt A, Irwig L. Is cholesterol testing/treatment really beneficial? *Med J Aust* 1993; 159:644-7.
7. Khaw KT, Rose G. Cholesterol screening programmes: How much potential benefit? *Brit Med J* 1989; 299:606-7.
8. Davey Smith G, Song F, Sheldon TA. Cholesterol lowering and mortality: the importance of considering initial level of risk. *Brit Med J* 1993; 306:1367-73.
9. L'Abbe KA, Detsky AS, O'Rourke K. Meta-analysis in clinical research. *Ann Intern Med* 1987; 107:224-33.
10. Lau J, Antman EM, Jimenez-Silva J, Kupelnick B, Mosteller F, Chalmers TC. Cumulative meta-analysis of therapeutic trials for myocardial infarction. *New Eng J Med* 1992; 327:248-54.
11. Chalmers TC. The need for early randomization in the development of new drugs for AIDS. *J of Acquired Immune Deficiency Syndromes* 1990; 3(Supp):S10-S15.
12. Jencks SF, Wilensky GR. The health care quality improvement initiative – A new approach to quality assurance in medicare. *JAMA* 1992; 268:900-3.
13. Leape LL, Hilborne LH, Park RE, Bernstein SJ, Kamberg CJ, Sherwood M, Brook RH. The appropriateness of use of coronary artery bypass graft surgery in New York State. *JAMA* 1993; 269:753-60.
14. Phelps CE. The methodologic foundations of studies of the appropriateness of medical care. *New Eng J Med* 1993; 329:1241-5.
15. Cockburn J, Hill D, Irwig LM, De Luise T, Turnbull D, Schofield P. Development & validation of an instrument to measure satisfaction of participants at breast screening programme. *European J of Cancer* 1991; 27:827-30.
16. Irwig L. Epidemiology and health care evaluation. In Public Health Association – Health Care Evaluation in Australia 1989.
17. Freedman LS, Schatzkin A. Sample size for studying intermediate endpoints within intervention trials or observational studies. *Am J Epidemiol* 1992; 136:1148-59.
18. Morrison AS. Intermediate determinants of mortality in the evaluation of screening. *Int J Epidemiol* 1991; 20:642-50.
19. Day NE. Surrogate measures in the design of breast screening trials. In: Eds: Miller AB, Chamberlain J, Day NE, Hakama M, Prorok PC. Cancer Screening. New York: Cambridge University Press, 1991; 391-403.
20. Echt DS, Liebson PR, Mitchell LB, Peters RW, Obias-Manno D, Barker AH, Arensberg D, Baker A, Friedman L, Greene HL, Huther ML, Richardson DW and the CAST Investigators. Mortality and morbidity in patients receiving encaimide, flecainide, or placebo. *New Eng J Med* 1991; 324:781-8.
21. Teo KK, Yusuf S, Furberg CD. Effects of prophylactic antiarrhythmic drug therapy in acute myocardial infarction – An overview of results from randomized controlled trials. *JAMA* 1993; 270:1589-95.
22. Marwick C. Federal agency focuses on outcomes research. *JAMA* 1993; 270:164-5.

What is the difference?

► Continued from page 134

clinical indicators, clinical audit, peer review, utilisation review, best practice and managed care. The health outcomes approach and quality assurance initiatives have several elements in common.

First, they have a common purpose: the continual improvement of health services. They all involve a reiterative cycle of evaluation, adjustment of services (when necessary), and re-evaluation, leading to continual improvement.

Second, their evaluative processes are based on specified indicators – indicators of structure or process quality, or indicators of outcome.

Third, they are designed to be integrated into the work ethos and practices of all relevant personnel.

Fourth, they espouse an intention to promote improvements through positive measures rather than recrimination. They seek to respect the professional integrity of individual providers, especially clinicians, and they involve service providers in the evaluation and improvement of their own services.

Finally, implicitly or explicitly they advance the notion of customer focus. This involves identifying the customer, for whom any given service is undertaken, and seeking to provide optimal fulfilment of the customer's requirements. The customer may be external to the organisation or within it.

QUALITY, OUTCOMES, AND COSTS

Traditionally, quality assurance initiatives have been concerned with the way services are provided without systematic consideration of costs. However, it is now recognised that quality of care cannot be improved without regard for cost¹⁹. Information on both outcomes and costs is needed to ensure optimal use of resources. The health outcomes approach emphasises that decisions must be based on the health outcomes of services as well as costs.

1. Frommer M, Rubin G, Lyle D. The NSW health outcomes program. *NSW Pub Health Bull.* 1992; 3:135,137.
2. Australian Council on Healthcare Standards. The ACHS accreditation guide, Sydney: Australian Council on Healthcare Standards, 1993.
3. Duckett SJ, Coombs EM, Schmiede AM. Hospital accreditation in New South Wales. Kensington: School of Health Administration, University of New South Wales, 1980.
4. Best J. A review of the New South Wales Department of Health Quality Assurance Program. Sydney: Diagnosis, 1989.
5. Scarfe GC, Weaver CJ, Duckett SJ, Schmiede AM. Quality assurance in Australian hospitals. *Med J Aust.* 1979; 1:228-331.
6. Jamison JH. Report of the commission of inquiry into the efficiency and administration of hospitals. Canberra: AGPS, 1981.
7. Commonwealth Department of Health. Health care and the consumer. Canberra: AGPS, 1985.
8. Renwick M, Harvey R. Quality assurance in hospitals. Canberra: Australian Institute of Health, 1989.
9. Berwick DM. Controlling variation in health care: A consultation from Walter Shewhart. *Med Care.* 1991; 29:1212-1225.
10. Kritchevsky SB, Simmons BP. Continuous quality improvement. Concepts and applications for physician care. *JAMA.* 1991; 266:1817-1823.
11. Kaluzny AD, McLaughlin CP, Simpson K. Applying total quality management concepts to public health organisations. *Pub Health Reports.* 1992; 107:257-264.
12. Donabedian A. Evaluating the quality of medical care. *Milbank Memorial Fund Quarterly: Health and Society.* 1966; 44:166-206.
13. Braithwaite J, Westbrook JI. For richer for poorer, in sickness and in health: international issues of quality and cost. Australian Hospital Association, Canberra, 1992.