Health Care Quality
An International Perspective

Edited by
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World Health Organization
Regional Office for South-East Asia
New Delhi
This book is dedicated to health professionals in developing countries who are striving to improve the quality of health care at all levels of their health care systems.
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Foreword

HEALTH CARE services of good quality is an integral part of WHO’s goal of health for all with primary health care as the key approach. Until now, access to health care services had been given priority by all Member States of the WHO South-East Asia Region. Based on the principles of equity, coverage indicators were mostly used to monitor health services’ performance. This situation is changing - the effectiveness and efficiency of health services are now of equal concern to policy-makers, health service providers and communities.

In recent years, the WHO South-East Asia Region has launched various initiatives with the objective of improving the quality of health care services at all levels. A movement to ensure quality in health care services is becoming an integral component of health care programmes in all Member States.

There is, however, a gap in the availability of reference material on health care quality in developing countries. The idea of preparing a book to fill this gap emerged from Dr A.F. Al-Assaf, Associate Professor and Consultant, Health Care Quality and Preventive Medicine, University of Oklahoma, U.S.A., when he visited the WHO Regional Office in connection with the preparations for the Intercountry Meeting on Quality Assurance in Health Care, which was held in Surabaya, Indonesia, 16 to 20 December 1996.

Dr Al-Assaf volunteered to take up this challenge. The idea was also welcomed by the WHO Eastern Mediterranean and Western Pacific regions as well as WHO headquarters. I would like to express my sincere appreciation and thanks to Dr Al-Assaf for taking this initiative.
In addition to the conceptual aspects of quality of care, strategies and methods of application by eminent experts, Dr Al-Assaf has been able to incorporate in this book the actual experiences in the implementation of quality assurance programmes in a number of developing countries in various regions of WHO.

I do hope that this publication will further enhance the development of health care quality in developing countries. Let us make the next decade the decade of quality.

Dr Uton Muchtar Rafei
WHO Regional Director for South-East Asia
New Delhi, India
Preface

QUALITY is a continuous process of incremental improvement. Quality is also customer-focused and customer-driven. It relies on data for effective and efficient decision-making. It is a process that is continuous, dynamic and organization-wide. Everyone is responsible for his or her quality outcomes and activities. It is everybody’s responsibility and not only the responsibility of the “quality department”.

Quality is also global. If it can be applied in one country, it can be applied in others as well. The results are dependent not on how much technologically advanced one country is, but on how genuinely it is supported and how sincerely it is orchestrated. It requires patience, change agents, resources, and a keen and sincere interest in improving on the status quo.

This book is the result of the author’s involvement and collaboration with the South-East Asia Regional Office (SEARO) of the World Health Organization. It is intended as a communication tool for the international audience and, in particular, for the countries in the South-East Asia Region. It is based on experiences of specific countries in this Region as well as from other regions. The text in the book has been divided into several chapters and represents both the theoretical and practical approaches to health care quality with a prominent international flavour. Therefore, this book describes the process of health care quality from the conception of an idea to its introduction and implementation. Accordingly, the book follows the international quality cycle that describes the health care quality process in terms of planning, setting standards, communicating standards, monitoring and steps to be taken for quality improvement.
There is a chapter devoted to the definition of health care quality and its associated terms like quality assurance, quality control, quality improvement, and quality management. Another chapter is devoted to the processes of quality assurance. In this chapter the idea of planning for quality is introduced, and a set of steps and methods are discussed to provide an understanding of the techniques of setting and communicating standards in health care. This chapter also contains a presentation on the process of monitoring and quality control, which is followed by a chapter on outcomes management and one on quality improvement and quality tools. The process of implementing quality in health care and lessons learned for sustaining quality are also discussed. Related to the process of health care quality are supportive issues such as effectiveness and quality costs. These two issues have been described in detail in two separate chapters.

Chapters 10 to 13 of the book highlight the involvement, activities and accomplishments in health care quality of four countries, viz. Saudi Arabia, Jordan, Malaysia and Indonesia. All these chapters are practice-oriented and present case studies of health care quality activities in those countries.

It is hoped that this book will be widely circulated in the Member countries of WHO’s South-East Asia Region as well as in other countries. This book has been written primarily to serve an international audience, and is intended to provide practical scenarios and lessons for countries around the world in an effort to support their quest for quality. The book targets physicians, administrators, nurses, technicians and all other health care professionals whether they are “quality” professionals or not, as quality is everyone’s responsibility.

A. F. Al-Assaf, MD, CQA
Oklahoma City, Oklahoma, 1997
Health Care Quality: Past and Present

A. F. Al-Assaf, MD, CQA

Quality as a concept is implemented in the same manner and is practised in the same fashion in any setting. Health care quality, in general, focuses on the concept that health care has three major cornerstones: quality, access, and cost. Although one is dependent on the other and each one can impact one another, quality, however, has a stronger impact on the two other cornerstones. Quality is achieved when accessible services are provided in an efficient, cost-effective and acceptable manner. A quality service is one that is customer-oriented. It is a service that is available, accessible, acceptable, affordable, and controllable. Quality is achieved when the needs and expectations of the customer are met. Of course, in health care the patient is the most important customer (Al-Assaf, 1993).

It must be noted here that the main purpose of this chapter is to identify the trends in the evolution of quality in health care and not necessarily the exact dates or the country where certain events occurred. One may note the shift of focus throughout history from outcome to structure to process and then eventually to outcome again. In the current era of health care quality, it is evident that health care professionals and health care organizations are being driven primarily by care outcomes as a proxy for health care quality. There is still, however, some emphasis on the process and improvement methodologies. Therefore, it is safe to say that we are currently in the mode of being outcome-driven but process-focused. We are measuring our outcomes against a set of predetermined 'indicators' that we strive to achieve as a higher level of accomplishment, yet we are doing so by focusing on the process(es) that lead to these outcomes. Thus, it is becoming evident that most health care organizations are practising selective improvements and are trying to improve those processes that have the most impact on the desirable patient outcomes. This trend has continued for the last few years and it is predicted that it will continue well into the new millennium.

All quality methods, when properly introduced, should ensure that services rendered in an organization are quality services and that the outcomes are quality outcomes. Total quality and, in particular,
total quality management (TQM) was originally introduced by certain quality experts in Japan before it was "imported" into the United States. This 'new' management concept was introduced shortly after World War II in order to aid the Japanese manufacturing industry to improve their products and ultimately their services. After seeing major improvements made by the Japanese, industries in USA took notice and started a search for the factors that lay behind this remarkable product of quality improvement. TQM was not introduced en masse in the US industry until the early 1980s.

Let us now look at the history of this management concept and its evolution as a leadership paradigm. We will also take a look at the shift of emphasis in health care from structure standards to process and, most recently, to outcome standards.

History has noted a considerable change in both the concept and application of quality in health care. Actually, the word 'quality' was perceived differently throughout history. During King Hamourabi's time, quality meant that errors were out of the question. People making mistakes were subjected to the same consequence as their mistake had on others, and that is where the famous words "an eye for an eye and a tooth for a tooth..." originated.

Other leaders throughout history took a similar approach while still others had developed specific criteria for a 'quality' performance. Quality assurance as a science, however, was not recognized until the mid-nineteenth century with the work of Florence Nightingale.

In the following pages, the evolution of health care quality is described. Although one must admit that it is heavily based on American history, every attempt has been made to give credit to other countries and communities where it is due.

HOW QUALITY ASSURANCE BEGAN

Quality assessment and quality control in health care date back to the mid-nineteenth century in England. During that period, there was an increased awareness of the sanitary problems associated with community dwellings and use of minors as labourers. Dr Edwin Chadwick, a public health activist and a pioneer, published a report in 1842 which vividly described the unacceptable sanitary conditions associated with urban and rural communities in Britain at that time. He attributed this problem to the lack or shortage of qualified public health professionals who could provide quality service to the community. He recommended the establishment of guidelines with regard to the availability and training of public health workers. Influenced probably by Chadwick's report, in the United States, another public health physician, Dr Lemuel Shattuck, published a similar report but this one was on the sanitary conditions in the town of Massachusetts. He, too, recommended the improvement of the structural elements of public health sanitation and the establishment of "sanitary police" to monitor the sanitary conditions in local communities. In Britain, around 1854, Florence Nightingale
served as the leading nurse during the European Crimean War (Bull. 1992). Ms Nightingale was the first to notice the positive correlation between the introduction of adequate nursing care to wounded soldiers and the decrease in the mortality rate among this group. This concept triggered her interest in studying the relationship between the quality of care and positive outcomes. She busied herself after the end of the war documenting this fact in several studies that looked at other components of quality. She started looking at the extent of services and resource utilization and their impact on quality outcomes, and was instrumental in writing up several quality criteria in nursing care. These criteria are considered to be the first nursing care standards in history. A period of testing of these concepts was passed and a few other clinicians attempted to further study the correlation between care and outcome.

During the early part of the twentieth century a British physician, Emory Grove, surveyed all hospitals with more than 200 beds regarding mortality as a post-operative complication. Even though Dr Grove collected some important data, he ran into problems when he attempted to compare one hospital with another using the same criteria. Still, he noted major variations in mortality between different diseases and, based on this survey, recommended the development of a standardized classification of diseases and establishment of a follow-up system for post-operative conditions over a long period of time to minimize complications and reduce mortality.

Almost at the same time in the United States several physicians were conducting studies on the quality assessment of health care. In 1914, a surgeon, Ernest Codman, of Massachusetts General Hospital, studied general surgeries and their follow-ups and was responsible for influencing the adoption of follow-up progress exams after one year of surgery. This prompted the American College of Surgeons to create, in 1918, the Hospital Standardization Programme that provided the criteria and standards for accreditation, which were later adopted by the Joint Commission on Accreditation of Hospitals.

Just prior to this an interest to develop structure criteria had been created. In 1910, Abraham Flexnor presented his famous report after his study of the education of physicians in the U.S. and was quick to point out the deficiencies in the medical education system. He further pointed out that the education of physicians was directly related to the quality of care the patient received and that medical education needed substantial reforms. As was expected, this report forced a considerable number of medical schools to close their doors for their inability to meet the report’s reform criteria. It should be noted here that with this report the emphasis shifted from process elements to structure elements, i.e. the human and physical resources. Education, certifications and licensure became very important in ‘qualifying’ a health care professional and an educational organization. Several professional associations were established to provide these services with state licensure and examining boards.
spreading slowly but gradually throughout the country.

Not much was done on health care quality during the 1920s and 1930s. This could be attributed to the First World War and/or the economic depression that followed. Two events are, however, worth mentioning. Although not in the area of health care, the 1920s witnessed the application of quality improvement through process control and improvement as a result of the pioneering work of Shewhart, Dodge and Roemig. Their work emphasized prevention management as an approach to quality improvement. Therefore, through the development of the statistical process control (SPC) chart and other statistical tools, a process and product could be closely monitored and acted upon before it ever produced defectives. It is on these principles that the theory of total quality management (TQM) is based and how it is applied in health care, which will be described later in this chapter.

The mid-1930s saw the passage of the National Social Security Act of 1935 that afforded an increased access to health care services for the needy and may have had an indirect effect on the quality of health care services, as certain provisions were outlined in the Act which related to the expected performance of providers. Access to health care dominated the trend in global events and several activities in different countries emphasized increasing the availability and affordability of health care services. Most of these events, however, were associated with improving the structure of health care resources, both physical and human.

For health care organizations, the same interest in structure quality started to take effect, which influenced the American College of Surgeons to establish, in 1952, the Joint Commission on Accreditation of Hospitals (JCAH) (later changed to the Joint Commission on Accreditation of Health Care Organizations (JCAHO). The JCAH, as it was then referred to, published its first list of accreditation standards with which hospitals had to comply in order to receive their accreditation certificate. Hospitals that met these standards were accredited and certified as a ‘quality’ institution. It is interesting to note here that this first list of accreditation standards fitted on one single page (the list today is compiled in a number of manuals of a few hundred pages each). The then JCAH standards were primarily structure standards which emphasized the quality of the credentialing process and the risk management standards. Basically the objective of the accreditation process was to ensure that care was delivered in a safe physical environment and by qualified providers. Of course, the JCAH thought that meeting the structure criteria was equivalent to providing quality medical care.

Interest in quality measures continued in the 1950s. In clinical practice at least three American physicians, Morehead, Payne, and Peterson, studied the quality of medical care delivered by practitioners in the U.S. Unlike JCAH, those studies were primarily process-oriented that looked at the process of the care delivered. According to Brook and Avery (1975), one study by Dr O. L. Peterson looked at the care provided by general practitioners. Dr Peterson looked at the processes and
procedures conducted during patient examinations and follow-ups. Another physician, Dr M. A. Morehead, looked at the ambulatory care practice of physicians as compared to their peers. The third study was conducted by Dr B. C. Payne who compared the care delivered by a select group of physicians in acute care hospitals with a set of pre-designed criteria of care. All the three studies concluded that there were deficiencies in patient care and that the quality of care needed to be continuously monitored and improved.

THE EARLY YEARS OF TQM

During the same period and in 1948-1949 Japan was trying to recover from the losses of World War II and to find ways to revive its economy. An observation was noted by several Japanese engineers that quality improvement will almost always lead to improvement in productivity (Deming, 1986). This observation was extracted through the earlier work of Walter A. Shewhart (1931) and from the literature supplied by Bell Laboratories (through the staff of General MacArthur). This simple observation became the impetus for Japanese management to learn the methods of proving it. In 1950, W. Edward Deming, an American statistician, was invited to Japan to introduce and teach the methods of improving quality and TQM. Dr Deming was instrumental in proving to Japanese engineers that improving productivity was dependent on decreasing the variability of processes in a plant. He emphasized the principle of Shewhart's statistical quality control which said that errors could be predicted and further prevented from happening before producing a product. Therefore, a defective product was almost never produced and that the consumer would never see one. The Japanese learned rather quickly that in order for them to survive, four major issues needed to be realized: the consumer of their products must be studied and looked after; total systems, not components, needed to be studied in detail; teamwork must be the way to do business; and that decisions must be based on data. They also understood that focusing on meeting customer needs and expectations was the only way to improve their economy.

It should be noted here that Japan at this time was completely broke. The country had no natural resources such as oil and fuel. The only resource was its people. Japan also knew that for these people to be fed, manufactured products needed to be successfully marketed and sold to an outside market. Of course, such markets were already receiving higher quality goods that the Japanese were not producing. Therefore, the need for improving the quality of products was a must for Japan to survive. Managements started to make quality the most important target to achieve. Managements further communicated this defect-prevention paradigm to their workers, a paradigm that predicted that improving quality will cause costs to decline (less rework, less waste and less errors), leading to better use of human and physical resources, further leading to improved productivity. As productivity improves, more markets are captured which is paramount
for staying in business, thus maintaining and creating more jobs. This paradigm was further communicated to every worker with the emphasis that producing affordable, dependable, defect-free and acceptable products was important for them to keep their jobs and for Japan to buy its basic needs. Therefore, it became obvious to all workers that improving quality was not only a requirement of their job but was also an individual and personal responsibility.

TQM started spreading in Japan's corporations and institutions during the next 20 years. During the same period the American industry was almost unopposed in its products and services. This period, although dominated by American goods and products, was detrimental to the American industry due to the lack of incentives for marked improvements and 'breakthroughs'.

It was not until 1973 when the oil embargo started to make an impact that American industries came to realize their dependence on other countries for survival. Suddenly the automobile industry started noticing that foreign cars were getting more and more of the auto market in the U.S. The same was noticeable about other products, especially those from Japan. From cameras to electronics to watches, Japanese products started to gain further markets at the expense of local American industries. Japan became an exporter of many other products not only to the U.S. but to Europe, Asia and the rest of the world. American corporations started looking for the reasons of these successes and began studying Japanese companies to find answers. Soon it became obvious to American industries that quality was dependent on the worker and that tapping this potential was important for improving productivity. A number of programmes sprung up throughout American companies that were based primarily on worker participation and involvement in problem-solving. From quality circles to employee involvement to quality of life, all these programmes were based on participative management. These and other programmes were continued through the 1970s with varying degrees of successes and outcomes.

For those companies that understood the cultural change, quality improvement was achieved while others were not as successful. When the commitment of the management was not there, all these programmes that encouraged employees' participation started to wear off as they felt their work was not being encouraged and appreciated. Managements of these companies (and they were in a majority) did not realize that the stagnation in the economy and the problems facing the American industry were mainly system problems and not those of the employees. These companies did not know these facts until June 1980 when NBC aired the landmark programme on television, entitled "If Japan Can, Why Can't We". Dr W. Edward Deming was interviewed. He told his experiences and successes with the manufacturing industry in Japan. He mentioned that a combination of basic management skills and statistical process control to reduce variability were major factors for improving quality and produc-
tivity. It was only then that major U.S. corporations put this philosophy to the test and introduced it in their settings. This philosophy started to gain in popularity among other companies and during the next several years this 'quality movement' became a reality for several industries in the U.S.

QUALITY IN HEALTH CARE

Going back to health care, several events happened before health care organizations began to adopt TQM or quality improvement principles. TQM did not become a known entity in health care until the late 1980s. It was primarily a business management practice somewhat foreign to health care. Of course, in health care, quality was 'assured' through the efforts of several quasi-regulatory agencies that demanded the application of certain care standards. This was evident in the sequence of events that are discussed below.

In 1965, President Johnson signed into law two major amendments of the Social Security Act, namely, title 18 (Medicare) and title 19 (Medicaid). The main objectives of these amendments were to increase access to health care services by certain beneficiaries and, in particular, the elderly and the poor. However, the Act also provided mechanisms that promised to ensure the provision of quality health care services to those benefiting. Here again, quality of care is promised through an emphasis on structure (providers and institutions) and to a lesser extent on process (the way care is delivered). Nevertheless, Medicare and Medicaid did provide certain incentives for providers to deliver 'quality' service. During and after this time, JCAH (as it was then known) was encouraged by the government to 'enforce' its accreditation requirements and tighten its standards for certifying the quality of hospitals. This role, which is considered by some as semi-regulatory, had a major influence on the establishment of quality assurance departments in health care organizations.

Around the same time, in 1966, Dr Avedis Donabedian, a university professor and physician, introduced his famous three measures of quality: structure, process, and outcome. He urged health care organizations to look at all the three measures when monitoring and assessing the quality of care. He further described 'structure' as the input to the health care system to include both human and physical resources associated with the delivery of health care to the patient. 'Processes', as he described them, included all the procedures and activities required to deliver medical care by providers and support systems. 'Outcome', on the other hand, included results and outputs of the care process; for example, morbidity and mortality rates, and patient satisfaction. This model prompted different players in health care to use it but its misinterpretation led to the use of these measures separately and independently from each other.

In the same year, the U.S. government passed two quality-related Acts, the Comprehensive Health Planning Act and the Regional Medical Program Act, both of 1966. The first tied spending to better planning and the other provided funds for
research towards improved health care services.

During the next decade (1970s), the U.S. government’s concerns over cost escalations in health care continued. In its attempt to control cost and preserve quality, the U.S. legislature passed two bills during this period which made a direct impact on the quality of care delivered. One of these bills passed, in 1972, established the Professional Standards Review Organizations (PSROs). These organizations were to review the standards of care provided to inpatients and to ensure the delivery of adequate and appropriate treatment to these patients. The PSROs however received several negative reactions from interest groups. The JCAH looked at them as organizations competing for the same market. With the PSROs being physician-oriented, other groups felt that their non-representation was counter productive to an effective evaluation of care processes. Physicians, on the other hand, felt that their work and humanitarian efforts to preserve life was being questioned. Representatives of physicians on these organizations found themselves ostracized by their peers and were somewhat looked at as 'traitors' to their profession. All these factors hindered the real function the PSROs were originally created to fulfil. Despite the failure of the PSROs to achieve their objectives, they were however the first to influence the emphasis on process quality. This notion opened the door for a new paradigm shift in quality monitoring and assessment.

The second bill was passed in 1974 to open the door for the creation of Health Maintenance Organizations. This concept seemed novel at the time, with the potential to decrease the rise in health care cost by controlling access to ‘costly’ health services and to begin the process of ‘managing’ care. Even though this concept had potential, its adoption by the insurance industry was slow and did not show major breakthroughs until late in the 1980s.

This trend continued as the U.S. government, being the highest spender on health care, looked for ways to contain a sharply rising and seemingly uncontrollable health care cost and to maintain quality at the same time. The government was first to realize that after a decade of PSROs’ activities, health care costs were still rising and the quality of care was not improving. Therefore, funding was ceased for PSROs. This further paved the way to introduce the Diagnosis Related Groupings (DRGs) as the basis for the reimbursement of medicare providers (inpatient services). Reimbursements were to be carried out under a prospective payment system (PPS). PPS became effective in October 1983. The system again provided for a mechanism to ensure both access and quality of care associated with an efficient cost-reduction effort. Another measure to control costs was the establishment of Peer Review Organizations (PROs) in October 1984.

The PROs were established to replace PSROs in their attempt to assess and improve the quality of care delivered. Similar to PSROs, PROs’ services extended only to medicare inpatient services; therefore, their impact on the quality of care, though considerable, was still limited. Again, PROs looked only at the process of
care. Unlike PSROs, PROs' membership is not necessarily limited to physicians and others have liberal access to them. A PRO can be a for-profit or not-for-profit organization that can bid for contracts from the U.S. government to meet the mandate of monitoring the care processes. Hospitals are required to contract with a PRO to review their services. PROs have the authority to enforce quality improvement measures on the provider by either an extensive evaluation process or through monetary fines, among other sanctions, and disciplinary measures. PROs also have a mandate to review other professional provider services rendered in a hospital and may refer to these professions for advice on specific care standards.

Starting in the 1970s and especially during the 1980s and after, hospital quality assurance departments and units became very active in collecting and analyzing data on patient care and health risk management. This was accomplished in a long and painful pursuit of ensuring and maintaining quality of care. This pursuit became painful as the objectives were to emphasize the structural aspects of a programme, in particular human resources, e.g. credentialing and certification. QA professionals felt new 'power' of searching for those 'bad' providers. These 'bad' providers felt harassed by the system and once their 'mistakes' became public, medical liability lawsuits started to rise. This trend negatively affected the providers (including their institutions) and their patients. Patient-provider relationships started to erode and providers lost the anticipated trust owed to them by their patients. Also, the administration-physician relationships began to show some stress, as one started blaming the other for the cause of the problems.

This situation was further exacerbated as physicians relied on practising medicine defensively. Physicians started ordering more (usually unnecessary) tests before making any diagnosis on the patient's condition in an attempt to protect themselves from the potential of a malpractice. Certainly the legal system did not help alleviate this situation but on the contrary made it worse. Lawyers were prompting patients to question their providers about any unexpected outcome of care. Those same lawyers volunteered their services to these patients on a contingency basis and would accept payments only until a financial settlement or judgement was reached (usually 33% - 50% of the award). This trend continued to escalate the misuse and mis-allocation of precious resources and, of course, the expenditures (not the quality) on health care kept rising (Al-Assaf, 1994).

Here, again, the U.S. government stepped in and, as a reactionary measure to the malpractice crisis, passed the National Health Quality Improvement Act of 1986. This Act had two major provisions that encouraged patients to become informed consumers of those providers with a record of malpractice. It called for the creation of a National Clearing House of providers' malpractice records in the U.S. Further, the Act made it mandatory for health care institutions to report incidents of malpractice of providers to this clearing house. The Act encourages this effort by providing immunity against violations of
privacy lawsuits that may be initiated by those providers. This information therefore could become available to licensure boards and other entities inquiring about practising providers in different states. Due to inadequate funding for the Act, it was not implemented until 1989.

It is obvious that this Act was passed in an attempt to ‘improve’ the quality of medical care delivered, but again the emphasis was put primarily on structure without involving process and outcome measures. Yet, this government intervention signalled another trend where quality had to be maintained through regulation.

In the midst of all this, and by the late 1980s, the focus of the government shifted from the PRO’s process-oriented review and away from the JCAH’s structure-oriented review to a renewed emphasis on outcomes. In December 1987, HCFA published the Medicare Hospital Mortality Information list (HCFA, 1987). It made headlines when excerpts from this hospital mortality list were published in the New York Times. Major reactions came from the hospital industry refuting the validity and usefulness of this list. They pointed out that this list did not take into consideration the case-mix index, i.e. they asked for a differentiation between the acute care hospitals and cancer treatment ones. Despite the flaws associated with this list (and the annual lists published thereafter) it triggered many organizations to start looking at patient outcomes. The Joint Commission on Accreditation changed its name to the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) to include other health care organizations besides hospitals as they were already including other institutions in their accreditation process. In an effort to continue their tight grip on the market, they, too, announced their Agenda for Change (O’Leary, 1987), which called for a gradual refocus of JCAHO’s standards towards outcomes. These events stimulated several other groups to start looking at clinical outcomes and physician practice patterns as qualifiers for health care quality (Daley, 1991).

Outcome assessments were later explored further by researchers and more funding became available, especially in the area of clinical outcomes research. Also, in their quest for better outcomes with limited resources, the health care industry started looking outside its field for answers. This thinking prompted TQM to enter into this industry in the late 1980s. Again, the U.S. government provided support for this movement through the National Demonstration Project, where funding was allocated to the introduction of TQM or the like into health care through a number of demonstration or pilot projects. Starting with hospitals and followed by other health care organizations, the principles of TQM began to filter into this industry. Leadership paradigms that were originally designed for manufacturing were modified in an attempt to make them applicable to health care. Quality experts were quick to realize that the amount of work necessary to bring this giant industry to the realms of quality management was tremendous. Thus, several of these experts started setting up companies and subsidiaries to educate the
masses in health care on these relatively new philosophies. Health care professionals, on the other hand, found a tremendous appetite for learning more of this concept and started flocking to institutes and workshops designed for them by these quality experts.

This trend continued throughout the first half of the 1990s and was as active in 1997. Now most hospitals and managed care organizations in the US have either started the journey for TQM or are making headway towards that goal (AHA, 1996). A similar trend is visible in the world where a number of countries have taken active steps towards the implementation of quality assurance (QA) in their health care facilities.

Another noteworthy trend here is that the concept of assessing quality based on outcomes received further boost with the introduction and funding by the US Congress of the Agency for Health Care Policy and Research (AHCPR) in 1989. This move by the Congress was in direct response to the call by the Institute of Medicine’s report of 1989 (IOM, 1989), which called for the need to emphasize patient outcomes in the delivery and improvement of health care. This agency was created to enhance the quality of care by the search and development of clinical practice guidelines (CPGs) based on patient outcomes. The AHCPR became active in sponsoring several activities in the area of CPGs and to date at least 18 general CPGs have been developed (AHCPR, 1996). This trend, however, is also changing and although the emphasis on outcome for quality assessment is still strong, a more traditional trend is returning whereby processes besides clinical outcomes are being highlighted again.

On the global arena, two large international donor organizations became interested in health care quality. The US Agency for International Development (USAID) funded a multi-million dollar project, the Quality Assurance Project, in 1990, to introduce QA in developing countries around the world. The U.S. contractor, University Research Corporation (URC), assembled a formidable team of experts and began its journey for increasing awareness about QA internationally. URC soon set up projects in Chile, the Philippines, Indonesia, Jordan, Egypt, Niger and some 30 more countries where QA was the main theme of solving problems, cost-containment and improving health care outcomes.

Similarly, the World Health Organization (WHO) realized that quality was extremely important for countries in their quest for better services and improved health care outcomes. During the early 1980s the European Region of WHO sponsored QA activities related to laboratories, blood banks and radiology among many others. A considerable number of procedures and protocols were developed and disseminated in that Region and elsewhere. WHO organized an inter-regional conference on Assurance to Quality in Primary Health Care in Shanghai, People’s Republic of China, in October 1990. This was followed by an International Consultation on Quality Assurance in District Health Systems Based on Primary Health Care at Pyongyang, DPR.
Korea, in 1992. During that conference a number of experts were invited to present their perspectives on QA and its proper introduction at the global and national levels. This conference became the impetus for future activities of WHO to support QA programmes in a number of countries worldwide. Thus, several inter-country/regional meetings on QA followed with representations from a large number of countries to share ideas, experiences and strategies for QA implementation and sustainability. Every region of WHO became actively involved in the organization and delivery of QA meetings within their own area. In addition, WHO headquarters in Geneva co-sponsored a number of pre-conference sessions on QA in developing countries at the annual conferences of the International Society of Quality in Health Care. Efforts of WHO to introduce and further sponsor QA activities in several of its regions are noteworthy. These include the sponsorship of short-term consultants, the organization of training workshops on QA, the publication of documents directly related to QA in health care, and its applications in Member countries. In this book at least four countries are featured to describe their experiences in health care quality.

Another area that became increasingly important in the late 1990s in health care was performance measurements and report cards. This new trend had actually started in the early 1990s when health consumers and purchasers started demanding comparative performance data of health care organizations. Reporting of performance data in the form of 'report cards' is becoming more prevalent in the health care field. At present several of these report cards are published periodically on health care organizations ranging from hospitals to HMOs to individual providers. These report cards give consumers and purchasers of health care a fairly good idea of the performance level and sometimes the quality of care and services of these providers. It is believed that the trend will continue throughout the early years of the new century as consumers are becoming ever more prudent in 'shopping' for health services. Access to information is also becoming easier with the increasing use of such technologies as the Internet and electronic mail.

Another trend which is making a 'comeback' as we enter the new millennium is the accreditation of health care organizations. One country after another is following suite with the American, the Canadian and the Australian experiences in introducing accreditation as a system in their own health care. The World Health Organization has also taken the lead in organizing such discussions and has sponsored a number of country-specific technical assistance programmes to advise on accreditation. A number of WHO regions are becoming more active in this area of development where activities have already been planned for the organization of meetings on the subject, including the formulation of policies on the introduction and implementation of accreditation in Member countries. A number of countries have already participated in such meetings and are actively preparing for the introduction of an accreditation system.
It is evident from the above discussion that quality, especially quality improvement and management, are fairly new concepts in health care. When first introduced, they received a mixed reaction. Since quality in health care calls for a cultural change in an organization, traditional bureaucrats fought against its quick adoption. They have since accepted the change, though reluctantly, as this leadership paradigm moved through different levels of management with swift steps, backed by consumer groups, regulators and accrediting agencies. In the next two chapters this issue of health care quality and its late adoption is further explored and the factors behind the change are discussed in detail.

References

Quality in Health Care: An Overview

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INTRODUCTION

Whenever health care issues are discussed, three concepts keep coming up. These are: access, cost, and quality. Obviously, access involves physical, financial and mental or intellectual access to available care and health services. The issues of affordability and efficiency are also important. However, services provided in a health care institution should have certain characteristics beyond the issues of affordability and availability. It should involve elements and characteristics of quality. Elements of acceptability by the consumer are actually the most important. If the consumer (the patient) does not accept the services provided, he/she will neither seek them nor approve of them even though these services are available, accessible and affordable. Therefore, the quality of services rendered are crucial to health care. Quality, however, should be from the perspective of the consumer, because quality care is acceptable service by the consumer of that care.

So what is quality? Is it excellence? Is it the best? Is it the 'Cadillac' service? Not necessarily. Quality can be a simple measure to achieve the desired objectives in the most efficient and effective manner, with the emphasis on satisfying the customer or the consumer. It is not necessarily the most expensive way to do things. On the contrary, it is a call for efficiency and cost savings. It is not necessarily luxurious items or services. It is, however, a product or a service that is acceptable, accessible, efficient, effective and safe that is continuously evaluated and upgraded.

Quality is also measurable. A system is usually made up of three components: inputs, processes, and outputs. The quality of inputs (structure) can be measured. This includes the quality of personnel, supplies, equipment, and physical resources. The quality process is also measurable. Diagnostic, therapeutic and patient care procedures and protocols are all measurable and quantifiable. The same is true of system outcomes or results. They too are measurable. For example, hospital infection rates, morbidity and mortality rates as well
as patient and employee satisfaction are all outcome measures and are all measurable variables. Therefore, the system components of inputs, processes and outcomes have certain quality characteristics that are measurable and are important in quantifying the quality of a system.

One issue related to the topic of quality involves communications and sharing of information. The world is certainly becoming smaller through the advances in communications technologies and transportation linkages. Therefore, advances and accomplishments of health care quality in one part of the country must be communicated with other parts. Sharing of ideas and learning from one another is an attribute of quality as well. Furthermore, quality in health care and services is no longer being judged solely at local or even at regional level, but it is becoming increasingly important for organizations to compete in these areas at national level.

Therefore, in order to define quality one may refer to several definitions that present the concept most eloquently. Here is a list of some of these definitions:

- "Quality is conformance to requirements or specification." - Philip Crosby, 1978.
- "Quality is doing the right thing right the first time and doing it better the next." - Al-Assaf, 1993.
- "Quality is the degree to which care services influence the probability of optimal patient outcomes." - American Medical Association, 1991.
- "Quality is meeting the requirements of the customer, both internally and externally, for defect-free products and services." - IBM, 1982.
- "Quality is providing our customers with innovative products and services that fully satisfy their requirements." - Xerox, 1983.
- "Quality therefore is a process of meeting the needs and expectations of the customers, both internal and external. Quality can also be referred to as a continuous process of incremental improvement." - Al-Assaf, 1998.

Meeting the needs not the wants of the customers are emphasized. Certainly, the issue of affordability and available resources should be taken into consideration. Also, one should study the needs and expectations of both types of customers, external and internal. Staff and employees are internal customers to the administration and their needs and expectations should be known and studied and every effort should be made to meet them.

External customers are represented primarily by the patients, but other entities that the organization in question deals with should also be investigated and studied to identify and meet their needs and expectations. Thus, quality has many perspectives where each customer has specific needs and expectations to be fulfilled by the provider organization.

In conclusion, quality is never an accident. It is always the result of high
intention, sincere effort, intelligent direction and skillful execution. It represents the wise choice of many alternatives.

Now that quality has been defined, what is the difference between quality assurance (QA), quality improvement (QI), monitoring/quality control (QC), and total quality management (TQM)? QA is the process of assuring compliance to specifications, requirements or standards and implementing methods for conformance. It includes planning and design for quality, setting and communicating standards and identifying indicators for performance monitoring and compliance to standards. These standards can come in different forms; for example, protocols, guidelines, specifications, etc. QA, however, is losing its earlier popularity as it resorts to disciplinary means for standards compliance and therefore blames human error for non-compliance. It must be noted here that this term is widely adopted by the World Health Organization as the ‘encompassing’ term for all other concepts and terms. Several countries around the world also use the term QA in the same manner as WHO in that it means all of the concepts combined. This in itself does not mean that WHO or any other country using QA as the main and only term do not recognize the difference between traditional quality assurance activities and the more contemporary quality improvement or management activities. Therefore, in this section we will still introduce the difference in concepts using the traditional terminologies as well as the new ones.

Quality control (QC) is defined by the National Association of Quality Assurance (1994) as “a management process where actual performance is measured against expected performance and actions are taken on the difference.” QC was originally used in the laboratory where accuracy of test results dictates certain norms and specific (and often) rigid procedures that would not allow for error and discrepancy. Thus, it makes an effort to reduce variations as much as possible. QA and QC are complemented and sometimes overwhelmed by QI efforts and processes. QI is defined as an organized, structured process that selectively identifies improvement teams to achieve improvements in products or services. Therefore, TQM or quality management in general involves all of the above three processes — QA, QC and QI. It involves processes related to the coordination of activities connected with all or any one of the above three as well as the administration and resource allocation of these processes. Quality management becomes the umbrella under which all processes and activities related to quality fall.

THE MYTHS OF QUALITY

According to Peter Drucker, a management expert, people have different stereotypes and beliefs on quality. He calls them myths of quality and they are the following:

- Quality means goodness, luxury, shininess, or weight.
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- Quality is intangible and therefore is not measurable.
- There is an 'economics of quality' (e.g. 'We can't afford it').
- Quality problems are originated by the workers.
- Quality originates in the quality department.

So, let us discuss these myths.

The first describes the notion that quality does not have to be the most expensive or the most prominent approach or product. Actually, quality can be as simple as doing one's job better continuously. A quality car, for example, does not have to be a Benz or a Rolls-Royce. It may very well be a small or a medium-sized car that is reliable, requires low maintenance and is economical. A car that can take you from point A to point B with the least hassle. Similarly, a quality care does not have to be only a care provided in the most expensive setting and by the most eminent professors of medicine. Health care quality can be as simple as providing appropriate and necessary care to the right health care consumer in the most efficient manner, utilizing the currently available resources.

The second myth describes the incorrect belief by many people that quality is something 'magical' and undefined to be measured. They often believe that quality is something of an ideal that cannot be calculated or attained. However, we know that this is not true. Quality is tangible and is measurable. Just think for a moment that health care is a system. Therefore, according to the simple system theory and as it was applied to health care by Dr Avedis Donabedian (1966), each health care system can be divided into three components: structure (human and physical resources), processes (the procedures and activities of care and services), and outcomes (the results of care and services). Certainly, each of these components has a number of quantifiable elements that can be accurately defined and measured. For example, under structure, one might look at the quality of physicians in terms of their training, experience and education as one attribute of the total quality of the system of health care they work in. In the process component, one may calculate the variance of current procedures performed as compared to a standard set of steps to the same procedure as another attribute of the total quality of that health care system. Additionally, for outcomes, one example might be to calculate the level of satisfaction of patients to the care provided in a health care setting as a proxy measure of the total quality of that system and so on. Therefore, we find from the above that quality is tangible and obviously can be measured.

The third myth talks about the issue of the relationship between cost and quality. The common belief is, incorrectly so, that quality is too expensive to achieve, therefore we cannot afford it. This is definitely not true. Quality is based on the principle of cost-saving. If it is applied correctly, it should save money not cost more. Of course, initially, you need certain 'new' resources to start the process of quality, but rapidly one will find out that cost-savings are a reality. Quality calls for the
elimination of waste, re-work and duplication. Actually, one of the major principles of quality is efficiency. According to Suver et al. (1992), the costs of quality are three: the costs of prevention, appraisal, and failure (both internal and external). Implementing quality in a health care system requires certain resources to provide training in quality methodologies, securing monitoring capabilities, measuring performance and improvement accomplishments as well as the collection of necessary data for documentation of the status and level of care. Quality, however, reduces the costs incurred by the system by gradually reducing costs associated with failure. Internal failure costs such as re-work, duplication and waste can be reduced and eventually eliminated if resources are used wisely and processes are streamlined effectively. It is also the objective of quality to eliminate errors and mistakes in providing care and service that may have a detrimental effect on the external customer, primarily the patient. Thus, by doing so, external failure costs that are usually the most costly (sometimes tied to malpractice and liability issues) can be further reduced and may eventually be eliminated. Quality and cost may actually have an inverse relationship in this model. If quality is high then savings are the by-product and cost is lower. So, quality is definitely inexpensive.

The fourth myth of quality suggests that workers are the ones responsible for the system problems and therefore errors must be attributed to them. Some people go even further and say that because of that these workers should be 'hunted' and swiftly removed from the system for it to function properly. This notion is sometimes referred to as "the bad apple theory" according to Berwick (1989). Weeding out the outliers in the system, according to this theory, is the way to improve the system. Based on this assumption several quality experts went on proving this theory as wrong. Whether it is Deming (1984), Crosby (1979, 1985) or Juran (1988), they all found out that more than 85% of the errors could be system-related while only 15% were actually human or worker errors. They went on to emphasize the fact that if one would institute a quality system of proper training, and in the presence of the right work environment, these workers will not make mistakes. Mistakes happen when the system lacks adequate policies, standard procedures, and tools. Errors also happen when there is a lack of systematic methods to document processes, study them and proactively act on improvement opportunities even before problems could occur. Therefore, a lack of a quality environment is what causes problems to occur and certainly not because of the faults of the workers.

The last myth presented by Drucker suggests that quality is the responsibility of the quality department. Again, this is incorrect. The quality department should only act as a facilitator, an advocate or a coordinator of the quality efforts in the system. It is really the responsibility of every worker to provide quality, to practise quality, and to ensure improvements towards quality. Quality is everybody's responsibility and it should originate from the system's units and by the system's workers. Actually, in a quality environment, there will be no
need for a quality department as everyone will be responsibly for his/her own performance quality. Just imagine that if all the workers of an organization were aware of the responsibilities, and abided by their standards of performance, why should then there be a separate department telling the workers what to do to achieve quality. Therefore, quality in reality should originate with the workers and not the quality department.

WHY QUALITY?

Several reasons can be cited as to why we need quality and why we ask for quality. Some of these reasons are given below, but the reader is reminded that these are just a few reasons as compared to many other reasons that can be cited. The reasons that follow are in no particular order:

- Increased demand for effective and appropriate care
- Need for standardization and variance control
- Necessity for cost-saving measures
- Benchmarking
- Accreditation, certification and regulation
- Report cards on provider performance
- Requirement to define and meet patient needs and expectations
- Pressure of competition, and to enhance marketing
- Need for improvements in care and services
- Desire for recognition and to strive for excellence
- Competition
- Ethical considerations.

As discussed earlier, one of the most fundamental reasons for quality is to meet the needs and expectation of the customer, both external and internal. Patients, of course, are one important external customer who have certain needs and expectations that providers are required to learn about, investigate, understand and implement methods for meeting them. And that, too, on a continual basis. Basically, it is a process of effective communication between the supplier or provider of care or health service and the consumer or the receiver of that care or service. It is a continuous process of dialogue and understanding between the two. Additionally, one must not forget the other customers in the system, namely, the internal customers, the employees, and the other external customers such as the patients' families, the visitors, the payers, etc. Each of them has special needs and expectations and it is our obligated duty as health professionals to know them. Therefore, meeting the needs and expectations of the customer is a requirement for quality and that is the reason why we must have quality in health care, whether private or public.
As is evident from the above, quality is a desired entity by all health care providers. As ethical considerations above suggest, it is the fabric of the very existence of health care professions. Ethics dictate that one must provide the best and most appropriate care accessible to the patient. It is the basis of the humanistic aspect of the health care system. It is our duty as health care professionals, and because of that we must provide quality care and service to fulfill this ethical code.

Other reasons mentioned above such as effectiveness, appropriateness, and efficiency are basic elements of a quality system and quality care (Nicholas et al. 1991). One cannot provide care without regard to available resources. It is true that we all would like to provide, and receive, the best care there is, but it is prudent to do that within the limits of current resources. Actually, if this is not taken into consideration then quality is not achieved. Quality requires efficiency in the use of health care resources and effectiveness in the delivery of care and service. This issue will be further discussed under the section "The dimensions of quality".

In view of the above, it is clear that quality can be achieved most effectively once we know our baseline data and what we are striving for. The issue is of setting specific but incrementally improving standards of care. Identifying and selecting appropriate standards for the structure, the processes and the outcomes of care and health services would provide a guideline to follow and allow minimum variation from these standards. By doing so one would be able to control variance, thus reducing failure and appraisal costs as described earlier.

Important to the reasons why we strive for quality is the issue of competition in health care. In the current era of cost constraints and limited resources even health care institutions must demonstrate their ability to provide services most effectively and most efficiently. It is a matter of survival in today's volatile market. Non-price competition is becoming increasingly important as consumers of health care are demanding better care and better access to appropriate care. Quality fits under this type of competition where health care organizations would work hard to achieve that desired level of quality care in order to attract new resources and expand to new horizons. Quality stimulates confidence and confidence leads to improved performance which, in turn, attracts consumer trust that would eventually lead to increased marketability and membership.

Of course, one cannot talk about quality without talking about excellence. Every prudent health care professional must aim for excellence. This is what Crosby (1979) calls as Zero defect. In other words, health professionals should do their very best to improve their work processes and procedures, and perform them with zero defects. Errors need to be minimized and further eliminated to attain excellence. This status of excellence, whether at individual or at organization level, will attract recognition in the field and will encourage other individuals, organizations or systems to emulate and follow. In other words, this
is called benchmarking. Benchmarking is the process of identifying centres (or practices) of excellence specific to certain processes or procedures in order to study and emulate in one's own system. Benchmarking stimulates re-organization, innovation and improvements, all towards a higher level of health care quality.

PRINCIPLES OF QUALITY

Several principles come to mind when one thinks of quality. Quality, as mentioned above, involves the processes of QA, QC and QI. All of these three concepts combined produce yet another fairly new concept called TQM, quality management or just quality. It was described by several experts or gurus of quality, namely, Taylor, Shewhart, Dodge, and Roemig as early as late nineteenth century through the 1920s. All these experts discussed the theories of 'Scientific management' where quality as well as quantity were taken into consideration in dealing with management issues. They all introduced new methods of statistical process control and quantifiable means in efficient management practices.

Based on these principles Dr W. Edward Deming, a statistician, introduced new theories of management. Dr Deming was invited by Japan after World War II to help revitalize its dying manufacturing industry. Deming based his theories on the human element and emphasized that developing human resources was the best means to achieve and improve the quality of products and services. He stressed, however, that quality efforts were successful only if these were led by top management. These efforts although believed in individual responsibility but these must be practised and actively supported by top management.

Deming laid down 14 points for management:

1. Create constancy of purpose for improvement. Each organization must identify its mission and communicate its mission to all its employees for implementation.

2. Adopt the new philosophy. Organizations should identify their customers and learn their needs and expectations. He stresses cooperation and coordination.

3. Cease dependence on mass inspection. Emphasis should be on improving processes and establishing individual relations.

4. Cease buying based on price tag alone. Emphasis should be on the 'life cycle costs' of the product or service.

5. Constantly improve the system of production and service. The key word is continuous improvement and not for a period of time only. Deming, in this point, introduces the cycle of improvement Plan- Do- Check- Act (PDCA) where you plan (P), implement (Do), analyse and evaluate (Check) and act (A) for improvement. It is a continuous cycle.

6. Institute training on the job. Deming stresses practical training and active interaction with the customer to avoid problems and improve processes.
7. Adopt and institute leadership. It is people-oriented where accessibility, support, active involvement and empowerment is practised. Leaders are good listeners, promoters and encouragers of innovation and initiatives.

8. Drive out fear. Making the work environment fear-free of making mistakes, speaking out, taking risks, making decisions, enquiring, of learning, and offering suggestions.

9. Break down barriers between departments. Deming stresses here cross-functional teams, interdisciplinary groups and interdepartmental dialogue. This will allow for experience-sharing and efficient utilization of limited resources.

10. Eliminate slogans, exhortations and targets for work force. Deming maintains that these will attempt to shift the responsibility for quality improvement from management to employees. It will give false hopes and unrealistic expectations.

11. Eliminate numerical quotas for the workforce and numerical goals for the management. These quotas generate result-oriented rather than performance-oriented behaviours.

12. Remove barriers that rob people of pride of workmanship. Eliminate the annual rating or merit system. According to Deming, almost 85% of errors are system (or management) errors and not employee errors. Also, that if we only evaluate individuals yearly we are losing the opportunity to improve their performance during that year.

13. Institute a vigorous programme of education and self-improvement for everyone. There should be a strong commitment to invest in employees by offering them the opportunity to learn and develop professionally.

14. Put everyone to work to accomplish the transformation. Deming here stresses that management's commitment is paramount to the success of the quality improvement efforts. This commitment must be genuine and active where the employee would sense and feel the support provided by management.

Dr Joseph M. Juran is the other quality guru. He also helped the Japanese re-establish their economy through improving their products and services. Dr Juran defines quality as fitness for use by the customer. He focuses on three major quality processes:

- Quality control and quality sequence
- Quality improvement and breakthrough sequence
- Quality planning and annual quality programme.

Quality control attacks special causes (uncommon or sporadic causes); breakthrough sequence attacks the chronic or common causes where it involves great efforts and innovative initiatives to solve 'system' problems. The annual quality
programme involves planning or improvement implementation and evaluation of these efforts at least on an annual basis. Dr Juran also calls for continuous improvement and advocates project-by-project improvement. At any point of time simultaneous and numerous processes and problems are being tackled by a process improvement team led by managers. Project selection should be based on a return-on-investment calculation. Dr Juran has published numerous books on quality.

The third quality expert is Philip B. Crosby, author of books like Quality is Free, Quality without Tears, Leading, and Commitment. Dr Crosby is the reviver of the zero-defect concept. He calls for four 'absolutes' of quality:

1. The definition of quality is conformance to requirements. Setting those requirements, he believes, is the responsibility of management based on customers' real need.

2. The system for causing quality is prevention. This process should be preceded by a system of detecting potential problem areas and identifying methods for preventing the occurrence of these problems. This concept obviously has a direct impact on cost-saving efforts where preventing problems from ever occurring or detecting their occurrence early may help in saving the organization the cost of resolving them.

3. The performance standard is zero defect. Crosby believes that non-conformance is unacceptable, and that error is not inevitable. He also criticizes certain companies that would follow acceptable quality levels (AQ L). He states that AQ Ls send the wrong message to workers and external customers that making errors was acceptable and that may mean that personal performance for everyone was AQ L.

4. The measurement of quality is the price of non-conformance. Again, this absolute is directly related to cost-containment where non-quality causes problems and problems cost money. Costs are then wasted to detect those problems (appraisal costs) in order to prevent those problems (failure costs).

Crosby also calls for 14 points of management:

- Management commitment; active and true commitment.
- Quality improvement teams to improve processes and solve problems.
- Quality is measurable.
- Evaluating quality involves cost of appraisal, inspection and surveys.
- Increase awareness on quality, both formally and informally.
- Corrective action should be incorporated only in hopeless situations.
• Management should plan for zero defects.
• Emphasis should be on educating for quality.
• A day should be planned periodically for displaying and encouraging zero-defect activities and processes.
• Each employee, department and organization should seriously set their goals and make every effort to reach them.
• A system should be in place to study errors and remove their causes.
• Deserving employees and departments should be recognized.
• Quality activities should be planned and implemented through an established quality council.
• Do it over again where continuous improvement is stressed.

The Japanese also had their quality guru, Kaoru Ishikawa. He developed the cause-effect diagram or the fish-bone diagram. He is also the author of the total quality control concept. Ishikawa is a true proponent of management's commitment to quality and individual responsibility. He believes that quality improvement efforts are the responsibility of all employees and not just of quality specialists. Other issues he advocates are similar to his colleagues', Drs Deming and Juran.

In conclusion, the principles of total quality are summarized in the seven major categories of the prestigious Malcolm Baldrige National Quality Award. The award is given to a national organization (service and manufacturing) that scores the highest points in seven categories.

• Leadership demonstrations (95 points)
• Information and analysis of strategies and systems (75 points)
• Strategic quality planning efforts (60 points)
• Human resource development and management (150 points)
• Management of process quality (140 points)
• Quality and operational results (180 points)
• Customer satisfaction (300 points).

Therefore, quality calls for leadership, commitment, customer-focus, process-based, participative management, individual responsibility, empowerment of employees, proactive problem identification and solution, continuous improvements, a system of employee recognition and interdisciplinarity, and education and retraining.

This chapter has attempted to present only an overview of the concepts of quality in health care. Obviously, the field is too vast to be covered in this paper, but should the reader be interested to learn more about the subject, the references below would prove beneficial. The field of quality in general and that of health care in particular is growing rapidly and the reader is encouraged to seek further readings on the subject. It is both interesting and important.
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References

In this chapter the activities of quality assurance (QA) are discussed and presented in detail as it applies to health care organizations in general. QA is described here as “all the processes and subprocesses of planning for quality, setting of standards, development of indicators, setting of thresholds (benchmarks) of expected quality, and active communication of the expected quality in measurable terms to the appropriate audience and direct users”.

Although planning is an integral part of the QA process, it is not included in this chapter as it is presented in the chapter on “Implementation of health care quality”. In this chapter we will concentrate on presenting the basic elements of a QA plan for a health care organization. Following the process of planning for quality, a new set of steps should be taken before the implementation of this initiative in an organization. Some of the early steps in this initiative is the setting of standards. Setting of standards does not necessarily mean the development of standards from zero level, but it includes such activities as search and selection for the system to standardize and the selection of the right standards for adoption, modification or re-development. These newly-set, developed or adopted standards should then be tested for reliability and validity and further communicated, actively, to the intended audience and appropriate users. Once standards have been communicated to health professionals steps should be taken to measure compliance to these standards using an adequate number of key indicators related to those standards. The measurement of the variance between the current practices and the standards set is what monitoring is all about. Monitoring as a system will be discussed further later in this chapter.

There are a number of ways to set standards, but in this chapter only one method of setting standards is being presented. Here, the given scenario assumes that the organization is actually
developing its own standards (from zero). Therefore, a step-by-step approach of how to develop standards and indicators will be presented. Most organizations, however, rely on other specialized organizations such as the World Health Organization, the National Committee on Quality Assurance, or the Joint Commission to adopt these organizations’ standards of expected quality. These same organizations may use the method described in this chapter to develop additional standards or to develop their policies and procedures, clinical practice guidelines, or algorithms which are all different forms of standards.

Take a look at this simple scenario to illustrate “standardization”. The college professor starts his “quality” class by asking each student to pull out a piece of paper and start making a paper airplane, independently. No instructions are given, he just asks them to “make a paper airplane!” Of course, each student will start the process relying on her/his old skills of folding papers learned probably during childhood. After 10 minutes, the professor asks, each student to “fly” her/his airplane. What do you think happens? As expected, there will be a lot of variation in the different types, shapes and performance of these paper airplanes. Certainly, one of these can be spotted to be the best. Taking this scenario a little further, the professor picks up that one “best” airplane and asks the owner to come in front of the class and demonstrate to everyone how she/he made that airplane. The class is asked to follow the steps in making such an airplane as the student takes them step-by-step in the process of re-constructing similar models of the airplane. Now that everyone has made her/his own airplane, they are asked again to “fly” their new and improved models. And guess what? They all have a winner. Almost all of the new airplanes are performing similarly and are all reaching their targets.

WHAT DOES THIS EXERCISE TEACH US?

It tells us that without a set of standards there will be a number of variations in the outcomes. Some of them are meeting our objectives while a majority of them are not. Actually, the outcomes are not in control. We do not know what to expect, therefore making it almost impossible to predict what is going to happen. Imagine treating a patient with different sets of practices!

Once we identified the best outcome and taught everyone (communication) how to achieve it through the improvement of the process, then everyone was able to achieve the best outcome. Our expectations are now met and the process now is in control while our outcome has drastically improved.

Using the steps of this scenario in this chapter and the chapters that follow, we will be demonstrating further the correlation between setting standards and improving care outcomes. Basically this process, if followed, will reduce variance, increase the control of resource utilization and improve patient care outcomes. Therefore, in the next few sections this process will be further demonstrated and discussed.
PLANNING THE QA PROGRAMME

The QA plan is a document developed by an organization that defines the conceptual understanding of quality in that organization, and provides a description of the organizational structure, the resources and the materials allocated to that organization’s quality programme. This plan may also outline the methods for applying quality standards to the delivery of care and service of that organization. Therefore, sources and type of data will be discussed, as well as providing information on the methods of data collection and type of reporting mechanism. These plans are usually designed according to the Joint Commission’s 10-step model of quality assessment. This model includes the following steps:

1. Assign responsibility;
2. Delineate scope of care and service;
3. Identify important aspects of care and service;
4. Identify indicators;
5. Establish a means to trigger evaluation;
6. Collect and organize data;
7. Initiate evaluation;
8. Take actions to improve care and service;
9. Assess the effectiveness of actions and assure improvement is maintained; and
10. Communicate results to affected individuals and groups.

Thus, accordingly, an organization may be able to define each step more appropriately as it pertains to its operation and quality programme and prepare their QA plan accordingly. The following is an example of a health care organization’s QA plan outline:

2. Table of contents
3. Background and history of the programme. A description of the chronology of establishing the programme and the actions taken to secure resources for it. If the programme has been in place for a long period, you may include an abstract of the programme changes that have taken place since its inception.
4. The Organization’s mission and vision: Here, describe how does the organization’s mission fit in the overall goal of the QA/QM programme.
5. Objectives of the programme.
6. Who is involved? Here, describe the positions of the different personnel associated with the QA/QM programme. List the main duties and responsibilities of each position and what are their major activities in the programme. A short list of the expected qualifications of persons in each of these positions provide a better understanding of the calibre and competencies desired for staff to occupy these positions.
7. Organizational structure of the quality programme. An organizational structure of the programme outlining each position and its hierarchy within the organization. Include here the position (for reporting purposes) of all the committees associated with the operation of the programme.

8. List and brief description of all quality-related committees. Include a general description of each of these committees, membership composition, main tasks and duties, reporting mechanism, and frequency of meetings.

9. Scope of the programme. List all the major activities of the programme, e.g. risk management, utilization management, case management, credentialling, etc.

10. Important aspects. Here you may include a list of all those key indicators that the programme identifies and collects data on regularly. List only those areas that the programme is regularly measuring and monitoring, e.g. patient satisfaction rates, nosocomial infection, adverse occurrences, medical records completeness, problem identification and improvement and others. For each of these areas a level of acceptable standard should be provided, i.e. what is the threshold of minimum accepted standards beyond which evaluation is automatically triggered.

11. Standards being followed. Here an organization will outline the type of standards it is complying with and what accreditting/certifying organization it is pursuing.

12. Linkages with other services. List and briefly describe all those departments, services or units that have either direct or indirect link or association with the QA/QM programme. Provide a description of these activities and tasks related to quality in each of these entities.

13. List of reports and communication mechanism for the programme.


Once the QA plan is developed it should be circulated to all the key individuals of the programme and then should be sent for review and approval by the organization's top administrator. Any subsequent modifications should follow the same route for approval. This requirement (developing a QA plan and having it appropriately approved) is based on the standards prescribed by most accrediting agencies, thus making it extremely important to follow.

In the chapter on Quality Implementation we will discuss the steps in implementing quality in a health care organization in a broad scenario. As mentioned earlier, QA must include a stage of adequate planning, both strategic and operational, to assure the availability of resources and facilitate quality assessments and improvements. Therefore, a comprehensive and well-developed plan is essential for ensuring the success of the quality programme in that organization.
In the following section, a method for setting standards in health care is presented. Again, and as mentioned earlier, this is only one method of setting standards. There are several others that follow the same format but the objective is the same, which is the development of a standard that is valid, reliable, clear, applicable and timely. Setting a standard does not necessarily mean developing one de novo, but it may include the adoption or modification of an already existing one. Actually, a standard that has been developed for one organization may not be applicable for another, and so does a standard that is developed for the average organization may not be adequate for a higher quality organization. Additionally, the more the efforts are put in the development or adoption of a standard the more acceptance will that standard receive. This is especially true when one is dealing with the development of clinical standards and, in particular, clinical practice guidelines. These types of standards require physicians’ buy-in and unless these physicians are involved in the development and dissemination of these standards, it will be very difficult to have them comply with them. Therefore, early and active involvement of the target audience of each standard is important to secure a useful and successfully practised standard.

SETTING QUALITY STANDARDS

Standards are an important part of health care and have gained prominence in the trend to address quality-of-care issues. Once an organization makes a commitment to address the issue of its quality of care, it must define “quality” in operational terms. Standards do just that. The organization ensures consistent, high-quality services through the correct application of standards. This section outlines a methodology that has been used in at least two countries to date and in a number of health care organizations worldwide. Early indicators show that it is useful for helping an organization begin its quality improvement “journey”.

WHAT ARE STANDARDS?

Standards, broadly defined, are statements of expectations for the inputs, processes, behaviours and outcomes of health systems. Simply put, standards tell us what we expect to happen in our quest for high-quality health services. Standards are important because they are the vehicle by which the organization translates quality into operational terms and holds everyone in the system (patient, care-provider, support personnel, management) accountable for their part. Standards also allow the organization to measure its level of quality. Standards, indicators and thresholds are the elements that make a quality assurance system work in a measurable, objective and qualitative manner.

Among health care professionals there are many definitions and uses of the word “standard”. The term standard is sometimes used to describe protocols, standard operating procedures, specifications, criteria for practice, and clinical practice guidelines. Guidelines are statements by
experts that describe recommended or suggested procedures (Eddy and Couch, 1991). Guidelines serve as a flexible technical reference that describe what the health care provider should or should not do for a given clinical condition, e.g. guidelines for vascular injury in frostbite cases (Imparato and Rites, 1989). A protocol is a more precise and detailed plan for a process, such as the management of a clinical condition. A protocol implies a more stringent requirement than a guideline, such as WHO protocols for diarrhoea case management. A standard operating procedure (SOP) is a statement of the expected way in which an organization's staff carries out certain activities, such as standard operating procedures for billing patients. Standard operating procedures are usually more stringent than guidelines. A specification is a detailed description of the characteristics or measurements for a product, service, or outcome, e.g. the list of technical features of a personal computer.

In essence, these are all standards. They are varying ways that an organization explicitly defines what it expects for (1) inputs (resources) such as the materials, drugs, supplies, personnel; (2) the delivery processes, activities, tasks and procedures, and (3) the desired outcome (result) of these processes (Donabedian, 1980).

WHY USE STANDARDS?

In every process there is a certain amount of variation. In every task we perform, we vary the way it is done each time. A surgeon performs open-heart surgery differently each time by changing the angle of incision, the manner of suturing, and other small details of the operation. While the surgeon strives to perfect his performance, it is impossible to perform surgery exactly the same way each time. Variation is natural and is to be expected in every process of health care. However, through continuous quality improvement techniques, health workers can increase their knowledge of and control over variation in the health care system (Berwick, 1991). The objective is to keep variation within limits of control (Deming, 1986).

Many sources of variation in medical care should not be standardized completely. Treatment plans and other aspects of care need to be tailored to each patient's specific care requirements. However, quality of care can be improved by eliminating or minimizing unnecessary variation in the way that care is provided. "It is simply unrealistic to think that individuals can synthesize in their heads scores of pieces of evidence, accurately estimate the outcomes of different options, and accurately judge the desirability of these outcomes for patients" (Eddy, 1990). Standards help to reduce variation by defining what the organization expects for the day-to-day inputs, processes and outcomes of health care and services.

For example, input standards for open-heart surgery help to ensure that surgeons have the necessary and appropriate equipment and staff needed to perform the procedure. Process standards such as guidelines and protocols help to ensure that the surgeon is using current, up-to-date
techniques and technology. Outcome standards define what the organization expects as results for the procedure.

Much of the attention in recent decades (at least in the US) to establish standards has been driven by payment reimbursement and litigation requirements. Hospitals must demonstrate adherence to accreditation requirements and to HCFA standards for reimbursement through Medicare and Medicaid programmes. Licensing requirements and litigation concerns also influence a health care organization to establish minimum standards for quality of care (Mills and Lindgren, 1991). Due to these and other influencing forces, standards for almost any aspect of health care now exist in some shape or form in most health care organizations.

Health care organizations have a growing interest in establishing standards, partly to set minimal expectations for health services rendered and partly to help reduce adverse health outcomes and variation within existing health services.

A METHODOLOGY FOR SETTING STANDARDS

The methodology for setting standards described here can be used step-by-step, although it is not necessary to do so. This method is usually used for the development of new standards, but the method may also be used to develop organizational policies while a few of these steps may be used to modify other developed standards. As the organization moves from one task to another, it may need to return to certain tasks as more information is gathered. The approach is designed to guide the organization and the people assigned to the task of setting standards through the various questions it must consider to define what is quality for the organization and what standards are needed to meet that quality.

Step 1: Identify a function or system

When starting to develop standards, the organization will need to identify systems or subsystems requiring standards and select one or two that are of high priority. These systems are the clinical and non-clinical functions that the organization engages in regularly. Some primary care examples are acute respiratory infection (ARI) case management, maternal and child care services, and immunization services. Some hospital-based clinical examples are the performance of caesarean sections and emergency care services. Some non-clinical examples are patient admissions and the use and maintenance of medical records.

The organization can identify high priority functions through a two-step screening approach. The first screen identifies high volume, high risk, and problem prone functions or systems (JCAHO, 1990). High-volume functions are those that are performed frequently or affect large numbers of people. High-risk conditions or functions are those that expose the client to a greater risk of adverse outcomes because of the nature of the
disease or the case management process. Problem-prone functions are those that have produced problems for the organization and/or clients in the past.

The list produced by the first screening will most likely be long enough that the organization will need to narrow it down further. Initially most organizations cannot afford the time and expense to develop standards for every function or system that is high-volume, high-risk, or problem-prone.

To narrow down the list further, the organization will need to select additional criteria by which to judge all the possible functions or systems. Given below are some commonly-used criteria for selection among the possibilities.

**Importance** - Having more significance, consequence, and/or value relative to the other functions or systems.

**Feasibility** - Any changes recommended for the function or system can be carried out by the organization and personnel.

**Impact** - The recommended changes for the function or system will produce the most positive result relative to other choices.

**Cost** - Changes that can reduce cost and produce savings.

**Step 2: Identify a team or a panel of experts**

Up to this point the critical decisions concerning what functions or systems need standards are made usually by managers and department chiefs. Once they have decided where to begin, the organization typically assigns interdisciplinary teams who know the most about a given function or system for which standards will be developed.

These teams should include the right people in order to address issues necessary to complete this task (Brassard, 1989). The “right” people are those who are best qualified by virtue of their experience, training, and role in the organization. They are the people who are most involved or most knowledgeable about the function or system. In particular, consider who is involved with each step of the function or system, consider including a technical expert, and consider including someone of authority within the organization. In terms of the number of members, 5-8 members will be the most effective team size.

**Step 3: Identify the inputs, processes and outcomes**

The team or panel of experts must identify the elements for each of the components of the function or system. These are the inputs required to make the processes happen, the processes that are necessary for the expected outcomes to occur, and what is expected as an outcome(s) for the function or system.

Some teams find it useful to look at the system backwards to better list the elements for inputs, processes and outcomes. In this manner, a team first lists the desired
outcomes for an activity, then lists the processes necessary for those outcomes to occur, and the inputs that the processes require.

Once the team identifies all the elements, it should decide which of these elements are critical, or key, for the function or system to be carried out and outcomes to occur in a manner that the organization expects. Not all inputs, processes and outcomes are critical for a function or system to be of the quality that an organization expects. (See annex for a case study.)

A number of tools are useful for identifying inputs, processes and outcomes, then gaining consensus on which are critical to the quality of the process. An Affinity Diagram (Al-Assaf, 1993) is a useful technique for gaining a consensus on the various inputs, processes and outcomes of a health care function or system. Some teams couple this technique with flow charting (Scholtes, 1988) to visually lay out the steps for the function or system and to gain a consensus on critical inputs, processes and outcomes. Therefore, as examples to inputs, we may include patients, personnel, medical records, medicines, buildings and equipments. For processes, in a hospital this may include surgical operations, physical examinations, patient registration, patient discharge, and administration of medication. Outcomes will include post-surgical wound infections, rate of nosocomial infections, mortality rates, rate of complications, and patient satisfaction rates.

Step 4: Define the quality characteristics

Quality characteristics are the distinguishing attributes of inputs, processes or outcomes that the organization or team decides are essential for how it defines quality health care. They are the traits or features by which we judge the quality of health care elements. For example, a team of physicians and laboratory technicians may use “timeliness” as a characteristic of quality (among others) when setting or evaluating standards for hospital diagnostic tests. Once the team understands and agrees on a quality characteristic, it can then define a standard for it. In this example, the team’s next step is to define what it means by “timeliness” in measurable terms.

A team should use whatever decision-making process that feels comfortable to decide which are the key elements and the quality characteristics. Some decisions and choices may have consensus among the group members with little need for discussion. Other decisions may require more discussion, time and the use of some decision-making tools and techniques (Scholtes, 1988; Al-Assaf, 1993 and 1998). Some groups may not make decisions by consensus, but rather the leader may make the decision or the group may vote. No one decision-making process is universally better than another. The group must decide which is the best way for it to make decisions.
Step 5: Develop/adapt standards

Once the team has decided the quality characteristics for the elements of a function or system, then it must decide which quality characteristics require standards, then set the standards. A team may decide it does not need a standard for all quality characteristics, and instead focus on what it feels is most important. In completing this step, teams usually do the following at some time:

A. Choose a format for standards.

Standards can use several different formats to describe what is expected for inputs, process and outcomes of a system. Most often input and outcome standards take the form of statements, but many health professionals and organizations have developed a variety of formats for process standards. Given below are just a few of the more common formats you will find for standards.

1. Statements. Standards are often written statements of what is expected to happen for a function. The statements can be written as specifically or as generally as the team or organization decides is necessary, e.g. NCQA’s Standards for Accreditation of MCO’s (NCQA, 1997); “The managed care organization identifies important opportunities for improvement” or “The organization has adopted guidelines for acute and chronic care relevant to its population”.

2. Algorithms. Process standards can be in the form of an algorithm, which are presented as a list of steps, or as a few sentences in paragraph form, or as a map that outlines a step-wise approach to solving a clinical problem. A common algorithm is a flowchart, sometimes called a decision tree, that will guide the user through a variety of steps and decisions to lead them to the most appropriate outcome, e.g. Comatose Patient Management Algorithm: “If patient does not respond to stimuli, then you do......if responds, then you do.......”

3. Case management plans. These are patient care plans that “outline the anticipated usual or standardized length of stay and set out the expected clinical outcomes, intermediate goals, and interventions involved in the care of a given case type of patients...” (Grossman 1991). These plans include care provided in all clinical settings such as admissions, routine patient floors and intensive care units in the case of, for example, Coronary Artery By-pass Graft (CABG) patient care, or renal dialysis patient plans.

4. Critical paths. Process standards can be in the form of a critical path, which is “an optimal sequencing and timing of interventions by physicians, nurses and other staff for a particular diagnosis or procedure...” over a period of time (Coffey et al. 1992). Critical paths are designed to minimize delays in health services and resource use and to maximize the quality of care. The terms
“critical pathways”, “critical paths of care”, and “care maps” all refer to the critical paths described here, e.g. critical path for a myocardial infarction patient care episode, which may include a list of members of the clinical team attending to the case and their specific tasks for that patient for each inpatient day.

5. Clinical care protocols. Process standards can also be in the form of clinical care protocols. They are “practice guidelines which are explicit, criteria-based plans for specific health care problems” (Benson and Van Osdol, 1990). Protocols are used to define the process of care for a primary care problem, including history, physical exam, assessment, diagnostic procedures, treatment, and patient education, e.g. hypertension care protocols, or diabetes mellitus patient care protocols.

Developing process standards can be a complicated job and may require extensive technical knowledge of a health care function or system. They can be presented in a variety of forms in addition to the ones described above. The World Health Organization, the National Committee on Quality Assurance (NCQA), the Joint Commission on the Accreditation of Health Care Organizations (JCAHO), the Agency for Health Care Policy and Research (AHCPR), the American Medical Association, physicians and other health care organizations have developed many input, process and outcome standards for a variety of health care functions. Many health care organizations are developing process standards for common health care functions and systems which are specific to their organizational and environmental requirements. A team or organization can use these sources, but if it decides that it needs to develop new and original process standards, then the team may require additional training and resources.

B. Gather background information. Developing or adapting standards requires the team to gather background information, then process that information to derive appropriate standards. Teams can gather information through methods such as those listed below:

1. Literature review. A worldwide body of knowledge for most health care functions and systems exists and can be accessed in numerous ways. Much of this knowledge is found in current health care literature in most medical school libraries. The Internet may have a number of sites that are dedicated to a certain health care organization and may have a listing and full text of a large number of clinical practice guidelines applicable to that organization. Whenever possible, teams should consult the medical literature to determine what is commonly accepted for a given health care function or system before inventing, or possibly re-inventing, standards.

2. Confer with experts. Sometimes the team does not have all the expertise it needs to develop or adapt standards. If so, the team can include an expert(s)
as an ad hoc member to help guide them in the technical nature of a chosen function or system. Or the team can confer with an expert(s) and bring the information back to the team.

3. Benchmark. Benchmarking is a technique for learning from others' experiences for a function or system where the team is trying to set standards (Watson, 1993). The term 'benchmarking' means using someone else's successful standard as a minimal measure of what you would like to achieve. Benchmarking can be used to stimulate creativity by gaining knowledge of what has been tried by other similar organizations and modifying it to make it work better for your organization.

4. Review past experiences. This method is similar to benchmarking, but the team examines their own organization's experiences to discover what has worked and not worked in the past. This is important because if there is some organizational constraint that has prevented the adherence to standards in the past, then that constraint may prevent any new effort to set standards from being successful.

C. Draft the standard. Experts in setting standards suggest that a team begins with a "seed" standard. These are usually input, process or outcome standards from other organizations or some other proposed standard which a team can consider to help it start thinking. After beginning with the "seed", there are several techniques a team can use to draft their standard. You can use the Delphi Method (Dalkey et al. 1972) to exchange and build on each other's ideas, flowcharts to illustrate sequence of steps in a process, or interrelationship diagrams (Brassard, 1989; Al-Assaf, 1993 and 1998) to show the relationship among the parts of a standard. When disseminating new or adapted standards, be sure to describe the rationale for its recommended use and the consequences for following the standard (Eddy, 1990).

Step 6: Develop the indicator for the standard

Once the standard is developed then an indicator can be drafted by using measurable terms to convert the standard into an indicator. Indicators in essence are standards that are stated in measurable terms. For example, if the standard is "Physicians associated with an X hospital should be appropriately certified in their fields", then the indicator will be "the percentage of those physicians associated with the X hospital that are certified". Indicators are important for the monitoring of compliance to the standard and measuring variance from the desired level of achievement of that standard. Indicators however need to be selected based on a priority system as only key indicators should be selected. Too many indicators and too many non-key indicators can over-burden the system with excessive and probably ineffective data collection and analysis.
Step 7: Assess appropriateness of standards and indicators

Standards should be assessed to ensure that they are appropriate for the organization. The team or the organization should determine if the standards are valid, reliable, clear and applicable before they are disseminated. Indicators should have the same characteristics plus they be measurable. All too often, health organizations develop or adopt standards with little or no assessment. Consequently many standards are not appropriate or unrealistic and are simply not followed by intended users. In general, the assessment should be carried out on a small scale, using qualitative rather than quantitative data when necessary. The following procedure may be followed to assess standards:

1. Determine all those in the organization who will use or be affected by the standards and select a representative group to review the standards. Since the number of users of standards in a given facility is small, statistical samples and rigorous qualitative analysis are not advised unless a national or system-wide effort is under way.

2. Determine the method to use for obtaining information about the standards from the sample group. Possible methods are staff meetings, anonymous questionnaires, and face-to-face interviews.

3. Analyse the feedback and make any necessary changes before disseminating the new standards. Analysis should include a compilation of strengths, weaknesses and recommendations. The standards team should review and develop a plan to revise and implement the standard.

4. Additionally, the assessment should determine if the standards have the characteristics described below (IOM, 1990). If they do not, then the team should revise the standards and reassess them to ensure that they meet these criteria.

**Assess standards for validity.** Assessment should determine if there is a strong demonstrated relationship between the standard and the desired result it represents. The team should confirm that if the inputs are provided as they have defined them, and that if the processes are carried out as they have defined them, then the desired outcomes should occur. Expert advice may be required here to affirm the validity of the standard. Certainly, tests for validity could be applied on the developed standards to assess their status and affirm validity.

**Assess standards for reliability.** Assessment should determine if the same results occur each time the standards are used, i.e. the standard’s measure reproducibility. A reliable standard will result in a small amount of variation in the way the standard is applied every time.

**Assess standards for clarity.** Assessment should determine if the standards are written in clear, unambiguous terms so that the workers who use the standards do not misinterpret them. It is important that the
sample of workers that test the standards represent those workers who will ultimately use the standards.

**Assess for applicability and reality.** Assessment should determine if the standards are realistic and applicable given the available resources and training of the health care workers responsible for complying with them.

A word of caution when assessing standards with a sample population. Make sure the sample is adequate and representative of the target population that will use and comply with the standard. Assessing sample size and representation of a target population is beyond the scope of this article, so refer to a statistical sampling text for further discussion (Williams, 1978).

**CHALLENGES TO SETTING STANDARDS**

In spite of a large resource of existing standards to adapt to specific needs and the growing interest in establishing standards by various health care organizations, there still exist certain challenges to this process:

A. **Reliance on explicit criteria.** Physicians, nurses and other health care professionals may resist for the reason that standards impinge on their subjective judgement that they have developed through their practice. Some professionals contend that medicine is partly art, partly science, and that standards may require them to diagnose and treat without allowing them to use their professional judgement. Others may fear that standards will be used in a punitive manner, to identify and punish professionals who do not perform within strictly defined limits. Still others may feel that the presence of standards make the practice of medicine like “cook-book medicine” and that may impede their creative ability in the diagnosis and treatment of patient. Of course, the other issue is the legal impact such standards might have or are perceived to have on the practice of medicine. These are legitimate concerns and require the organization to address them in some constructive manner before developing or implementing standards.

B. **Identifying appropriate human, physical and financial resources.** Developing or adapting standards takes time and personnel. Sometimes the organization must go outside its staff resource to use experts in the field. Throughout all this the organization will incur certain costs that should be evaluated beforehand to determine if the effort is worth the costs involved.

The process of setting standards is an integral part of the cycle of quality improvement. This process is usually followed by communicating standards, then monitoring compliance via indicators. Through monitoring, gaps are identified between what is expected to happen in health care vis-a-vis standards and what is currently happening. Teams are then assigned to analyse
these problems, identify and implement solutions, and make recommendations to the organization for adopting the solutions on a wider basis.

This last part often entails modifying, enhancing or updating standards so that the organization’s expectations for quality are being met. Here again, standards should be periodically assessed for validity, reliability, clarity and applicability. This can be viewed as a continuous cycle of quality improvement. The next section of this chapter outlines the process of communicating standards to the users.

Setting standards is a necessary component of defining and improving the quality of health care. Through standards, an organization defines what it expects for the inputs, processes and outcomes of the services it provides. Through their indicators, standards are an instrumental part of monitoring the quality of care and identifying problems and measuring improvements in health care service delivery. With periodic updating and modifications, they become a part of an organization’s cycle of continuous quality improvement.

Setting standards can be approached using a seven-step methodology: identify a function or system that requires standards; identify a team to address standards; identify the inputs, processes and outcomes of the function or system; define the quality characteristics; develop or adapt standards; develop indicators; and assess the appropriateness of the standards.

COMMUNICATING STANDARDS

The purpose of developing standards is to ensure the delivery of quality patient care. To successfully apply a set of standards, they must be successfully communicated to those who are responsible for their application. Successful communication implies that those who are meant to receive the communication actually do so; that those who receive the communication understand it, accept it and accurately implement the necessary tasks.

Remember the paper airplane scenario presented at the beginning of this chapter. Just imagine that once the new improved standards (best paper airplane) were identified and demonstrated (communicated) by the “owner” (expert), then the outcome was improved and the product was a better one. This is what we are trying to achieve with communication. Just think of a situation where a top leader may issue a memorandum to all managers telling them to follow a certain policy or procedure without communicating the need for it and why it was developed, or not including anyone of them in the decision process. What do you think of the probability that this policy will be followed consistently. It might be followed for the first few weeks or months then everything will revert back to where it was originally. That is why unless you actively communicate your standard, the probability of its compliance is diminished.

Communication is the vital link between the development of the standard and its actual application. Communication of standards needs to be a carefully planned
process. Standards that are not communicated in an efficient or effective manner may have many negative effects: dissatisfied patients or staff; wasted time and money used for ineffective communication activities; loss of staff and patient time; and perhaps most importantly, diminished quality of care. “For information to become knowledge, it must be received, understood, and then internalized.” (Dawkins 1992). This raises issues concerning how an organization designs effective communication approaches and how it measures effectiveness. It affects education, organizational communications, employee training and new skills development.

Before continuing with a discussion on effective communication of standards, it is useful to discuss the main elements in any system of communication. Communication requires a “sender”, one who initiates the communication; the “message”, whatever the sender wishes to convey; and the “receiver”, the person or group who is the target of communication. In a two-way communication system, the receiver of the information provides feedback to indicate understanding or internalizing of the message. This is a simple model, but the reader should keep it in mind as this section discusses measuring of effective communication.

THE ROLE OF COMMUNICATION WITHIN THE ORGANIZATION

Effective communication is an essential element for quality management in any organization. William Haney wrote that the modern organization requires communication performance at an unprecedented level of excellence in order to survive growing conditions of complexity and demand for efficiency (Haney, 1973). This excellence in communication applies to all levels of the organization, from the leadership down to care-providers, from care-providers back up to the leadership, and across divisional lines from manager to manager.

Health care organizations that are nationally or internationally accredited are required to document and communicate continuous quality/performance improvement activities to all those who have an appropriate need to know. Some of those who are appropriate are quality improvement teams, key cross-functional staff, medical staff departments and committees. Not only does certification require showing documentation of communication activities such as meeting notes, communiqués and bulletins but it also requires integrating the information into the organization-wide quality improvement strategy and other key organizational functions.

In the field of Continuous Quality Improvement (CQI), communicating and sharing experiences and best practices is considered to be fundamental for raising the organizational thresholds of quality. This has been proven successfully in the industrial and service sector where many organizations pursue International Standard Organization 9000 certification to institute quality improvement structures in their company or organization. A large part of
ISO 9000 certification is creating a documentation system and a system for disseminating information company-wide and to all customers. This is often done through the quality auditing function of the organization and serves to stimulate change and improvement. Employees are the foundation for gathering data about adherence to company and contractual standards and expectations, and that information is consolidated and disseminated to the management and back to the employees. When used well, the ISO 9000 certification guides an organization to effectively use formal and informal communication systems to disseminate standards of performance and quality improvement results.

COMMON COMMUNICATION METHODS

Following are some common methods used for effectively communicating standards to workers. An organization must weigh the costs of using these different methods against the importance of the message and the need to demonstrate adoption of the standard. A mixture of these methods blended together in a strategic plan helps an organization to maximize more costly methods (like training) with more inexpensive methods (like meetings or memos).

Endorsement by opinion leaders. While organizational communication flows downward, upward and horizontally, it also flows through informal channels. These informal channels can be tapped to aid in effective communication of standards, sometimes more effectively than formal channels. In all organizations there are professionals at each level who are considered to be opinion leaders by their peers. Most managers know who these people are and certainly peer groups know who they are. Organizations that have involved these opinion leaders in the development and dissemination of standards have found these methods to be effective. A communication strategy should include identification of those informal channels and how best to use them to assure effective communication of standards.

In a study of disseminating clinical practice guidelines in the Coronary Care Unit of Cedars-Sinai Medical Center in West Los Angeles, researchers found that the process used in their study facilitated adoption of the guidelines by private practitioners. First, the guidelines were derived from literature and modified by local opinion leaders so that the physicians would have ownership of the final guidelines. Data was collected to support the safety and efficacy of the guidelines prior to dissemination. Then the guidelines were communicated to physicians using a system of physicians who were respected by their peers and could offer unsolicited advice to their colleagues. Finally, patient outcomes were measured during periods with and without the use of guidelines to reinforce the safety and effectiveness of the guideline recommendations (Weingarten, 1992). While the study did not result in quantifiable evidence that this approach was more
effective than others, the researchers found that physicians understood and applied the practice guidelines routinely.

**Training.** Training is often used as one of the first approaches in communicating standards. While this appears to be logical on the surface, it often is misused and leads to ineffectual communication. All health care professionals are trained in some form or capacity in order to be registered in their specialty. Every nurse, doctor and laboratory technician has been trained to some set of standards to be able to practice his or her profession. When poor performance or inadequate compliance with standards is not due to lack of skills or knowledge, training is not an effective intervention. Therefore, before beginning long and costly training programmes to communicate standards, the organization should conduct an investigation to determine if training is an appropriate method.

An assessment phase is the first step in almost all the training models commonly used. Training is only one of many interventions that can be used to resolve performance problems and it is only appropriate if there is truly a gap between the desired and existing skills and knowledge. So the organization must diagnose the “problem” or the existing condition it wants changed. Determine whether it is rooted in lack of knowledge or skill, or rather lack of motivation, supplies, organizational support or some environmental factor. Directly asking physicians, nurses and technical staff who are not following standards helps to determine root causes. If a lack of skill or knowledge is the root cause, then the organization must define appropriate training solutions to address it, including the use of job aids, periodic practice and adequate feedback. A front-end analysis helps to identify the training needs and expected results which leads to designing performance-based training objectives and effective training approaches.

Performance-based training is a common term used in training today. It gained popularity in the military as their training requirements became more focused on an effective and safe use of equipment and armaments and performance of tasks. It was less important that an Army mechanic understood the theoretical design of a tank, but more important that he could correctly install a tank tractor tread or other parts. So, the performance-based training sought the most cost-effective way possible to ensure that he was able to perform this skill every time. Performance-based training focuses on the behaviors most important in performing a task. If the trainee already has the necessary skills and knowledge but does not perform for other reasons, such as lack of motivation or supplies, then the training will be a costly failure.

After the assessment stage is concluded and if training is determined to be a cost-effective intervention, trainers are brought in to help analyse the job tasks and the worker characteristics and specify training requirements, resources available and any constraints. From this information training developers explore training delivery options and determine the key outcome indicators.
by which the success of training will be evaluated. Trainers then design and develop the training, the training is delivered, then evaluated to determine if deficiencies are reduced or eliminated.

**Meetings.** This is a relatively cheap and easy method to communicate standards. Most managers consider this method as a basic component to promote communication within and between departments or divisions. Documentation of regular meetings is a requirement for most accrediting agencies, especially NCQA and JCAHO, as well as other types of certification such as ISO 9000. Meetings can also provide an opportunity for workers to give feedback and ask for clarification about standards, both before and after implementation. Quality improvement activities that often lead to changes or modifications of standards can be easily reviewed during regular or special meetings. However, meetings do not provide the supervisor or manager a chance to see how well workers implement standards.

**Dissemination materials.** Most organizations use some form of dissemination materials to communicate policies, procedures or standards. Generally, these can be divided into regular and periodic dissemination materials. In this age of desktop publishing, many organizations produce low-cost newsletters and bulletins that can be used to update workers about company issues, decisions or actions. These are often done on a routine basis and provide managers an avenue of communication to all levels of workers. Other forms of communication may be used periodically as the need arises such as memos, notices or communiqués.

While these methods are inexpensive and can be used quickly, they do not permit workers to give feedback or clarify any information. Often, the management will officially communicate some new policy or procedural change via a newsletter, a memo or a new procedures manual. If the management considers this as effective communication, they could be wrong because the workers may have lingering questions, be confused, or simply not understand the information. Many times these types of official communications end up in someone’s drawer or on a bookshelf and are never used or referenced. Or worse, they end up in the drawer of the supervisor and are never seen by the target group.

If the implementation of standards is important enough, the management needs to follow-up through meetings or normal supervisory channels to clarify any questions or confusion. While this does not guarantee effective communication, it will help ensure that standards are implemented as necessary. Not all information may warrant this much follow-up, so the management must weigh the cost of follow-up against the importance that workers effectively implement standards.

**Multi-media and electronic methods.** Multi-media training and presentations involve several senses and empowers learners to access, express, refresh and review information at their own pace, in
their own time, and when they need it. However, these methods can be expensive in terms of hardware, software and organizational support, although costs are dropping as they gain wider use. Many of the systems needed to support multi-media and electronic methods are being installed in organizations already to carry out all normal business operations. This is one area where an organization really needs to do a thorough cost analysis before investing a lot of capital.

Computer-based learning (CBL) is increasingly becoming popular and has been shown to be cost-effective in communicating and training when well-designed and used properly (Clark, 1991). New programmes are available on CD-ROM that teach appropriate use of certain standard procedures such as IUD insertion, proper physical examination and on a number of medical and surgical procedures. There are also numerous programmes available in the market that help an organization use ISO 9000 certification processes to improve the documentation and dissemination of standards and quality issues.

Many health care organizations have an information system that help to disseminate standards and recommended practices. Short texts of guidelines appear on the system and references where health workers can access more information. Electronic bulletin boards and networks across multiple sites all serve as a means for easily communicating to large audiences (Lohr, 1992). The Internet system allows one to access any number of new health care standards and policies via some specific sites.

The Agency for Health Care Policy and Research (AHCPR) has an Internet site (http://www.ahcpr.gov) that provides information about standards, clinical practice guidelines, performance measurements, etc. AHCPR-sponsored guidelines are available electronically through the National Library of Medicine’s MEDLINE system and the National Technical Information Service. Many of these guidelines are now available on CD-ROM. As part of its mandate, the AHCPR tries to effectively disseminate clinical practice guidelines as well as to develop and test them. To that end the AHCPR has developed a framework for disseminating guidelines to consumers, health care practitioners, the health care industry, policy-makers, researchers and the press (VanAmringe, 1992).

Supervision. All organizations have some kind of a system by which all workers are supervised, from the most basic to the most advanced positions. The supervision system is used to direct and provide support to personnel so that they can perform their functions effectively. It is used to delegate tasks and responsibilities, to monitor performance and to make quality improvements. A part of this is effectively communicating standards to personnel, which includes monitoring performance and providing feedback and support as necessary. So, any plan to effectively communicate standards should consider how the supervision system can be best used.
Some responsibilities of a supervisor are:

- Help health workers plan, carry out and evaluate their work.
- Provide technical assistance required at the clinical level and for managing programmes.
- Motivate health workers when necessary.
- Deal with work-related complaints and problems of health workers.
- Serve as the liaison between upper and lower managements.

In the past, a supervisor’s position was often thought of as an enforcer of company policy. Gaps between expected and current performances were handled in a punitive fashion. In today’s workplace, the supervisor takes on more the role of a coach, supporting personnel with what they need to do their job and providing corrective feedback. Styles of leadership vary with the ability and willingness of the individual worker to perform his or her job. There is no one right way to supervise personnel and the situational supervisor decides on the style of supervision to use and the timing for using it most effectively (Hersey, 1984).

Organizational communication that uses formal channels typically happens in a one-way fashion such as sending out newsletters or memos about new or modified standards without any mechanism of feedback from personnel. Two-way communication, which is how we define effective communication, allows for feedback from the receiver of the message. The supervision system is ideal for this type of feedback because it is already a responsibility of supervisors to take this feedback, clarify any questions or confusion, serve as the liaison between management and personnel, and see to it that personnel properly follow standards. So the supervision system is an integral part of effective organizational communication. It should play a major role in any plan for effectively communicating standards.

A major role of the supervisor is to provide technical training as needed to personnel. Just-in-time training and on-the-job training are a part of the supervisor’s job description. This provides an opportunity for supervisors to communicate organizational standards and to be sure that personnel understand and are able to properly implement these standards. The supervisor’s role should be considered when larger training programmes are planned and implemented. Whatever type of skills personnel are trained in by the organization, they should be incorporated into their job description and supervisors should monitor the performance of these skills. While this seems obvious, incorporating new skills into the job is often left to the worker and supervisors are left out of the training loop. All this leads to confusion and ineffective communication of organizational performance standards.

Let us take, for example, an organization that wishes to disseminate new standards for medical records. In this example, these standards identify the way medical records are organized, maintained
and filled out. If an organization only disseminates procedural manuals with memos or communiqués explaining the method of the new standards and the management’s expectations for their use, then it is using one-way communication and risks possible confusion and lack of understanding by the target personnel. Result: ineffective communication.

The organization could develop and implement a training seminar in the new medical records standards, which would give the users an opportunity to clarify any confusion or misunderstanding about the standards. Developing and implementing the training seminar carries a cost that the organization must consider. Another possibility is to train or inform health centre administrators about using the new medical records standards and delegate them to communicate this information to their personnel. This also allows supervisors to build the standards into the job performance expectations of personnel. It puts them in the position of ensuring effective communication of the new standards and building these performance expectations into how they monitor personnel. They can disseminate this information during staff meetings or other regular meetings with personnel.

DEVELOPING A STRATEGY FOR COMMUNICATING STANDARDS

An organization should develop a strategy for communicating standards so it can best use various methods for communicating and avoid potential problems and pitfalls. Usually, standards are communicated with background information about why they were developed, why they are important, who the standards will affect, what tasks will be altered, and any other relevant information that will increase audience understanding, commitment and adherence. A plan for communicating standards should include the following information:

The intended audience. Different audiences in the organization have different information needs. Define the appropriate audience by considering who carries out the function that the standard is addressing. Consider who will be affected by the standard’s implementation. Not all groups of personnel may be affected equally and each group may need different levels of communication or different information. Identify areas of concern that the audience may have and include ways to deal with those concerns.

What needs to be communicated. Once the audience is identified, the information to be communicated must be formulated. This is probably more than just the standards themselves. It will most likely include the background information described above, how and why the standards were developed, who they will affect, what tasks are altered, and any other necessary information. The message should include information to address any concerns that have been identified.

What channels of communication to use. The plan should map out the channels of communication that will be used. This
includes the up/down channels and the cross-organizational channels. If informal channels, such as opinion leaders, are to be used, they should be identified here. This is a good time to map out how feedback will occur.

**Source of communication.** Identify who will communicate the standards to the intended audience. This should be a person or group that the intended audience views as a credible authority. The source person or group should have sufficient information to answer all questions and provide adequate clarification. This source may change for different audiences.

**Sequence and coordination of standards.** Determine if it is necessary to sequence the dissemination of information or can all audiences receive information at the same time. Based on the information needs for each audience, you may decide to sequence the delivery of information to eliminate any potential confusion.

**Methods of communication.** Consider the methods above and any additional methods. Determine which are most cost-effective and decide which to use.

**Feedback.** Since feedback is essential for effective communication, the plan should include what types of feedback are wanted, who receives the feedback, how they will receive it, and what will happen with this information.

**Evaluation.** To evaluate the effectiveness of communicating the standards, you will need to answer the following questions:

- Did the standard reach the intended audiences and the intended individuals in those groups?
- Was the standard communicated without distortion?
- Was the standard communicated within the time frame that was originally planned?
- Did the audience understand how to implement the standard?
- Did the audience implement the standard?

**POTENTIAL COMMUNICATION BARRIERS**

Organizations may take care to use well-established methods for effectively communicating standards. However, the organization often can unknowingly create communication barriers, which can be minimized or eliminated if the target audience is consulted while developing the strategy for communicating. The following are some situations that create these barriers to communication and some suggestions about how to deal with them.

- The standard contains words, phrases or terms that are unclear or are not easily understood by the target audience. This can be avoided by involving or consulting some personnel from the target audience in the development of the standard. Including a pretest before
dissemination may also help overcome this barrier.

- The standard was distorted by modifications, deletions or additions as it passed through various channels of communication. This can be avoided by building in some check points to ensure the integrity of the standard is not altered before it reaches the hands of those who will use it.

- The standards were communicated at a time when it was difficult for the audience to apply them. For example, laboratory procedures disseminated at a time when the laboratory is shut down and specimens are sent outside the organization.

- The standard does not contain sufficient detailed information to adequately meet the needs of the intended audience. For example, broad national standards that are not specific enough to provide sufficient guidance for work performance. This can be avoided by involving or consulting individuals from the target audience during the development of the standard.

- The method of communicating the standard was not appropriate for the standards. For example, a complex standard such as a new medical or surgical procedure may not be effectively communicated through disseminating information passively but better through training personnel and supervisors in its use.

The target audience may believe that the application of the standard will result in a change in their status. This can be determined and dealt with by involving or consulting the target audience when developing the communication strategy.

- The target audience may believe that the standard was developed because of their poor job performance. Again, this can be determined and dealt with by involving or consulting the target audience when developing the strategy. Also, including respected peers in the plan for communicating can help to reduce or eliminate this barrier.

- The application of the standard requires different groups to cooperate that traditionally have not cooperated in the past. This needs to be considered in the plan and a strategy devised to address it.
IV. MONITORING OF COMPLIANCE

Once a standard has been developed or set using an already existing standard, an indicator(s) must then be developed and selected for that standard in order to facilitate the next process, which is measuring the variance in compliance of that standard. Measuring of compliance is performed through the collection of data necessary to measure the selected indicators. These indicators are in essence a proxy measure of the standard and the variance measured from a set of benchmarks or thresholds the organization adopts is an indication of the degree of compliance to that standard. A description of an indicator and its importance is presented in the chapter on Outcomes Measurement. Thus, an indicator is a measurable variable (characteristic) that can be used to determine the degree of adherence to a standard or achievement of quality goals. Indicators have the same characteristics of a standard, i.e., they should be reliable, valid, clear, applicable, realistic and, above all, measurable. Indicators therefore must be expressed in quantitative terms.

Thresholds (or benchmarks) on the other hand are minimum or maximum levels of acceptable performance or results that, when crossed, trigger the organization to respond. An example of a threshold is: a nosocomial infection rate of more than 2.5% triggers further evaluation, or a children immunization rate of less than 95% triggers investigation of the reasons behind under-immunization. Therefore, thresholds are based on indicators and are usually developed utilizing specific local, national or international norms (or levels). One method for setting a certain threshold for an indicator is to measure the average compliance to that indicator in that organization or country and add an additional increment of 5-10% as a goal for the organization/country to aim for. Both the development of indicators and thresholds are necessary steps for the monitoring process to begin. More scientifically, an organization may measure its average performance against a specific indicator and set its threshold at plus (or minus) two standard deviations. For example, if the average post surgical wound infection rate in one hospital has been 5% and the standard deviation is ±1%, then the threshold should be set at 3% (5%-2%). That means that this hospital will strive to improve its wound infection rate from a current 5% to a future 3%. In this way a threshold is giving the organization a target to aim for and achieve. Of course, this process requires constant monitoring and system for data collection and analysis, i.e. monitoring.

Therefore, monitoring is a periodic collection and analysis of data for selected indicators which enable managers to determine whether key activities are being carried out as planned and whether they are having the expected effects on the target population. Monitoring is performed to meet established quality goals, to identify problems (opportunities for improvements), and to ensure that improvements are initiated and maintained. Monitoring, in
other words, is an important and critical process for an organization and just having a monitoring process is not enough. Monitoring must be effective to meet its objectives. Thus, an effective monitoring system will have a number of characteristics such as: be based on monitoring only key indicators, collect only needed data, gather data that are easy to interpret, and provide timely feedback to the information users (administrators and providers).

Additionally, an organization may claim to have an effective monitoring process based on the above characteristics but that process may run into problems unless recognized and corrected. Examples of such problems may include problems with data (too much, incomplete, or inaccurate data), misinterpretation of information, or inappropriate utilization of information in decision-making processes. Therefore, monitoring as a process should be well-organized and well-planned for and should have as a minimum the following components:

- **Delineation of responsibility(ies) and resources available:** who will be responsible for managing the process, what kind of resources are available for the process (human and physical resources necessary), and the authority given to the responsible personnel.

- **Identification of sources of data:** also assess the completeness, accuracy, timeliness of data, whether an existing source of data need to be modified or whether an improvement is necessary on the existing data source(s).

- **Determination of the data collection method(s):** review existing data, or through observation, surveying, or direct measurement.

- **Development of data collection instruments:** this is especially applicable if surveying is the method selected to collect data. Such issues as sample significance and representation, pretesting, validation, bias limitation, etc., should be considered in developing data collection tools.

- **Determining the frequency of data collection, analysis and reporting:** considering continuous, ongoing or periodic.

- **Determining the types of data analyses and that may include descriptive statistics, distribution, correlations, trends, or statistical significance based on the type of data collected and the desired information on a specific service or activity. It is also recommended that data analysis should be accompanied by effective tools for proper and affective data display. Graphs and charts are easy to read and are more effective to attract attention and comprehension, especially from a busy administrator or provider.
References

## Case Study

### Waiting Time in X-ray Department

<table>
<thead>
<tr>
<th>Component</th>
<th>Elements</th>
<th>Quality Characteristics</th>
<th>Standards</th>
<th>Indicator</th>
<th>Threshold</th>
<th>Assess Appropriateness</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Input</strong></td>
<td>Radiologist</td>
<td>Well-trained qualified doctor</td>
<td>MD + speciality in radiology</td>
<td>Percentage of the doc. that meet standard</td>
<td>80% will be temporarily accepted</td>
<td>Reliable Y, Valid Y, Clear Y, Realistic Y</td>
</tr>
<tr>
<td></td>
<td>Technician</td>
<td></td>
<td>5-yrs' experience</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Clerk</td>
<td></td>
<td>Make 200 X-rays/day</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Machine</td>
<td>Reliable, well maintained, safe</td>
<td>Maintained every 6 months, Calibrated daily</td>
<td>No. of the X-ray machines that meet the standards</td>
<td>85%</td>
<td>Reliable Y, Valid Y, Clear Y, Realistic Y</td>
</tr>
<tr>
<td><strong>Process</strong></td>
<td>Patient arriving</td>
<td>Patient go for X-ray prompt</td>
<td>The time between patient arriving &amp; waiting should be 5 min.</td>
<td>% of patients that wait for 5-min.</td>
<td>80% will be accepted as a start</td>
<td>Reliable Y, Valid Y, Clear Y, Realistic N</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Proper method of taking X-ray for one time, no duplication</td>
<td>The patient should not be exposed to more than one X-ray/ time/request</td>
<td>Number of repeated X-rays for patients</td>
<td>0%</td>
<td>Reliable Y, Valid Y, Clear N, Realistic Y</td>
</tr>
<tr>
<td><strong>Outcome</strong></td>
<td>Pt. Finish quickly</td>
<td>The pt. waiting time is minimal</td>
<td>Time between X-ray request &amp; X-ray reported should be 20 min. &amp; in emergency 10 min.</td>
<td>No. of times exceeded the 20 min.</td>
<td>10%</td>
<td>Reliable Y, Valid Y, Clear Y, Realistic Y</td>
</tr>
<tr>
<td></td>
<td>X-ray film ready</td>
<td>Relevant X-ray is ready</td>
<td>The X-ray should show exactly what the doctor asks for</td>
<td>The no. of X-rays that are relevant</td>
<td>95%</td>
<td>Reliable Y, Valid Y, Clear Y, Realistic Y</td>
</tr>
<tr>
<td></td>
<td>X-ray report ready</td>
<td>The report is signed by the radiologist</td>
<td>Reports should be signed by the radiologist</td>
<td>No. of X-rays that have the doctor’s signature on them</td>
<td>95%</td>
<td>Reliable Y, Valid Y, Clear Y, Realistic Y</td>
</tr>
</tbody>
</table>
As discussed earlier, when completing the cycle of health care quality implementation, improvement initiatives are the next tasks after monitoring and assessment. Actually, and as discussed in the previous chapter, the purpose of monitoring is to measure variance from a "norm" or a threshold in order for the organization to study the causes for that variance and to set in motion a process or processes to reduce this variance. The process or processes of reducing variance is quality improvement.

According to the Quality Cycle developed by the USAID Quality Assurance Project, the following steps (or at least some of them) have to be in place before the intervention processes for improvement can begin:

1. Planning for quality
2. Setting of standards (and indicators)
3. Communicating of standards
4. Monitoring (against thresholds)
5. Identification and prioritization of improvement opportunities (IOs)
6. Defining the key IOs
7. Organizing a team
8. Analysing and studying the IOs for root causes
9. Developing solutions and actions for improvement
10. Implementing and evaluating improvement efforts, then restarting the cycle again.

Items (steps) 5 through 10 are all related to improvement processes. Each item involves a number of activities and tasks. This chapter will not address each of these items in detail as some of them are self-explanatory and the others have been discussed in other publications in much more detail. This chapter, however, will concentrate on introducing the quantitative aspects and the tools commonly used in improvement interventions in general. The background presented here is to form an understanding of the need for and the comprehension of data management and statistical thinking in addressing quality improvement options.
INTRODUCTION

Quality is an amalgam of many management philosophies presented with a unique list of principles that are primarily customer-oriented. Customer satisfaction means not merely reacting to and addressing complaints but also taking the methodical approach to researching the origin of problems and the magnitude of their occurrence and impact. Therefore, quality seeks an aggressive proactive customer-oriented approach to problem identification and solution.

Two approaches can be used to evaluate the service provided by an organization to its customers - a qualitative approach and a quantitative approach. A qualitative approach is used to satisfy the internal evaluation process. This approach focuses primarily on the "do it right the first time" processes. The external evaluation process is best evaluated using the quantitative approach, which determines the extent of customer satisfaction. This approach includes collecting and analysing data on the nature and scope of the problems or potential problems that may face customers. Data should be collected on the needs and expectations, as well as trending of occurrences and measuring levels of customers' dissatisfaction segmented by specific categories and experiences.

This chapter presents three main issues in quantitative approaches to quality? The first is the concept of transforming data to information. The second is data collection and display, while the third issue is data analysis techniques. In each of the above areas several tools and methods have been presented and illustrated. However, before we dive into these issues, let us go back to the QA cycle steps presented earlier. Step 5 suggests the identification and prioritization of opportunities for improvement. How is this done?

As we discussed in the last chapter, the purpose of monitoring is to identify gaps or variance in compliance to communicated standards. Therefore, the next step is to evaluate these gaps or improvement opportunities (IO's) and select those that are most important for the organization to address. This process of selecting the most important IO is the process of prioritization. Several tools are presented later in this chapter to assist in this process of selection. In general, one may use specific criteria to compare the different IO's with one another and therefore selecting the one(s) that best fit more criteria than the rest or fit the most vital criteria more. For example, one may use such criteria as feasibility for implementation, impact on patients, cost, political environment and probability for success. One may also use the nominal group technique to choose the most suitable IO or the multiple voting technique to do the same (these techniques are described later in the chapter).

Once an IO (or a group of IO's) has been selected, the next step in the cycle is to define the IO in a more "operational" terms, i.e. what are the parameters of the IO? In doing so, the following questions need to be answered before a statement is developed for the IO:
Quality Improvement: Tools and Methods

• What is the IO?
• What is not functioning?
• What is our desire?
• What will the desired outcome look like?
• How do we know it is an IO?
• How do we know when it is fixed?
• What data do we need to learn more about this IO?
• What effects does this IO have on quality?
• How long has this IO been in existence?
• How frequently does it occur?
• What are the boundaries of the IO? Identify a beginning and an end.

Additionally, one should state the IO in a statement that is clear and in simple terms to be easily followed by the assigned team members. Other conditions defining the IO are that the operational statement should not contain a proposed solution, nor identify a cause, and should not assign blame.

Therefore, once the IO statement is developed, a team should be organized to study the IO and identify causes and solutions for improvement. Selection of team members should be based on the identification of individuals knowledgeable in the processes related to the IO and who are interested in serving on such a team. Voluntary involvement should be one of the criteria for organizing the team. You do not want members who are not interested in serving on the team. They will produce mediocre results at best.

Once the members have been selected, the team should be convened. Responsibilities should be assigned to team members: leader, scribe, and an external facilitator identified to ensure group dynamics and provide background training in quality improvement tools. The addition of a facilitator, sometimes called a coach, is a major advantage for teams to function most effectively. The facilitator could be functioning as a full-time member of the team and have voting rights, but it is preferable that a facilitator be a part-time member and not part of the team. This individual should be well trained in quality improvement skills and tools and should be ready to train others on how to use these skills and techniques when needed. The facilitator’s job should also include providing advice to the leader in team dynamics and ensuring that the team develops its mission early in the process and encourages members to focus on that mission.

Now the process is at a stage where the improvement opportunity needs further clarification and studying. In this step, the team members should discuss data management issues related to this IO and identify steps for the transformation of data into information in order to implement improvement.

TRANSFORMATION OF DATA INTO INFORMATION

Data versus information

The definition of data can be simplified as all the raw numbers, figures and individual
responses collected from a sample or a population. Data are unprocessed facts. Data alone are meaningless and are worthless. Information, on the other hand, is meaningful, interpreted or processed data. Whenever one set of data is analysed and used in specific relationship with other data set, the end product is information. For example, the number 18 is without a meaning by itself, but it becomes meaningful if it relates to the number of diagnosis coding errors per month in a hospital. Therefore, only information can be used to make judgement on a hypothesis or answer a research question.

Processed data can be either discrete or continuous. Each is explained as follows:

Discrete data refer to facts that are explained by yes or no, female or male, success or failure. For example, the number of coding errors, the number of personnel in the nursing department, the number of discharged patients from a hospital per month, etc.

Continuous data refer to those facts that are variable in quantity and can be explained by answering the questions of how old, how tall, how much, etc. For example, the average length of stay in a hospital, the cost of nursing services for a patient, the response time to an emergency call, etc.

Data reliability

According to Longo and Bohr (1991), a measure’s reliability is the extent of its reproducibility. This means that if the measure is applied repeatedly (even by a different researcher) it will produce the same results over and over again. A tape measure is a reliable measure of the length of a sofa. Similarly, the number of medication errors is a reliable measure since the same measure can be used by another researcher at any other time and get the same result, given the same definition of medication errors is applied. Reliability of a measure is important to ensure the collection of accurate data. Accurate and reliable data are dependent on the level of training and understanding of the data collectors and data processors. Incorrect or missing entries in a data set may render that set of data unreliable, thus any judgement based on this data set may become inaccurate and not representative of the true facts.

Data validity

To ensure the accuracy of the data collected one must not rely only on the reliability of measures. The validity of the measure is equally important. It is the ability of the measure to actually measure what it really means or what you really want it to measure. In our earlier example, using the measuring tape to measure the length of the sofa is valid since the result indicates the desired information. Measuring medication errors in a hospital is valid if the result answers our earlier question, that a number of medication errors did occur. However, this same measure may not be valid if our intent with this measure is to measure the quality of the services rendered. To what extent does the occurrence or the absence of medication errors indicate that an unexpected adverse condition did or did not occur? Therefore
to measure the validity of a measure one must know the predictive value of a measure. This can be further understood by explaining the concepts of sensitivity and specificity.

Sensitivity and specificity

The accuracy of a measure or a test is estimated by the calculation of its sensitivity and its specificity. Sensitivity is the proportion of times that the measure or the test is positive when the adverse condition or the disease is present. Specificity is the proportion of times that the measure or test is negative when the adverse condition or the disease is absent. This is to say that the accuracy of a test or a measure is dependent on the minimum occurrence of false positives and false negatives. The number of false positives and/or negatives should be very low to make the test accurate. To illustrate these points, let us examine the following two-by-two table for measuring the accuracy of a test in detecting the presence of a disease in a population:

Table 1. Measuring a test validity

<table>
<thead>
<tr>
<th>Test</th>
<th>Disease</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Present</td>
<td>Absent</td>
<td>Total</td>
<td></td>
</tr>
<tr>
<td>Positive</td>
<td>a</td>
<td>b</td>
<td>a+b</td>
<td></td>
</tr>
<tr>
<td>Negative</td>
<td>c</td>
<td>d</td>
<td>c+d</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>a+c</td>
<td>b+d</td>
<td>a+b+c+d</td>
<td></td>
</tr>
</tbody>
</table>

a = the number of cases with disease that the test detected
b = the number of cases the test falsely detected as diseased
c = the number of cases with disease that the test missed
d = the number of cases the test truly labelled as not diseased

Sensitivity = a/(a+c)
Specificity = d/(b+d)
Predictive value = a/(a+b)

Using the principles in Table 1, one can relate the measure in our earlier example, the number of medication errors, to the quality of care as shown in Table 2.

We can then conclude that the number of medication errors as a measure did predict 10 true adverse conditions out a total of 17 detected adverse conditions, i.e. a predictive value of 59%.

From the above it is obvious that for the data collected to be transformed to information, data must be defined in detail and their measures must be accurate. Accuracy of a measure is dependent on whether it is reproducible (sensitivity of a measure), whether it measures what we want it to measure (specificity of a measure), and whether it predicts true occurrences of what we want it to measure (predictive value).

Table 2. An Example of relating a measure to quality of care

<table>
<thead>
<tr>
<th>Medication Errors</th>
<th>Unexpected adverse condition</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Yes</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>No</td>
<td>2</td>
<td>81</td>
</tr>
<tr>
<td>Total</td>
<td>12</td>
<td>88</td>
</tr>
</tbody>
</table>

Sensitivity = 10/12 = 0.83
Specificity = 81/88 = 0.92
Predictive value = 10/17 = 0.59
Data collection and display

One of the main principles of Total Quality Management is statistical thinking (Deming, 1985). Using statistical methods in data collection and analysis increase the credibility and accuracy of the information obtained. Statistics is a science based on the quantitative measures of data and their elements. It is therefore not surprising to see that quality emphasizes the use of statistics to accurately interpret data and produce meaningful information to understand, improve and monitor processes in an organization.

This section will introduce several tools and techniques utilized in TQM through its quest for continuous process improvement. Leebov and Ersoz (1991) suggest several tools for use in quality improvement. We further categorized these tools in two separate categories reflecting their usual cited use as follows:

- Tools for identifying, collecting and displaying data
- Tools for quality improvement

Let us describe and present some of the most common tools in each of these categories.

Tools for identifying, collecting and displaying data

- Surveys
- Brainstorming
- Brain-writing
- Logs
- Check sheets
- Pie charts
- Scatter diagram
- Histograms.

Tools for quality improvement and monitoring

- Nominal group technique
- Multiple voting technique
- Weighted voting technique
- Rank ordering technique
- Balance sheets
- Trend and run charts
- Flowcharts
- Pareto diagram
- Control charts
- Cause and effect diagram
- Decision-making matrices.

Tools for identifying, collecting and displaying data

It is imperative to understand that the process of collecting data has several preceding processes. The objective of collecting data is to collect adequate, comprehensive, accurate and representative data elements. Then, data collection processes should be preceded with the identification and listing of all of the limits and biases the data might encounter through the collection process or during the analysis phase. One must also take into consideration the different sources of data, both the internal and external sources. Caution should always be applied...
when collecting and interpreting data from different sources. Data collection sources may be heavily biased against one another. Also, the list of data sources should be exhaustive and every effort should be made to make sure data is collected from all actual and potential sources. If, however, exploring all sources of data is not feasible due to certain barriers (e.g. resources, logistics, etc.) then a statement to this effect should be provided with the report on data collection and analysis. Therefore, data collection barriers should be identified as early as possible and attempts should be made to overcome these barriers as much as possible. Accurate and useful information depends heavily on the integrity, validity and applicability of data.

Surveys

One of the most widely used techniques in collecting data has been surveys. Collecting data from a target population through surveys is considered a simple and a fairly accurate measure of the target population. There are however several questions that must be applied when conducting surveys to ensure adequate and true representation of the population under study. These questions may include: What is the objective(s)? Is there a need for selecting a sample of the population? Which method should be used in surveying the population? What questions should be asked?

Objective(s)

Each survey must have an objective or a set of objectives that the survey is set to achieve. The objective(s) have to be realistic, measurable and applicable to the target population. For example, an objective of a survey could be to find out the percentage of discharged patients that have utilized our “hot line on patient education” during the three months after their discharge from our hospital during a specific year. Objectives are excellent measuring items useful in the evaluation of surveys before, during and after data collection.

Sample

The population sample is defined according to the type and size of the target population. First, one must define and identify the target population. The next step is to see if this population is accessible, if there is already existing data on it, and if the size is too large (considering the resources available and logistics) that will require the need for selecting a sample of this population which is smaller in size.

If we decided to survey the total target population as in our earlier example, i.e. all the discharged patients from our hospital during a specific calendar year, then this type of sample is called a census sample. This sample is obviously the least biased sample. If, on the other hand, we decided to survey a smaller number of individuals in a population then we would need to determine two major elements — sampling method and sample size.

Sampling methods will select either a probability or a non-probability sample of the population. A probability sample could be a simple random sample, a stratified
random sample or a systematic sample. A non-probability sample could be a convenience sample, a purposive sample or a quota sample. The following is a brief explanation of each of these sampling methods:

Simple Random Sampling is a process where the required sample size is selected randomly from the total population under study through the use of a randomly generated number tables, random number generating computer programmes, or a lottery. This type of sampling methodology produces a simple but unbiased sample.

Stratified Random Sampling requires the determination of a sample based on one or a set of categories, usually demographics. In our earlier example we would select a random sample from the population by decile age categories or another by income level categories, etc.

Systematic Sampling utilizes generating one random number and then selecting a constant interval. Thereafter every case that falls at that interval will then be selected. For example, if our random number was nine and the constant interval was six, we will then select the ninth discharged patient and then every sixth discharged patient thereafter, i.e. 15th, 21st, 27th, etc. Here, of course, we are assuming that those patients were not discharged using any systematic interval.

The other type of sampling method is the non-probability sampling method.

Three different sampling techniques are discussed below using this method. For the following non-probability sampling techniques one must keep in mind that samples of these categories may not be representative of the target population. Therefore, inferences should be strictly related to the sample of the study while projections on the total population from sample studies alone should be accepted with the caution of potential non-representation.

Convenience Sampling is performed to select readily available data. For example, we would select those discharged patients from the surgery unit during the month of March of a given year only. This sampling method is considered to be the weakest to withstand the test of sample representation of the population or bias.

Purposive Sampling is a technique used to select a sample for a specific purpose. For example, following a 30-day probationary period to re-accredit a hospital, the accrediting agency will only look at the hospital activities during the probationary period.

Quota Sampling is usually chosen to select a sample based on an arbitrary quota. For example, we may select only 5% of the target population to be included in our sample.

Sample size

Calculating the sample size is the second element concerning sampling in general. To determine sample size one would require the availability of several preliminary data elements. One method of determining the sample size utilizes the following equation:
where,

\[ N = \frac{(z/e)^2 \times p(1-p)}{} \]

- \( N \) is the sample size
- \( z \) is the level of confidence determined by the z score
- \( e \) is the error rate
- \( p \) is the proportion of the target population in the total.

Once we have determined the sample size and selected a sampling technique, the individual “member” of the sample can then be identified. To proceed in our survey, one must then determine the method by which to survey this sample population. Selection of any method is dependent on the availability of resources, both human and physical, time, accuracy, bias, and convenience.

There are at least three main methods of surveying a population. Surveys can be conducted through a mail survey, a telephone survey or through an interview. All of which require a predetermined and pre-tested questionnaire.

In a mail survey you will be able to reach a larger number of individuals with the least amount of expenditure and human resources. This method also provides you with honest (especially if the respondents’ identity is anonymous) and least biased answers. The major problem, however, with this type of survey is the response rate which, if it is too low, renders the responses non-representative of the total population. Of course, misinterpretation of the survey questions or not completing all the questions may cause a problem in accurately analysing the results. Also, mail surveys require at least three to four weeks to complete and analyse.

A telephone survey is a very accurate survey but answers could be biased or be in response to leading questions. Since human element is involved in actually collecting the data over the phone, specific training and coaching is required to accurately record and extract data from the respondents. Telephone surveys have the advantage of receiving a 100% response rate and can be completed within a relatively short period of time, especially if collecting the responses were performed electronically.

The face-to-face interview is the most accurate but again could be biased since the identity of respondents albeit protected is not anonymous. Again, data collectors (interviewers) should be adequately trained in interviewing techniques and should be instructed to avoid leading questions to minimize bias of responses. Interview surveys usually enjoy a much higher response rate than other types of surveys, but are considered the most expensive and the most inconvenient type of survey due to the scheduling of interviews and respondents’ availability.

It must be noted here that the integrity of the data collected through any of the above types of surveys depends on the content and quality of the survey questionnaire. A questionnaire should be designed to provide information that can answer the survey objective(s) adequately. Each of the
questions included should be composed and designed in relation to the sample population. Therefore, questions must be clear, simple to understand, and should require the minimum of effort, and time, for the respondents to answer. It is suggested that closed-ended questions are easier to answer and are certainly easier to analyse. In other questions where the opinion of the respondents is needed to be captured and quantified, one may design the questions in the form of statements. Each statement is succeeded with a choice of several answers (on a numeric scale) based on the level of agreement or disagreement to that statement, e.g. strongly agree, agree, disagree and strongly disagree. Once the questionnaire is designed and the questions are constructed, one must proceed to administer the questionnaire to a small number of individuals that share the same characteristics as the sample population. This process is called “pre-testing” and will mimic the survey process in terms of survey process and methodology. Pre-testing is important since it gives the researcher the ability to predict the behaviour of the sample population. It also provides the researcher with feedback regarding the design, the quality and the efficiency of the survey instrument. Pre-testing of the questionnaire will provide the researcher the chance to modify it for clarity, making it simpler to understand and easier to answer.

**Brainstorming**

Although brainstorming is listed here under the tools for identifying, collecting and displaying data, it is a quick, simple and very useful tool that is equally important in making quality improvement decisions. This technique is usually group-oriented, whereby a group of individuals meet to generate an exhaustive list of ideas regarding an area or a topic at hand. It is a process that stimulates and encourages creative thinking and independency of thinking. The concept of creative and independent thinking is facilitated by one of the rules of brainstorming that will allow individuals to list any idea they choose without being criticized. The generated list can either be used to answer a question or to trigger other questions in problem identification and solving. Brainstorming is performed to generate the information needed to proceed for other steps in the quality improvement process. This technique becomes especially useful when all members of the group are participating and no boundaries of thought are adopted. The following is a description of the brainstorming technique:

- Members of a group are gathered to discuss an issue, e.g. the causes of high patient waiting time in the emergency department. After a few minutes of thinking about the issue, a group facilitator is selected and is asked to record the listing of all of the ideas generated from the group on a board or a flip chart to be easily seen by everyone in the group. Each member will then be given a turn to voice any one of his/her ideas on that issue. This is done by using either a freewheeling technique (anyone can call an
idea) or by a round-robin technique (going around the table). The facilitator lists those ideas with no discussions, judgements or criticism. In order that brainstorming sessions should move fast, each member is given only a short period of time (15 seconds) to voice their ideas. Every idea is recorded in that person’s own words as he/she introduces it. Group members can “hitch-hike” on ideas that were generated by others. Several rounds of soliciting ideas from the group members may be performed until all members have exhausted their ideas or an agreed time limit is reached. Sessions usually last for about 15 minutes or less. You can have more than one round till all ideas are expressed.

• The next phase is to examine the list generated and discussions are encouraged to clarify each idea and the objective behind each one. All members can ask questions about any or all the ideas generated to reach a level of common understanding of the true meaning of each of the ideas generated.

• Once these ideas are further clarified, then the whole list should be evaluated and those ideas that are similar to each other should be consolidated. Therefore, in this step the list of ideas is revised and duplications are eliminated. Ideas can then be sorted into related themes or categories. The final list is adopted by the group and is put into use for its original purpose.

Brain-writing
This technique is similar to brainstorming where members of a group gather to generate a list of ideas on a topic. Unlike brainstorming, the ideas generated in brain-writing are evaluated and utilized aggressively by other members in the group to expand their list of ideas. Brain-writing is performed with each group member being asked to write his/her list of ideas on a piece of paper. All the papers are then left at the centre of the table or the room for all members to view and choose from to either add to or modify ideas in the lists. Another method is that each member is given 20 to 30 minutes to generate ideas and record them on separate flip charts that are then posted around the room. Each member is then asked to read those ideas recorded by others and go back to their sheets to continue listing more ideas that were stimulated by others’ ideas. Brain-writing has the advantage over brainstorming where on occasions some members of the group are dominating the idea-generating process. It also provides all members with equal opportunity to participate and eliminate less thought-out ideas. It can also be designed to be anonymous. Brain-writing can have the same uses as brainstorming in collecting and displaying data as well as in quality improvement efforts.
Logs

This is a tool that is both simple to construct and easy to use. It is useful to keep a track of the sequence of events or the time occurrence of certain data for charting trends or frequency analyses. Logs are constructed by identifying the data elements and organizing it into a table. For example, one may want to keep a log of all the medical charts reviewed by the chart reviewers by date, by time, and by finding. Table 3 below shows a log sheet for the reviewed medical charts. It is important to keep in mind that logs are constructed to be simple in design and are user-friendly. Logs are usually drawn as rows and columns with the summary statistics at the bottom of the log sheet. Recorders should be given a brief orientation session on the log’s use and should be encouraged to only record the raw data requested and not to try to identify or elicit a trend of that data.

Check sheets

To answer the questions “What do you want to know?” and “What is the most reliable way to collect data?”, one must construct a check sheet. To construct one, check sheets can be either drawn in the form of a table or a diagram. The recorder will make a check mark or enter the appropriate data across from the item in the sheet once the observation has occurred or the event has happened. Table 4 illustrates the use of an example of an event on a check sheet.

Check sheets are useful to collect data to answer questions regarding resource allocation, analyse a current problem or identify potential problem areas.

Pie charts

For efficient and impressionable presentation of data, pie charts provide a powerful tool to accomplish that. A pie chart is a form of graphic presentation of data.

<table>
<thead>
<tr>
<th>Medical Record</th>
<th>Reviewer</th>
<th>Date</th>
<th>Time</th>
<th>Finding(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1234567</td>
<td>Smith</td>
<td>8/31/98</td>
<td>8:30 am</td>
<td>No lab results</td>
</tr>
<tr>
<td>4567890</td>
<td>Jackson</td>
<td>9/1</td>
<td>9:30</td>
<td>No signature</td>
</tr>
<tr>
<td>3256701</td>
<td>Phillips</td>
<td>8/30</td>
<td>10:00</td>
<td>No referral form</td>
</tr>
<tr>
<td>4100056</td>
<td>Bradford</td>
<td>8/31</td>
<td>11:00</td>
<td>Missing H&amp;P</td>
</tr>
<tr>
<td>3255671</td>
<td>Sharp</td>
<td>9/1</td>
<td>9:00</td>
<td>Incomplete ID</td>
</tr>
</tbody>
</table>
elements that are part of a whole. This tool is useful to visualize the difference between the several parts of a whole. Pie charts can be used in place of bar graphs.

The construction of pie charts however has a few rules which need to be followed:

- Pie chart's segments must add up to 100% of the whole.
- The number of segments in a pie chart should not exceed more than six in order to avoid "cluttering" of information.
- Each segment should indicate the percentage amount as compared to the whole to enhance comparability.
- If there are one or more categories that have a zero value, pie charts should not be used.

**Scatter diagram**

This technique is useful in displaying data from two variables that may have a relationship (but not necessarily an impact) with each other. The data

<table>
<thead>
<tr>
<th>Days</th>
<th>Jones</th>
<th>James</th>
<th>Lee</th>
<th>Dean</th>
<th>Ali</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td>x</td>
<td>o</td>
<td>x</td>
<td>X</td>
<td>x</td>
</tr>
<tr>
<td>Tuesday</td>
<td>x</td>
<td>x</td>
<td>o</td>
<td>X</td>
<td>x</td>
</tr>
<tr>
<td>Wednesday</td>
<td>o</td>
<td>x</td>
<td>x</td>
<td>X</td>
<td>x</td>
</tr>
<tr>
<td>Thursday</td>
<td>x</td>
<td>x</td>
<td>o</td>
<td>X</td>
<td>x</td>
</tr>
<tr>
<td>Friday</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>X</td>
<td>o</td>
</tr>
<tr>
<td>Saturday</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>X</td>
<td>x</td>
</tr>
<tr>
<td>Sunday</td>
<td>x</td>
<td>x</td>
<td>o</td>
<td>X</td>
<td>x</td>
</tr>
<tr>
<td>Total (x)</td>
<td>6</td>
<td>6</td>
<td>4</td>
<td>7</td>
<td>6</td>
</tr>
</tbody>
</table>
collected for each variable is then plotted on a graph with one variable on the X-axis and the other on the Y-axis. If a pattern is noticed then a positive or a negative relationship may be concluded. This technique is considered to be the easiest way of recording a correlation analysis without actually quantifying the strength of the relation between the variables. It is simple to construct and is useful in showing patterns of data and providing supportive data for cause-and-effect diagram construction (described later in this chapter). Although scatter diagrams are sometimes used to plot pairs of discrete data (e.g. number of charts), they are most useful when plotting continuous data (e.g. time vs. patient temperature).

**Histograms**

This tool is a modified bar graph, where the data on the X-axis are continuous data, thus the bars are adjacent to one another. Histograms are useful to present a pictorial view of the data elements and to show data patterns. Histograms are constructed primarily to display data. For example, the X-axis shows the time spent (in intervals) for routine outpatient visits while the Y-axis shows the number of routine patient visits completed within each of the time interval.

A histogram is constructed in steps. In the above example, we collect data by constructing a table of patient visits column by time spent (in minutes) in the outpatient department. We would then arrange the time into equal intervals depending on the range of the times in minutes. The next step is to construct a check sheet with the number of patient visits that each fell in one of the identified time intervals. An histogram will then be constructed using the above information by plotting the number of patient visits on the Y-axis while plotting the time intervals on the X-axis. Each time interval will represent the width of the bar while the number of patient visits will determine the height of the bar.
is done by one of three popular methods (as described below): multiple voting, weighted voting, or rank ordering techniques. A second list will then be generated with the ideas ranked accordingly and presented for its intended use of implementation and process improvement. This technique is especially helpful to decrease the number of ideas to a shorter list of a manageable number of “best” ideas.

**Multiple Voting technique**

To complement brainstorming and brain-writing techniques, multiple voting is another technique that is intended to shorten, evaluate, critique and rank a long list of ideas. Multiple voting is performed by the members of the group that generated the list of ideas. The group will decide on a number of votes each member may have (usually 1.5 times the number of ideas present). Each member will then cast his/her votes on the set number of ideas. Members can spread their votes any which way they desire on the list of ideas. Therefore, one member may cast half of his votes on idea number 1 and the other half on idea number 3 but none on any other idea and so on. All those ideas voted on by group members are posted on a flip chart to be visible by all members. Discussions will then follow to determine which ideas received the most number of votes and whether these ideas are adequate to describe the group choices. Further consideration of other ideas may be required if the group decides that more ideas are needed on the final list. The new
and final list of ideas is then presented for ideas to be implemented by the processes involved.

**Weighted Voting technique**

Again, this technique, as with multiple voting technique, is useful in determining a final and best list of ideas to be implemented by a group of individuals. As with multiple voting each member is able to cast their vote on the full list of ideas or only on a short list of ideas. In this technique, group members are asked to provide their individual ranking for each idea based on a set criteria; for example, feasibility, cost, impact, politics, etc. If the idea is most feasible to implement then it could receive a maximum of 5 points and so on for cost, impact, politics or other criteria present. Each idea is therefore evaluated individually using these criteria by each member. The total points received for each idea is added from all the members. Ideas are then ranked according to the number of points each idea received.

Example: (Al-Assaf and Shouman, 1998)

- Each solution to be measured according to different criteria that is supposed to be of importance to the organization such as Impact, Cost, Feasibility, Politics, Reputation, Relevance, etc.
- The solutions that get the highest score will be adopted for implementation.
- The score range from 3-1, with 3 means high score for better solution.
- Example: I- Impact P- Politics C- Cost

| Activity       | Name A | | Name B | | Name C | | Total |
|----------------|--------|--------|--------|--------|--------|--------|
|                | I  C  F  P  R  R | I  C  F  P  R  R | I  C  F  P  R  R | I  C  F  P  R  R | I  C  F  P  R  R |
| 1. Form team   | 3  1  5  4  2  1 | | | | | |
| 2. Establish Plan | | | | | | |
| 3. Set standards | | | | | | |
| 4. Measure cost | | | | | | |
| 5. Calculate cost | | | | | | |
| 6. Measure compliance | | | | | | |
| 7. Prepare statistical data | | | | | | |

Score from 1-5 where 1 is least score
Rank Ordering technique

In conjunction with brainstorming and brain-writing this technique is used to rank ideas for further consideration and/or implementation. Rank ordering technique requires working on a short list of ideas (ideally less than ten) by the ideas generating group. If the number of ideas is too large then use the principle of “one half plus one”. If the number of ideas is 20, then one half of 10 plus one equals 11. Therefore, use only 11 ideas and you may apply the same principle again for the rest of the ideas. Once the number of ideas is agreed upon, each group member is asked to rank these ideas starting with one as the most important and ending with the least important idea. The recorder of the group will post the list of ideas on flip chart and columns record the ranking given by each member to each idea. After recording all the rankings for each idea, these are then added together to get the total ranking score given to each idea. Since a score of one is given to the most important idea, the idea that receives the least numbers is therefore the most important and so on for the rest of the ideas.

Rank given to ideas A - H

Example:

<table>
<thead>
<tr>
<th>Idea</th>
<th>Jack</th>
<th>Jill</th>
<th>Jasmin</th>
<th>Ahmed</th>
<th>Susan</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>1</td>
<td>8</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>B</td>
<td>4</td>
<td>2</td>
<td>1</td>
<td>7</td>
<td>2</td>
<td>16</td>
</tr>
<tr>
<td>C</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>4</td>
<td>7</td>
<td>20</td>
</tr>
<tr>
<td>D</td>
<td>7</td>
<td>5</td>
<td>5</td>
<td>2</td>
<td>4</td>
<td>23</td>
</tr>
<tr>
<td>E</td>
<td>3</td>
<td>4</td>
<td>6</td>
<td>6</td>
<td>8</td>
<td>27</td>
</tr>
<tr>
<td>F</td>
<td>6</td>
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Balance sheets or force-field diagrams

This technique is used to help a group of individuals select a shorter list of ideas, options, decisions, etc. All the ideas under consideration are listed on a two-column table. One column will be noted as the positives/the advantages/the strengths/the driving forces column.

The other column will be the opposite descriptors column. Each idea is then discussed and a listing is produced by the group members regarding its positives and the negatives. After considering all the ideas on the list, the group “balances” the positives with the negatives, i.e. the forces for it and those against it, and then determine if some of these ideas might be eliminated. This technique is again very useful in determining the best ideas for further consideration and implementation. It is therefore another important technique in the process of quality improvement.

Trend and run charts

A trend or a run chart is a line graph that visualizes a pattern of behaviour of certain data over time. It is therefore a pictorial indicator of the extent of fluctuation of performance of a data element during a period of time. Trend charts are very useful in displaying and monitoring the behaviour of data as well as a predictor of the future performance of that data. For example, one might chart the number of medication errors on the Y-axis against the months on the X-axis over a year to look for trends.
Interpreting patterns (see figure below for examples): all these patterns suggest a non-random event (special cause, a process not in control).

- More than 7 consecutive points above or below the mean suggest a pattern of change.
- Six points consistently increasing or decreasing suggest a trend (2).
- More than 7 points in a zigzag pattern suggest a cyclical event (3).

Flowcharts

Flowcharts are a step-by-step sequence of processes and sub-processes that pictorially include events, reaction(s) or decision(s). This tool provides a detailed list in the form of a sequenced diagram outlining all the actions and steps required for each and every process in an organization. It also provides a common language to be used by teams when discussing different elements of a process. For example, one could flowchart any process in a hospital from patient registration to patient admissions and discharges. Each of the steps in the process is denoted by a symbol indicating the nature of the action or reaction.

Flowcharts can be one of several types: detailed (with loops of rework), top-down (only an outline of the major steps in the process), or a work-flow type chart based on the actual steps occurring in relation to a specific work process. Team members should be collectively involved in flowcharting a process. Teams should start by defining the process in consideration, then a determination of a beginning and an end of the process is made. The team will then start to write the steps of the process in the sequence they occur. Certain members of the team or with the aid of action teams will be responsible for flowcharting the technical steps in the process. Once a flowchart is produced of the process, the team will revise it again for completeness and correct any errors.

(*Adapted from Reinke, 1998)
The final version of the flowchart is then transferred on a sheet of paper denoting the steps of the process in symbols and is put in use by the organization. The following is a list of some of the more common symbols used in the flowcharting processes:

Although many symbols are used in flowcharts, the most common ones are shown in the following figure.

Flowcharts are important tools both for displaying a process and for understanding the process steps. It supports the principle that if you understand your processes and how they work, then you will be able to identify process requirements and its “bottlenecks”. Therefore, to analyse the process using flowcharts, the team might begin by asking such questions as: Is there any delay? Are there any bottlenecks? Are there any steps that are missing? Any that are redundant? Are there opportunities for improving the process flow? Flowcharts are management tools that will support the quality improvement efforts of an organization.

**Pareto diagram**

According to Omachonu (1991), an Italian economist called Alfredo Pareto (1897) and an American economist, M. C. Lorenz (1907), developed a concept that suggested that only a few of the population shared most of the total income of the population. The quality expert, J. Juran, applied this principle to problems of quality dividing them into the vital few and the trivial many, i.e. most of the problems are linked to only a few of the causes. The procedure that classify these problems is thus called the Pareto Analysis.

The Pareto concept is further known as the rule of the 80-20. In health care this can be applied, for example, by saying that 80% of the documentation errors are caused by 20% of staff. Another example is that 80% of the medication errors are caused by 20% of nursing staff and so on.
Sample of a flowchart

1. Greet patient
2. Appointment
   - No: Refer to Nurse
   - Yes: Log in register
3. Do insurance forms
4. Chart available
   - No: Make Chart
   - Yes: Chart to MA box
5. Pt. to waiting room
6. MA available?
   - No: Wait
   - Yes: Vitals
7. Exam room available?
   - No: Wait
   - Yes: Pt. to exam room
8. Go to “unscheduled” protocol
One can further analyse data utilizing this principle by the use of bar and line graphs. To do this there are a few steps that need to be followed to display the data on a graph according to this principle:

1. Identify a quality problem to be studied, e.g. patient complaints of dietary services.
2. Determine and carry out a data collection method, e.g. mail survey.
3. Categorize the complaints cited by respondents according to type, e.g. temperature, taste, promptness of service, aesthetics, etc.
4. Calculate the frequency of complaints by category, e.g. temperature 74 complaints, taste 43, etc.
5. Plot the frequencies of each complaint categories on a bar graph and arrange the categories in order of descending frequencies from left to right on the horizontal axis (X-axis). Two vertical axes must be designed, the left axis (Y-axis) will be divided in equal intervals into
the number of highest category frequency (74 in our example), while the right vertical axis is divided into percentages from 0% to 100%.

6. Add the percentage values of the bars and calculate the cumulative total over each bar. Plot these totals on the same graph but as a line graph.

Pareto diagrams are important not only to display the causes of a quality problem, but also to provide the quality team a diagnostic and monitoring device that can be used to identify and monitor progress in the quality improvement measures being tried. Its importance becomes evident when Pareto diagrams are used as incentives for achieving an eventual flattening of those bar graphs.

Control charts

Control charts are tools designed to monitor a process over a period of time to study its trend and variation. It is constructed to display process stability around a historical (acceptable) trend with the capability of measuring small changes in the process. A control chart provides an analysis of a process behaviour and indicates when certain factors had an impact on process trend. It is a useful tool in process improvement efforts in that it identifies the times when process is “out of control”, i.e. outside the calculated control limits. It is, therefore, useful in identifying improvement opportunities of a process. It is also used to determine whether process variation from the norms (averages) is due to “special” or “common” causes. Special causes have the tendency to occur sporadically and acutely and will therefore need to be attended to by the management team. Common causes, on the other hand, are long-term causes that have no capability of destabilizing a process but can produce slight impact on process variation away from the norm. Common causes of a process variation are the result of interaction of several causes over a period of time. Common causes need to be studied by appropriate quality improvement teams of the organization. Control charts are useful in controlling variation at an acceptable level of measurement.

Control charts are basically a run chart with three additional horizontal lines. One line represents the mean value (average) which is drawn in between an upper control limit (the mean plus 2 standard deviations) and a lower control limit (the mean minus 2 standard deviations) lines. A process is said to be in control if the trend line lies within the upper and lower control limits around the average. In this case variation is caused by common causes and therefore an intervention by quality teams is necessary. If, however, the trend line falls outside those lines then the process is said to be out of control. Here the causes of making the process to fall outside the control limits are considered to be special causes and, therefore, it is the management’s responsibility to resolve it.

There is, however, one additional element to this concept. The process is again considered to be out of control if at least three consecutive points on the
A process trend line fall below or at least three consecutive points fall above the average line even though the process trend line is still between the upper and lower control limits. Here again, special causes are attributed to this type of trend. A few other rules also apply to the concept of process control and the reader is instructed to consult the reference listing at the end of this chapter. An important point that needs to be communicated here is that control limits are not thresholds or standards. They are measures that describe the behaviour or the nature of a process. Therefore, a process that is in control does not necessarily mean a good process, and so a process that is out of control is not necessarily a bad process.

To construct a control chart one needs to calculate the averages of a process/quality problem over time; for example, the number of medication errors per week over a five-month period. It is recommended that 20 data points are needed to construct a control chart. An overall mean (average), \( \bar{x} \), is calculated which will represent the middle horizontal line on the chart. The standard deviation of the mean, \( S \), is then calculated, using the following formula:

\[
S = \sqrt{\frac{1}{n(n-1)} \left[ n \sum x^2 - (n\bar{x})^2 \right]}
\]

The upper control limit is then calculated and is equal to two standard deviations above (plus) the mean while the lower control limit is equal to two standard deviations below (minus) the mean. A line graph of the data points is plotted with the number of the weeks at the X-axis and the average number of errors per week at the Y-axis. The graph is then examined to determine whether the trend of medication errors is in control or if it is out of control. The process is attended to accordingly as mentioned above.

It should be noted here that the above-described control chart is only one type of control chart. This type, however, is considered to be the most useful in health care data. Other less common types of control charts are available and their use and selection depends on the type of data to be analysed. The references at the end of this chapter are selected to provide the reader with additional information on control charts.

Cause-and-effect diagrams

Sometimes called the ‘fishbone’ diagram or the Ishikawa’s diagram, the cause-and-effect diagram is a tool useful in the identification of problem causes and “sub”-causes. A cause-and-effect diagram, as the name implies, is a diagram that displays the root causes of a problem of a situation in several related categories of causes. Each of these categories further displays several sub-categories each of which either further branches off into more sub-categories of displays of a number of causes related to it. Fishbone diagrams utilize a few other quality improvement tools to construct, such as brainstorming, surveys, etc.

The cause-and-effect diagrams are constructed by the quality improvement team in a few steps. Once a problem is
selected for study, the causes of this problem are then listed. The list is further refined to reflect realistic and trackable causes for further study. The list of the causes is then classified into categories (and sub-categories) and these are displayed on the diagram with arrows directed towards the main problem. Categories are either selected randomly by the team or selected from the standardized list of possible causes of variation by category. A separate list of causes may be generated for each of the following categories: people, materials, machines, methods and measurements.

**Decision-making matrices**

A matrix that can be used for decision-making is composed of a table of rows and columns. The rows will display the list of...
alternative decisions or solutions for improving a quality problem, while the columns will represent the criteria of judging between those decisions. The criteria can be given different weights by the team to indicate the importance of certain criteria over the others. Examples of criteria are cost, politics, staff support, impact, simplicity of implementation, administration, etc.

Decision matrices are very useful in making rational and democratic decisions to solve a problem or improve a process. The alternative decisions are listed in the left-hand column, while the evaluation/selection criteria are listed across the top row. Also notice that each criterion is further weighted according to its importance and feasibility.

A decision-making matrix should be constructed by the quality improvement team in a few steps. After identifying and listing the causes of a problem (prioritized), the team will then decide to study the most important solutions to this problem. Once alternative solutions are selected, the team should then identify the selection or evaluation criteria for the alternative solutions. This step is considered very important and a consensus should be reached on the list of criteria. A weight may be assigned to each criterion denoting the importance of one criterion over the other, e.g. one may give Cost a 3 multiplier units while Impact a 2 multiplier units, etc. A scale of rating each decision is selected, e.g. 1=low rating while 5=high rating. Each team member is then asked to rate each decision by criterion from 1-5 and list the score in the related cells under each criterion. If, however, there is a weight on a criterion then the multiplier factor is multiplied by the rating score and entered in the cell. Each member will add the total scores for each decision (total of scores in each row). The totals for each decision from each member are added up to get a team total for each decision. The decisions that
get the highest number are those that are rated highly by the team for further study and possible implementation.

Decision-making matrices are helpful in selecting an acceptable decision. It shifts the burden of responsibility of decision-making to an interdisciplinary group of individuals and away from bureaucracies. It instills confidence and pride in team members as it provides them a sense of responsibility and assures them a role in the decision-making process of an organization.

CONCLUSION

This chapter presented an overview of the more common tools and techniques used by quality improvement teams to manipulate data and transform that data into meaningful information. The list of tools that can be used to meet this objective is even longer than what has been presented above. The tools presented, however, are the most widely used tools but the reader is encouraged to seek more information on the subject. The objective of quality improvement tools is to support organizations achieve improvement in the most rational and cost-effective way possible. Use of statistical thinking according to Deming (1986) will identify causes of process variations and will lead us to ways to reduce variation. Statistics in quality management tell us that the result of a process is not necessarily equal to the summation of all the factors composing it but it is the result of the synergistic interaction of these factors with each other. Applying statistical principles to process improvement will eventually decrease waste, eliminate rework and reduce duplication.

References

Before one can describe outcomes management, a brief discussion of system components will be useful and complementary. The Systems theory states that any simple system is made up of three components: inputs, processes, and outputs. These three components were later described by Dr. Donabedian as structure (inputs), processes, and outcomes (outputs). Structure includes all the resources of the system - physical and human. These resources interact with each other in specified activities, procedures or processes to produce a result, an output or outcome (5). In the chapter on the history of health care quality we discussed how health care quality evolved from a period where emphasis was on outcomes, then shifted briefly to process as a focus of quality intervention activities and studies. This era was then followed by a longer period of emphasis on structure that continued until the late ’80s. The ’90s however saw the introduction of a new field in health care quality that focused on outcomes and, in particular, on the monitoring of compliance to certain performance indicators.

Therefore, Florence Nightingale et al. back in the second half of the 1800s emphasized on outcome as the basis for quality measurements and impacts. In 1910, Abraham Flexnor introduced his report on medical education and training which relied on structure measures. Until recently, the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) has relied on structure measures in drafting their annual hospital standards for the accreditation manual. Peer Review Organizations (PROs), on the other hand, relied on process indicators in evaluating the quality of care provided to Medicare patients. Currently, however, a new movement called Outcomes Management is evolving to include a number of areas that impact the quality of patient care. It focuses on using outcome measures to manage quality. This trend toward
outcomes management is driven by economics and, to a lesser extent, by the curiosity of providers and researchers (Al-Assaf, 1993).

What is an outcome? And what is outcomes management?

The end result of a process is an outcome. Since the main customer in health care is the patient, outcomes must be targeted at improving the medical status of the patient (Lohr, 1987). It is for this reason that outcome research is important in developing paradigms of efficient clinical processes and patterns that will improve a patient's medical status. Examples of commonly used outcomes include patient satisfaction, patient mortality, unscheduled return to the operating room within 72 hours of discharge for the same medical condition, etc. These are obvious direct care outcomes, but other outcomes should also be considered like behavioural, physiological and psychosocial outcomes? These may include rehabilitation potential, functional status and quality of life (Jennings, 1991). Although outcomes are the end result, they must be analysed as part of the total picture, i.e. the patients and their environment. Thus, we should not use one outcome measure as the basis to judge the quality of care. Outcome measures should be part of a system of studying structure, process and outcome.

Dr Paul Ellwood (1988) introduced outcomes management as a concept. He described outcome management as "In medicine...our unifying goal is the good of the patient. To support this philosophy, I propose that we adopt a technology for collaborative action...let's label this technology 'outcomes management.'" Outcomes management is the process of collecting, analysing, evaluating, and disseminating the results of medical processes or procedures to improve the eventual impact of health care through collaborative efforts (Al-Assaf, 1993, 1994). It is a process driven by results to identify and improve those processes which impact these results. The guidelines and protocols for these procedures are agreed upon by appropriate and widely acceptable bodies. Outcomes management can only be achieved through a collaborative effort by all players of the health care system--patients, purchasers, providers, payers, and regulators. This effort requires total integration of the health care system both vertically and horizontally (Gehr, 1992). Ellwood (1988) introduced four benefits of outcomes management:

- Practitioners will be provided with widely accepted guidelines and standards through outcomes management.
- Outcomes management will provide the skills and tools necessary to measure the status and well-being of the patient, both clinically and functionally.
- With outcomes management large databases will be available and accessible by providers and researchers to provide information on clinical outcomes data.
There will be wide dissemination of information, customized as appropriate, for decision-makers, and updated and modified to reflect changes in technologies, philosophies, and expectations.

Geehr (1992), on the other hand, suggests that outcomes management can be achieved by focusing on the following four areas:

1. **Outcome specification process**

We need to answer the questions of: Which outcomes? What should be measured? From who's perspective?

2. **Standardization of outcome measurement instruments**

The objective is not only to collect reliable, valid, appropriate, and comprehensive data regarding an outcome, but also to collect these data in an efficient, standardized and error-free manner. Therefore, it behoves health care professionals to automate this process and to agree on a tool or collection of tools to achieve this objective. These tools are either diagnosis-specific or diagnosis-independent. An example of a diagnosis-specific tool is the work provided by Quality Quest (within InterStudy) to develop tools for severity-of-illness measures. These tools are collectively referred to as TyPE (Technology of Patient Experience). Other examples of diagnosis-specific tools are Disease Staging Tools (DSTs), Patient Management Categories (PMCs) and Computerized Severity Index (CSI). One example of an independent tool could be the Health Status Questionnaire or Short Form 36 (SF-36) developed by the Medical Outcomes Study conducted by the RAND Corporation (Nash and Markson, 1991). Other examples of diagnosis-independent tools are Medis Group and Acute Physiology and Chronic Health Evaluation II (APACHE II). These tools provide a measure of functional status, including social, physical and mental health status (Ellwood et al., 1991). Other institutions supported by AHCPR's PORT grants are also developing standardized tools to collect data for managing outcomes. These efforts are being maximized by the use of optical scanners that can automate the capturing of these data in the computer, making the process of data input and analysis more efficient and less cumbersome. For further information on these tools, the reader is advised to review works by Hornbrook (1982), Cretin and Worthman (1986), Lezzoni and Moskowitz (1988), Geehr (1989), Lezzoni (1989), Ellwood et al. (1991), Linder (1991) and Markson et al. (1991), Stewart and Ware (1992), Batalden et al. (1994), among many others.

3. **Management information systems**

Management information system (MIS) is an automated system of data collection, input, analysis and retrieval in an integrated manner. The system should support large databases query and allow multiple users to share information simultaneously. The
proposed management information system should be supported by a decision support system that enhances the clinical and management decision-making processes through the intelligent integration of several databases and logical pathways. Although the technology is currently available for clinical cases to develop critical pathways, future technological advances should refine this function even further. A provider may be able to test different clinical management modalities electronically in simulated case scenarios and then choose the one with the best possible clinical outcome. This technology is currently available through decision support systems that utilize data queering, telemedicine, and use of the Internet to have a wide range of applications and access.

Outcomes measurement involves collecting, analysing, and disseminating a formidable amount of data. It is almost inconceivable that the intelligent use of collected data to generate useful and meaningful information can be accomplished without the use of computers. Automated information systems are invaluable in performing this task. Information systems improve the availability and access of meaningful patient information that is readily useful. Furthermore, technology can provide physicians and clinical decision-makers with the ability to trend care outcomes and compare them with current and historical results from similar institutions, with the ultimate goal of improving the quality of care.

As predicted earlier by Ellwood (1992), computers have allowed doctors to see their patients in some larger epidemiological context. Outcomes management will obtain feedback (and lots of it) from patients about their medical care. This includes the efficiency of the treatment, the impact of the diagnosis on the prognosis, the patient’s ability to function normally, etc. -- all directly from the perspective of the patient. Additional applications include the easy online access of patient data while in the hospital and use of comparative data from similar episodes to evaluate potential clinical outcomes to that patient.

4. Continuous improvement

Most continuous quality improvement (CQI) paradigms are process-oriented and are either prospective or, more commonly, retrospective problem prevention paradigms or a combination of both. Outcomes management, therefore, proves useful in determining the best outcome for a given process. Managing outcomes will have an impact on how processes are structured, conducted and improved and provide the feedback necessary to develop appropriate, effective and efficient guidelines. Outcomes management is highly dependent on CQI in achieving such an objective in a manner that is equally acceptable to key players in the health care system.

Accordingly, the objectives of outcomes management are mainly to improve medical outcomes through the improvement of health care processes. The following is a list of specific objectives of outcomes management:
1. To achieve a better control of the end-results of medical intervention.
2. To identify and prevent variant behaviour.
3. To facilitate informed decision-making processes.
4. To study the courses of proactive pattern variations and suggest most appropriate ones.
5. To engage in patient-focused research to improve care outcomes.
6. To collect and disseminate information that will meet the concerns of each decision-maker most efficiently and effectively through an integrated system.
7. To involve as many appropriate players as possible in the formulation of patient care guidelines.

CONSIDERATIONS IN OUTCOMES MEASUREMENTS

According to an article which appeared in QRC Advisor (1992), health care organizations find it difficult to focus on outcomes for two reasons. One is that an outcome must be considered globally, that is, it involves all the results of patient episodes and nothing less. However, one should recognize that results are reached through a series of processes performed by a system structured to carry them out. Therefore, an outcome is dependent on structure and process, especially when an adverse result occurs. All the elements that caused or resulted in such an outcome should be examined and ways to improve them should be considered and implemented. Another reason (or myth) cited for difficulty of focusing on outcome is that health care organizations consider outcome to be either physician-focused or, on the opposite extreme, dependent on too many individuals. Of course, both statements are debatable. Although physicians are vital to patient outcomes, they are not the only contributors. Other health care professionals too contribute to producing an outcome. Certain outcomes, however, occur without (or with limited) physician participation (e.g. patient comfort and diet during a recent hospital stay, difficulty with visitor parking facilities, satisfaction ratings, etc.). Further, an outcome is traceable to its original source, and the processes leading to it can be identified, studied, and improved. The focus should not be on individuals, but rather on processes (usually a manageable number) which can be improved. Therefore, an outcome is not dependent on too many individuals.

Caution should be exercised that the emphasis should not be on outcomes alone as there are a few limitations with outcomes. According to Boyce (1996), there are several weaknesses with outcome measures. Outcomes can tell you how well it worked but not why or what caused it to work or not to work. Also, waiting for outcomes to happen before making a decision on improvement is counterproductive and, at the same time, consumers usually care about service which is more related to structure and process.
HOW TO DEVELOP AN OUTCOME INDICATOR?

Sometimes the most important step in developing an outcome indicator is asking the right question(s). First, the difference between structure, process and outcome measures must be understood. We must then understand whether we are asking a question that actually measures an outcome.

Examine an indicator commonly used by people in academy: The student has received and understood the learning objectives of the course. This indicator is meant to measure an outcome (the student learning from the course), but does it? If the student received and understood the learning objectives of the course, does it also mean the student learned? The indicator should be rephrased to state the extent to which the learning objectives for the course were achieved. Similarly, in health care, an outcome indicator commonly used is that the patient received and understood his dietary instructions or his medication regimen. If the objective here is to measure an outcome, then the only one being measured is the outcome of the process of giving instruction. This is not an outcome that will improve the patient's health and decrease the possibility of the condition recurring. A more valuable outcome indicator would be measured by periodic checks on the patient (by phone or in person) with regard to following and adhering to instructions given for diet or medication. In this way, at least one meaningful and useful outcome of a patient encounter will be measured, which is, the patient is actually following the instructions given for diet or medication.

Outcomes measurements obviously are useful to the extent that they have been developed accurately and thoughtfully. The objective must be defined and appropriate questions must be asked when developing an outcome measure. To assess measurement, one main question should be the focus: What does it really measure? Does it measure volume, process, resources and input, or does it measure an outcome, an impact? To qualify as an outcome measure, the answer to these questions must consistently be outcome. It is also important to keep in mind that we need to know who will be using it (outcome measure), when will it be carried out, and how the data will be collected. Of course, the ultimate test of any system of measurement is its validity, reliability, clarity, applicability and usefulness which is clearly beyond the scope of this chapter. However, further readings could be found in published work by Al-Assaf and Schmele (1993).

MANAGING VS. MEASURING OUTCOMES

As previously mentioned, the main objectives of outcomes management is to improve the health status of the main health care customer, the patient. Therefore, the desired outcome of a patient encounter should be an improved health status of that patient, relative to his or her health status before the encounter. The degree of this desired improvement is dependent on the
patient's needs, expectations and perceptions and the efforts of the health care team to meet them. This is the difference between measuring the outcome of a process and managing total patient outcomes. The process of outcomes management looks at the patient episode as a process in continuum. Outcomes management views outcomes in terms of the total process, measuring the extent to which a system accomplished its objective of improving patient care, all the way from health promotion and patient education to clinical intervention, follow-up, and patient rehabilitation.

Therefore, the steps for outcome management are:

- Identification and development of the outcome(s) to be measured.
- Data collection and analysis regarding the identification and definition of the elements of health care structure, process and outcome, with emphasis on outcome.
- Evaluation of information through an integrated approach, i.e. the total care episode within the context of the larger database of other similar care episodes.
- Development of practice guidelines through a collaborative inter-disciplinary approach.
- Dissemination of information to practitioners coupled with education on how to use and what to do with this information.
- Continue monitoring and improving outcomes through data collection and analysis and so on.

One model that the author follows when applying outcomes management to improving system processes in international settings include the following steps:

- Identify an outcome (clinical or administrative) and develop its measurable indicator
- Choose a team
- Describe and prioritize the process(es) leading to such an outcome
- Identify the customers of the most vital process
- Create the improvement opportunity statement
- Create data collection plan
- Collect data
- Examine and analyse data
- Identify "bottlenecks" and root causes
- Generate and choose solutions
- Outline and implement improvement plans
- Collect and analyse data
- Assess the impact
- Once improvement takes place, standardize and document (e.g. develop clinical practice guidelines)
- Establish ongoing monitoring and continuous improvements
- Re-evaluate the outcome indicator.

Several considerations need to be taken into account when measuring and managing outcomes. According to Meltzer (1992), there are at least five considerations:

1. The skills and knowledge of the individual provider should be
considered as the methods of providing care vary, and therefore so should the outcomes of their services.

2. Consider different perspectives in defining and measuring outcomes. Individual expectations of desired outcomes may be substandard based on the expectations of another individual. Also, the desired outcomes from the perspective of the patient surely differ from those of providers, administrators, or payers. Also, keep in mind the question of who will watch the "watchers"?

3. Use severity of illness measures to compare apples with apples.

4. Consider the quality and comprehensiveness of the statistical analyses.

5. The following and similar questions need to be considered:

   Where should the line be drawn? Who will draw it? Will a decision by a payer to stop performing a diagnostic test that has 30% success rate be justified from the patient's perspective? What about a 35% success rate test or even 5% success rate? Would rationing of health care impact the outcomes management's efforts to improve the quality of total patient care?

According to Ellwood (1992), the aspect of quality of life dimension is also being considered in most major outcome management research activities. Measuring the quality of life surely would be more valuable in providing efficient medical care to patients than the current system based on deductibles and co-insurance.

WHO IS INVOLVED IN OUTCOMES MANAGEMENT?

Besides AHCPR and the other work mentioned earlier regarding severity of illness tools, other organizations have also been active in outcomes management. One widely monitored organization is the Delaware Valley Hospital Council in Philadelphia. The Pennsylvania Health Care Cost Containment Council (HC4), a state agency, was created in 1986 to identify ways to contain health care costs. HC4 continuously collects severity of illness data (adjusted for morbidity, mortality and charges) on 57 diagnosis-related groups from every hospital in Pennsylvania with 100 beds or more. They subsequently publish a quarterly report ranking the performances of these hospitals based on this information (Nash and Markson, 1991). Based on these reports, an outcome-based project called Buy Right rewards the most quality-oriented, high efficient provider with more patients (Nash and Goldfield, 1989).

JCAHO's Agenda for Change (O'Leary, 1987) is outcomes-oriented. Since then JCAHO's Accreditation Manual for Hospitals has been redesigned to reflect the emphasis on quality improvement and outcome measures. This change has been noted in its current 1998 manual. JCAHO is also in the process of publicizing its work on inpatient outcomes indicators and the
new hospital performance measurements, called ORYX, has been published (JCAHO, 1998).

HCFA has established the Health Care Quality Improvement Program (HCQIP). This programme is a collaborative effort between HCFA and PROs to collect outcomes data and to examine patterns of care through the Medicare reimbursement patient database. According to Jenks and Wilensky (1992), HCQIP has four important driving forces: variation research, peer review studies, new quality improvement models, and development of practice guidelines. The major objective behind such a project is to establish a centralized Uniform Clinical Data Set (UCDS) to capture information on some 1800 elements from a 10% sample of inpatient discharges. The goal is for all PROs to use the UCDS database to compare the practice patterns of individual providers with national patterns. This approach, which has been implemented in 1993, has successfully moved PROs review process towards quality improvement and away from quality assurance. Since then a number of projects have been completed by the different PROs including the Comprehensive Cardiovascular project, the Flu project, the Asthma project, the Antibiotic Prophylaxis project, etc. All these projects' results, guidelines and documentation are available directly from HCFA on the world wide web of the Internet at "http://www.hcfa.gov".

HCFA, in 1995, developed a performance measurement system, quality assurance, reassessment and improvement (QARI), using primarily outcome indicators to measure the performance of those health maintenance organizations (HMOs) that provide care to Medicaid beneficiaries. In this system a list of indicators are developed and disseminated to HMOs for self measurement and reporting. Those who perform consistently below the peer averages are evaluated further and are required to implement improvement measures. Examples of such indicators include childhood immunization rates, early prevention-screening-diagnosis and treatment methods, as well as prenatal care and annual physicals. This system is currently being revised and a new system of performance measurement has been developed, which is called quality improvement system for managed care or QISMC. This new improved system replaced the QARI system in early 1999. QISMC will have a number of additional outcome indicators (HCFA 1998).

Another trend has been taking place recently in regard to outcomes and that is report cards. Consumers, purchasers and regulators alike are asking the question: how can we make the right decision in choosing a "quality" provider? Therefore, several large employers such as Xerox, GTE, ATandT and the like are developing their own report cards on providers based primarily on outcome measures (Mahar, 1996; Magnusson and Hammonds, 1996). This trend is also being followed by the largest HMO accrediting body, the National Committee on Quality Assurance (NCQA), with their "Q uality Compu" project (http://www.ncqa.org). This database when completed would provide national, regional and state averages on a number of
outcome measures and would rank HMOs accordingly (NCQA, 1996). Of course, this project is in addition to the current HEDIS measures (Health plan Employee Data and Information Set). It is an outcome measurement system used by NCQA as part of the accreditation process. HEDIS, which is now in its latest version 3.0/1998, has an excess of 70 measures divided into eight different domains or categories: effectiveness of care, access to availability of care, satisfaction with the experience of care, health plan stability, use of services, cost of care, informed health care choices, and health-plan descriptive information. Each of these domains has a number of measures or indicators (primarily outcome indicators) that are standardized with specific formulas and guidelines promulgated by NCQA. It is believed that most HMOs will have to start reporting their outcomes under the HEDIS measurement system from the beginning of the new millennium. It is also noted that HCFA's medicare managed care product will also be relying on HEDIS or similar outcome-based data to rate the quality of medicare providers (HEDIS 3.0, 1998).

OUTCOMES MANAGEMENT AND QUALITY IMPROVEMENT?

The main objective of using outcome measures is to improve the quality of care and services delivered by the health care organization to the patient. There is a focus on the total care episode in outcome management. A specific outcome is dependent on all the structures and processes involved in its development. To achieve improvement, all factors, barriers and strengths of the system should be reviewed, assessed and improved. Outcome measures are important tools to direct our attention to the reasons why certain outcomes occur. They should direct our efforts to finding ways to address these challenges efficiently to achieve the desired outcome. This is the difference between measuring and managing outcomes. Managing outcomes is what health care quality is all about - managing the total system to improve the quality of care rendered to the patient.

According to Bohr and Bader (1991) and Batalden et al. (1994), the Deming Cycle of Plan-Do-Check-Act (PDCA) is congruent with the processes of developing clinical guidelines (an aspect of outcomes management). Appropriate care criteria are developed (plan) by asking Who? Does what? When? With what implemented (do) and what are we learning accordingly? Monitored (check) and what have we learned? Did original outcomes improve, and tested and retested (check); those that prove to be successful are used and those that do not work are discarded (act).

Epstein (1991) presented the same argument. The principles of the two philosophies are very similar. In outcomes management, criteria that are successful in improving the outcome of care are developed and monitored. Variations from these criteria are minimized and further eliminated through continuous assessment. All these activities are related to quality, with all its concepts and applications. The
The fundamental principle of quality is to eliminate variation, and this is what outcome management attempts to do: recognize good outcomes, study them, and eliminate variations in the process that may lead to undesired outcomes.

Geehr (1992) also agrees with this. He also suggests that quality improvement of structures and processes depends on feedback from outcome measurements. He goes on to suggest that this can be done prospectively, with the use of practice guidelines and expert systems, and retrospectively, through assessment of trends and outcomes of clinical practice patterns.

Therefore, this brings this discussion to the basic fundamentals of quality which is a customer-focused continuous process of improvement through an efficient system of feedback and evaluation. Applying outcomes management to quality, each of the processes discussed above can be considered as an opportunity for improvement. And as improvements of each process are carried out, a system of feedback and evaluation is established to monitor the impact of this improvement so that further improvement is carried out, and so on.

In conclusion, outcomes management is obviously still undergoing refinement. However, outcome-based assessment of the quality of care is gaining broader acceptance and health professionals are becoming more aware of it. Outcomes management is based on a collective effort to assess performances and to develop appropriate criteria for care in an effort to achieve a desirable outcome. An outcome should be based on feedback from patients, providers and third party payers and take into consideration the process of continuous improvement of the system of care.

Health care decisions are and will increasingly be data-driven. As predicted by Geehr (1992), outcomes management has been involved in physician privileging and credentialling, critical pathways (Coffey et al. 1992), practice guidelines, report cards and peer review processes, among many other processes. However, with vast amounts of data available, the use of computer technology will increase rapidly. Health care professionals will be forced to use these technologies to compare their outcomes with those of their peers.

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Implementing Health Care Quality

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INTRODUCTION

Quality in health care is an innovative and participative customer-focused management concept that affects every individual in an organization and is sustainable through cultural transformation (Al-Assaf and Schmele, 1993). This management concept has an ultimate goal of process improvements that would have a positive impact on health care outcomes. Quality relies on teams and is driven and nurtured by appropriately trained leaders (Deming, 1986; Juran, 1986; Crosby, 1979; Berwick, 1989).

In the field and outside the corporate structure, quality is applied operationally as a management paradigm that encompasses four main components: (1) reorganizing for quality; (2) training for quality; (3) quality assurance strategies (QA); and (4) quality improvement (QI) (Al-Assaf, 1994). This management paradigm is considered the organizational umbrella that oversees and coordinates these four components and their numerous activities.

Therefore, in reorganization, a complete structure of quality steering groups is constructed. These groups will plan, manage and execute all activities related to quality. This organizational structure should be representative of the whole organization and is designed to gradually incorporate all the leadership activities of the organization. Under training, quality is interested in training professionals in the definition, principles, concepts and issues related to quality, i.e. increasing awareness to quality issues. Training also includes planning methods, organization skills, effective meeting techniques, methods for evaluating and identifying opportunities for improvement, and learning the skills necessary to solve problems and improve processes through well-organized teams (Joiner, 1985; Goal/QPC, 1988; Deprete-Brown et al., 1992; Franco et al., 1994). Another training area that quality in health care emphasizes is the area of customer service because one of its main objectives is customer satisfaction. Normally, the customer is first defined and then the process of identification of his needs and expectations follows before utilizing
available means to meet these needs and expectations. This is a continuous process (Ishikawa, 1982; Leeb and Ersoz, 1989; Blumenthal, 1996). In all the above-mentioned training areas, focus is drawn to process improvements through employee skills development. The third component for applied quality is through QA effort (Meisenheimer, 1993; JCAHO, 1991). Here, what is meant by QA is the process of planning for quality, recognizing high volume/high cost/problem prone processes, then developing and setting standards for each of them. Standards may be adopted from national or international guidelines or developed locally de novo. Once standards are set they are communicated to the target population.

As discussed in Chapter 3, active communication, rather than passive communication, is emphasized. Active communication has more impact on the effectiveness of complying with the standards. The extent to which an organization/unit is adhering to standards is measured by a number of key indicators that have predetermined thresholds. Thus, monitoring is the next step in the QA process. The monitoring component is important to direct the organization toward areas and opportunities for improving compliance to standards (Deprete-Brown et al., 1992; JCAHO, 1991). At this stage, the fourth component of quality in health care comes into place, i.e. QI or "Kaizen" as the Japanese call it (Baird et al., 1993). QI includes improvement of processes, resolution of problems and simplification of procedures. The QI activities are usually carried out through a systematic process of organizing teams that are given the authority to study the process problem at hand, come up with an improvement/solution initiative, implement it and then evaluate outcomes. Identifying, analysing and improving processes are all part of QI.

Therefore, quality's four components are always at work simultaneously to improve the status quo with a sharp eye for efficient use of resources. Achieving better outcomes is also an objective for quality in health care to fulfill, thus measurable and tangible results are always stressed when attempting to evaluate success.

So, how can quality in health care be implemented at national level? Implementation of quality has been achieved through a number of models with varying degrees of success. Baird, Cadenhead and Schmele (1993) list at least five different models while others add a few more (Al-Assaf and Schmele, 1993; Couch, 1991; Jablonski, 1991; Walton, 1986). However, in this chapter a specific model will be presented as it was actually implemented in at least three developing countries. The model has been used to implement quality in the public health care sector in both primary care and hospital care areas. Although primarily at the public sector, the intervention model described below is designed in such a way that it can be expanded to other sectors of health care with very minor modifications and planning effort.

The quality implementation model consists of three major phases: strategic planning for quality; operational planning for quality; and the actual implementation stages. The following is a discussion of each of these phases.
STRATEGIC PLANNING FOR HEALTH CARE QUALITY

The process of planning for quality in health care is divided into two components: strategic planning and operational planning. In strategic planning the level of involvement is higher in the organizational hierarchy, where initial decisions and broad policies are made for the proper implementation of health care quality. It involves top management’s commitment, securing additional support (financial and technical), as well as the organization of structural support for quality implementation. It is a complex and necessary process that should take place before any implementation activities are begun.

Operational planning, on the other hand, is more specific and more elaborate in design, process and activities. It involves detailed planning for any and every activity that will be taking place during partial or full implementation of health care quality. In this planning stage, the right individuals are actively forecasting proper resource allocations, training requirements, employee participation, and types and numbers of projects to be performed, all at the intervention level. This level of planning requires much more time and detail than the strategic planning level and it, too, is an essential step before proper implementation of any process, especially health care quality. What follows is a discussion of the steps and activities that should take place under each of these planning processes. The discussion starts at the strategic level and is spread to the operational level and ends at the intervention/implementation level.

MANAGEMENT’S COMMITMENT

There are not enough words to describe how important management’s commitment is to the success of quality, at least in other industries. Time and again, experts have demonstrated the value of management’s commitment to the quality process. In health care, however, personnel are somewhat different and their values are different too. Health care professionals are interdependent but less on management (although this model is rapidly changing with managed care). Also, health professionals in the most part have been attracted to health care not because of profit-making but for serving humanity. Therefore, the values in health care revolve around helping another fellow human being without the need for reminders from management. Hence, in health care, management’s commitment is encouraged but not vital (Boerstler et al. 1996). It is however preferred, if one wants to achieve results rapidly. Management can "open doors", facilitate interventions freely, and can coordinate resources easily. In most cases, management has the final say on things. They make the final decision. Therefore, health care quality implementation can be enhanced with management on its part supporting and fostering it.

So, what is commitment? Deming (1984) says that if management’s, that is top management’s, commitment is not there then he would not even bother implementing quality in such an organization. His words echo his theory clearly when he said: "If you can't come, send no one." Commitment to a cause means being
involved, being supportive, being active and being participative in that cause. Commitment also means leading efforts, facilitating activities, and providing resources to make that cause a reality and a success. Commitment to a process or a programme means taking pride and joy in supporting it and learning more about it. It is certainly not just rhetoric and oral support, although even that is better than no support at all!

Commitment cannot be achieved without adequate understanding of what you want to commit to. Therefore, paramount to this step is increasing knowledge and awareness about the subject needing commitment. For quality in health care, it is even more difficult to get unequivocal commitment from management without demonstrating results. Manager are usually quick to say: "Show me that it works!" Health care quality must then be based on data and should always be driven by outcomes. Therefore, emphasizing data management processes are extremely important for quality to win management's support. Thus, with adequate planning and process design, commitment will be cultivated and positive results can be achieved and reported.

ROLE OF CONSULTANTS AND ADVISERS

As seen from the above, at least early in the process, the need for objective perspectives and specific expertise may warrant the call for consultants and advisers (Newman, 1991). With the help of experienced organizations and professional associations, a collaborative effort of identifying and selecting the right consultant needs to be initiated before actual implementation happens. Stressing on the identification of the right consultant is necessary, one that has demonstrated expertise in the specific area needed with past experience in similar environments and cultures. Another important characteristic for a useful consultant is one with the knowledge and a sincere desire for technology transfer, one that is interested in establishing and fostering local expertise.

Early in the process of implementation, the designated national department should select a suitable short-term consultant to assist the designated key person(s) in the strategic planning effort for quality. At this stage the consultant may be useful by assisting in the identification of internal qualified individuals to work on this effort, provide an organization-wide awareness seminar on quality to key personnel, draft with key personnel the mission and vision statements of the national initiative for quality in health care, and help design and map this new initiative. A consultant can be extremely helpful in identifying milestones towards complete implementation of quality in health care in that country, which, in turn, would make it easier to monitor progress and ensure sustainability.

Once strategic planning is accomplished then either the same consultant or another should be selected to guide the operational implementation of the process. This individual should have practical expertise in training, facilitation and process
improvement team-building. This type of consultancy requires long-term involvement, at least a year, or until internal expertise becomes available. Quality assurance expertise, on the other hand, will be needed on an ad hoc basis, especially during the stage of standards setting and indicator selection. This kind of expertise is usually more specialized to the specific areas needing standards and internal resources should be included along with the external consultant to ensure continuity of the process.

ASSIGNING RESPONSIBILITY

At this stage of strategic planning, the person in charge of the national quality in health care initiative, usually the Minister of Health, needs to identify an internal coordinator of health care quality. This position need not be a full-time position, but would be filled by an individual possessing leadership skills and is given sufficient authority. Direct link is necessary between this individual and the top administrator for maintaining credibility and authority. Actually, this is such an important position that in some countries a key person in top management assumes this role. This approach, however, has advantages and disadvantages. A prominent person would give instant recognition and support to the quality movement. It would establish commitment from day one, which sends a message to the rest of the system that quality is important and everyone must follow. The disadvantage, on the other hand, is that this person is usually not in a permanent position, which may cause discontinuity of the process once changed. But regardless of who this person is, once identified, this individual needs to be trained extensively in health care quality techniques and prepared for the organization of quality council. Of course, the responsibilities of the quality coordinator are numerous, among which are:

- an advocate and speaker for health care quality;
- a facilitator of the quality council;
- the designated counterpart of the consultant;
- the coordinator of the strategic and operational planning for health care quality activities and the allocation of resources;
- the initiator of process improvement teams;
- the coordinator of the selection of key personnel in quality;
- the coordinator of the health care quality training plan; and
- the facilitator of future expansion strategies.

The quality council (QC) is formed to act as the steering body that will direct the quality process throughout the health care system. It works as a coordinating committee of individuals representing the different aspects of the health care system to formulate corporate policies towards health care quality. Organizing the QC is not a must, but from the author's experience it was found to be a necessity. Certainly the membership of the council is as important,
and careful selection of these individuals should rest with the top administrator with advice and assistance from the quality coordinator and the consultant. Again, members should be prominent individuals in the health care system representing different levels, departments and disciplines. Once members are identified a council charter needs to be developed with specific roles and responsibilities delineated. The roles of the council are somewhat similar to the roles of the quality coordinator giving it a collective perspective and establishing itself as the system's resource for quality that the rest of the system may tap into when necessary. Similarly, QC members need to be prepared for their roles adequately and should be exposed to the concept of quality and its strategies early in the process.

Once formed, the first agenda item for the quality council should be to ratify its charter. Each member should believe in the charter; therefore, he/she should get actively involved in the revision and re-drafting of the charter so as to reflect actual involvement in the council. Another agenda item that needs to be addressed is the process of developing the mission and vision statements of the initiative which should reflect the desire for health care improvements and the endeavour for quality. Both statements need to be drafted by the council members with inputs from all key personnel in the system. These statements are important in establishing the system's constancy of purpose and will serve as a constant reminder of the path the health system is moving in and a map for its future. Mission and vision statements reflect what the system's current activities are, the purpose for its existence, who its customers are, and what it wants to achieve. Mission and vision statements should be concise, clear, realistic, and should reflect the true desire of the system. That is why real input from other key individuals is necessary. Once drafted, approved and finalized, these statements should be communicated to the rest of the system most actively and most consistently. Actually, some organizations opt to post the mission and vision statements in prominent places throughout the organization and even print them at the back of their personnel's business cards. In this way all improvements and other activities of the organization will be designed and targeted to achieve the vision along the boundaries of the organization's mission.

**ALLOCATION OF RESOURCES**

Early in the process, both physical and human resources are needed to initiate change. Resources are initially needed for the necessary training and the acquiring of consultants. Resources are also needed for information dissemination and increasing the awareness of health professionals in the concept of health care quality. Additional resources may be required later on to disseminate the concept at the grassroots level and to the professional staff. Funds should also be set aside for future potential structural changes and re-designing in processes or units to fit the required improvements. In some countries, funds were used to buy reading material and the establishment of a central library on health
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care quality. Others used the funds to hire full-time or part-time individuals as internal quality coordinators, while others used the additional funds to publish a newsletter on quality and to hold internal and periodic seminars on the subject. Still a few other organizations opted to use certain funds to provide incentives to the process by offering monetary and capital support to successful units or individuals that had demonstrated substantial improvements.

Another aspect of resource allocation was the establishment of a new unit within the organization (Ministry of Health) dedicated to health care quality. This unit can be organized with a number of health professionals from within the organization and linked directly to top management. This unit should also be given the mandate for setting the system's quality standards and indicators, disseminating information related to health care quality, monitoring the quality of care delivered and to act on opportunities for improvements in the system. The said unit should be provided financial and political support from the top administrator with broad authority for surveying and inspecting any record within the organization related to quality issues. The objective is to start a nucleus of a quality unit that will take the responsibility of coordinating quality for the organization, thus ensuring sustainability. This unit could also take the responsibility of preparing for and coordinating all activities related to certification, licensure and accreditation. Other duties may include the coordination of all committees related to quality such as peer management, credentialling, utilization management, etc., as well as the actual processes of system appraisals and monitoring.

INCREASING AWARENESS ABOUT HEALTH CARE QUALITY

Quality as a concept has different facets, principles, techniques and tools. There is also a vast amount of literature that has been written about it in the professional arena. Therefore, an early activity of the quality council is for its members to participate in a seminar on quality in health care. This seminar is to be followed by intellectual discussions with the consultant with regard to the application of this concept in that particular country's health system, taking into consideration available resources, the culture and the current health status and structure of that system. A similar activity should be organized to present health care quality to other key personnel in health care in order to maximize support and to increase dissemination of the concept. One method introduced in one organization to increase awareness was the writing of newsletter articles on the subject with examples for potential internal application in clear and operational language. Another country sponsored a system-wide "scientific day on quality" in which the concept and applications of health care quality were introduced. That one day received instant attention from all levels of the system, and with the right publicity it was perceived as a testimony of the top management's commitment to quality. Certainly, the consultant's services could be used to
present a number of short sessions with other key personnel and middle-level managers to discuss health care quality. These sessions, which should be attended by at least the quality coordinator and some members of the quality council, can serve as focus group sessions to get a feedback on quality implementation and applications in health care as well as an avenue to increase awareness about the concept. Information and feedback collected from these sessions can be used in the next planning phase of implementation at the operational level and in launching pilot projects.

**MAPPING HEALTH CARE QUALITY INTERVENTION**

It is found that once strategic planning and a basic organizational structure have been completed, then an early "testing" or pre-implementation activities need to be sponsored in the form of small pilot projects or small process improvement teams. This step is not mandatory but can be very useful in the early identification of gaps in communications, planning, and intervention. Lessons learned after the completion of such projects can be extremely valuable in correcting these shortfalls.

In collaboration with the quality council and with information collected during the planning phase, the quality coordinator may identify areas in the system with an opportunity for improvement. The identified areas should be selected carefully to include simple projects that require the least amount of resources and have the highest probability of success and the potential of affecting a large number of beneficiaries. Examples of such projects may include improvements in the reception area of the organization, or improving the aesthetics of the customer service area, or selecting a few areas that receive a large number of complaints from the public and try to improve them. Other examples may include the initiation of a national, but simple, campaign on promoting health awareness to the members, or lead an immunization campaign or a health fair during a special event, etc. Other projects may involve the formal identification and selection of an improvement opportunity, either clinical or administrative, and the organization of an interdisciplinary team from the affected process to initiate improvements. The key here is to start somewhere and start with simple projects that have a higher likelihood of success.

At the completion of pilot projects, the quality council should analyse the lessons learned and, based on certain criteria described below, prioritize those services for further implementation of quality in health care. Examples of such criteria used for the selection of services for intervention are:

- high volume
- problem-prone
- high risk
- high impact
- high cost services, procedures, units, etc.
The quality council, in the next two steps, needs to decide on whether to start partial implementation within a certain service area or within a number of services system-wide. Either way, using the above criteria, the quality council will be able to choose the area or specific service for implementation. The use of objectivity in selecting a system or an area for intervention is crucial for successful implementation and future expansion. At this stage, the council is ready to plan for the operational level of health care quality implementation.

OPERATIONAL PLANNING FOR QUALITY IN HEALTH CARE

Although the scope of this chapter is to present broad strategies for the introduction of quality in health care within a specific country, it is imperative to present briefly the stages of operational planning. As mentioned earlier, this level of planning is highly specific and detailed and is usually carried out by the same individuals responsible for carrying out the implementation process at the selected service or system or geographical location.

At this stage the key individuals from the selected intervention service or system are the ones with the primary responsibility for assisting the quality council in planning the implementation strategies at the operational level. The quality council in collaboration usually carries out this type of planning with middle-level managers. These individuals, in direct participation with the quality council, are asked to develop the operational plan. The final outcome of planning meetings should be the development of operational strategies for quality implementation. The following strategies are suggested:

Strategy 1: Initiate communications and secure commitment of other professionals

Council members and/or the quality coordinator should start early communications with the "leaders" (Kaluzney et al., 1995). Leaders should be contacted for support of the initiative and to solicit their willingness to having their area be a part of a system-wide strategy on quality. At this stage a discussion is necessary with regard to the benefits of the initiative and the advantage of being an early implementation site. A note of caution here is to include everybody who is considered a "leader" in that system. Being too selective might have negative effects.

Strategy 2: Introduce the concept of quality

Hold a number of small group discussions or small seminars on the concept of quality in health care. Emphasize the principles, and the advantages. Discuss the resource requirements and the importance of the commitment of the internal customers to the success of the process. Try to answer the question regarding the benefits of implementing such a process in that system.
Strategy 3: Develop broad internal objectives of quality

Again, with key leaders in the community develop a number of broad yet realistic objectives along with a time table for accomplishments. Objectives need to reflect the local needs and expectations of the community at large, and not individuals. Therefore, issues regarding improvements in health status need to be supported with data, if available, or rely on credible sources.

Strategy 4: Discuss plans for and secure needed resources

This is a preliminary planning stage for the estimated resources needed. Once the next strategies (discussed below) have been completed, a more rigorous resource allocation exercise must take place. However, at this stage only a broad description of the type of resources needed and its uses should be discussed. Specific resource allocation is directly dependent on the extent of quality interventions needed, which will be established at a later stage.

Strategy 5: Establish the quality programme organizational structure

There are several schools of thought regarding the implementation of this strategy. The question is whether to establish an elaborate but solid organizational structure or to keep the structure loosely linked. The suggested advice is that a structure is needed to ensure sustainability, but the extent and the mapping is dependent on several factors that need to be considered while determining the best approach in that country's system. Another advice is to develop structures slowly and gradually — never a complex structure at the outset as this will distract from focusing on the main issue of improvement and concentrate on committee memberships, responsibilities, and meetings. One other issue is that one type of structure in one organization may not be as effective as in another. A review of the experiences in other similar organizations may be of help in accomplishing this strategy.

Strategy 6: Collaboratively plan training requirements

Again based on only actual needs, training may be planned. The goal is to plan for optimum training. Too much training may also have negative outcomes. Another issue to be considered is, in what mechanism training should be delivered, i.e., should it be delivered in the form of preparation workshops for potential participants in quality or whether training should be delivered on needs basis and only at the time of the actual improvement process. Dr. Deming suggests that training should be as an on-job training but others have done it differently, and successfully. But in whatever mechanism it is delivered, in general, training on quality assurance and quality improvement skills is required for the proper implementation of the quality programme. Also, under this strategy issues related to
training venues, training material, objectives, type of participants, method, content, trainers, time table, and expected outcomes should be developed. Here again, relying on previous experiences from other organizations and with the help of an experienced consultant, a good training strategy can be accomplished.

Strategy 7: Plan pre-implementation assessment

A full assessment of quality in the health care system should be done. Planning for the assessment activities is required. In planning for such activities, issues related to method, assessment population, by whom, for how long, and the resources needed are addressed. The objectives of this assessment are two-fold: first is to identify problem areas to aid in the selection of improvement interventions, and second is to provide planners a baseline data of the status of health services (and potentially their members) of that system before improvements. Any future improvements will then be easily measured using comparative data.

Strategy 8: Develop progress reporting mechanism and methods for evaluation

This is the strategy that is so crucial yet missed or de-stressed the most. Progress towards meeting the objectives of the quality initiative need to be documented and communicated to the quality council and the coordinator. In this way obstacles can be identified and corrected early. Thus, adjustments to plans can be made effectively. The method, the type and the frequency of self-reporting should be agreed upon at this stage as well as agreement reached on the method for evaluating and monitoring the progress of improvement efforts. Reporting and evaluation should be encouraged for the purpose of learning and not judgement. Health care professionals should be given assurances that this intention will be followed.

Strategy 9: Establish an effective mechanism for incentives

Agreeing on the type of incentives is one issue and actually making them work is another. From experience, it is found that this area is the most sensitive and the most deficient area for answers in health care quality implementation. Questions like "What's in it for me?" or "Why should I do it?" continue to be asked. Answers to these questions may include providing monetary incentives, non-financial rewards, different kinds of recognition, or simply making the participation in quality a job requirement. In most current employee appraisal systems there is no provision for rewarding improvements. As one individual says, "As long as you stay away from making changes, the likelihood of making mistakes is low and therefore the likelihood of being scrutinized is low". This is the type of attitude
that needs to be changed and a system of incentives may very well be linked to the employee performance and appraisal systems that are already in existence in health care organizations.

IMPLEMENTATION STAGES

In this section, again, only broad strategies will be presented as specific approaches cannot be developed for all scenarios and for different settings. The intent of this section is to introduce the five different stages of implementation with a brief description of each stage. Further information about each stage can be obtained separately as it is beyond the scope of this chapter. There is an abundance of literature on planning, training, improvement and evaluation of the implementation processes and the reader is encouraged to seek additional information.

Stage I: Assessment

In the last section, the issue of planning for a comprehensive assessment of the status of health services in the system was discussed. In this stage of implementation, actual assessment activities should take place. Again, depending on the method, the resources available, and the time table allotted in the plan, thorough assessment should be completed before any intervention can be planned, authorized or carried out. To explain one method of assessment here is a description of one country's experience.

In that country, assessment took different approaches. A geographical area was selected as the site for the pilot project of quality implementation. A team of consultants was assembled and met with key leaders representing different service areas of that pilot site. After presenting their intended methods of assessment, they were teamed up with a number of local health professionals to assist in data collection. A pre-designed survey instrument was used to conduct personal interviews with key health professionals of the different health care organizations in that district. Focus group sessions were organized separately with both staff members and patients. Additionally, an actual review of existing health care documents and medical records was carried out to review the quantity and quality of health services rendered. Statistical reports on service utilization in that location were also collected. A representative sample of satisfaction surveys were conducted for patients as well as for physicians and staff. This extensive data collection effort took two weeks to accomplish, while data analysis and reporting took an additional four weeks. Therefore, based on the findings, the quality project steering committee selected the areas of intervention that required the most improvements using a certain prioritization scale. Opportunities for improvement were divided into three categories: those problems requiring low cost to fix, others with moderate cost, and a third group with the highest fixing cost. One aspect that was missing in that system's experience was the unavailability of measurable baseline data. The objective of the team's assessment however was to identify problem areas and
not to actual measure their extent. That approach led to some problems later on when there was a need for evaluating results. It is, therefore, highly recommended that the development and measurement of indicators be a part of the assessment outcomes.

Stage II: Re-organization and training

A combination of both centralized and decentralized approaches to improvement interventions is desired but with more emphasis on decentralization. Several activities will take place in this stage. From the setting and communicating of standards to the monitoring of compliance, and to the organization of quality structure, all need to be considered at this stage. One consideration to be made is what, how and by whom the development or adoption of standards and indicators (clinical and administrative) will take place. A specialized or several specialized committees could be formed to tackle these tasks. One effective method to develop key indicators is to ask a representative from each service unit in the system to develop or identify three to five key indicators specific to that service unit. Prioritization of these indicators will then be made to select the most effective ones in measuring compliance to quality standards.

Quality committees can be formed, gradually, to address specific issues related to the quality programme. As mentioned earlier, committees have been formed on peer management, credentialing, utilization management, utilization review, operations, etc. The key issue here is: form these committees very gradually and only as needed. Each committee should have a separate and specific charter, a defined membership, and an identified reporting mechanism. All committees will be reporting their findings and activities to the system’s quality coordinator, if present, who, in turn, will present the reports to the quality council or the top administrator of the system for monitoring and further action.

In regard to training, several seminars have been developed and delivered. Again, the objective here is not to over-train but to optimally train on the needed skills and to the right individuals. In some organizations several workshops have been delivered on health care quality. There are workshops in awareness, basic and advanced skills of quality improvement, standards- and indicators-setting workshops, team-building workshops, customer service, and cost-analysis workshops. Other organizations delivered only a few workshops and only to active process improvement teams, while still others delivered a set of workshops in gradual complexity in an effort to rapidly develop a cadre of in-house professionals that will take the burden of training others later on. The most important piece of advice is that training be delivered according to a well-written training plan with well-thought out objectives in order for it to be accomplished in a systematic manner.

Stage III: Improvements

Under this heading a total process of quality assurance and improvement should be carried out. Any model of the process can
be used. Figure 1 shows the model used by the QA project of the USAID in countries around the world with very positive results. The major issue to be considered is how to measure and monitor improvement and that is where standards-setting could be of importance (Benneyan and Kaminsky, 1995). Ideally, however, a set of key quality improvement indicators and data analysis are developed at the central level while data collection and reporting would be carried out at the service levels.

It is outside the scope of this chapter to discuss the specific steps of quality assurance, monitoring, and quality improvement as presented in Figure 1. Several chapters in this book have discussed these issues in much more detail. The reader is also encouraged to seek additional information from the literature available on these subjects.

Stage IV: Re-assessment, evaluation, monitoring and CQI

A practice that should be encouraged is to measure pre- and post-improvements of every project. In this way re-assessment will be much easier to accomplish. Re-assessment and evaluation may use the same method applied earlier in the assessment and planning phase through different methods of data collection and analysis.

Monitoring, on the other hand, is based on specific and measured indicators related to standards. It is a process of measuring variance to standards and initiating processes for action to reduce this variance. Monitoring is a necessary step for the proper selection and consideration of quality improvement projects and studies. It can also provide the organization an indication of the status of care and services provided at any point in time. In advanced systems of health care elaborate and comprehensive systems of monitoring have been developed that utilize members' medical records for the abstraction of specific data elements which, in turn, are fed into a central database for analysis and monitoring. Each service unit will then be receiving a periodic report showing aggregate data of health care indicators compared to their specific set of data for the same indicators. Variance from the mean is then studied and acted upon using the QA/QI process mentioned above.

A few words need to be said about the issue of continuous improvement here. Improvements are not one-time activities. When a team has worked on a process and improvement was accomplished, this does not mean that it should abandon this process for ever and move on to the next one. Improvement is a process, and a process is continuous. Monitoring should continue and improvements should be initiated every time it is needed. The other principle involves incremental improvements in the standards once compliance is achieved. If high or even perfect compliance to a specific standard has been documented, then upgrading this standard is the next prudent step to take, otherwise the organization will stay in the status quo stage without further improvements taking place.
Stage V: Dissemination and expansion

A successful process ought to be taught to others and accomplishments ought to be shared. Actually, even failures give us ideas for improvements. For these reasons, dissemination of activities in healthcare quality is encouraged locally, nationally, and internationally.

The process of dissemination may have different approaches. One method is the organization of a monthly lecture on the progress in healthcare quality in the country, or the organization of quarterly or annual seminars on quality activities. Another method is to develop a newsletter on quality or use a section in an already established newsletter to disseminate information on healthcare quality and its activities. One country, for example, started organizing study tours of professionals from other parts of the country to the healthcare quality implementation site to expose others to the process. Dissemination is essential to attract further support and to maintain momentum of staff. It also provides an avenue for the recognition of staff and can prove to be a useful method of incentive.

Expansion, on the other hand, includes the extension of implementation to another location or spread of implementation nationwide. Expansion should be done very slowly and gradually and only when complete assessment and planning has been performed. Hasty mistakes may happen easily, which may jeopardize the success of the whole process. Caution should be exercised when choosing the next site and at what point in time, as readiness of the staff for expansion is essential for its success. Similarly, methods of expanding the process to other locations can follow the same path as outlined in the partial implementation process discussed above.

It should be stressed here that the above model is by no means the only model for implementation. There are a number of different approaches to achieve the same outcome and the reader is advised to seek more information and knowledge on the subject from other sources to get an idea of the different perspectives. A model that may be applicable in one setting or country may not be applicable in another.

Therefore, not surprisingly, implementation stages are described under the following headings, which are typical of the new processes:

- Perception: "We are already doing this."
- Awareness: "We can improve."
- Education: "Let's learn how to do it."
- Partial Implementation: "Let's start pilot projects."
- Full Implementation: "Let's involve everybody."
- Culture: "Way we do things."
- Achieved Quality: "Let's share accomplishments."

The process of healthcare quality implementation is a long and hard road but it is certainly worth following.
References

Improving Health Care Quality: Strategies for Implementing Change

Lutchmie Narine, Ph.D.

INTRODUCTION

When faced with the challenge of improving health care quality, health care managers have a dilemma about what should be changed and how it should be done. This is partly due to the multifaceted nature of health care entities which present a broad spectrum of features that could be leveraged to achieve change, and the variety of approaches, processes and techniques that are available to managers to effect improvements in health care quality. This, in turn, means the precise nature of change in health care quality will vary with the peculiar characteristics and circumstances of each institution. Thus, there is no one way or limited set of ways to implement health care quality change.

However, the variety of approaches and innovations in quality improvement often leave managers confused as to what aspects of the change process are more important than others and which to use in what circumstances. Fortunately, there are some general principles of quality change that are applicable across settings, which can provide some guidance to health care managers. Thus, the purpose of this chapter is two-fold: (i) to provide managers with conceptual tools to better appreciate the dynamics of quality change processes they observe around them, including those described in other chapters of this book, and (ii) provide guidance on how to proceed with change in the context of their own institutions.

To achieve this two powerful ways of thinking about health care quality change (i.e. Kilmann's model and Nadler and Tushman's typology) are described, and, using their concepts, we learn what are key organizational features that may be used to bring about quality change, when it is best to use these features, and how to apply strategies and techniques to effect required changes. Kilmann's barriers to success model reveal organizational features that
may be key leverage points for improvements in health care quality. The seven features of the model are the setting, organization itself, the health care manager, group decisions and results, and organizational culture. The features that become targets for quality change and the extent to which they are modified depend on the type of change required. Nadler and Tushman's typology of change illustrates the various kinds of change situations health care managers and institutions can be faced with. The four dimensions of the typology are reactive, anticipatory, incremental and discontinuous change.

When quality changes are initiated health care managers can expect to face three basic problems. There is resistance from change recipients, difficulties in maintaining commitment to the change over time, and the impact of health care quality change on organizational power dynamics. There are a number of strategies and techniques that could be employed to address these problems and several are presented in this chapter.

The what, when and how of health care quality change described in this chapter are illustrated with examples reflective of the reality of health care organizations' experience with quality changes. Also, additional readings of field examples of successful quality efforts are provided for readers who would like to learn more about the practical application of the concepts discussed in this chapter.

**WHAT TO CHANGE?**

The issue of what to change actually asks two questions: (1) what are the key aspects of the health care organization that are the best leverage points to improve health care quality; and (2) once aware of these leverage points, what are the best change strategies to apply so that health care quality is maximized. Deciding on what organizational aspects affect health care quality pits one expert's target of change against another's. Can change be accomplished by new reporting systems, by realigning corporate cultures, by a new strategic plan, or by a different reward system? It seems that each expert has his or her favoured intervention and thinks significant change can take place only through that method (Kilmann and Covin, 1989). This paper will not provide the answer to the best change target or the best way to achieve change. However, managers can benefit from some general principles which they can use in deciding what should be done in their specific situations. With respect to key leverage points of performance Kilmann (1989) presents a model which highlights some of the features of organizational life that have been most talked about in the current health care management literature.

**BARRIERS TO SUCCESS MODEL**

Kilmann suggests a model of seven features which, if not properly aligned, can stand in the way of health care organizational success. This model is known as the Barriers...
to Success Model. Four of these represent, at the surface, aspects of a health care organization - the setting, the organization, the manager, and group decisions and results. At the heart of health care organizational life are its culture, assumptions, and psyches (see Figure 1 below).

Dynamic complexity and external stakeholders are highlighted as being significant environmental features that play an increasingly important role in the life of health care organizations. Dynamic complexity refers to the rapid pace of change modern day health care organizations have to face and the growing interdependencies between health care organizations. External stakeholders are individuals, groups, or other institutions that have some stake in what the health care organization does. They are the contributors to the dynamic complexity health care organizations have to face.

At the top of the Barriers to Success Model is the setting, which is considered to be the most inclusive category. It provides the environmental context in which the health care organization's internal elements and dynamics are understood and aligned.
care organizations face. There can be tremendous differences in expectations among stakeholders about the quality of care and operational performance of health care organizations. Also, new stakeholders can emerge at any time - such as new competitors with improved production methods, new regulatory agencies, and new customers with different needs.

On the left side of the model, three main features of the formal organization are emphasized - strategy, structure, and reward systems.

- **Strategy** refers to the documents that signify the organization's direction, such as statements of vision, mission, goals and objectives (Kilmann, 1989).

- **Structure** refers to the way resources are put together to achieve the organization's strategic direction including the design of reporting relationships, policy statements, job descriptions, formal rules and regulations.

- **Reward systems** refer to the documented methods that are used to motivate employees to high levels of performance, and mechanisms to attract and retain high quality personnel.

On the right side of the model are the qualities and skills of the health care manager. In the past, models of organizational behaviour did not emphasize as Kilmann's model does the importance of managers to the performance of health care organizations. Until recently, health care managers have been thought of principally as decision-makers, i.e. people who choose among sets of alternatives to arrive at an optimal solution. This was acceptable when alternatives were pre-determined and the rules for choosing among them clear-cut. However, in today's situation of dynamic complexity it is often not clear what the health care organization's basic problem is, far less what the other choices are. Hence, modern health care managers are required to be more problem-managers i.e. identifying and defining problems rather than decision-makers choosing and implementing solutions.

At the core of health care organizational life are below-the-surface features such as culture, assumptions and psyches.

- **Culture** refers to the shared values, norms and expectations organizational members hold about their institution and the work they do. They are the unwritten rules that members follow in their day-to-day work.

- **Assumptions** are the beliefs that people take for granted but which under closer inspection may turn out to be false. Underlying almost any decision or action are largely unstated and untested assumptions that health care managers think to be unquestionably true such as: no new competitors will enter the industry, government's regulatory activity will continue to be restrained, or the economy will steadily improve.
• Psyches refer to the assumptions workers make about human nature, i.e. what people want, fear, resist, support or defend.

These underlying features are the invisible force behind the observable aspects in a health care organization, and constitute the social energy that motivates health care workers to action. They are important because they can steer behaviours away from what is required by job descriptions and procedures or demanded by supervisors and more senior managers.

The lower part of the Barriers to Success Model shows the decisions and consequences that arise from group efforts. Although individuals are capable of making decisions and taking actions on their own, contemporary health care institutions require multiple contributions from its constituent groups to deal with complex problems. Under conditions of dynamic complexity and shifting stakeholders, a group or team approach provides the most comprehensive source of expertise and information for problem-solving. The team approach is, of course, integral to the health care quality improvement process.

The Barriers to Success Model can alert health care managers to factors they should be considering when making changes to enhance health care quality. Of course, there will be differences among various health care organizations. Recent research has identified that change initiatives undertaken by health care organizations are affected by certain organization-specific factors such as organizational history, size, and the current stage of the health care organization's life cycle. History has been shown to have an impact on the success of change strategies. Once an organization embarks on a change, there is an immediate increase in the likelihood of additional changes of the same type (Amburgey, Kelly and Barnett, 1993). Past history is therefore seen to determine future solutions. Also, it has been suggested that health care organizations respond and change in different ways depending upon their stage within their life cycle as they must respond to external events differently at different times in their evolution (Pettigrew, Ferlie and McKee, 1992; Shortell, Morrison and Robbins, 1985). Creating a successful change process in a stable, mature organization may be more difficult than in a newer, more entrepreneurial health care organization.

Diffusion research is a methodology, which analyzes the spread of new information or technology among organizations. This information spread is analogous to an organizational change process. Renshaw and associates (Renshaw, Kimberely and Schwartz, 1990) found that early adoption of technology in hospitals was associated with large size, the existence of teaching and research facilities, the type of ownership and urban location. Also, Ginn (1992) has observed that size, system membership, ownership, and severity of case mix was positively associated with health care organizations being more proactive in their development of strategies. These findings suggest that organization size, teaching status, location and ownership can all have
a bearing on the implementation of change in health care quality.

The impact of these factors on organizational changes suggests the need to design change initiatives which reflect the specific needs of the health care organization.

**TYPES OF CHANGE**

Nadler and Tushman (1995) have developed a framework which can help us to better appreciate the different types of change that health care organizations face. They propose that change can be thought about on two dimensions. The first dimension is concerned with the dynamic complexity of the health care organization's setting, in particular the strength of the environmental forces for change. In some cases, the forces of change are so strong that health care organizations are forced to respond immediately to changes in the environment (e.g., government imposition of regulations requiring the reporting of health care quality statistics to consumer groups). Such changes are referred to as reactive change in that they are necessitated by some clear environmental event. In other cases, the forces of change are relatively weak and are not clearly identifiable. The forces that precipitate change might not have affected health care quality but people in the health care organization may sense that something more is needed to stay ahead of the competition or to be prepared for environmental shifts looming on the horizon (e.g., sensing employers' or other payers' dissatisfaction with the cost versus quality of care provided). Here, change is initiated without a clear and present environmental demand, but in anticipation of environmental pressures that are likely to occur in the future. This type of change is referred to as anticipatory change.

The second dimension of change is concerned with continuity or the degree to which change paths depart from current patterns of organizational behaviour and levels of health care quality. In some cases, changes build on work that has already been done and do not depart very far from the pattern of operation that has already been established. Change here involves tinkering with components to improve the functioning of the health care organization in relatively small increments. Such changes, which do not necessitate fundamental shifts in the frame of the health care organization, are referred to as incremental change. It is important to note that incremental changes are not necessarily small. They can involve large commitments of resources and impact on many people. They are incremental only in the sense that the changes are continued on from the ongoing pattern of health care organizational life. On the other hand, changes that depart substantially from the current organizational context are referred to as discontinuous change. These involve redefining the organizational role - its vision, identity, strategy and even its values (Nadler and Tushman, 1995). Discontinuous change challenges the very context or frame within which the health care organization operates. This type of change can reshape or bend the frame,
while in more extreme cases it breaks the frame and moves the health care organization to a different configuration. When these two dimensions - dynamic complexity and continuity - are combined, the result is four types of changes as shown in Figure 2.

Figure 2. Types of Health Care Quality Changes
(Nadler and Tushman, 1995)

<table>
<thead>
<tr>
<th>Tuning</th>
<th>Reorientation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adaptation</td>
<td>Re-creation</td>
</tr>
</tbody>
</table>

TUNING

These changes are made in the absence of any immediate need or problem but in anticipation of future environmental events. They are done in the hope of making minor gains or efficiencies on already proven health care quality systems, and are often aimed at changing the way work is carried out, i.e. re-engineering work processes (Keidel, 1994). However, the re-engineering efforts tend to be unfocused and are done in a piecemeal fashion. In terms of the Barriers to Success Model, the targets for tuning changes would be the group and lower order features of the health care organization such as the way jobs are designed and rewards allocated.

ADAPTATION

These changes are made in reaction to external conditions in the environment. The actions of a competitor, changes in consumer tastes, new technology or government regulation may make it necessary for the health care organization to respond or suffer negative consequences (Nadler, 1988). However, the consequences are not life-threatening and the response does not require a fundamental departure from the frame within which the health care organization operates (e.g. complying with requirements to publicly report quality of care statistics may be an extension of work already produced for internal purposes). As in the case of tuning changes, adaptation changes also involve the re-engineering of processes to effect incremental adjustments in work systems. The change targets are also similar i.e. lower order features of the health care organization and group decision-making and action-taking. The difference is that adaptation changes are done in reaction to specific environmental cues, and hence the re-engineering process is more focused and can be more extensive.

REORIENTATION

This type of change is made in advance of anticipated external events. They often occur early in the cycle of a shift in overall industry patterns, and involve a fundamental redirection of the health care organization. Reorientation changes are typically led through restructuring efforts i.e. reconfiguring organizational units and redesigning reporting relationships or administrative groupings to redefine the nature of the organizational enterprise (Keidel, 1994) (e.g. the adoption of quality work teams and processes in the 1980s as
a response to the quality improvement movement in the automobile and other manufacturing industries. As the formal structure of the health care organization changes, there is a concomitant need to change the number and types of managers who will manage the new organizational units and groupings. The process also involves some modification to other aspects of the health care organization such as its strategy, group processes and even its culture. However, these changes are frequently put in terms that emphasize continuity with the past (particularly values and norms of the past), as the intent of reorientation is to bring about major change but without too sharp a break with the existing organizational frame. As such, reorientation represents a frame-bending rather than a frame-breaking change. In the context of the Barriers to Success Model, the organizational components most affected by reorientation changes are higher order features of the health care organization such as its structure and strategy, and its managers.

RE-CREATION

Health care organizations which have visionary leaders who can anticipate environmental changes and devise appropriate responses are quite fortunate. However, in other cases senior managers are forced to bring about discontinuous change in reaction to severe environmental pressures. The health care organization faces a fundamental crisis that requires it to re-create itself in order to survive and prosper. The re-creation process involves a change in the patterns of understanding that the health care organization and its members have about its identity (who we are, what do we stand for), its purpose (mission, for whose benefit do we exist), and methods and procedures (how we do things to satisfy our clients) (Hernandez and Kalunzy, 1988). This kind of change is relevant to health care manager's attempts to foster a total quality management culture and way of thinking among hospital and other types of health care workers. The target of re-creation is not the actual process or structures in the health care organization, but rather the individual or collective mindsets that exist about the components of the health care organization. Once the thinking has changed then the appropriate changes in organizational components will follow. Hence, the key organizational feature targeted by re-creation change is the inner core of the Barriers to Success Model, i.e. the health care organization's culture, assumptions, and psyches. In targeting this inner core, re-creation changes directly challenge the existing organizational frame. Often there is breakage, old mindsets are discarded, and a new frame is created.

The above classification scheme provides a background on the types of change and the potential effects of these different change types on health care organizations. This model, together with the Barriers to Success Model, provides the tools that health care managers can use to determine what to change. Once this step has been completed, the question becomes how to successfully change health care
quality. It is generally accepted that people like variety more than change as it tends to be unsettling no matter what the circumstances (Pettigrew, Ferlie and McKee, 1992). Morris and Raben (1995) note this leads to three universal problems encountered in the implementation of health care quality change. These are: resistance on the part of the recipients of change, difficulties in maintaining commitment in the face of the uncertainty associated with change, and problems in dealing with the impact of change on organizational power structures. As summarized in Figure 3, each of these problems has different implications for the management strategy to be employed and the action steps flowing from the chosen strategy.

## HOW TO CHANGE?

### Managing resistance

A good deal of the tension that arises in health care quality change is a direct result of the disjunction between those directing the change and the recipients who must

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**Figure 3. Summary of action steps in quality change**

(Adapted from Morris and Raben, 1995)

<table>
<thead>
<tr>
<th>Problem</th>
<th>Implication</th>
<th>Action Steps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resistance</td>
<td>Need to motivate</td>
<td>1. Surface dissatisfaction with the present state.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Promote participation in health care quality change.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Provide time and opportunity to disengage from the present state.</td>
</tr>
<tr>
<td>Commitment</td>
<td>Need to manage</td>
<td>5. Communicate a clear vision of the future quality process.</td>
</tr>
<tr>
<td></td>
<td>the transition</td>
<td>6. Use sequenced leverage points</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7. Establish appropriate transitional devices.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>8. Build in feedback and human resource mechanisms.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>9. Use leader behaviours to influence health care quality change.</td>
</tr>
<tr>
<td>Power and politics</td>
<td>Need to shape</td>
<td>10. Assure the support of key individuals and power groups.</td>
</tr>
<tr>
<td></td>
<td>the political</td>
<td>11. Use cultural devices.</td>
</tr>
</tbody>
</table>
adopt and adapt to change. The individual response to change includes: inquiry, denial, pessimism, education and analysis, decision-making, action, response, and acceptance (Thompson, 1994). These responses can fundamentally reshape any change process. Hence it is vital to a successful change effort to understand the dynamics of recipient response and how to manage resistance. Resistance to change occurs for a number of reasons:

- Change can be perceived as a threat to one's autonomy and self-control.
- It may challenge familiar ways of doing things and force employees to find new ways of managing their work environment.
- Some recipients may perceive that the eventual consequence of change will involve some personal loss either in reduced status, authority or pay.
- Others may resist for cognitive reasons, either on ideological grounds, arguing that the change violates an important principle, or out of concern that the health care organization may be losing sight of its mission.

Whatever the reasons, there is a predictable pattern of resistance behaviours which health care managers should expect to see when change takes place. Initially change is fought against with rational arguments in support of retaining the status quo. Familiarity with the present is contrasted with the uncertainty and often incompleteness of the proposed quality-of-care improvements. If the proposal for change persists then targets of blame are sought. The usual targets are decision-makers who are held responsible for the evils wrought by the change. As the change gets under-way there is an increase in 'corridor talk' and an associated loss in productivity. People seek each other out to compare their interpretations of what the change really means. As the hall corridor intensifies factions begin to form as people seek out the company of those who share their point of view about the change. Out of these factions informal leaders emerge. The presence of these leaders emboldens the faction's opposition to the changes and change leaders begin to have their convictions and support for the quality improvement initiative tested. This stage of resistance is a critical time for the senior management team, as failure to present a unified front can sharply undermine the change initiative. If all else fails, individuals will appeal to managers and others with whom they have personal relationships to modify the consequences of change in their particular case.

Experience and research has taught that in the face of resistance to change the best strategy for health care managers is to somehow motivate constructive behaviour among change recipients. This can be done through a variety of action steps including surfacing dissatisfaction with the present state, promoting participation in the change effort, rewarding behaviours supportive of change, and providing opportunities for resisters to disengage from the present state.
Surfacing dissatisfaction with the current state

This is particularly important for tuning and re-orientation changes, where the change is done in anticipation of future environmental events. In the absence of an obvious crisis it is difficult for many change recipients to see why there is any need for changing health care quality. Hence, health care managers have to create a sense of urgency about the change by encouraging feelings of dissatisfaction with the present state. Techniques for doing this include educating people about what is happening in the health care environment that is driving the need for change. People are given the tools to recognize the economic and business consequences of not changing. Closely related are techniques such as benchmarking which emphasize the discrepancy between current and desired states. Another method is to provide opportunities for people to experience in a personal way the reasons underlying the need for change. This can be achieved by setting up self-diagnostic or study teams to collect information on customer and other stakeholder views.

Promoting participation

One of the most consistent findings in the research on change is that participation in the planning and implementation of health care quality change tends to reduce resistance and motivate recipients to make the change work (Coch and French, 1948; Vroom, 1964; Kotter and Schlesinger, 1979). Involving people in making change choices enhances their sense of control and fosters ownership in the process. Participation can also facilitate a better exchange of information about the change between the change leaders and recipients and provide feedback that might enhance the effectiveness of the change. Participation devices can be by soliciting recipients' views via questionnaires and interviews and/or including their membership on task forces and committees.

Health care managers often find the issue of participation a contentious one. Participation means giving up some control, and including divergent interest groups can create conflict and slow the process of change. However, most change theorists believe the benefits from some form of participation outweigh the costs of no involvement at all. The task for health care managers then is to decide when, where and how to build participation into the quality improvement plan. Participation can occur in the problem diagnosis, planning or execution stages of the change process. Individuals or groups invited to participate may differ on the basis of the skills and expertise they can contribute to each stage. If participation is direct then a large number of people will be involved; if indirect, participation will be limited to a small number of representatives.

Rewarding supportive behaviours

When health care managers announce a quality improvement initiative, organization members often wait for signals that say they are serious or they mean it. One effective way to signal management's commitment to
Health care quality change is to acknowledge new heroes, recognize new achievements, and offer special incentives that reinforce behaviours that are consistent with the direction of the change. Health care managers often fail to use rewards properly to support the change process, either because while they expect individuals to behave in new ways they continue to reward them for old conflicting behaviours or they do not take actions at their level to demonstrate that rewards have changed (e.g., continuing to structure rewards around patient volumes i.e. numbers of patients served rather than the quality of care provided or based on consumer satisfaction reports). This latter failing is particularly problematic in frame-bending or frame-breaking changes when culture and psyche modifications require health care managers to adopt new behaviours and skills. All too often efforts to change management behaviours are undermined because the promotion system continues to run as normal and leaders remain reluctant to remove or demote health care managers who do not demonstrate the required behaviours. Hence, in cases where the perception of the seriousness of the change needs to be reinforced, health care managers should restructure the reward system - compensation, bonus, promotions, job assignment, recognition, and status symbols to ensure that they are aligned in the direction of the health care quality change.

Opportunities to disengage from present state

Many change leaders struggle with the issue of making allowances in the change plan for organization members to disengage from the present state. The fear is that focusing on the break with the past while the new state is still in the making might have the opposite effect of promoting resistance to the change process. However, there is increasing evidence that change often creates feelings of loss for familiar ways of doing things that are not unlike those associated with death. Indeed, Lippitt (1982) refers to this as a period of mourning, and has outlined seven stages that are common to the experience of loss associated with health care quality change. Hence, when possible, it is wise to allow individuals the time and opportunity to bring some psychological closure on the old state. Techniques that health care managers can use to help health care professionals to come to terms with letting go of the past include small group sessions where people are encouraged to talk about their feelings of loss, or rituals or ceremonies that help people to symbolically say farewell to old practices.

Not all changes are equally amenable to allowing health care providers to mourn the loss of the familiar. Adaptation and recreation changes are reactive and often do not have the luxury of time to avoid completely psychologically disruptive departures with the past. An important feature of tuning and re-orientation changes is their anticipatory nature, which allows time for relatively gradual quality change, making it easier to address the feelings of loss experienced by recipients of the change.
MAINTAINING COMMITMENT

One problem for health care managers is to help the recipients of change cope with the ambiguity of the transition period, while trying to keep the change process moving. Action steps that can help change leaders successfully manage the transition include: communicating a clear vision of the change; using sequenced leverage points; establishing appropriate transitional devices; using feedback mechanisms; and supporting human resource systems.

Communicating a clear vision

It is important for health care managers to communicate a clear vision of what the future will look like because organizational members interpret change or other types of management initiatives through the prism of their existing mental models or mindsets. A key feature of change, especially frame-bending or frame-breaking changes such as re-orientation and re-creation, is the need for new mindsets that reorients members' basic assumptions about the nature of the health care organization (e.g. reducing costs while improving quality of care is both possible and desirable). One of the most powerful mental models held by organizational members is the set of beliefs they have about the organization's identity, i.e. what is central, distinctive and enduring about the health care organization (Reger, Gustafson, DeMarie, and Mullane, 1994; Reger, Mullane, Gustafson and DeMarie, 1994). Failure on the part of health care managers to clearly and consistently articulate a vision of the future will not facilitate change in members cognitive interpretations about the character of the health care organization, which in turn can undermine acceptance of the change, especially in the critical period of transition. But the health care manager may ask, how can I articulate a clear vision when I have only a general idea of where we are going? In fact, a general idea is clear enough. Change of mindset does not require the explicit detailing of every aspect of the new quality improvement process. Rather, a description of what the new key principles will be and how they will look in operation is sufficient. They can serve as guides or goals around which members can go about rethinking what are desirable attributes for their health care organization.

There are two basic ways health care managers can guide the rethinking process and ultimately the evolution of members' organizational identity:

- One way is by providing opportunities for members to engage in sense-giving activities that blend their mental models with which the vision managers have of the future for health care quality in their organization. These kinds of opportunities are particularly important in obtaining physicians' participation as one wants to avoid physicians interpreting proposed changes as yet another management fad rather than a real attempt at improving quality of care. Indeed, it is often possible to get a
physician to do all sorts of things in the name of "quality" that he or she would not show interest in if the same activities were called "management". Sense-giving opportunities might be provided indirectly by involving physicians and other staff members in developing a written description of the change or constructing an impact statement that outlines the effect the quality change will have on people and organizational components. A direct and more effective sense-giving technique is the conduct of focus groups between health care managers and other organization members where champions of the quality initiative can share their vision and interpretations.

The second way is by creating opportunities for members to learn how others think about the health care quality change being proposed. The opinions of outsiders can be a significant stimulus for change among organization members (Reger, Gustafson, DeMarie, and Mullane, 1994). A particularly effective practice of making members more receptive to change, by raising awareness about organizational shortcomings, is direct customer interaction. The realization that customers are not happy with the organization's performance, or hold ideals for the organization that are quite different from one's own, can be a very convincing argument in favour of making health care quality improvements.

There are two essential aspects of communication throughout the change process. The first is the timing of the messages, and the second is the amount of information to be communicated. There has been limited empirical study of how these aspects of communication affect the success of the health care quality change. Experienced change agents have indicated that during the times of significant quality change, managers rarely communicate frequently enough or with sufficient volume, but no one is really clear about how much is enough (Burke, 1995).

**Sequenced leverage points**

Previous authors have suggested that because of the interrelated nature of health care organizational components, all elements should be changed almost simultaneously (Roitman, Liker and Roskies, 1988). However, this may be neither necessary nor practical. Use of multiple simultaneous leverage points is only required in the case of frame-breaking or frame-bending changes such as re-orientation or re-creation. However, as has been pointed out in this chapter, there are many different types of health care quality changes, not all of which involve large-scale changes to many organizational elements.

Indeed, experience has taught that different parts of health care organizations can differ with respect to their readiness for
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quality change. For example, awareness of the need for quality changes is unlikely to take place among medical staff as a whole or all at once. More likely, the recognition of problems will vary by specialty groups and over time. Family practitioners or internists would not be expected to be as alarmed over deficiencies in anesthesiology services as would other clinicians be whose work is more directly affected such as surgeons or obstetrician-gynecologists. Failure to recognize differences in the capacity and willingness of organizational elements to change can give rise to overly ambitious change efforts with unfortunate results (Roitman, Liker and Roskies, 1988; Hess, Ferris, Chelte and Fanelli, 1988).

Also, from a practical standpoint, just changing one part of the health care organization such as the reward system is a major effort on its own. If at the same time the health care organization tries to change the way work is done, how it recruits and trains managers, and so on, the change agenda can be overwhelming.

Thus, it is common to think in terms of sequencing the leverage points over time. Depending on the type of change involved, key organizational features are changed first to be followed by others. This gives the health care organization time to install each change in a manner that does not overload members with too many new ways to be learned. The preferred sequence of change is to start with high leverage changes that produce good initial results (e.g. first reorganizing into quality units and CQI work teams). This should be followed by other changes that support and complement the original changes (e.g. provide training in statistical charting processes and other quality control techniques). Planning change in a phased way has been found to be a beneficial approach, which is also confirmed by experience (Reger, Mullane, Gustafson and DeMarie, 1994).

Establishing appropriate transitional devices

When the desired state of health care quality in the future is substantially different from the current state, a transitional design may be required to manage the transition (Beckhard and Harris, 1977). Such organizational arrangements may be more relevant for discontinuous changes rather than incremental changes. Frame-bending and frame-reaking changes such as re-orientation or re-creation usually involve major departures from the current quality state and impact on many more organizational systems. Change leaders have available to them a number of standard transitional management devices such as steering committees, design teams, transition teams, task forces, a transition manager, and transition plans.

The purpose of these devices is to ensure that members know who is to do what. Transition designs can take on a life of their own. An important consideration in the choice of transitional organizational arrangements revolves around the issue of how hands-on senior health care managers should be involved in the change. Should they take an active part in the day-to-day work of transitional structures, or should they delegate this to others at lower levels.
of management? In general, incremental changes seem to require that health care managers play a supportive role and effectively delegate quality change tasks to the right people. On the other hand, discontinuous change requires active and intimate leadership from senior health care managers.

Specifically, in tuning changes where there is not a dramatic break from the past, much of the change management work can be done through existing structures and processes. The ease with which normal processes can deal with tasks related to tuning changes depends on the level of competence the health care organization has with project management and other basic implementation mechanisms. Normal health care management processes are unable to handle the more complex change management tasks presented by adaptation changes. Here, senior health care managers find it useful to set up special quality improvement structures that allow them to manage the change through delegation. They provide guidance on the general direction of the quality change while not getting directly involved in the day-to-day work of these transitional structures. This is often accomplished by having major change issues appear for review and decision-making on the agenda of meetings of the senior management team.

In the case of re-orientation and re-creation changes, the basic ways of doing things in the health care organization become the focus of the change in quality improvement. This is often so destabilizing and of such importance to the organization's future that it requires senior managers to take a hands-on approach to change management. In a re-orientation situation, change management may grow to be a major part of the senior team's responsibilities. In re-creation change, management becomes the primary task of the senior team. For the chief executive officer (CEO), his or her sole agenda is to lead the health care organization through the frame breaking change. In re-orientation or recreation, the transitional structures employed are different in character as they must accommodate the active involvement of members of the senior management team.

**Feedback mechanisms and human resources**

The goal-setting theory indicates that the best quality levels are achieved when specific quality performance goals are set and feedback is provided on the attainment of these goals (Amburgey, Kelley and Barnett, 1993). Once the vision or end-goal has been set, the health care organization and its members require ongoing feedback on the implementation of the quality changes.

In the case of large health care quality transitions, many existing organizational feedback mechanisms are destroyed, requiring a conscious effort to re-establish them early in the change process. With re-orientation and re-creation change initiatives, the need for feedback mechanisms is the greatest, as these change approaches represent radical departures from the status quo.
Health care managers have both formal and informal feedback mechanisms available to them. Formal channels are vested in the organizational structure and may include personal and group meetings with change recipients, articles in the organization’s public relations and information publications, and use of formal reward and recognition programmes. The informal mechanisms can include corridor chats and informal social events. The method of feedback presentation should be targeted to meet the needs of identified organizational members. This may mean that different feedback approaches are used for different groups or individuals, requiring health care managers to ensure that messages are consistent within the target groups, and that messages provide the feedback information necessary for the quality change process to proceed.

The human resources function within the health care organization becomes even more important during times of significant health care quality change. It is essential to ensure that human resource processes such as performance appraisal, rewards and recognition, and training and development are structured to reinforce the change process and support and enhance quality improvement. For example, on implementing TQM some organizations might replace traditional incentive awards like plaques or pen sets with rewards like books on how to improve job performance or trips to quality improvement education programmes. Many health care organizations attempt to make substantial changes, while keeping existing quality management systems in place. Employees quickly realize what types of behaviours and actions are valued and rewarded by the health care organization. Continuing to reward outdated behaviours is a sure way to cripple a health care quality improvement initiative.

Power and politics

Quality changes in health care organizations often involve some disruption to the political dynamics of the organization. Since they do not challenge the basic processes, tuning and adaptation changes primarily affect the more formal aspects of power within the health care organization. Re-orientation and re-creation changes are focused on frame-breaking or frame-bending, and thus have a greater impact on the informal power relationships that develop among health care organizational members over time. There is a need for change leaders to shape and manage these political dynamics throughout the transition period to build and keep support for the change process.

Use leader behaviours to influence change

During times of change people look to health care leaders to provide assurance and the motivation to persevere in the face of uncertainty and turbulence. Hence, the behaviour of senior leadership is a significant factor in the management of the political dynamics of both the formal and informal organizations. With the force of their personality and behaviour they can generate energy and enthusiasm, mobilize groups, be a role model, and send important
signals in support of the quality improvement process. Through the power of their office health care leaders can build support for quality change by rewarding appropriate individuals or behaviours, removing roadblocks, disseminating a positive vision of the future quality state among change recipients, and providing needed resources. Given that leadership is so fundamental to the management of the quality change process, it is relevant to many of the action steps previously described and to the steps mentioned below.

Assure support of key individuals and groups

Power in health care organizations is normally held by those who cope with critical organizational problems, since resources are provided for the resolution of these critical problems. Health care quality change can therefore be facilitated by reallocation of resources in accordance with the new directions. Apart from shifts in resources, those in power can be further threatened by the loss of their control of information. For example, the standards emphasis phase in implementing QA programmes can make management or care processes, previously only the preserve of professional managers, more transparent and comprehensible to lay managers, making possible a redistribution of power and control within the organization. However, those in power may not easily give it up, and, as a result, the quality change initiative can be sabotaged. Individuals with power can structure the change in ways that favour their continuing to have power (Salancik and Pfeffer, 1977), e.g. traditional quality assurance workers seeking to redefine TQM principles to fit quality assurance functions. Obviously, change leaders must be aware of the formal and informal power structures within the health care organization and the potential impact on the change initiative.

Once key power groups have been identified, health care change leaders must begin to obtain their support. Steps that can facilitate this include participation, bargaining and isolation.

- Participation refers to getting groups or individuals to become involved in the quality change. As they do so they may begin to take ownership and see it as their change, not something that has been imposed on them. However, in some instances those opposing the change can use participation to increase their power and forestall any further change.

- The use of bargaining identifies individuals who may be persuaded to accept the change and provide incentives to reinforce their support. Incentives may be the promise of a new position or additional responsibility within the restructured health care organization.

- In cases where participation or bargaining is not effective and individuals continue to resist or undermine the change, it may be necessary to isolate them to limit their impact on the change process.
This can be done by moving individuals to assignments outside the organizational mainstream such as business development work, government or regulatory liaison or participation in executive development programmes. In extreme situations where other approaches have been tried and proved unsuccessful, it may be necessary to either remove recalcitrant individuals from the scene through transfer to another health care organization or by outplacement.

Use cultural devices

Resistance to change can also exist when the health care quality change is seen to be inconsistent with current cultural norms (Reger, Mullane, Gustafson and DeMarie, 1994). Organizational growth, increasing professionalism (Van Maanen and Barley, 1985), high degrees of task differentiation, significant technology (Martin, Sitkin and Boehm, 1985), and mergers and acquisitions (Walter, 1985) have all been identified as supporting the establishment of subcultures within health care organizations. The underlying proposition of organizational subcultures is that employees develop these subcultures to differ from and potentially challenge the imposed management culture (Wuthnow and Witten, 1988).

Recent studies have identified the presence of organizational subcultures, with divisions most likely among occupational, status, or divisional lines (Wuthnow and Witten, 1988). Pettigrew (1992) suggested that the cultures of professional groups are strong, resilient and outside the control of managers. However, some researchers have suggested that cultures can be used by health care managers to mould quality improvement behaviours and practices. It has been found that organizational myths and stories (Martin and Powers, 1983), and core organizational symbols and rituals (Tompkins and Cheney, 1985) can be used to manage conflict in organizations and can reduce the transaction costs in structuring, monitoring and rewarding behaviour (Jones, 1983). These results suggest that health care managers must be aware of the different cultures within their organization and the reactions among these cultural groups to the quality change process. Different cultural groups may require different approaches in the planning, communication and implementation of large-scale quality changes (see Narine and Einarson, 1991; Jick, 1993 for one possible approach).

Build stability

There is a limit to the amount of uncertainty which individuals and health care organizations can withstand, after which dysfunctional effects may occur, which may include extreme defensive behaviour, panic and demoralization. Hence, while uncertainty can be a useful impetus to making quality improvement changes, to be effective, it needs to be tempered with elements of certainty and permanence. Without sources of stability, whether in terms of structures, people or physical space to provide an anchor in the midst of turbulence, health care leaders
may find it difficult to sustain support for the change process over time.

One early action step that can help to deal with this potential problem would be to provide advance notice of the quality change so people can psychologically prepare themselves for it. Another tactic is to preserve existing visible aspects of the organization (e.g., organizational names) that recipients of change have identified with in terms of what the health care organization is and who they are within it. This, of course, is more difficult to manage in the case of re-orientation or re-tuning changes. Also, by merely being consistent in their statements and behaviours, quality change leaders can provide some measure of assurance and stability. Change leaders can alleviate the fear that everything is changing by indicating in their statements what specific things in the health care organization and specifically in the quality management system will not be different after the change is complete. Even when this is not possible, change leaders can provide a source of balance to change recipients by articulating a vision of the direction and aspirations of the quality improvement programme, which is able to capture the imagination of change recipients.

CONCLUSION

While there are general patterns associated with health care quality change, each health care organization will have its peculiar characteristics due to the presence of unique individuals, organizational history or the nature of the local market. Hence, health care managers who are change leaders need to tailor their quality improvement efforts to meet the requirements of their specific situation. Their approach should be diagnostic rather than prescriptive, as there are no cook-book recipes for health care quality transformation. However, health care managers can benefit from some general principles, which they can use to design the most effective quality improvement change process for their organization.

Kilmann has summarized some of the key leverage points that can impact on health care quality, and thus may be potential targets for change. These include at-the-surface features such as the setting, the organization, the manager and group decisions and results, and deeper aspects at the heart of health care organizational life like its culture, assumptions and psyches. The relevance of these targets, in turn, depends on the type of quality change required. In their broad forms, types of changes can be either incremental or discontinuous and within these there are sub-types depending on the extent to which they are frame-bending or frame-breaking such as tuning, adaptation, re-orientation and re-creation. Irrespective of the type of quality change, health care managers can expect to encounter three universal issues to some degree - resistance, commitment and power. To address these implementation problems they will have to help motivate the health care quality change process, manage the uncertainty of the transition period, and shape the power and
political dynamics arising from the change. Specific action steps that may be taken within these areas have been discussed in this chapter and are summarized in Figure 3.

References


Additional Reading


Sustaining quality in health care is both an art and a science. It requires leadership skills to keep the momentum of improvements going and the staff morale high, while trying to maximize positive impact and producing actual and measurable improvements in processes and outcomes (Al-Assaf, 1994). It is a systematic process of continuous employee involvement, empowerment and teamwork. It is a cultural transformation.

Sustaining health care quality means that all the activities related to performance measurements and improvement become spontaneous and perpetual. Individual workers will have the individual responsibility necessary to initiate process interventions and improvements without the need for the management to prompt him or her to do that. It is a status where additional resources are not necessary to keep the momentum of quality assurance, control, improvement and management strong and continuous. It is a status where change is not a challenge any more and individual workers are willing to take on new challenges and new ideas; where consumers are satisfied with the product of care and service they receive or have a "user-friendly" and accessible processes to resolve complaints and dissatisfaction. It is the status that leads to eventual institutionalization of health care quality in an organization or a system.

In this chapter, the system of institutionalization of health care quality and the process of sustainability has been presented and explained. "Bullets" format will be used to present the different lessons and tips for institutionalizing quality. The method of presentation will be such that only practical introductory remarks are given on the proper methods of implementing health care quality in an effort to achieve a system or a culture where quality is institutionalized. Remarks presented in this chapter are based on the actual experiences of the author gathered from different health care quality projects implemented nationally and internationally. Every effort has been made to ensure applicability of these remarks and practice tips to international audiences.
Institutionalization as a system is achieved only after the process of full implementation of quality has been completed in a health care organization. Since it is a system, it must be built gradually and at the same time as the processes of implementation are taking place and planning activities and improvement strategies are being developed and applied. After full implementation of health care quality in an organization has been achieved, the next expected milestone is an established “quality culture”. Total health care quality, coupled with a quality culture, is a status of institutionalization of health care quality. In a system where there is quality assurance (QA), monitoring, quality improvement (QI) and quality management (QM), institutionalization becomes eminent. Therefore, institutionalization is achieved when appropriate health care quality activities are carried out effectively, efficiently and on a routine basis throughout a system or organization (Brown, 1995). It is a state of achievement whereby health care quality is practised and maintained without additional outside resources. In such a state, expertise is available from within and commitment is fully integrated and maintained.

A quality environment or culture is achieved when quality activities become a matter of routine and happen on a daily basis. Such activities are not separate from the normal activities that are carried out daily by the system and its personnel. It is a state where each employee is aware of the health care quality concept, believes in it, practises its principles and makes it a part of his/her responsibility and not the responsibility of a department or another individual. In such a culture each individual is responsible for his/her tasks. Individuals will then own their quality structure, processes and outcomes. At such a stage, employees will be making every effort to make sure that the processes of QA are maintained, i.e. planning, standard setting and monitoring. In such a culture, employees are also practising QI, i.e. they identify opportunities for improvements and set the motion individually or in collaboration with others to make improvements. It is also a situation in which employees are empowered to achieve their goals which are, in turn, aligned with the organization’s mission and vision statements. A quality culture is therefore achieved when individuals carry on “quality”-related activities on a routine basis and that working in teams becomes a norm in that organization.

LESSONS IN SUSTAINABILITY

The following are lessons learned in implementing health care quality in health care institutions. These lessons, if learned well and applied effectively, may lead an organization to a system of institutionalization of health care quality. The applicability of each lesson listed here may vary from one organization to another, but generalization has been intended.

- Effectively plan for the change. Introducing new concepts and ideas may cause a change or at least a fear of change; therefore, every effort should be made to plan for this change adequately, effec-
tively and in a timely manner. The change process is dramatic. It could be a change from no or little quality to a complete system of standards-setting, compliance measurements, process improvements, etc. Therefore, planning for this change is very important and extremely necessary before actual implementation takes place.

- Planning for quality should be done systematically and thoroughly. Delineation of responsibility, identification of the scope of involvement, the allocation of resources, and the anticipation for the impact of the change on organizational behaviour should be completed before the other activities in QA or QI are begun. Also, include as many key individuals in the planning process as possible and always get the written approval of the top administrator.

- Priorities need to be set early in the process with true buy-ins from the key personnel of the organization. Priorities, of course, should be set by these individuals from within the organization and not by their consultants. Therefore, a team of key personnel that will be impacted by the change need to discuss, brainstorm, and identify priorities in the change process. Certainly, priorities should be realistic, feasible, have a high probability of accomplishment and have the most impact on the bottomline. One method on how to achieve this objective is to conduct a strategic planning workshop and invite all key personnel to attend. This workshop should be held as early as possible in the change process. Also, all resolutions and decisions made at the workshop should be documented and further distributed to all parties involved. A ground rule should be reached that if any change in these decisions is desired in the future, a strict guideline for systematic group decision must be established and adhered to before making any amendments. This practice will avert (at least minimize) frequent amendments that potentially may take place in the likely event of changes in personnel or minds.

- Discuss strategies for implementation. Methods for implementing the change need to be discussed thoroughly and explicitly with the key individuals in the organization and these individuals must understand them very clearly. Answers to the how, when, who, what and where should be available early and before the implementation starts. All decisions should be documented in writing and agreed upon by all sides. Here, a widely used management tool such as a Gantt chart or development of a work plan with times, tasks to be accomplished and responsible party may prove to be extremely helpful in meeting the objectives of
specificity and accountability of the implementation process.

- Securing commitment from the management is helpful and can make the process of implementation move rapidly. The involvement of top managers in the early stages of planning is essential. Commitment here means active participation in teams and tasks as well as allocation of adequate resources for quality. It involves behavioural change to act as role-models for the rest of the organization to follow and take lead. Make sure that the commitment is genuine and sincere, as oral rhetoric alone is not sufficient to sustain and institutionalize quality in an organization.

- Develop a mission statement for quality early in the process. A mission statement that is well prepared and developed in collaboration with senior staff will have a higher chance of survival even with any amount of turnover of managers and staff. Mission statements should answer questions about the purpose of the organization, specific objectives of the organization in quality, scope of interventions, and the customers of the process of quality. This mission statement must coincide with the organization-wide mission statement. Also, once developed, mission statements should be communicated effectively to the intended audience internally and externally and should be displayed publicly as a constant reminder to the staff regarding their duties and customers’ expectations, for achievement.

- Identifying a local leader or champion(s) to lead this movement is highly recommended. A qualified individual with authority, credibility, enthusiasm and interest can be an asset in the acceleration of health care quality sustainability and its institutionalization. This individual can act as a facilitator and cheer leader for health care quality initiatives. In several health care organizations, this individual has been traditionally a nurse with some background in utilization and case management. However, on the international scene a physician is usually more appropriate. With the right qualifications persons trained in other disciplines can also be as good in leading the health care quality process.

- Consider the adoption of certain standards that have been promulgated by specific international organizations or agencies such as the World Health Organization. These standards are usually well-written and are valid. Also, standards are the basis for quality assurance activities and subsequently improvement activities. A good quality system (structure, processes and outcomes) with
good standards for each of its components is a foundation for a sustainable quality system which, in turn, is conducive to institutionalization.

- Organization of a steering committee or council of national representatives would give the health care quality process credibility, sustainability and momentum. A document on the tasks and duties of the council or committee should be prepared and agreed upon by all parties involved, while all members should have a copy of this document and understand it as their charter. It should not be changed without the explicit consent of all parties involved. The committee's meeting times and schedule (at least once every month) should be adhered to and a regular place for their meeting should be assigned during a convenient hour (meetings should not last more than two hours). This group will be responsible for approving implementation strategies, intervention activities, dissemination materials, etc. This committee is extremely important for the sustainability of the implementation process.

- Forming the structure for health care quality should be gradual and methodical. It should be based on the progress and understanding of the concept and practice of health care quality. Organizing large structures of committees and councils early on may shift the focus on organization per se and away from the actual mission of health care quality. The focus should always be primarily on incremental and continuous improvement and then on structure as a foundation for such improvement. Also, adding structure may require additional resources that may not be necessary at the early stages of implementation.

- Identify the customer of the organization and the audience of the system. An attempt should always be made to identify the customer(s) of both the organization and the health care quality process, but this activity should be undertaken early in the process. Answers should be identified to such questions as: Who is the customer of the quality process? What are their expectations? And how to meet those expectations? These customers and their expectations need to be identified and every effort should be made to continuously meet these expectations. Managed care plans should take this issue seriously and start surveying and communicating with their members periodically and frequently. In this way, members' needs and expectations can be identified, defined and addressed by the appropriate personnel.

- Staff at the beginning of implementation should concentrate more on
learning and understanding the concept and principles of health care quality and practice it daily to achieve positive results. Too many committees with too many meetings, and too many tasks distract from focusing on expected goals. An important principle of health care quality is to design activities as outcome-driven but process-focused. Thus, improvements are targeted and always measured to identify impact.

• Plan and provide appropriate and on-time staff training. As Deming (1985) suggested, training should be on-job and as needed. It should, however, be done in a formal and systematic manner where an effective training plan has been developed that includes such issues as type of trainers, type of courses, content areas, to whom, by whom, where, what resources, etc. Every lecture given, every workshop delivered, and every meeting conducted should have, as one of its objectives, the capability of enabling the participants to duplicate the effort and pass it on to others. Training in quality methods must be stressed because as you train people you increase their awareness, and as you help them perform the tasks learned in the training you solidify their learning. Therefore, train people to make them trainers. As more trainers develop, more dissemination of health care quality occurs, which, in turn, leads to more training thus more dissemination will take place. And that is how you sustain a system of profound knowledge and practice.

• Always have an alternative plan in case one is slowed down due to staff changes. Making a habit of not relying on one single individual is helpful when trying to implement health care quality effectively. Train a number of individuals and prepare several qualified staff simultaneously. This practice will allow for a wider selection of coordinators, and will enhance sustainability efforts. Flexibility is expected and desired in change processes and is a sign of cultural maturity.

• Keep quality activities closely related to the organization's main activities and its mission without unnecessary changes in the organizational structure and allocation of additional resources. At least at the beginning of implementation, health care quality activities may be delegated to an existing staff member or department as part of their normal responsibility.

• Prepare for answering questions related to the incentives for attracting staff to participate in health care quality activities. Staff will start asking such questions as 'What's in it for me?' or 'Why should I do this?'. As long as health care quality activities are not required as
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an integral part of their job performance, employees will question their role in participating in these activities. Quality expectations and measurement indicators should be written down in these activities as part of their performance evaluation and job descriptions. A system of employee rewards and recognition based on health care quality achievements may be necessary. Therefore, a recognition and reward system for people working towards quality outcomes should be designed and instituted by the organization early in the process. This should also include an incentives system that encourages people to be involved in QA/QI activities. As mentioned earlier, answers and mechanisms to these questions could not be found.

• The issue of incentives is a sensitive one with differing ideas about the how and what of the incentive issue. Incentives, however, need not be monetary in nature. Actually, monetary incentives are the least effective to make an impact, but the presence of some incentives will be helpful to the sustainability of health care quality. There have been several examples of recognizing deserving individuals such as recognizing teams with plaques, newsletter announcements, letters of gratitude from the organization’s CEO, certificates of excellence given to deserving individuals by a special committee, as well as authorship of articles in the local newsletter. All or some of these incentives could be instituted in an organization to stimulate employee participation and involvement.

• Document improvements by measuring pre- and post-status. Always have quantitative data available for comparisons and for the measurement of the effectiveness. It is also useful if cost savings are calculated to measure efficiency. These indicators are especially attractive to administrators. Providing measurable parameters gives credibility and sustainability to the process of health care quality.

• Therefore, identify tangible outcomes. In several projects, it was found that if the final product did not have tangible outcomes, it was taken to mean that nothing had been accomplished. Therefore, always make sure to identify and look for tangible outcomes early in the game or at least make it as a by-product of the change process. Numbers before and after, dollars saved, measurable outcomes, results achieved are all examples of tangibles. These types of tangibles should be kept in mind during the writing of the work plan and certainly during the course of the project.

• Actively disseminate achievements and health care quality awareness information to as many individuals
in the system as possible. Make sure that participation is voluntary and is open to anyone and everyone as opportunities for improvement are identified. Do not make it a "private club." Keep everybody informed and involved. Quality is everyone's responsibility and it is based on individual responsibility. Therefore, if everyone becomes involved in improvement activities and in the documentation of outcomes, institutionalization can be achieved easier and faster. Improvements do not have to be big as long as these are continuous.

• Although you may want to involve as many people as possible in health care initiatives, caution should be exercised in involving everybody in projects that may detract from the main mission of the health care organization, which is providing health care. Therefore, resist the temptation of involving too many departments and units in too many projects simultaneously and early. Building an effective process in one area is more important than starting several incomplete processes in different areas. Keep the implementation process focused and desirable. Provide an answer to the question "So what?" to every improvement intervention strategy you are planning to take, i.e. if you think you are going to make improvement by making a specific intervention, you should also answer the "So what?" to that improvement outcome. Will this "improvement" intervention make an impact?

• Disseminate ideas, standards, improvements and results. In dissemination, an active method of communication should be followed, i.e. dissemination is not writing a standard or a guideline and copying it to all concerned. This is passive communication. To make the communication effort more effective, active communication efforts should be targeted, like focus group meetings, conferences, newsletters, workshops, direct personal contacts, etc. Therefore, as dissemination is contemplated, one should consider what needs to be disseminated, the methods to be used, the desired target population, the perceived impact, the resources available, and the cost-effectiveness of the activity.

• Use of consultants and the identification of their roles may be considered. The organization should ask, "What is the objective? Is the consultant the change agent, or is he/she/they the implementor of the plan? What are the objectives of identifying and working with a consultant? Does the consultant agree with the purpose?" Weigh the options of full-time short-term consultant with that of periodic long-term consultant. The role of
the consultant can change from a starting role as an organizer, a convenor, a trainer, an expert, and an initiator to a coach, adviser, and a strategist very quickly. Certainly, this is a good sign and an ideal path for the consultant to be at as long as the momentum of the implementation process is kept at a high level. Still, however, it is found that although dependence on the consultant diminishes soon after the start of the process, it never ceases.

- Consultants, on the other hand, should position themselves as early in the process as possible to act as advisers and mentors and move away from the temptation of participating in each activity. Another issue related to consultants is credibility. Both qualifications and experience are needed to earn individual credibility by the host. This is especially important for technical assistance and training capabilities. Consultants should be adequately prepared and have the experience to make appropriate decisions and act on them efficiently. Besides scientific knowledge, the desired qualifications of consulting staff should include interpersonal skills, sound judgement, organization skills, and crisis management capabilities. In several situations, any or all of these characteristics proved highly essential for consultants to be able to operate in the field of health care quality, especially on the international scene. On several other occasions organizations fall in the trap of agreeing to hire a qualified "large" consulting firm. Soon after that the organization becomes a field of experiment for the newly-hired and somewhat inexperienced "consultants" this firm has on its staff. Therefore, it behoves the organization to check and double check the qualifications of each individual staff of the consulting firm that will be given permission to participate in the implementation process.

- Always keep adequate funding available for the development of new projects and activities not originally planned for. This will also give you the flexibility of shifting additional funds to needed areas where improvements are taking place more effectively. Adequate funds will increase the likelihood of sustainability.

- Finally, encourage and foster an environment of learning not judgment. In particular, rely on data and facts in making judgements. Avoid the antiquated disciplinary method of management. Here again, Dr Deming (1985) suggests in his 14 points of management to "drive out fear" from the organization. Drive out the fear of creativity, the fear of speaking up, the fear of correcting processes that do not work, and the fear of improvement.
Organizations that agree to provide an environment of learning rather than judgement will always succeed in achieving its quality goals faster and more efficiently.

Institutionalizing health care quality is the ultimate goal of the process. The road towards it is usually long and full of obstacles. The objective, however, is to plan for it properly and to move slowly but gradually towards full implementation and sustainability. Institutionalization requires time, appropriate staff, adequate resources and an abundance of patience.

References
Cost of Improving the Quality of Health Care

Robert W. Broyles, Ph.D

OBJECTIVES

The control of health care costs while maintaining or improving quality is a seemingly intractable problem and an illusive policy objective. Traditional wisdom suggests that as the quality of care is improved, spending on health services grows. In contrast to the traditional view, however, Total Quality Management (TQM) and related Continuous Quality Improvement (CQI), are managerial philosophies that are predicated on the general presumption that better quality is less expensive (Arikian, 1991). As summarized by Suver, Neumann and Boles (1992), TQM and CQI may enable health service organizations to avoid the costs of poor quality, improve fiscal performance and reduce systemic expenditures on health care.

The approach to quality management is predicated on the notion that the poor design of procedures or processes, rather than the performance of employees, produces sub-optimal care and results in unnecessary costs. To avoid these undesirable outcomes, TQM requires the health service organization to: (1) establish specific quality goals; (2) incorporate the improvement of quality as a responsibility shared by all employees; (3) educate and train employees; (4) formally recognize efforts to improve quality; (5) identify specific projects that promise to improve quality; (6) provide necessary resources, both real and financial; (7) regard employees as not only a provider but also a user of the services or results produced by antecedent events in the process of rendering an episode or regimen of care; and (8) focus continuously on methods of improving the quality of care (Slee and Skee, 1991; Gillem, 1988).

In short, the primary objective of TQM is not only to focus on the needs of the consumer, a concept that includes employees and patients but, also to lower costs by improving quality and reducing waste (McLaughlin and Kaluzny, 1994).

This chapter has three objectives. Adopting the approach suggested by Simpson and Muthler (1987) and by Hagan (1986), the first is to summarize a topology
that describes the costs of TQM and CQI. The second is to present a method of estimating the expenses of implementing programmes to improve quality, and the third is to describe approaches that might be used to assemble the information that is required to estimate each component of the cost taxonomy. When viewed from the joint perspective of the health service organization and the health delivery system, the chapter concludes with a discussion of assessing the financial impact of TQM and CQI.

TOPOLOGY OF COSTS

As is well known, the development of instruments that measure quality with precision is a difficult, if not impossible, problem. Although quality is frequently characterized as excellent, good, fair or poor, the costs assigned to activities or projects that are designed to improve quality can be measured with relative accuracy. As described by Simpson and Muthler (1987) and by Hagan (1986), the costs that are related to quality might be assigned to one of three categories, namely, the expenses associated with failures, prevention, and appraisal.

As the name of the category implies, prevention costs are expenses that are attributable to any process that is designed to avoid errors, such as the misuse of service, or to improve the quality of the process by which care is delivered. As such, prevention costs are incurred prior to the delivery of service and include not only the identification of the client’s needs and the development of a system to monitor, evaluate and control quality, but also the planning, design and implementation of an administrative infrastructure that forms the foundation for TQM. When viewed from an operational perspective, activities such as the education of employees and the maintenance or calibration of equipment represent a stream of prevention costs.

The second category of costs are those that are traced to the appraisal of the quality of service or a process related to the provision of care. Accordingly, appraisal costs are retrospective in nature and are incurred after service has been delivered or a related process has been completed. As such, appraisal costs are attributable to a wide range of desperate activities to include an assessment of purchased items, evaluating vendors, auditing the services or processes of health care delivery and documenting the services provided or processes used by the health service organization. Also included in the set of appraisal costs are expenses related to the assessment of billing systems or medical records and evaluations performed by the utilization review committee or external auditors such as professional review organizations.

The third set of costs are related to failures in the delivery system and consist of two components. The first of the two components consists of expenses that result from an internal failure, a term that is reserved for situations in which corrections are required prior to the delivery of health care to the patient or the use of the procedure by another provider. Internal
failures and related costs frequently occur during the process of delivering care. For example, it is possible that a defective laboratory test may prevent definitive diagnosis, implying that the procedure must be repeated in order to obtain results that are useful to the physician. Similarly, system delays resulting from equipment failure may require the health service organization to postpone the delivery of service. In such a situation, the health service organization may incur an opportunity cost in the form of foregone revenue or extend operating hours in order to reschedule the procedures, an outcome that may result in higher overtime costs. As suggested by these examples, an internal failure results in added expenses that are attributable to: (1) the identification of defective procedures; (2) the provision of additional services that are required to correct an initial error or a defective procedure; (3) the unnecessary use of related resources; and (4) in the case of system delays, an increase in unplanned idle capacity and associated foregone revenue.

The second component of failure costs refers to the expenses that occur during or after the delivery of service to the patient. The external failure costs frequently are caused by: (1) the provision of additional procedures to correct defective services returned to the unit by other providers; (2) patient dissatisfaction and the need to respond to complaints; (3) a deterioration in the organization’s reputation; (4) the potential exodus of physicians and related decline in patient volume; (5) a decline in patient revenues; and (6) higher premiums for malpractice insurance. As such, the set of failure costs are related, indirectly, to the provision of sub-optimal care or a defective service. Contingent on diagnostic nomenclature, adjusted for case severity, a premature or delayed discharge might expose the patient to additional health risks or result in an adverse health outcome that precipitates malpractice litigation or a deterioration in the reputation of the health service organization. An inappropriate surgical procedure or one that is performed poorly might contribute to the set of external failure costs. Similarly, an incorrect diagnosis resulting from an undetected defect in a laboratory test, may contribute to an inappropriate regimen of care and the provision of a mix of service that results in pain, suffering or perhaps even the death of the patient. These observations suggest that the organization’s reputation and long-term viability in competitive markets may depend on avoiding the set of external failure costs.

Although the three cost structures are separate, prevention, appraisal and failure costs are highly interrelated. A simple view of the interrelation among the three components is illustrated in Figure 1. Consistent with the topology of costs, the figure assumes that the TQM process is initiated with an evaluation or appraisal that focuses on differences between quality goals and actual performance. Based on the evaluation, undesirable differences between performance and quality objectives might be identified, an outcome that enables the organization to focus on areas or processes that might benefit from the implementation of preventive programmes. When combined with an evaluation of
quality, the development and implementation of preventive programmes are expected to improve quality and lower not only failure rates and the number of defective services but also failure costs.

As indicated by Figure 1, the prevention and appraisal costs typically are regarded as expenses of operating an internal control system, implying that the costs of prevention and evaluation are inversely related to failure costs. In particular, as additional resources are diverted to prevention and related expenses increase, internal and external failures should decline, an outcome that lowers failure costs. Further, as the rate of internal and external failures declines, the health service organization might reduce the complement of resources committed to the evaluation or appraisal of quality. Viewed from a purely financial perspective, the health service organization should continue to improve quality if the savings that result from lower failure expenses, to include the opportunity costs of foregone patient revenue, exceed the increment in spending on prevention and appraisal. A simple extension implies that TQM and CQI result in a net financial benefit if the savings produced by lower failure rates exceed the additional costs of appraisal and prevention.

ESTIMATION OF COSTS

As described by Stiles and Mick (1997), conventional accounting systems fail to measure the costs of the transactions or activities that comprise a process, such as quality management or the provision of service. As a consequence, traditional methods of accounting fail to generate data that depict the expenses that are caused by providing service or completing a process. As an alternative, Stiles and Mick (1997a) and Horngren and Foster (1991) contend that a reliance on Activity-Based Costing...
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(ABC) and a focus on the set of the transactions that comprise the process of health care delivery enable the health service organization to identify the activities that precipitate the use of resources and the appropriate recognition of related expense. In ABC, the set of activities or cost drivers form the foundation for assembling the costs of appraisal, prevention and failures, both internal and external. Each component of the topology developed in the previous section consists of a set of activities or transactions. In turn, the activities are regarded as a cost objective or a "cost driver". A cost objective is any unit, item or phenomenon for which costs are assembled and analyzed separately while a cost driver is any activity that causes the health service organization to incur a cost.

Accordingly, the objective of this section is to develop a method for estimating the costs of each activity associated with prevention, appraisal, internal failures and external failures. The cost of each component is the sum of the expenses assigned to the activities or cost objectives that comprise the component. For example, the appraisal function might be defined in terms of performing a utilization review. In turn, the utilization review process is comprised of a set of activities such as selecting records, preparing records for review, review of the records by members of the utilization review committee, and preparing a final report depicting the findings of the committee. Each of the activities consumes resources and results in a cost; the cost of performing a utilization review, then, is simply the sum of the expenses assigned to each of the activities that comprise the process.

As indicated, the accurate definition of activities or cost drivers is essential to the development of an accurate estimate of appraisal, prevention and failures. In general, the set of activities or cost drivers might be large or small, an outcome that is influenced by the nature of the cost objective and the environment in which the process or procedure is performed. For example, the number and complexity of required activities are influenced by the resources that are used, to include the capital complement and the mix of employees, the number of set-ups that are required, the number of steps or functions that must be performed, the number of vendors, and the need to transport materials. As might be expected, costs usually increase as the number of transactions or activities associated with a procedure or process grows.

Activities also might be separated into two components. As described by Suver, Neumann and Boles (1992), activities such as the movement of patients or materials from one location to another, idle time caused by equipment failure or inefficient scheduling and clerical functions contribute little, if any, value to the care process. Hence, an implicit objective of identifying and assessing the set of activities associated with a procedure or process is to reduce or eliminate those activities that contribute little or no value.

In this section, the principles of ABC, as described by Chan (1993), a variant of
the format suggested by Daigh (1991), a set of hypothetical data and an Excel spreadsheet are used to illustrate a model that estimates the costs associated with quality management. Consistent with Figure 1, appraisal costs are estimated first, followed by the costs of prevention and failure (Annexure).

APPRAISAL COSTS

As indicated, appraisal costs represent the resources that are consumed to ensure that the delivery process satisfies the needs of consumers, defined in terms of both providers and patients. When viewed from the perspective of the patient, a primary focus of quality management is on an evaluation of the mix of care, contingent on diagnosis and case severity. In most health service organizations, the function of assessing the quality of care is the responsibility of the utilization review committee.

A method of estimating the annual costs of performing utilization review is shown in Exhibit 1A. To simplify the illustration, the review process has been reduced to essentially four activities: (1) the selection of records; (2) the preparation of records for review; (3) the assessment of records by members of the utilization review committee, and (4) the preparation of a final report describing the conclusions and recommendations of the committee. Further, the illustration assumes that the committee consists of five physicians, each of whom represents a separate medical specialty, and that the selection of medical records is the responsibility of a clerk while the preparation of selected records is performed by a medical record technician.

As indicated in the exhibit, the magnitude of cost assigned to the review process depends on the number of discharges (i.e. number of records available for review), the selection rate, a factor that influences the number of records selected for review, the average time, in hours, required to select, prepare and review the record, the amount of compensation per hour and related supply expenses. In the illustration, it is assumed that 5,000 records are available for review and that the percentage of discharges grouped by medical specialties represented by physicians A, B, C, D and E is 10, 20, 40, 15 and 15 respectively. Further, the distribution of discharges and the decision to select a 20 per cent sample, by specialty, produced the distribution described in the fourth column of Exhibit 1A. The results suggest that 1,000 records were selected for evaluation and that, for example, physician A reviewed 100 records while physician B reviewed 200 records. Grouped by category of employee, the amount of time per record that was required to complete each activity is listed in the column identified by the heading "Time Per Record". In this case, the selection of the typical record required 0.25 of an hour, or 15 minutes, while the preparation of the typical record required 0.5 of an hour or 30 minutes. Note that the product of the time required to process the typical record and the number selected, prepared or reviewed represents the labour hours committed to the review process. Shown in the column identified as the "Cost per Hour"
is the rate of compensation for each category of employee. In this chapter, the hourly rate of pay is given by the ratio of annual pay to the annual number of paid hours, represented by the product of 40 hours per week and 52 weeks per year. The product of the amount of time per record, the number of records and the amount of compensation per hour yields the cost of the employees involved in the utilization review. As shown in the column identified by the heading "Labour Cost", the labour costs of selecting and preparing records for review amounted to $8,000 while the time committed by physician A in the review of 100 records cost approximately $721. Further, when the assumed supply expense of $125 is combined with labour costs of $28,558.89, the results indicate that the cost of the review process amounted to $28,683.

As presented in Exhibit 1.A, the focus of the evaluation is on the patient and the mix of service provided during the episode of care. However, as indicated previously, the adoption of TQM requires the health service organization to view the provider as the user of both services and supplies. Shown in Exhibit 1.B is a spreadsheet that calculates the costs of inspecting supplies received by the laboratory and ensuring that items received by the unit are without defects prior to their use. In this case, the focus of the appraisal is on the units received from Central Supply during the period. As noted in the exhibit, the illustration is limited to four supply items, S1, S2, S3, and S4. Similar to the discussion of Exhibit 1.A, the number of units inspected is a product of the selection rate and the number of units received. In the example, 500 units of item S1 were selected for inspection prior to their use, an outcome given by the number received, 10,000, and the selection rate of 5 per cent. The total costs of inspection, shown in the last column of the exhibit, are obtained by the product of: (1) the number of units inspected; (2) the time required to inspect the typical unit, by category of supply, and (3) the labour cost per hour. As indicated, the model estimates that the total cost of evaluating supply items received by the laboratory amounted to $3,290.

In addition to the dimensions described previously, the philosophical foundation of TQM suggests that other providers in the process of health care delivery are users of laboratory services and results. Accordingly, prior to reporting results to other providers, the health service organization should adopt a policy of appraising the performance of the laboratory and other similar units. In Exhibit 1.C, it is assumed that the laboratory is responsible for providing six services, represented by the set \( \text{LAB}_1, \ldots, \text{LAB}_6 \). Shown in the column identified by the descriptor "Total Volume" are the number of units of each service provided during the period while the values appearing in the column identified as the "Selection Rate" indicate the proportion of each service that was selected for evaluation. As before, the number of units inspected is simply the product of the number of units and the selection rate. When combined with the inspection time per unit, measured in hours, and the labour cost per hour, the number of units selected for evaluation form the
basis for estimating appraisal costs. Focusing on laboratory service LAB, the calculations indicate that the annual inspection of 1,400 units required a total of 72 staff hours. When combined with a rate of compensation amounting to $18 per hour, inspection costs of $2,100 were incurred by the organization.

Also included in Exhibit 1.C is a summary of the annual defective rate and the number of defective services discovered during the evaluation process. As indicated, the summary suggests that, prior to reporting results to other providers in the organization, the laboratory identified a total of 1,413 defective procedures. Accordingly, the policy of correcting defective results prior to their use in evaluating the patient’s condition may enable the health service organization to avoid errors in diagnosis or the prescription of the therapeutic course of treatment.

In addition to the dimensions outlined in the exhibits, the health service organization should perform an internal evaluation of the complement of resources. As described by Duncan, Ginter and Swayne (1996), the internal environment of the organization might be described in terms of functions such as administration, finance, clinical and marketing. The focus of the evaluation should be on the adequacy of staff, the internal information flow, the technical capabilities of the organization, and synergy. To simplify, the internal evaluation consists of several activities such as preparation of the survey instrument, the administration of the instrument, preparation of data, analysis of results and evaluation.

In each step, it is likely that supplies and the services of labour are consumed, resulting in an additional set of appraisal costs.

**PREVENTION COSTS**

As indicated in the discussion of Figure 1, the costs of prevention are incurred prior to the provision of service and result from functions or activities designed to avoid sub-optimal performance. Employee training and the calibration of equipment are among the most obvious of the preventive activities. Similar to the discussion of the previous section, the costs of preventive activities are related to the intensity of their application and the complexity of related tasks.

Presented in Exhibit 2.A is a method of calculating the costs of employee training. In this case, it is assumed that the employee is compensated for 52 weeks per year and 40 hours per week, resulting in a total of 2080 hours. The labour cost per hour is obtained by the ratio of the employee’s annual salary to the total number of paid hours. If the employee is entitled to a paid vacation of two weeks or 80 hours, a total of 2000 hours are scheduled for market activity. As noted in the exhibit, labour costs are derived separately for instructors and trainees. For example, employee A devoted 8 per cent of the scheduled 2,000 hours of market activity (i.e. 160 hours) to the preparation and delivery of instructional programmes. The amount of cost assigned to employee training is related to the frequency or
complexity of instructional activities, as measured by the percentage of time devoted by each employee to training, and the hourly rate of compensation. When combined with the employee's hourly rate of compensation, the results indicate that the costs of committing the individual to training others employed by the health service organization amounted to approximately $3,000. Further, as indicated by the spreadsheet analysis, the total cost of employee training (i.e. $19,183.65) is simply the sum of total labour costs and related supply expenses.

When viewed from the perspective of TQM, the maintenance of equipment is a prerequisite to improving quality and reducing failure rates. Shown in Exhibit 2.B are the basic data that are required to estimate the costs of calibrating the equipment used in the laboratory department. As indicated, the illustration assumes that the laboratory uses eight items of equipment that differ in terms of the number of adjustments required annually and the amount of time needed on each occasion the items are calibrated. Further, if the rate of pay grows with the skills required of maintenance personnel, variation in the complexity of calibrating equipment is reflected by differences in the amount of labour cost per hour. As indicated, the product of time per adjustment and the annual frequency of calibrating each item yields the annual number of hours devoted to maintenance. The product of the labour cost per hour and the total number of hours devoted to calibration enables the health service organization to estimate total labour costs, as shown in Exhibit 2.C. The supply costs shown in the exhibit are obtained by the product of the supply expenses per adjustment and the annual number of calibrations that were introduced initially in Exhibit 2.B. Accordingly, an increased emphasis on prevention, as indicated by the implementation of a policy to adjust equipment more frequently, results in higher related costs and is expected to lower failure rates, a consideration that is evaluated in the next section.

FAILURE COSTS

As indicated by the discussion of Figure 1, programmes that improve evaluation and prevention are expected to reduce the failure rate, the number of defective services or procedures and thereby reduce failure costs. The costs of internal failures are directly related to the appraisal of services prior to their use by other providers in the sequence of delivering health services. The discussion of Exhibit 1.C was based on the assumption that, prior to reporting the results of laboratory procedures to other providers, the process of inspecting a sample of the procedures provided by the laboratory enabled the director of the unit to identify defective services or results. Hence, the principles of TQM require the unit to correct errors prior to reporting results to the physician or other health professional, thereby avoiding external failures, additional production costs and, occasionally, the need to collect a second specimen from the patient. This section examines a method of estimating the additional production costs; those related
to the collection of a second specimen are considered in the next.

Recall from the discussion of Exhibit 1.C that a total of 1,413 defective services were detected by the internal evaluation performed by the laboratory. Prior to reporting laboratory results to the physician or another provider, it is assumed that these procedures were corrected, resulting in additional labour and supply costs. The basic data that are required to estimate the additional production costs appear in Exhibit 3.A. The first set of data indicates the mix of labour, measured in hours, that is required on each occasion that one of the six laboratory procedures is provided. The coefficients appearing in the first row indicate the complement of labour that is required on each occasion that procedure LAB1 is provided while the values appearing in the last row correspond to the hourly rates of compensation of the four types of technicians. The values appearing in the column identified by the heading "Number of Defective Units" correspond to the procedures that were identified by the internal review of the laboratory and were copied directly from Exhibit 1.C.

As shown in Exhibit 3.B, the basic data are then combined to determine the labour and supply costs per unit of service by type of procedure. To determine the labour cost per unit of each procedure, the set of coefficients depicting the labour requirements per unit of service is multiplied by corresponding rate of pay. For example, the data presented in Exhibit 3.A indicate that on each occasion a unit of procedure LAB1 is provided, the corresponding requirement for a TECH1 is 0.05 of an hour. The related labour cost per service of $0.75 is the product of 0.05 of an hour and $15 per hour, the rate of compensation of the individual occupying this position. The labour cost per procedure, grouped by category of service, is obtained by summing the set of costs per procedure classified by occupational category. Hence, the labour costs per unit of procedure LAB1 is the sum of the products appearing in the first row of Exhibit 3.B. Also included in the exhibit are the set of supply costs per procedure, grouped by type of service.

The results produced in Exhibit 3.B are combined with the number of failures identified by the internal evaluation to determine the additional labour and supply expenses that are incurred to correct defective procedures or results. As indicated in Exhibit 3.C, the additional labour costs resulting from the need to reprocess 140 units of LAB1 amount to $1,589. This estimate is obtained by the product of the number of defective units and the labour cost per unit. In a similar fashion, the additional supply expenses appearing in the exhibit were obtained by multiplying the number of defective units of each procedure by the corresponding supply cost per unit.

In addition to the increment in production costs described above, the need to evaluate the accuracy of those services that were corrected may result in additional appraisal costs, which for the sake of illustration, are included in Exhibit 3.C. As indicated in Exhibit 1.C, the inspection cost per unit, grouped by category of procedure, is the product of the appraisal time per
service, measured in hours, and the hourly rate of pay. If it is assumed that all corrected procedures are evaluated, the additional appraisal costs listed in Exhibit 3.C were obtained by the product of the number of defective items, grouped by procedure, and the corresponding inspection costs per unit of service. The results of these calculations indicate that the additional production costs resulting from identifying defective items prior to reporting results to other providers consist of labour expenses, amounting to $16,950, and supply costs of $4,812.45. In addition, the need to rectify previous errors also resulted in additional appraisal costs of $1,575.30.

The second set of failure costs consist of expenses that are incurred after services, procedures or results have been provided to the patient or a health professional responsible for the diagnosis or treatment of the patient. With a focus on the laboratory, the number of external failures, represented by the number of procedures returned for additional processing, consists of at least two components. First, it may be necessary to collect an additional specimen from involved patients. Second, the laboratory is required to perform additional procedures, resulting in higher production or processing costs.

A method of estimating the costs of external failures is shown in Exhibit 4.A. In this case, the focus is on the mix of service provided during the operating period and the return rate, defined as the portion of each procedure that requires additional processing and alluded to the internal evaluation. As indicated, the mix of procedures that are returned for correction is given by the product of the proportions that appear in the column identified by the heading “Return Rate” and the corresponding volume of service that was introduced initially in Exhibit 1.C. Similar to other exhibits, the labour cost per collection is simply the product of the time, measured in hours, required to obtain the specimen needed for a given laboratory procedure and the rate of compensation per hour. The additional collection costs for a given procedure is simply the number of occasions on which a specimen is collected and the cost per collection. Accordingly, the increment to the collection costs for all procedures is obtained by the sum of these products. As shown in Exhibit 4.A, related supply expenses are estimated by the product of the supply expense per collection, grouped by procedure, and the number of collections. The calculations obtained from the spreadsheet indicate that, in the illustration, additional labour and supply expenses resulting from the need to collect an additional specimen from involved patients was $13,740 and approximately $4,662 respectively, resulting in an addition to retrieval costs that amounted to approximately $18,402.

The method of estimating additional production costs is summarized in Exhibit 4.B. As can be determined easily, the labour and supply costs per unit of each procedure were calculated initially in Exhibit 3.B. The additional labour and supply expense shown in Exhibit 4.B is simply the sum of products among the returned mix of services and the corresponding labour and supply cost per unit respectively. As noted, the
additional production costs resulting from the need to correct returned procedures amounted to approximately $33,348.

TOTAL COSTS

The estimates of each component of the costs of quality might be summarized as shown in Exhibit 5. The total expenses associated with evaluation or appraisal and represented by quality review, the a priori inspection of supplies and the internal inspection of the services provided by the laboratory were obtained from Exhibits 1.A, 1.B and 1.C. The costs of prevention, represented by employee training and the calibration of equipment, were obtained from the labour, supply and total costs calculated in Exhibits 2.A and 2.B, while the set of internal failure costs was obtained from Exhibit 3.C. Finally, the external failure costs were copied from Exhibits 4.A and 4.B. As the summary indicates, the total costs of quality management that were estimated in the simplified illustration were approximately $146,375, an amount that was comprised of labour and supply expenses of approximately $123,940 and $22,435 respectively. As such, the approach outlined in this chapter enables management to estimate not only appraisal, prevention and failure costs but also the labour and supply component of each.

In addition to the estimation of the costs assigned to quality management, the proposed model also enables management to assess the interrelation among prevention, appraisal and failure costs. As suggested, an increased emphasis on prevention is expected to lower the failure rate and the number of defective procedures that must be corrected. As the number of defective procedures or processes decline, the discussion suggests that the increment in related production costs and the need to inspect these services or processes also decrease. Hence, the interface among the exhibits enables management to assess the financial implications of an increased emphasis on prevention and the resulting decline in appraisal and failure costs.

THE DATA

As indicated in the previous section, the approach presented in this chapter requires a set of coefficients that measure the mix of resources required to provide a service or to complete a process. From a practical perspective, it is usually necessary to limit the number of services or resources for which detailed production coefficients are developed. For example, the laboratory is capable of processing hundreds of procedures or tests, a feature that prevents a focus on the entire scope of services. Rather, management might limit the detailed analysis to the 15 or 20 services that comprise 80 per cent of the volume. Since the number of labour categories in each unit or department is relatively small, it is usually necessary to reduce only the range of consumable supplies to a manageable number.

Once the number of procedures, processes and categories of resources have
been established, the amount of labour and supplies, grouped by procedure or process, might be determined by relying on one of several methods. In most cases, the mix of consumable supplies used in the provision of a procedure or completion of a process is dictated, in varying degrees of precision, by medical technology or the dictates of medical practice. As a consequence, the health service organization might rely on expert opinion, as described below, to determine the supply expense per unit.

However, the mix of labour required to perform a procedure or complete a process is less well specified and varies from institution to institution. Rather than rely on technological considerations, as in the case of supplies, management should adopt one of several approaches to develop coefficients that measure the labour requirements per procedure or process. In this regard, management might rely on expert opinion, historical averages, logging or batching methods or time and motion techniques to establish labour requirements.

When expert opinion is employed, the department head or supervisor is asked to list the amount of each type of labour that is required to provide a service or complete a process. Simplicity and ease of collection are among the major advantages of the approach. However, the results obtained from relying on expert opinion usually are not verified by independent evaluation or statistical analysis.

The resource requirements per service or process might be estimated by relying on historical data that depict the consumption of labour and supplies when providing a service or completing a process. The distribution of labour and supplies among the procedures or processes might be obtained from an application of functional accounting. As is well known, a functional accounting system is characterized by a set of subsidiary expense accounts in which the costs of labour and supplies are assigned to the services provided or processes completed during the period.

Alternatively, the distribution of labor resources, by employee category and type of service or process, might be obtained by the logging method. For the logging approach, a responsible employee is required to maintain a record of the mix of labour required to provide a service or complete a process during a given period. However, the information derived from the log may reflect existing inefficiency resulting from current practice.

When the batching procedure is used, a known number of work units is assigned to an individual and the amount of time to complete the service or process is recorded. Similar to the logging approach, the batching technique results in a distribution of hours, by procedure or process and by employee category. In turn, the resulting distribution forms the basis for calculating the coefficients that measure the time required for each labour category to provide a given service or complete a specific process, such as collecting a specimen.

Finally, management might rely on time and motion studies to derive a distribution of labour hours, by occupational category.
and type of service or process. In general, observed effort is transformed into "normal effort", a process that is accomplished by an industrial engineer. Normal time refers to the amount of time required to complete one cycle by an employee performing at the normal level of effort. To accommodate fatigue resulting from repeated cycles, the need to take breaks and normal interruptions in the work process, normal time refers to a standard of performance, measured in hours, that might be satisfied by a properly trained employee during an extended period of time. Accordingly, the development of normal time forms the foundation for an application of the approach described in this chapter to several problems confronting the typical health service organization, a consideration that is discussed in the final section.

THE USES

In addition to the obvious benefit of estimating the actual costs of quality management, the proposed model enables the health service organization to perform a sensitivity analysis that estimates the differential costs produced by changing one parameter and holding all others constant. For example, prior to the period, most organizations should develop and assess the desirability of adopting one of several possible options, each depicting a different level of commitment to evaluation and prevention. The model proposed in this chapter simultaneously estimates differences in cost that are likely to result from committing more or less effort to evaluation or prevention. For example, the additional costs of an increased emphasis on prevention might be estimated by increasing the percentage of time committed to training activities or increasing the frequency of calibrating equipment. Similarly, the model instantaneously calculates the increment in cost that would be produced by an increased emphasis on appraisal, as indicated by increasing the selection rates appearing in Exhibits 1.A, 1.B or 1.C. Moreover, the model enables management to assess the relation between the costs of control activities, represented by appraisal or prevention, and the cost of failures. For example, suppose that, prior to the period, management decides to increase the costs and related complement of resources devoted to prevention and appraisal by 10 per cent. Holding other factors constant, assume further that the increased emphasis on control lowered the failure rate and related costs by 15 per cent. Accordingly, the results produced by the model enable the organization to assess the influence of TQM on fiscal performance and to evaluate the relative benefits of policy options that might be implemented in the future. As such, a careful evaluation of differences between failure and control costs might enable the organization to lower operating expenses, increase profitability and improve the quality of care. Further, if adopted successfully by the majority of health service organizations, TQM and CQI may contribute to resolving the difficulties of lowering systemic spending on health services while maintaining or improving the quality of care.
### Exhibit 1.A: Annual appraisal costs: utilization review

<table>
<thead>
<tr>
<th>Activity Resource</th>
<th>Total Number Available</th>
<th>Selection Rate</th>
<th>Records Selected</th>
<th>Time Per Record (in Hours)</th>
<th>Cost Per Hour</th>
<th>Labour Cost</th>
<th>Supply Cost</th>
<th>Total</th>
</tr>
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<tbody>
<tr>
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<td>100.00</td>
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<td>721.15</td>
<td>2403.85</td>
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<td>150.00</td>
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### Exhibit 1.B: Annual appraisal costs: Inspection of supplies used by the laboratory

<table>
<thead>
<tr>
<th>Supply Item</th>
<th>Units Received</th>
<th>Selection Rate</th>
<th>Units Inspected</th>
<th>Inspection Time/Unit (In Hours)</th>
<th>Labour Cost Per Hour</th>
<th>Total Inspection Costs</th>
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<td>1200.00</td>
<td>0.12</td>
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### Exhibit 1.C: Annual appraisal costs: Evaluation of services provided by the laboratory

<table>
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<th>Service</th>
<th>Total Volume</th>
<th>Selection Rate</th>
<th>Units Inspected</th>
<th>Inspection Time/Unit (in Hours)</th>
<th>Labour Cost Per Hour</th>
<th>Labour Cost</th>
<th>Number of Defective Services</th>
<th>Defective Rate</th>
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<tr>
<td>LAB1</td>
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<td>1200.00</td>
<td>0.07</td>
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### Exhibit 2.A: Prevention costs: employee training

<table>
<thead>
<tr>
<th>Resource</th>
<th>Scheduled Hours</th>
<th>% of Hours Devoted to Training</th>
<th>Annual Salary</th>
<th>Salary Per Hour</th>
<th>Labour Cost of Training</th>
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<td><strong>Instructors</strong></td>
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### Exhibit 2.B: Prevention costs of calibrating laboratory equipment: The basic data

<table>
<thead>
<tr>
<th>Item of Equipment</th>
<th>Time Per Adjustment</th>
<th>Adjustments Per Period</th>
<th>Total Time</th>
<th>Labor Cost Per Hour</th>
<th>Supply Cost/Adjustment</th>
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<td>1.00</td>
<td>1.20</td>
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<td>3.00</td>
<td>1.50</td>
<td>10.00</td>
<td>5.50</td>
</tr>
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<td>8.00</td>
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<td>0.00</td>
</tr>
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<td>D</td>
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<td>4.00</td>
<td>6.00</td>
<td>12.50</td>
<td>3.00</td>
</tr>
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<td>E</td>
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<td>2.00</td>
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<td>1.00</td>
<td>5.30</td>
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<td>3.00</td>
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### Exhibit 2.C: Prevention costs: Calibration of laboratory equipment

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<th>Total Cost</th>
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<tr>
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### Exhibit 3.A: Annual internal failure costs of the laboratory department: The basic data Labour Hours Per Service

<table>
<thead>
<tr>
<th>Service</th>
<th>Tech 1</th>
<th>Tech 2</th>
<th>Tech 3</th>
<th>Tech 4</th>
<th>Number of Defective Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lab1</td>
<td>0.05</td>
<td>0.50</td>
<td>0.00</td>
<td>0.10</td>
<td>140.00</td>
</tr>
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<td>0.25</td>
<td>60.00</td>
</tr>
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<td>0.40</td>
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<td>0.00</td>
<td>0.15</td>
<td>27.00</td>
</tr>
<tr>
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<td>0.00</td>
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### Exhibit 3.B: Supply and labour cost per unit, by type of service

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<th>Type of Labour</th>
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<th>Tech 2</th>
<th>Tech 3</th>
<th>Tech 4</th>
<th>Labour Cost/Unit of Service</th>
<th>Supply Cost/Unit of Service</th>
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<tbody>
<tr>
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<td>9.60</td>
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<td>6.00</td>
<td>4.00</td>
<td>11.50</td>
<td>3.60</td>
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<td>0.00</td>
<td>4.20</td>
<td>6.40</td>
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<td>5.25</td>
</tr>
<tr>
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### Exhibit 3.C: The Internal failure costs of the laboratory Unit

<table>
<thead>
<tr>
<th>Service</th>
<th>Additional Labor Costs</th>
<th>Additional Supply Costs</th>
<th>Additional Appraisal Costs</th>
<th>Production &amp; Appraisal Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lab1</td>
<td>1589.00</td>
<td>201.60</td>
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### Exhibit 4.A: Externally Failure Costs of the Laboratory: The Additional Collection Costs

<table>
<thead>
<tr>
<th>Service</th>
<th>Return Rate</th>
<th>Number of Failures</th>
<th>Time Per Specimen Collected (In Hours)</th>
<th>Labor Cost/Specimen Collected</th>
<th>Labor Cost</th>
<th>Supply Cost/Specimen Collected</th>
<th>Supply Cost</th>
<th>Additional Specimen Costs</th>
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### Exhibit 4.B: Externally Failure Costs of the Laboratory: Additional Production Costs

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<th>Labor Cost/Unit</th>
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<td><strong>8114.25</strong></td>
<td><strong>33348.25</strong></td>
<td><strong>25234.00</strong></td>
<td><strong>8114.25</strong></td>
<td><strong>33348.25</strong></td>
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### Exhibit 5: Summary of Cost Calculations

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<td>Employee Training</td>
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<td>External Failure Costs: Production by Laboratory</td>
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<td>33348.25</td>
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References

INTRODUCTION AND OVERVIEW

A Quality Assurance (QA) programme is now under way in the Kingdom of Saudi Arabia. The Kingdom has adopted and implemented the primary health care (PHC) programme since 1984, shortly after the Alma-Ata Declaration. The programme which is run by the Ministry of Health (MOH) covers the whole country. PHC is provided to the community through more than 1,700 health centres (HC) distributed equally in both urban and rural areas. An in-depth review of the PHC programme in the Kingdom was conducted by a joint committee representing the World Health Organization (WHO), Saudi Universities and the MOH. The review revealed a sufficiently high coverage of the population (98%) by the eight elements of PHC in all the regions of the Kingdom.

The need to assure the quality of PHC services was justified, especially after the interregional meeting organized by WHO in Shanghai in October 1990. Consequently, the QA programme was proposed and a Scientific Committee for QA in PHC (SCQA, PHC) was established. The programme comprised five stages: manual development, training of trainers, training of health teams at HC level, implementation, and evaluation.

The programme manual included standards and indicators for activities in eleven health centres. The Eastern Mediterranean Regional Office (EMRO) of WHO recognized the manual as the first of its kind in the field of QA. All PHC supervisors, about 250 in all, were exposed to training workshops for a period of six days each.

The strategies developed therein clearly reflect the need for adhering to the "highest possible level of quality" to meet the expressed expectations of the Saudi community. Today, every health centre is providing PHC services to all, especially the needy, by defining vulnerable groups, by providing target-based services and through organized outreach services for disease
control and prevention as well as health promotion activities. Accordingly, the underserved and at-risk groups of the community are recognized, registered and followed through an established system.

As these activities represent an ongoing process, innovative changes are to be introduced in the health delivery system to accommodate the changing health needs.

An in-depth review of primary health care in the Kingdom of Saudi Arabia by legitimate bodies (WHO/UNICEF/Universities/medical schools and MOH) brought out the following facts:

(A) In 1987:
1. PHC policy is soundly based in the Kingdom.
2. PHC infrastructure is rapidly completed.
3. Stress on the importance of quality.

(B) In 1989:
1. Acceptance of PHC by citizens (friends of health committee).
2. Increase in:
   - Team spirit
   - Training of health care staff
   - High coverage of EPI
   - Implementation of referral system
   - Community participation
   - Monitoring of chronic illnesses
   - Improvement of MOH services
   - Decrease in the incidence of communicable diseases.
3. Recommendation to establish Standards and Uniform Guidance of PHC activities.

(C) In 1992 (for MCH training programme):
1. Increased awareness of the importance of MCH.
2. Improvement in the knowledge, skills and attitude towards MCH activities.
3. Improvement in data management and handling.

(D) Since 1984 till now there has been an internal review of the technical quality of the PHC practice through:
1. Periodic structure, process and outcome review by central and regional levels.
2. Development of standard review protocols and rating scale.
3. Periodic review of administrative processes by the planning department through the available records.
4. Annual review of clinical processes, e.g. cost of drugs / investigations by respective departments.
5. Outcome reviews and review of community acceptance through planned studies.
6. Implementation of the built-in programme of supervision, monitoring and evaluation within the QA programmes called Programme of Supportive Supervision (POSS).
STATUS OF QUALITY ASSURANCE IN SAUDI ARABIA

(A) The concept and practice of quality assurance (QA) is not new to Saudi Arabia.

(B) With the implementation of the PHC concept, "a desirable level of quality" in every stage of PHC development was experienced.

(C) Setting standards for resources, responsibility and information, viz.
   1. Assurance of minimal infrastructure.
   2. Limiting the health centres' responsibility by demarcating the geographical area to be served.
   3. Planned baseline data collection leading to the formation of action plan.
   5. Standardization of statistical returns, preforms, frequency and time.
   6. Standardization of monitoring indicators.
   7. Introduction of PHC code for common diseases in line with ICD.
   8. Assurance of cold chain, system for procurement, storage and distribution of drugs and vaccines.

(D) Development of a system for ensuring equity, viz
   1. Registration of beneficiaries through family files.

   2. Defining targets for PHC services.
   3. Scheduling outreach services.
   4. System for defaulter tracing and contact.
   5. Access to secondary care through a system of referral and feedback.

(E) Setting standards for PHC services, viz.
   1. Development of protocols for target-oriented PHC services (medical examination, MCH, immunization, etc.).
   2. Development of policies for diarrhoeal disease control and national protocol for acute respiratory infections (ARI).
   3. Development of national protocols and guidelines for bronchial asthma as well as mental health care at primary health care centres.
   4. Standardization of referral protocol and procedures.
   5. Introduction of essential drug list.
   6. Defining needed technologies for PHC services (clinical lab, environmental disease control, health education, etc.).

(F) Promotion of PHC professionalism through:
   1. Basic, category and selective training of all PHC workers.
   2. Publication of PHC manual.
   3. Development of training standards and protocols through publication of appropriate manuals, evaluation of training programmes and feedback.
4. Scheduled PHC symposia and workshops, working together with other health/health-related sectors.

(G) Setting standards for PHC management:
1. Standardization of supervisory checklist.
2. Training of PHC managers.
3. Development of trainee manual and protocol.

CONCEPTUALIZATION AND CONSOLIDATION OF QUALITY ASSURANCE IN MOH

- Taking into consideration all that has been described before, this necessitated the need to look for quality in services offered to the community by these facilities. As some of the hospitals in the Kingdom had begun their programme of QA earlier, the Ministry decided to launch a similar programme for PHC.

- The idea took shape after the contribution made by the Saudi Ministry of Health, represented by its Director-General of Health Centres, at the Interregional Meeting on Assurance of Quality in Primary Health Care, Shanghai, China, 8-12 October 1990, which was organized by the World Health Organization.


- The Ministry of Health, in its endeavour to put the Quality Assurance Programme in a practical perspective, decided to handle this task, and formed the "Scientific Committee of Quality Assurance" in Shawal 1411 H (May 1991). The Director-General of Health Centres was appointed as Chairman of the committee that included a group of consultants and resource persons from the M.O.H., Health Services of the National Guard, General Presidency of Women's Education and Armed Forces, in addition to King Saud University College of Medicine. The staff from M.O.H. were concerned with PHC planning, supervision and follow-up. The scientific backgrounds as well as the experiences of the committee members are diverse and therefore enriching to its responsibilities.

- Selection of PHC activities that will be covered by the QA programme.

- Preparation of standards, checklists, rating scales and indicators for the selected PHC activities.

- Coordination with WHO and the United Nations Children's Fund (UNICEF), who supported the programme.

- The first workshop on QA programme was held in Riyadh, 2-3 Rabi II 1412H (9-10 October 1991).

- The scientific papers prepared by the committee members, as well as the results of the first workshop, have been circulated to PHC experts in different regions of the Kingdom, Jumadah I 1412 H (November 1991), seeking
their critical review and practical comments.

- The second workshop on QA programme was held in Makkah, 9th Shaban 1412 H (12 February 1992), for the same purpose as in the item above.

- A national symposium on QA in PHC was organized in Riyadh on 18th Ramadan 1412 H (2 March 1992).

- Thereafter, training of trainers was started in the regions for 250 candidates.

**General objectives of QA in PHC**

1) To improve and upgrade the performance of PHC workers.

2) To promote the delivery of quality services that satisfies the aspirations as well as the expectations of the community and the PHC workers themselves.

3) To reduce the overloading of the secondary and tertiary health care facilities with minor ailments that can be dealt with at PHC centres.

4) To reduce the cost of health care being received now by community members who seek health care in the private sector by providing quality and cost-effective services by the government based on equity and social justice.

5) To reduce morbidity and mortality rates and promote the health status of the Saudi people.

**Specific objectives of QA in PHC**

1) To set standards for the delivery of quality PHC activities (services) that include the eight PHC components and other components as deemed necessary.

2) To set standards for better performance of PHC workers.

3) To define sensitive instruments to assess the performance of PHC workers - the process of delivery of PHC activities.

4) To select sensitive and valid indicators to continuously monitor and evaluate, as well as to supervise the progress and outcome of PHC services and their impact on the health of the community.

5) To include all of the above in the processes of overall health planning, programming (and re-programming when necessary), monitoring and evaluating PHC activities.

**PROGRESS OF QA TRAINING PROGRAMMES**

The number of supervisors (participants) trained in the eight workshops was around 250 (i.e. an average of 30 supervisors per workshop). The questions of the pre- and post-test were the same. There were 25 questions dealing with subjects related to quality assurance concept. Comparisons of the results of the pre- and post-tests showed an overall increase of 12.8% in the total
marks (68% and 80.8% in the pre- and post-tests, respectively). This increase represents "good" improvement in the knowledge of the participants when compared to similar situations and assuming the originality of the subject. The highest such increase (18.8%, from 69.2% to 88%) was observed in the first two workshops, as well as the 8th. Moderate increase was observed in the 4th, 5th and 6th workshops, whereas the lowest increase was noted in the 3rd and 7th workshops. This fluctuation may be due to many factors:

• Different scientific backgrounds of participants;
• Different levels of enthusiasm among participants;
• Variable attitudes towards training in general and the subject of QA in particular; and
• The prevailing circumstances and settings in each workshop.

It is highly desirable, and recommended, to orient the participants about the subject, objectives and methodology of a workshop sufficiently in advance. This suggestion also applies to making available training materials and other documentation. In Saudi Arabia, the participants, despite the fact that they were doctors and spoke both Arabic and English, showed special preference for the Arabic language during the workshops.

In adult education and training, the recommended method of training is two-way (dual) communication rather than one-way lecturing, for example. Performance of pre-testing prior to the commencement of a workshop should be encouraged, as it forms the basis on which one can build up further conclusions at the end of the workshop.

There were many problems which the committee faced in its work from the beginning, some of which were:

• Inadequate resources
• Different structures between urban and rural areas
• Different categories of manpower in PHC
• Language dilemma
• Comprehensive manual versus manual by category
• Different disciplines of education/training of the members of the scientific committee.

DEVELOPMENT OF QA MANUAL

The development of the manual for quality assurance in PHC passed through a number of stages, which are:

Step 1 - One or more members of SCQA developed draft standards for specific PHC activities emphasizing their scientific validity, clinical relevance and comprehensiveness.

Step 2 - The proposed draft standards were then discussed in a workshop held in Riyadh in October 1991. It was attended by selected groups of PHC supervisors,
PHC managers and health centre staff from the 18 regions of the Kingdom.

Step 3 - The scientific papers proposed by the committee, as well as the result of the first workshop, were circulated in November 1991 to the PHC departments in the Directorate of Health Affairs in all the regions of the Kingdom.

Step 4 - During December 1991, the responses of different regions were received and analysed. The responses were divided into two groups: one who were in agreement with the draft standards, and the other who suggested additions, omissions or modifications.

Step 5 - The second workshop on quality assurance was held in Makkah in February 1992 for further discussion on the opinions expressed by different regions with the objective of further modifications of the standards.

Step 6 - After the Makkah workshop, the modified draft standards were reviewed by two WHO consultants in Riyadh, who interviewed all members of the SCQA individually and in small groups.

Step 7 - The draft manual containing the revised standards and indicators was sent to the WHO Regional Office in Alexandria (EMRO) for final revision by concerned regional advisers.

Step 8 - As a final step in the development of the QA manual, WHO’s approval was conveyed to the SCQA, with the recognition that this was the first QA manual of its kind receiving WHO approval.

THE NEXT STAGE

Training of trainees

- This stage has commenced in the beginning of 1414 H, corresponding to mid-1993.
- Training of all health centres’ personnel all over the Kingdom; doctors, nurses, health inspectors, pharmacists and assistant pharmacists, technicians (laboratory and X-ray), social workers, and managers.

Trainers included members of the SCQA and about 250 trainers who were specifically prepared for this task in the second stage of the programme (1413 H / 1991-93).

TIME PERIOD

To achieve this ambitious objective the country’s regions were divided into three categories according to the number of health centres in each region: small regions (less than 50 HCs) where training of trainees should be accomplished within one year; intermediate regions (50 to less than 100 HCs) where 1-1/2 years were given to accomplish the training objective; and large regions (100 HCs and over) where two years were thought to be adequate to achieve the objective.
However, shortly after the commencement of this stage, it was realized that this time frame was too ambitious. The QA training faced many difficulties, which included:

- Shortage of human resources. This affected the trainers as well as the trainees because of inadequate staff to cover those that moved to the training halls.
- Shortage of material resources necessary for training purposes.

All regions were also committed to other training programmes (e.g. maternal and child health training and PHC essential training for the newly-appointed staff). Thus, their training schedules were already stuffed. Therefore, for these reasons, the time frame was slightly stretched intentionally in order to avoid the potential of failure attached to it.

### MONITORING AND EVALUATION OF TRAINING AT REGIONAL LEVEL

Three methods were employed for the monitoring and evaluation of trainees' training in the regions. The first training course was attended by the National Coordinator of the programme and one or two members of the Scientific Committee in all regions. No region was allowed to start its first training course unsupervised. The technique of SWOT analysis was employed to point out the strengths, weaknesses, opportunities and threats. These areas of analysis were discussed with the concerned health authorities and technical staff. A comprehensive report was prepared - at the end of this analysis - and presented to the higher authorities in the Ministry.

A quarterly report (pre-designed format) was required from all regions to be presented to the General Directorate of PHC. Each report was further revised and critically evaluated for the purpose of providing feedback for improvement to the regions.

A points system was implemented for comparing the regions according to leader's support, performance of trainers and trainees, training facilities, and skills. The following is the First Training Course, QA Training of Trainees, Saudi Arabia 1994:
The quarterly report was characterized by the following:

- Standardized format so as to allow comparison between regions.
- Text in the report was kept to the minimum (emphasis on numerical data).
- The main sections of the report needed absolute numerical data. The first part of the data represented the denominator which was approximately constant in all reports (the target), whereas the second part represented the numerator (achievements) which was cumulative.
- The report was also flexible in the sense that it allowed regions to comment on their training problems and obstacles, as well as to suggest realistic solutions to these problems.

Field visits were made to the sites of training in the regions. The training sites included not only the central training places (in the regions’ capital) but also other peripheral training centres (in the regions’ sectors). These visits aimed also at:

### Table 2: First training course, QA training of trainees, 1994

<table>
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<tr>
<th>Region</th>
<th>Leader’s Support</th>
<th>Training situation and facilities</th>
<th>Trainers’ performance</th>
<th>Trainees’ Performance</th>
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<td>15</td>
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</table>

Key: 3 = Good, 2 = Average, 1 = Below average, 0 = None
• Assuring the quality of training;
• Supporting the training activities at regional PHC level; and
• On-the-spot identification of training problems and managerial bottlenecks and finding possible solutions.

At the beginning of 1415 H (mid-1994), the Kingdom’s Deputy Minister for Executive Affairs, based on the recommendations of the Directorate of Health Centres, required that all health centres in the 20 regions adhere to the standards included in the Saudi Quality Assurance Manual. This decision triggered a new process of monitoring, POSS (Programme of Supportive Supervision).

PROGRAMME OF SUPPORTIVE SUPERVISION (POSS)

This programme was started in 1995 to strengthen the implementation of QA activities in PHC centres.

The aim of POSS was to assure the quality of primary health care activities at the health centre level in the 20 regions of the Kingdom through supportive supervisory field visits. The target areas of POSS were primary health care activities in the regions where the health centres were considered to be the primary sampling units. POSS was also directed towards regional PHC supervisors. POSS’ activities were coordinated by an executive board which was composed of members of its technical committee (all of whom were highly qualified physicians), chaired by the Director-General of Health Centres.

OBJECTIVES OF POSS

• Strengthening relations between the central level (MOH) and the intermediate and peripheral levels.
• Field training of regional PHC supervisors on the implementation of the “Quality Evaluation Form”.

Table 3. Format of quarterly report for monitoring quality assurance

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</table>

Table 3. Format of quarterly report for monitoring quality assurance

Page 172
• Monitoring and evaluation of PHC activities at the beginning of the implementation of the QA programme.

• Promoting and strengthening the concept of supervision as a tool for improving health services.

• Monitor training activities in different programmes of primary health care networks.

• Use of systematic follow-up of training and continued education of supervisors and workers.

• Assess the practical implementation of different programmes at health centres by using QA indicators.

• Identify potential areas needing improvement by problem-solving and solution development.

• Evaluate the outcome of those programmes.

• Identify areas of strengths and weaknesses.

• Exchange lessons learned between different directorates through mutual field visits.

• Supply the health authorities in the regions with appropriate feedback following each visit. The feedback is summarized in the form of points of strengths and weaknesses, supported by relevant recommendations.

Furthermore, the technical committee of POSS is divided into three teams. Each team consists of three persons and is required to monitor and visit about six regions on a regular basis. Specifically, one region is to be visited per week, i.e. four regions per month. All regions are to be visited at least twice a year. During each supervisory visit the following is to be included:

• Short meeting with the region's top management (Director General/ Director and his Assistant for PHC) to explain the aims and objectives of POSS.

• Meeting the PHC supervisors of the region. This meeting includes defining three health centres (two urban and one rural) that will be visited by POSS team and the regions' supervisors.

• One "Quality Evaluation Form" to be completed for each health centre in collaboration with and with full participation of the region's supervisors.

• Final meeting with the Assistant Director for PHC and the regions' supervisors to analyse the results of field visits and to formulate appropriate recommendations.

The POSS team then submits a report to the POSS Chairman (Director-General of Health Centres), who sends it, with appropriate comments and recommendations, to higher authorities in the Ministry. In addition, the visited region is supplied with a feedback report.
IMPLEMENTATION OF POSS IN NATIONAL HEALTH PROGRAMMES:

Control of diarrhoeal diseases programme (CDD)

Preliminary arrangements are made every time a visit is made to a region. In this example a visit was prepared for before the actual visit was made. This process included a study of the background of the region for the CDD programme, contacting the authorities in the regional health affairs, and giving them adequate time before the actual visit. At this point the objectives of the visit are communicated to the authorities of the regional health affairs and an agreement is reached with the authorities on the programme of the visit and its timing.

During each regional visit, 3-4 health centres are included, both rural and urban, along with regional authorities and supervisors. Evaluation is performed using 'quality indicators' (feeding, O RS-use, I.V.-use, drug-use, hospital admission, type and duration of diarrhoea). The indicators are measured by using monthly annual case management reports and family files, in addition to the actual observations. Feedback is then provided to the health care staff on both the positive and negative findings. These findings are entered in the supervisory record as reference points for future visits.

SPECIFIC OBJECTIVES OF CDD POSS PROGRAMME

- To measure the extent of implementation of monitoring by indicators in the regions.
- To measure variance to the planned target achievement.
- To provide regions a feedback including weak and strong points of performance.
- To provide a basis to standardize all procedures in health centres in relation to assessment, treatment and reporting.

Table 4. The impact of POSS on the pattern of infant feeding in Quriat region

<table>
<thead>
<tr>
<th>Feeding by Age</th>
<th>Before POSS</th>
<th>After POSS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breast-feeding (&lt; 6 months)</td>
<td>0.5697</td>
<td>0.5749</td>
</tr>
<tr>
<td>Breast-feeding (7-12 months)</td>
<td>0.3393</td>
<td>0.4549</td>
</tr>
<tr>
<td>Supplementary feeding</td>
<td>0.8893</td>
<td>0.99</td>
</tr>
</tbody>
</table>

Table 5: The impact of POSS on the type and duration of diarrhoea in Quriat region

<table>
<thead>
<tr>
<th>Type of diarrhoea</th>
<th>Before POSS</th>
<th>After POSS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diarrhoea (&gt; 14 days)</td>
<td>0.0125</td>
<td>0.0056</td>
</tr>
<tr>
<td>Bloody diarrhoea</td>
<td>0.0118</td>
<td>0.0102</td>
</tr>
<tr>
<td>Severe dehydration</td>
<td>0.0033</td>
<td>0.0021</td>
</tr>
</tbody>
</table>
POSITIVE ASPECTS OF POSS IN CDD PROGRAMME

- Aroused interest and interaction
- Improved communication and coordination
- Provided an assessment of structure and training needs
- Emphasized the role of supervisors
- Emphasized the use of manuals
- Identified weaknesses of information system
- Enhanced collaboration between MOH central departments with peripheral regions.

RECOMMENDATIONS

- Organize continuing medical education (CME) with involvement of educational institutions.
- Integrate hospital and health centre services.
- Energize supportive supervision through QA.
- Procure training materials.
- Train more trainers as necessary.
- Revise and update manuals.
- Improve referrals and feedback systems.
- Improve the health information system (HIS).
- Consider redistribution of health manpower.
- Incorporate the programme in the health plan.
- Evaluate the impact of the programme on the health and well-being of mothers and children.

Table 6. The Impact of POSS on the treatment of diarrhoea in Quriat region

<table>
<thead>
<tr>
<th>Treatment of diarrhoea</th>
<th>Before POSS</th>
<th>After POSS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ORS-use</td>
<td>0.987</td>
<td>0.9914</td>
</tr>
<tr>
<td>I.V.-use</td>
<td>0.0114</td>
<td>0.0074</td>
</tr>
<tr>
<td>Antibiotic-use</td>
<td>0.1048</td>
<td>0.0847</td>
</tr>
<tr>
<td>Anti-diarrhoeal measures</td>
<td>1.25</td>
<td>0.0022</td>
</tr>
<tr>
<td>Hospital admission</td>
<td>0.0419</td>
<td>0.0361</td>
</tr>
</tbody>
</table>
Technical staff of the General Directorate of Health Centres provided the training. The programme was provided to all assistant directors of PHC and to all PHC supervisors in the 20 regions (about 250). Additionally, the programme included a total of eight workshops with 25-30 trainees in each, while the training material included synopsis of indicators, manual on quality assurance in primary health care, quality indicators form, and health centres’ registers and files.

FUTURE ACTIONS

A book titled “Synopsis of Indicators” was distributed nationwide. The book will be utilized for supervision and training purposes. It will also serve as a directive manual for monitoring and evaluation. The book contains chapters on: monitoring and evaluation of the quality of care; development and use of indicators; health policy and socioeconomic indicators; coverage and health status indicators; treasurer of Islamic teaching; and the programme of supportive supervision “POSS”. The Quality Indicators form has been included as an annex.

References

One of the definitions of quality assurance is (QA) is that “Quality is never an accident, it is always the result of high intention and skillful execution; it represents the wise choice of many alternatives.”

We found this definition to be quite accurate and true during the implementation of the QA project in Al-Hussein Hospital, Salt, Jordan.

When we began to implement this project in February 1994, we thought that improving the quality of work was a spontaneous, self-moving process which will proceed by a simple administrative decision. But we soon realized that good intention, good planning, continuity, sincere efforts, central support, commitment, motivation and clear vision were all so crucial for the success of the quality programme.

HOW DID IT BEGIN?

The Jordanian Ministry of Health (MOH) felt strongly about the need to improve the efficiency and quality of the health services in the country given that Jordan spent more than 9% of its budget on health services. The MOH called upon the Quality assurance project of the US Agency for International Development (USAID) for technical assistance.

In June 1992 a two-day Quality assurance Awareness workshop was conducted in Amman, in which 30 senior MOH officials representing the central MOH directorates, peripheral hospitals and other directorates of health participated.

At the end of the workshop, the participants came up with the following vision statement for the future QA programme in Jordan:
VISION STATEMENT

"In five years there will be a nationwide quality assurance system having clear policies supported by the organizational structure of the MOH, with authorized and participatory leadership. It will be practical and realistic. There will be a widespread awareness in the community of the need for quality in health services and all health personnel will be aware of, and feel the need for, quality assurance as reflected in their attitude and behaviour."

In order to find out from where to begin, an assessment study was conducted, which included staff interviews and observation of the quality of the health services being provided. A special QA programme was designed which would be applicable in Jordan. This QA programme became a major part of the Family Health Services project (FHS), which had two main objectives:

1. To expand and improve the accessibility and quality of those family health services that most directly impacted on maternal and child health and fertility; and

2. To assist the Government of Jordan to design, develop and implement a comprehensive and integrated quality assurance programme at all levels and, ultimately, in all facilities.

In order to achieve these objectives five strategies were put into action:

Strategy 1: Assist the MOH in developing the capacity of a central QA unit to ensure that the health care resources in Jordan were used to continuously improve the quality and efficiency of care.

Strategy 2: Assist the MOH in designing, implementing and evaluating a pilot QA programme in the Salt health directorate and hospital.

Strategy 3: Assist the MOH to expand and integrate quality birth spacing services into ongoing family health services.

Strategy 4: Carry out studies to assist the MOH in its strategic planning, to document unit costs, and to evaluate the changes in efficiency resulting from QA activities.

Strategy 5: Assist the MOH in expanding FHS improvements and the QA programme to other regions of the country.

Within less than a year, the MOH created the Directorate of Monitoring and Quality Control Directorate (MandQC), which became responsible for planning, coordination and supervision of all activities related to quality improvement and management throughout Jordan. Moreover, Al-Hussein Hospital, Salt and the
Directorate of Health, Balqaa, were chosen as the pilot area where the project would be implemented and demonstrated.

Al-Hussein Hospital, Salt

It is worth mentioning a few words about the Al-Hussein Hospital in Salt city. The hospital provides care to 283,000 citizens of the Balqaa Governorate. It is a 140-bed facility with an area of about 7000 m² (50 m²/bed) with an occupancy rate of 73%, considered to be one of the highest in Jordan, and an average length of stay of 3.78 days.

During 1995, 13,230 patients were admitted to this general hospital, of which 3073 were for general surgical operations, 3948 for normal deliveries and 1044 for minor operations in the emergency room. The number of outpatient visits was 77,298 in addition to 47,829 ER visits. Also, during the same year, 33,809 X-ray films and 264,993 laboratory tests were completed.

These services were provided by 602 employees, of which 134 were physicians representing 15 different specialties as well as 236 nurses. The hospital serves more than 283,000 people, which is the population of Balqaa Governorate.

DID WE NEED THE PROJECT?

Implementing the project was not due to marketing efforts, but due to a real understanding of the ideas and needs for QA. Medicine has reached reputable levels in Jordan, and it should be sustained by keeping abreast with the latest scientific and technological changes that are taking place in the world. Moreover, the private sector is a strong competitor with the public sector in Jordan. The public sector serves more than 65% of the population (41% in government hospitals and 25% in Royal Medical Military Services).

Improving hospital services using only existing resources was found to balance only some of the shortcomings occurring due to shortages in supplies. Cost containment was another important reason for implementing QA in Jordan.

Nevertheless, the project faced considerable resistance in the early months of its implementation due to some unexplainable fear of change. Some of this resistance was attributed to the fear of the unknown. A majority of the staff did not have any idea about the QA concept, and it took a few months for the hospital management and the QA project staff to explain it to them to overcome their resistance and eventually to get them actively involved in the project.

THE FIRST QA MEETING

The first QA meeting was held in the hospital on February 18, 1994. Three important issues were discussed in that meeting:

1. The QA structure: A comprehensive QA organizational chart was developed
connecting the hospital with different administrative and QA structures.

A. QA Steering Committee, which was the highest QA organ in Balqa Governorate responsible for planning, prioritizing, implementing and monitoring QA activities in the Governorate. This steering committee, headed by the General Director for Health, had the following members: the hospital's director, the health director, director of planning, director of MandQC directorate and the general coordinator of the QA project in the MOH.

B. The QA council of the hospital, headed by the hospital's director and with the membership of the following heads of department: surgery, gynaecology, paediatrics, internal medicine, nursing, engineering and pharmacy. The membership was a subject for further studies, discussion and changes over a period of time.

2. QA committees: Six permanent QA committees were formed:
   - Medical records review committee
   - Medication utilization committee
   - Infection control committee
   - Mortality and morbidity committee
   - Blood utilization committee
   - Scientific committee.

3. Problems list: A question was asked from the hospital QA council members: "What are the most important problems you feel that the hospital is facing?"

A brainstorming session was conducted and the attendees came up with the following list:

1. Medical records
2. Admission process of emergency patients
3. Consultations
4. Inadequate space for neonates unit
5. Paging system
6. CPR group
7. X-ray department maintenance
8. Lack of computers
9. Scientific activities
10. Wards reorganization
11. I.C.U. reorganization
12. Visitors and guarding
13. Monitoring internal problems
14. Dispensing medication
15. Uniforms
16. Discharge card
17. Deficiencies in supply
18. Outpatients' files
19. Logistics
20. Nursing re-staffing
21. Employees' transfer
22. Simplification of discharge procedures
23. Small area for pharmacy
24. Patients' length of stay
25. Laboratory test monitoring
26. Referrals from PHC to hospital
27. Referral system.

During the following two years, the hospital's QA council was able to resolve more than half of the issues listed above. The other half was out of the hospital's control, e.g. salaries, equipment acquisition, hiring, etc.

ACCOMPLISHMENTS OF THE QA COUNCIL

Upon the request of the council, the project offered the following equipment to the hospital:
- A package of recently published issued nursing, QA, and medical books
- An overhead projector
- A slide projector
- A camera
- A personal computer
- Paging system
- Furnishing the lecture room and the hospital QA unit
- Needles disposal containers.

As soon as the QA committees were formed they began to carry out their responsibilities.

1. The Medical Records Committee had several meetings with the physicians, nurses and administrative staff during which the committee ascertained their needs and added a few new forms to the patients' files. These new forms were submitted to the central directorates in the MOH to get their approvals for the dissemination of these files all over the country. As a routine, 15 randomly-selected files were reviewed during each of the Committee's meetings. This review included physicians, nursing notes and follow-up, and the administrative part of the file. For this purpose some check sheets were created for unified chart content evaluation. The results of the review were periodically reported to the director of the hospital, who sent the files back to the head of the department with the list of "deficiencies in the file" and an official letter requesting him to ask the responsible party to correct these deficiencies. Improvements were noticed in a short period of time soon after the committee began its activities.

A Terminal Digit System (TDS) was introduced. Each medical record was given a number that corresponded to the year it was created and a unique family and individual number for each patient. Medical records were also colour coded to expedite proper storage and retrieval. Once this system was implemented and on proper staff training was completed, this system allowed retrieval of a medical records file in less than 8 seconds.
2. The Medication Utilization Committee began its activities by studying the current pattern of antibiotic use in the hospital. It found that these were overused. Physicians were required to document the rationale of each expensive antibiotic prescribed. A substantial drop in the use of expensive antibiotic was noticed almost immediately.

The committee also prepared a booklet containing the generic and trade names of the most commonly used medicines, indicating their doses and contraindications. The committee also initiated the study of the use of Lidocain gel, which was used by the staff as a lubricant when applying the EKG leads to the chest. The study showed that there were no significant changes in the EKG reading when Lidocain was replaced with plain water. Therefore, the practice was changed to use water instead of Lidocain for EKG measurements. Saving in this practice alone was to the extent of 3,800 Jordanian dollars (= US$5,000).

3. The Infection Control Committee made a study on recording the incidence of nosocomial infection and post-operative wound infection. Standards for the prevention and control of infection were set and used. This included proper isolation, scrubbing, and routine cleaning of operation room and lab equipment. Considerable amount of money was saved through the standardization of the use of cultures in the laboratory.

4. The Mortality and Morbidity Committee included only the heads of the four major departments in the hospital, namely, surgery, gynaecology, paediatrics and internal medicine. They met monthly to discuss patients’ complaints, deaths, complications, hospital incidents and compliance between discharge diagnosis and pathology reports or postmortem diagnosis.

5. The Blood Utilization Committee began its activities by studying and observing the current situation by using a flowchart to understand all the steps in the blood transfusion process. The committee recognized that no standards were available for the entire process of blood donation until transfusion. Therefore, in collaboration with the clinical instructors, standards were developed for blood ordering, drawing, storage, use and transfusion. They arranged with the scientific committee to make presentations and impart training on the use of these standards to all concerned hospital personnel. Once the standards had been communicated, the committee started the process of monitoring their compliance. It is believed that this practice will result in reducing the incidence of reactions and contamination from blood transfusion. The committee also discussed the most effective ways to increase the number
of blood donors through media campaigns.

6. The Scientific Committee which was also responsible for Continuing Medical Education, participated actively in the conduct of training courses for doctors and nurses in 'hot subjects' such as cardio-pulmonary resuscitation and EKG-readings interpretation as well as education on a number of clinical practice guidelines.

WORKSHOPS

Within less than one year of the start of the project, seven workshops were conducted in the hospital's training auditorium in which a large number of health professionals from the hospital and other institutions participated. The first few workshops were conducted by international consultants, but once a cadre of local professionals had been trained, they became responsible for conducting the rest of the workshops. The number of the professionals trained by early 1997 is shown in the following table:

Out of the 602 hospital employees, 325 (54%) attended at least one workshop. Unfortunately, in spite of such a large number of persons receiving training, only three had the opportunity to attend all the basic workshops in order to be nominated as master trainers.

STANDARDS AND GUIDELINES

During the first QA exploration visit it was obvious that no standards were existing in the Salt Governorate, so the process of setting up and communicating standards in the hospital and primary health centers begun. In the hospital alone, 26 standards and guidelines were set. The following is the list of these standards:

- C.P.R.
- Blood collection
- Blood storage
- Blood donation
- Blood administration
- Intravenous administration
- Sterile dressing
- Procedure review

<table>
<thead>
<tr>
<th>Subject of Workshop</th>
<th>Number of workshops held</th>
<th>Number of professionals trained</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q A awareness</td>
<td>14</td>
<td>151</td>
</tr>
<tr>
<td>Team building and basic skills</td>
<td>4</td>
<td>39</td>
</tr>
<tr>
<td>Intermediate skills</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Customers' service</td>
<td>8</td>
<td>101</td>
</tr>
<tr>
<td>Standard setting</td>
<td>2</td>
<td>16</td>
</tr>
<tr>
<td>Training of trainers</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Current leadership issues</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>31</strong></td>
<td><strong>325</strong></td>
</tr>
</tbody>
</table>
• Patient record documentation - nursing
• Blood culture collection
• Pre-operative nursing procedure
• Post-operative nursing procedure
• Medical record tdc
• File design
• Lumbar puncture
• Naso-gastric feeding
• Supra-pubic aspiration
• Intra-osseous infusion
• Gastric lavage
• Nursing procedure for lumbar puncture
• Nursing role in admission
• Blood transfusion in thalassaemia major
• Newborn care - nursing
• Chest tube application
• Nursing procedure
• Disposal of medical wastes.

These standards and clinical guidelines were followed in the hospital and were submitted to the Ministry of Health in order to be disseminated to other hospitals for adoption.

In addition, another 17 educational materials were prepared and distributed to the general public and patients when they visited the clinics. The topics covered included:

• A child with hypothermia
• A child with convulsion
• Diabetes
• Hypertension
• Epilepsy
• Diet list for diabetic patients
• Brucellosis
• C.P.R.
• Nocturia
• Child nutrition
• Diarrhoea
• Rehydration
• Breast-feeding
• Vaccinations
• Breast cancer
• Care of ears
• Bilharziasis.

Furthermore, different QA committees wished to prepare special forms to record and evaluate data. Their efforts resulted in the creation of several evaluation and reporting forms, of which the most important were: forms for reporting of death, unintended accidents, surgical operations cancellations and medical procedures evaluation. With support from the Scientific Committee, the hospital issued a quarterly newsletter which highlighted the hospital’s accomplishments and other scientific issues.

CLINICAL INSTRUCTORS

Together with the QA project, another Italian project to train clinical nursing instructors was under way in the hospital. Five clinical instructors trained in well-
equipped nursing units studied the weaknesses and deficiencies in the actual nursing performance in the hospital. Accordingly, they designed special teaching workshops and educational materials, to enhance and improve the nursing standards. Seven workshops were designed, four of which were repeated several times in order to allow more nurses to participate. In the end a total of 445 nurses attended these workshops which covered subjects such as nursing documentation, infection control, I.V. nutrition, E.K.G. principles, care of diabetic patients, C.P.R., and communication with patients and doctors.

STUDIES

Several studies were conducted in the hospital, some of which were organized in collaboration with other organizations. Some of these studies were the following:

The cost of bed utilization in Al-Hussein Hospital

The first of its kind in a government hospital, this study was prepared by a distinguished study panel consisting of a government auditing agency, General Director for Preventive Services (M O H), General Director of Administration (M O H), and the hospital's Director, with the assistance of the international consultants of the QA project.

The study took into consideration every cent spent in the hospital during the fiscal year beginning with the hospital's share of the central M O H administrative spending down to the actual purchases and salaries. The results were extremely beneficial in establishing a baseline for comparison whenever similar studies are undertaken in other hospitals.

The hospital Director, a paediatrician, and a respiratory physician were part of the team of experts who supervised and ran a study entitled "The effect of cement dust on the respiratory system of the population of Fuheis city", a city where the main cement factory is located. The study, which was sponsored by the Higher Council of Science and Technology, was a cross-sectional comprehensive study comparing the population of Fuheis city with another city which is identical in all respects, except in the exposure to cement dust. This unique and original study yielded results which were comparable to the outcomes documented by other similar international studies.

A number of epidemiological studies were conducted all over the country on topics that included morbidity, mortality and maternal and infant deaths. The hospital was selected as one of the sites for these studies.

In order to examine patients' satisfaction and comfort during their stay in the hospital, a study was prepared by a hospital team. The patients were requested to fill out a questionnaire and drop it in a centrally-located box specifically used for this purpose. The results were collected and analysed periodically, showing a high acceptance level of the services provided by the hospital in three major areas:
administrative, nursing and physician services. The results indicated that 88%, 80% and 86% of the patients, respectively, were satisfied. Notably, the satisfaction level was higher among the inpatients than the outpatient attendees.

Another study was aimed at studying the bronchial asthma, its frequency, misdiagnosis, as well as variation in physicians' diagnosis and treatment. More than 14,000 inpatient and 20,000 outpatient files were screened during 1995 alone, of which 459 patients were found to be having bronchial asthma. The team also studied whether the treatment plan varied from patient to patient and from one physician to another. The results of this study, the first of its kind in Jordan which may also serve as a baseline for other studies, concluded that there was a need for clear guidelines for the treatment of bronchial asthma. 

**Accomplishments**

The Al-Hussein Hospital organized all its activities towards improving the health status of the patients through its doctors, nurses and Administrative services. In the process the following developments and activities took place:

- Created an examination room in each of the hospital's departments to assure patients' privacy.
- Created the patients' information desk in the hospital lobby.
- Expanded the neonatology department from 6 to 16 neonate incubators.
- Contracted with a private company for security, cleaning and catering.
- Adding new ambulances and a truck to the existing vehicles pool.
- Equipped the paediatric department with four ventilators and two phototherapy units.
- Increased the number of kidney dialysis units to four.
- Automated the financial, personnel and medical records departments.
- Introduced the bar coding system into the hospital's pharmacy system.
- Trained 40 hospital employees in computers.
- Furnished a new lecturing and training room.
- Expansion and improvement of the kitchen.
- Initiated training programmes for intern physicians and residents.
- Initiated training programmes for undergraduate students, nurses, medical school, other private colleges and universities.
- Participated in "free medical days" conducted in remote areas that lacked medical services.
- Trained 20 employees of the hospital about fire and safety guidelines by the civil defence staff.
- Conducted four workshops on EKG interpretation for general practitioners in primary health centres.
- Published the quarterly hospital newsletter.
- Organized a number of lectures for the public on such topics as diarrhoea, breast-feeding, vaccination, child nutrition, and diabetes.

**CHALLENGES**

Throughout the long QI journey, there were frequent shifts in the commitment of top level staff that delayed the activities and at times even made some of them to withdraw from active participation in the programme. People, however, slowly came around to accept the idea and culture of QI, although they resisted it in the beginning as they thought it would reduce their privileges or go against their interests or keep a watchful eye on them. The opposition gradually crumbled as people started to understand the real concepts of QI.

Although QI is "everybody's job", some people should be wholly dedicated to it on a full-time basis. This was not realized until two years later when we felt that there was a real need for a QI office in the hospital that will collect, summarize, analyse and disseminate the data and will plant the seeds to make the idea of QI grow.

**LESSONS LEARNED**

- Be patient.
- Study, adapt and use others' experiences.
- Begin strong, with funding, resources and support.
- Motivate people.
- Link the employees' progress and performance with incentives.
- Devoted, full-time people are really needed in specialized units.
- Planning without proper documentation will create bad image and inaccuracy.
- Participate actively in international QA meetings/seminars.
- Subscribe to and review relevant periodicals and bulletins.
- Document every step of the process and every activity, however small.
- Gain and maintain top-level commitment.
- Have an economist and a statistician in your main teams in order to measure the progress and cost improvements.
- Begin with small "showy" projects and then proceed to bigger, long-term, cost-saving projects.
- Successes, however small, do contribute to the overall improvement of the system and the organization, for the huge building is built of small stones. Keep the momentum going!
Quality Assurance in Malaysia

Dr Abu Bakar Suleiman
Dr Maimunah Abdul Hamid
Dr Rusnah Hussein, Dr Ding Lay Ming
Dr M.A. Kadar Marikar

INTRODUCTION AND BACKGROUND

Provision of health care in Malaysia

The Ministry of Health (MOH) is the main provider of health care in the public sector, with the rest of care being provided by the ministries of Education, Defence, and Home Affairs, statutory bodies and local authorities. The health care services are complemented by the private medical sector and some nongovernmental organizations.

The MOH has established hierarchical levels of health care with a network of service delivery points throughout Malaysia. Each level has a prescribed scope of functions with an established referral system. At the primary care level, there is a two-tier system. The rural dispensaries are managed by paramedical personnel and the health clinics and polyclinics by professionals and paramedics. At the secondary level, there are small (non-specialist) and large (basic specialty) hospitals in districts which are closely linked to the state and regional specialist hospitals. At the tertiary level, there are university hospitals and the National Referral Centre or Kuala Lumpur Hospital.

Currently, 96% of the population in Malaysia have access to primary health care services provided by the MOH (Ministry of Health, Malaysia, 1994). In 1994, the ratio of health clinic to population was 1:15,753. The doctor-population ratio was 1:2,207 and that of the nurse was 1:1,474. The development of the health care delivery system over the past few decades has established an effective network of health infrastructure in the country. This has brought the basic elements of essential primary care within the reach...
of the vast majority of the population in the country, where about 74% live within 3 km of a health facility and about 95% live within 5 km of it.

Currently, all services provided at rural clinics and health centres are free of charge. Minimal user charges are levied for hospital services to all users except the medically indigent. All other expenditures, both capital and recurrent, for all government facilities are borne by the government, where capital investment is from loans and recurrent expenditures are from revenues.

The private medical sector has grown tremendously in recent years, thriving well in the country's free market economy. There were 197 private hospitals with a total bed complement of over 7,192 in 1995 (Department of Statistics, Malaysia, 1996b). This constituted 21% of the total hospital beds in the country. General practitioner clinics number just over 3,000 throughout the country (Planning and Development Division, 1997). The majority of private sector facilities are urban-based, concentrating mainly on high return curative care with some preventive activities such as immunization against childhood diseases.

In Malaysia, traditional healers continue to play a significant role in the health care system. They include the Chinese, Indian Ayurvedic and a large number of Malay traditional practitioners. The nongovernmental organizations such as associations, societies and others play a central and major role in the care of independent groups such as the elderly, mentally ill, and mentally and physically disabled, through care in the community.

HEALTH STATUS

A marked improvement in the health status of the Malaysian population is indicated by the steadily decreasing mortality rates, longer life expectancies, considerable success in controlling communicable diseases and increasing efforts to address and combat new diseases. Over the last decade, infant mortality has fallen from 19.7 per 1,000 live births in 1986 to 10.4 in 1995, and reduction in maternal mortality has been by more than half, to 20 per 100,000 live births in 1995 (Department of Statistics, Malaysia, 1996a). Epidemiologically, the country's disease pattern is in a transitional phase, from a domination of infectious diseases and malnutrition associated with under-development to one of a predominantly noncommunicable nature, reflective of socioeconomic and lifestyle changes. The life expectancy at birth for males was 69 years and that of females 74 years in 1996 (Department of Statistics, Malaysia, 1996b).

HEALTH EXPENDITURE

Much of the performance as reflected in the health indicators is a result of public sector expenditure. Over the past years, health expenditure has increased significantly from [Malaysian Ringgit (RM)] RM 2,487.8 million in 1992 to RM 2,771.9 million in 1995, representing an average incremental rate of 11.4% (Department of Statistics, Malaysia, 1996b). At the same time the share of health expenditure of the
Federal Government's recurrent expenditure has been steady at 5%. As a percentage of GDP, health expenditure constituted only 3%, compared with 5% - 9% spent by developed countries (World Development Report, 1993). Not much is known about the expenditure of the private health care sector in Malaysia.

There is no national financing mechanism for health care in Malaysia at the present time. The public sector is largely financed through taxation but private sector services are on a fee-for-service payment scheme or by third party payment with private medical insurance.

**COMMITMENT TO QUALITY**

The concern for quality is inherent to any professional endeavour (Blumenthal, 1996; Donabedian, 1996; Krczal, 1996; Taylor, 1996). In health care, several initiatives and approaches have been used during the past hundred years, and these were the forebears of modern day quality assurance. Quality, thus, has always been an integral part of health care. Of late, the rise of consumerism, the philosophy of accountability with authority, rapid advancements in costly medical technology coupled with rising medical costs and the perceived need to contain these costs place the concern for quality beyond the hand of the health care provider (Basset, 1993; Ferguson et al, 1994; Williamson, 1994). These concerns have placed quality as an important agenda in the development policy and plans of many countries, including Malaysia.

Malaysia's development policy has the objectives of improving the capability and productivity of all sectors so as to enable them to play an important role in accelerating the nation's economic growth and development; ensuring that the nation's resources are used efficiently and effectively, and improving the quantity and quality of services to the public (INTAN, 1994). Quality initiatives are part of the Federal Government's ongoing strategic plan to develop and consolidate the competitive edge in the global market (Ahmad Sarji, 1993). This strategic plan is translated in the health sector as well, where the importance of quality has been integrated into the development of the health system in Malaysia.

Up to the beginning of 1980s, the main goal of the Ministry of Health was to provide adequate coverage. Having then achieved a fairly extensive coverage of its health services, the MOH next focused on improving the quality, efficiency and effectiveness in the delivery of health services. This was also in response to the increased awareness and expectation of the public of the quality of care provided. The review of the Fourth Malaysia Plan\(^1\) (1981-1985) called for emphasis on quality and coordination of quality-related activities (Ministry of Health, Malaysia, 1983). In 1985, the MOH pioneered the way for quality assurance and launched the Quality

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1 Malaysia Plan is a five-year rolling plan for socio-economic development with the social sector, including health, as an integral part of the planning process.
Assurance Programme (QAP) as a strategy to evaluate the quality of services provided by the MOH in a planned and systematic manner (Medical Services Division, 1991). The Fifth Malaysia Plan (1986 - 1990) marked the era of quality management. The Plan identified the need to strengthen the evaluation process in the health services to enable continuous upgrading and improvement of services.

In February 1991, the Prime Minister announced Vision 2020 which stated that, "By the year 2020, Malaysia is to be a united nation, with a confident Malaysian society, infused by strong moral and ethical values, living in a society that is democratic, liberal and tolerant, caring, economically just and equitable, progressive and prosperous, and in full possession of an economy that is competitive, dynamic, robust and resilient." (Ahmad Sarji, 1993). This Vision laid down the path for Malaysians to take. As for the MOH, the Vision has been translated as the aspiration of a nation of healthy individuals, families and communities. This desirable state is to be brought about by a health care system that is equitable, affordable, efficient and technologically appropriate, consumer-friendly and environmentally adaptable. This system will also emphasize quality and innovation, respect for human dignity and health promotion. It will promote individual responsibility and community participation towards an enhanced quality of life (Ministry of Health, Malaysia, 1996b). The emphasis on improving the quality, effectiveness and efficiency in the delivery of health services was spelt out in the Sixth Malaysia Plan (1991-1995) (Ministry of Health, Malaysia, 1993).

The Government of Malaysia has also embarked on quality initiatives as part of the Federal Government's ongoing strategic plan to improve productivity and quality of work. In 1991, the Government launched the "Quality of the Public Service" initiative, giving emphasis to the implementation of quality services in various areas, outlined through a series of government circulars called the Civil Service Development Administration Circular (Prime Minister's Department, Malaysia, 1993). In 1992, the Government introduced Total Quality Management (TQM) as part of its efforts to raise the quality of the country's public services (Ahmad Sarji, 1996). Recently, attaining MS ISO 9000 certification was endorsed by the Government as targets to be achieved by all government departments. A quality awards system was introduced in which several national awards were bestowed yearly to organizations and departments with outstanding quality work. Quality assurance is one of the criteria included in the assessment for these awards. Quality is given added prominence by being the main focus of the Seventh Malaysia Plan (1996-2000).

DEVELOPMENT OF QUALITY ASSURANCE PROGRAMME IN MALAYSIA

The concept of quality is not new in Malaysia. Formal quality protection methods which include registration of doctors, nurses and pharmacists, licensing of hospitals and pharmacies, code of
conduct and code of ethics were already in place decades ago. Various quality-related activities such as mortality reviews, drug audit committees, quality control, quality control circle, medical audit, nursing audit, peer review, utilization review, clinical pathology conferences and others have long been practised. However, these activities were often uncoordinated and implemented in an ad hoc manner and many of them to a large extent were dependent on the interest and concern of individuals (Lim et al., 1991).

The effort to coordinate these activities was initiated by the Ministry of Health in January 1985 with the launching of the National Quality Assurance Programme (QAP). The QAP was intended to improve the quality, efficiency and effectiveness of the delivery of health services and to facilitate the evaluation of quality of services (Medical Services Division, 1989).

Quality in health care is defined as the optimum achievable result for each patient, avoidance of iatrogenic complications, and attention to patient and family needs in a manner that is cost-effective and reasonably documented, within the constraints of available resources (Ministry of Health, Malaysia, 1996a). The goal of the Malaysian Quality Assurance Programme is to ensure that, within the constraints of the Health Ministry's available resources, the patient, the family and the community obtained the optimum achievable benefit from its services.

The QAP aims at establishing a mechanism to monitor the quality of the various services delivered so as to detect shortfalls in quality in a planned manner and to investigate systematically the cause of such shortfalls and institute appropriate corrective measures so as to improve quality (Pathmanathan, 1990). The specific objectives of the Quality Assurance Programme are:

- To develop in all health personnel, including health managers, a favourable attitude, acceptance and commitment towards continuous quality improvement;
- To provide health personnel with skills to carry out Quality Assurance activities;
- To develop an appropriate, acceptable and sensitive system for monitoring quality of care where information on shortfalls in quality is available in a timely manner; and
- To develop an effective system for evaluating the programme.

Essentially, Quality Assurance is intended as a management tool to assist managers and health care professionals to develop a system to identify problems at work and promptly respond to the problems by taking appropriate action.

The QAP was implemented in a phased manner to cover ultimately all the service divisions in the MOH. It began with the Medical Services Division (for patient care) in 1985, followed by Health Services Division for promotive and preventive care (1990), Pharmaceutical Services Division (1990), Engineering Services Division (1992), Dental Services Division (1990), Laboratory Services (1992), and lately in the Training and Manpower Division (1996).
The development of QA in Malaysia has been well recognized and quoted as one of the first countries in the Western Pacific Region of WHO to use quality as an indicator of the performance of programme delivery (WHO, 1994). Malaysia has also been described as having interesting developments in standards and evaluation, which may eventually lead to accreditation as a result of government policy (Heidemann, 1993).

ORGANIZATIONAL STRUCTURE TO SUPPORT QAP IN MOH

Recognizing the need for a continuous monitoring process in quality assurance activities, the QA activities were institutionalized into the current activities of health personnel. The QAP was thus initiated without additional human resources. Several QA committees were formed at national, state, district and institutional levels to facilitate the coordination of activities (see Figure 1). Members of these committees are existing personnel within the MOH and the committees are represented by multiple disciplines.

At national level

A National Steering Committee for the Quality Assurance Programme was set up at the national level in January 1985, under the chairmanship of the Director-General of Health. The membership included the Deputy Directors-General of Health and the various Programme (Division) Directors. This committee establishes policies for the QAP in the Health Ministry, determines priorities for development and implementation of QAP among the various service divisions as well as coordinates and monitors QAP for MOH. Currently, the committee meets at least twice a year.

The Coordinating Committee for staff training, chaired by Under-Secretary of the Manpower and Training Division, is responsible for planning, coordination and monitoring of training activities for QAP.

Each service division then has its own QAP committee chaired by the respective director which develops strategies for implementation and monitors the development and implementation of QA of its programme(s). One or more technical sub-committees, such as research and development, and implementation and training, are formed to support the main committee.

At state level

There is a QAP committee for every state, chaired by the state Director of Health. This committee plans, coordinates and monitors QAP in health facilities, plans and implements relevant programmes, provides assistance to hospital QA committees and provides feedback to the Health Ministry headquarters. The state QA committee is also supported by local technical sub-committees at the state level.

At hospital level

The Hospital QA Committee plans, implements and monitors QA activities at hospital level and provides feedback to the
State QA Committee. The committee is represented by multiple disciplines and is chaired by the Hospital QA Coordinator, who is currently a clinician, on a two-year rotation. The Hospital Director is the secretary of this committee.

Quality coordinators

To facilitate the implementation of activities at state and hospital levels, quality coordinators termed either as QA facilitators' or QA coordinators' were formalized. They are the "prime movers" of QA, consisting of motivated individuals who proactively support the programmes at local level. For the patient care programme at hospital level, clinicians were identified to play this role on a two-year rotation basis. They provide leadership and support for the implementation of QA activities at local level, which is in addition to their normal clinical work. They were given priority to be trained and to have further
exposure in QA, either locally or abroad, to enable them to perform their role more effectively.

The approach

The concept of “ABNA” - Achievable Benefit Not Achieved - as described by Williamson in his health-accounting approach is the backbone of the Malaysian QAP (Williamson et al., 1982). ABNA represents lost opportunity or potential not realized. The QAP, in principle, aims to reduce ABNA through maximum utilization of resources at all levels. This principle is applied to the problem-solving indicator approach, which is the main thrust of the QAP in Malaysia. The emphasis of QAP is on continuous improvement and learning from experience.

Through the problem-solving process, group consensus is used to identify and prioritize quality problems to be monitored. This is followed by identifying quality indicators which are to be used as a ‘flag’ or as early warning devices to indicate some potential problem(s) in the quality area being monitored. The indicators are monitored over time against pre-set standards, which provide the yardstick of acceptable performance or otherwise. The unacceptable performance is termed as “outlier” and the institution or the relevant discipline is required to investigate to confirm the “outlier” status, and determine where the shortfalls were. The findings of the investigation would lead to the formulation of remedial measures to initiate corrective actions. The effectiveness of the corrective actions is determined through continued monitoring of the indicators.

Throughout the problem-solving process, the participation and involvement of health personnel from various disciplines is facilitated by working in a multi-disciplinary team. This is to enhance the relevance of the issue being monitored, the ownership and acceptance of the activity.

In the beginning, the concern was that quality care was not being carried out uniformly across hospitals, and the primary aim of QAP was to develop and institute a standardized monitoring system through the National Indicator Approach (NIA), also known as “top-down” approach. The “ground-up” approach, termed as the Hospital Specific Approach or District Specific Approach (HSA/DSA), was intended to be implemented concurrently to complement each other. However, the HSA/DSA could only set off five years after the implementation of NIA as more time was required to train health care personnel at local level. While the NIA gives a broad indication of the performance of various hospitals or institutions, the HSA is intended to encourage more initiatives to improve services at local level, thus complementing each other. In addition, there are many areas in which nation-wide monitoring or standardization may not be feasible and is best done at local level. Experience and expertise in the NIA methodology enhance the capability to conduct HSA/DSA projects at local level. This combined approach has evolved slowly and steadily from there on.
(i) The National Indicator Approach (NIA)

In NIA, a standardized monitor-and-feedback system was formalized through nationally identified indicators to monitor quality in common areas of interest. Group consensus through participation of representatives from relevant clinical disciplines at national and institutional levels, was the strategy used to assist in identifying common quality problems which may be monitored nationwide; and developing indicators, standards and criteria. The local health personnel at institutional or district level are made aware of their role in gathering and using the information. Collated data is submitted to the national level, commonly through the existing Health Management Information System. Investigation protocols were also developed for each NIA indicator to guide and assist local staff to verify their "outlier" status, and if confirmed to be so, to determine where the shortfalls were by using the model of good care. The model of good care is the best available practice for managing the identified health problem. The model facilitates the identification of critical points in the process of care where there are potential shortfalls in quality. The investigatory protocols provide guidelines on sampling, variables to be collected, method of data collection and method of analysis. The analysis of the investigation would provide information on where the shortfalls were and the factors contributing to them. This information provides input to make recommendations for remedial action to be taken.

The findings and recommended remedial action are sent to the local QA committee for implementation. In situations where there are limited resources to implement the recommendations at local level, the issue is brought up to the State QA Committee or, at times, to the QA Programme Committee. Remedial measures requiring policy change are referred to the National Steering Committee for Quality Assurance.

The effectiveness of remedial measures is monitored through the follow-up cycle of data collection, which could be six monthly or yearly. An improvement or otherwise may not be apparent in the immediate cycle, for some remedial measures require time to effect change. In such a situation, the institution need not carry out investigation if found to be an "outlier" again in the follow-up cycle.

Implicit in the NIA approach is the concept of "benchmarking" or comparison of performance with other similar institutions. This is intended to stimulate hospitals and institutions to compare their performance between and within institutions or hospitals. Local hospitals or institutions are expected to study the problems and initiate remedial actions even before they are informed of their performance by the national quality assurance secretariat. This is possible for most of the NIA indicators, as individual hospitals or institutions would know their status in terms of the performance of the indicator prior to submitting data to national level.
The NIA was used as the initial approach in the QAP in Malaysia because it allowed a standardized mechanism to monitor quality and provide common feedback. This is facilitated by the existence of an organizational structure within the MOH which can support the hierarchical needs of monitoring and feedback required in NIA. The health information system is already established to support collation and compilation of data for monitoring purposes. In addition, NIA was also found to be relatively easy to implement and QA could rapidly and extensively be introduced at all levels within the MOH.

The NIA, however, has its weaknesses. The top-down approach gives an impression of the "big brother" looking over your shoulder, searching for the "bad apple". This is unavoidable as correctly stated by Don Berwick: "Practically no system of measurement - at least none that measures people's performance - is robust enough to survive the fear of those who are measured." (Berwick, 1989). Inevitably, as the programme was implemented several misconceptions arose. Details of these misconceptions are described further at the end of this paper.

(ii) The Hospital/District Specific Approach (HSA/DSA)

In HSA/DSA, the emphasis is on "local people solving local problems". Local QA committees are given the responsibility to identify and monitor the quality of care at their level. The problem-solving approach is also applied in the QA process leading to the development of QA projects. The information is used directly by local managers and summary reports of activities are submitted to the national level.

Selection of NIA indicators to measure quality

Through the problem-solving process, several quality indicators have been developed to monitor quality in common areas of concern. The focus was on the areas which addressed issues of patient care, utilization of resources and patient satisfaction. Outcome measures are the main thrust for quality monitoring at national level and process measures are commonly employed at the institutional or local level.

Several factors can result in an organization becoming an "outlier". These include case-mix, pre-admission case-severity and condition of patient, a true quality problem within the organization, influences outside the MOH or a chance occurrence. Because of this, the outcome indicators which were chosen could not be regarded as direct measures of quality. Instead, they were to be "flags", indicating that potential problems existed in the specific areas of concern (Pathmanathan, 1990). The indicators are also used to serve as proxy indicators of care for a group of similar conditions or situations rather than for individual diseases. For example, "death due to typhoid" is a proxy indicator of the quality of management of pyrexia of unknown origin and "percentage of visual defects detected in primary school entrants" is
regarded as a proxy for the detection rate of other abnormalities through the school health screening programme. The functions of these indicators are described as the rationale for selecting them.

The indicators chosen were mainly sentinel events or rate-based. The following were the criteria used for the initial selection of NIA indicators (Pathmanathan, 1990):

1. The indicators should measure outcomes of care, rather than structure or process of care. The rationale was that while outcomes are being monitored, the process and structure components would be looked at when investigating the shortfalls.

2. The indicators should be generic in nature; in other words, these should not necessarily be disease- or discipline-specific and should focus on particular outcomes of concern to the patients and the community, rather than be of a singular interest to clinicians.

3. The indicators should allow early comparison between similar units or between hospitals so that national or regional profiles may be constructed.

4. The indicators should be based as far as possible on data available in the existing information system.

Examples of NIA indicators for various service division QAP in the MOH are listed in Appendix A.

**SETTING THE STANDARDS**

A standard has been defined by Donabedian as a quantitative statement of the "desired achievable (rather than observed) performance or value with regard to a given parameter" (Donabedian, 1982). It is necessary to set standards in QAP (Irvin, 1990), although it is known that standards are not devoid of problems (O'Dowd, 1991). The science of standard-setting is well developed. Its effectiveness in improving practice has been demonstrated when standard is set by, or is made acceptable to, those whose performance is to be reviewed (North of England Study of Standard and Performance in General Practice, 1992). But setting standards is time-consuming, and clearly a trade off is needed between "ownership" and "practicality". In NIA, explicit standards have been developed by clinical, managerial and multi-disciplinary group members. In setting standards for the measurement of quality, the approach adopted is to identify yardsticks which are reasonable and attainable, with the intention of further refinement as the programme progresses. Stringency in the cut-off points is avoided except for indicators which are classified as sentinel events, such as "death due to haemorrhage in pregnancy", "incidence of tetanus neonatorum", and "number of wrongly dispensed items (drugs)" where all or none is the rule.

The common methods and sources of information used in setting these standards are listed below. It is customary that more
than one method is used in the formulation of the standards.

Review of available data

This is a common method employed in the Malaysian QA Programme. The main source of the data is the health and management information, which is routinely collected and compiled from health care facilities. The summary statistics of this information such as the mean, median, highest and lowest values are employed as the reference values for consideration of standards. Commonly, these statistics are presented to groups of experts who would deliberate and come to a consensus for their adoption or modification. As an example, this method has been applied in deciding on the use of the "morbidity index" in monitoring the incidence of typhoid fever as an indicator for monitoring the surveillance of communicable diseases, in which the median number of cases in the previous five years is used as the reference point (Health Services Division, 1994). Other examples include the use of the "highest and/or lowest" reported values during the monitoring cycle for the "hospital gross fatality rate", "bed occupancy rate", and "average length of stay" indicators for the assessment of the utilization of resources in hospitals. The "moving average of the best annual national average" was used as the standard in monitoring the violation rate of specific quality parameters for measuring the quality of drinking water.

Review of national and international references

Literature search from published international references is also used wherever available. In a few indicators, the international standards are directly applied to the Malaysian setting. An example is the use of the External Quality Assessment Scheme (EQAS) standards for the measurement of "performance in analysis of core biochemistry" in clinical pathology laboratories (Whitehead et al, 1981; Institute for Medical Research, 1993). In other instances, available international standards are presented to local expert groups for discussion, where modification to suit the local environment is made.

Use of safety regulations

Safety regulations as stated in legal documents have also been used as the source for standard-setting. An example is in the indicator of "proportion of wards inspected for drug-keeping to the total number of wards in the hospital" for which a 100% coverage, within a three-month cycle, is made compulsory (Federation of Malaya, 1952; Pharmaceutical Services Division, 1990).

Expert opinion and consensus

Group consensus among clinical experts and administrators is another method commonly employed in setting standards for the Malaysian QAP. The experience of these experts formed the baseline for
determining arbitrary standards. This is the more common method used by the HSA/DSA quality assurance projects, where the quality-related problems monitored are less complex than in the NIA. Furthermore, at the hospital or district level, comprehensive literature references are not easily available to support the use of a more scientific approach.

Research

For more complex indicators, special studies on sampled cases or pilot projects are conducted to obtain the statistics. An example was in the development of standards for monitoring the management of patients with different levels of severity for myocardial infarction, head injury, and acute respiratory infection in children (Maimunah et al, 1988). In other situations, pilot studies were conducted over a period of time. The results of the pilot studies were used to formulate standards. This method has been applied to the indicators for "laboratory specimen rejection rate", "percentage of urgent laboratory tests", "waiting time at out-patient services", and "percentage of X-ray films rejected".

QUALITY ASSURANCE IN THE PRIVATE MEDICAL SECTOR

The private medical sector has registered tremendous growth in recent years, providing care to those who can afford it. The private medical sector is playing an increasingly important role in shaping the health care services in the country since almost 55% of the doctor population and about 15% of the total hospital beds in the country are in the private medical practices (Ministry of Health, Malaysia, 1994). While acknowledging the advantage of an optimal mix of private and public delivery of medical care, the Ministry of Health also recognizes the potential risks of commercialization of medicine in the private sector.

As is happening in other countries, the unprecedented growth of the private sector, principally in curative care, has contributed considerably to the increasing cost of health care. The Government has a moral responsibility to ensure that access to health care and, more importantly, the quality of care given are not compromised or jeopardized in this situation. It is with this concern that the MOH has been encouraging the private medical sector to undertake also quality assurance activities. The Private Hospital Act defines mainly the requirements for physical structure and manpower (Laws of Malaysia, 1971) and there is no provision to monitor the quality of services provided under the Act. Presently, quality assurance activities in the private medical sector are on a voluntary basis. Some medical audit activities are being carried out on individual motivation and a few of the private practitioners have participated in the National Maternal Mortality Review, initiated by the MOH. The involvement of private hospitals in quality activities will soon be made compulsory with the introduction of a system of accreditation of hospitals in which quality activities will be one of the key requirements. The Association of Private Hospitals, Malaysia,
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took the initiative along with the MOH to draft the standards for accreditation of hospitals. Some private hospitals too are moving towards attaining the certification for MS ISO 9000 for certain departments in the hospitals. Currently, the relevant laws and regulations are being reviewed with the intention of including quality activities, such as audit and credentialling.

TRAINING ACTIVITIES FOR THE QUALITY ASSURANCE PROGRAMME

Recognizing that QA is a new concept for all health personnel, multiple training approaches were adopted in an effort to promote and institutionalize QA in health care activities. In the early phase of development of QAP, consensus-building was the emphasis of training. Training activities during this period concentrated on promoting the concept and values of QA. One- or two-day seminars were organized for all levels of health care personnel, including the top managerial group. These consensus-meetings were found to be useful in sensitizing the health personnel to QA, making them feel less threatened and more open to the new concept. These meetings enabled the MOH to gauge the readiness and degree of apprehension at all levels. Presently, consensus building continues to be carried out to promote QA to newcomers in the MOH.

The awareness created through consensus-building was quickly followed by capacity-building, with the aim of providing knowledge and skills to health personnel on the methodologies and approaches adopted for QA. Specifically, the training covered the problem-solving process, the concept and methodologies of QA, the monitoring process, the feedback mechanism, the investigatory procedure, the development of remedial measures and action plan (Vuori et al, 1990). Small group management was also included to enable effective teamwork to be established among QA group members. In addition, educational technology was introduced to enable learning to be propagated at local level through echo training. The thrust of the training in capacity-building was "learning by doing", where groups of participants were brought through the process by designing specific QA projects (Public Health Institute and Medical Services Division, 1991). This training usually took a longer period, between 2-7 days, depending on the curriculum.

The aim of the training programme in QA is to develop a critical mass of health personnel knowledgeable in QA who are able to provide technical support at local level. The training strategy adopted is to build on what has been introduced in other related training programmes. For example, the methodology of problem-solving has long been introduced in the courses designed for strengthening management skills and Health Systems Research methodology. This same methodology is also adopted for QA. The training also emphasizes on the development of teams from state, district or institutions, where members come from different disciplines, including paramedical staff and non-clinical
disciplines. This enhances multi-disciplinary teamwork and local support.

Training in QA is imparted at two levels - national and local. The national level training concentrates on the development of a critical mass of health personnel who can provide leadership and technical support to the local level. Priority is given to quality coordinators and directors of hospitals to participate in these training programmes. Training modules were developed and participants were given ample reference materials on QA. Besides the specific skills of QA, national-level training is also conducted in other related areas, such as research methodology including data analysis, management skills, teamwork and use of computers. These training activities are organized by the Public Health Institute, which is the focal point for the training activity in QA. The participants who attended this training were given materials to enable them to conduct echo training at their level, with or without the support of the national group. Every organization and hospital sets its own targets for QA training activities.

On-the-job training is continued by getting individuals to work closely with the national or hospital groups to work on specific tasks, such as the development of protocols for investigation, evaluating indicators, or developing new ones. A number of selected individuals were given the opportunity to be attached to overseas institutions to acquire new perspectives and methods in QA.

RESEARCH IN QUALITY ASSURANCE

Research in quality assurance is rather rudimentary in Malaysia. Patient satisfaction surveys are carried out on a small scale, independently in institutions or hospitals. There is very little health outcome research work carried out in Malaysia. One such study is currently being conducted in the discipline of nephrology, looking at the outcome of care among patients undergoing renal dialysis and renal transplant (Department of Nephrology, 1997).

There are, however, many HSA/DSA projects which adopt the Health Systems Research methodology being carried out at institutions or hospitals. In 1995, a total of 62 HSA/DSA projects were reported on. Some examples of these studies are listed in Appendix B.

DISSEMINATION AND DOCUMENTATION OF QUALITY ASSURANCE ACTIVITIES

In general, the documentation and dissemination of QA activities in Malaysia is not commensurate with the amount of activities undertaken and the effort devoted to QA. A major concern now is that much useful effort and work in QA cannot be shared widely because of inadequate documentation. An attempt to impart some of this information through quality conferences, scientific meetings and quality bulletin has been initiated, but more effort is needed to
disseminate widely the information and findings from QA projects and activities.

**ACHIEVEMENTS IN QUALITY ASSURANCE**

Although there is much more to be done for QA in Malaysia, thus far, there have been considerable achievements. QA was received with varying degrees of apprehension in the mid-1980s and early 1990s. With continued support and leadership in quality, QA has moved from apprehension to acceptance. Health care professionals are now more receptive to QA. Awareness of QA is widespread and there is no obvious cynical attitude towards it. The QAP has succeeded in bringing about improvements in hospitals and institutions which accepted QA as a tool to upgrade their quality of services.

The direct impact of quality assurance in health care may not be easily measured or observed within a short period of time. However, some observable improvements have been noted in the process as well as the outcome of care. Some examples of these include: better deployment of resources, development of guidelines for managing certain conditions, improvement in the management of some clinical conditions and improvement in record keeping (Lim et al., 1991). The growing awareness of the usefulness of quality assurance among health care providers is also noted. Problems which were hitherto unrecognized or unattended to are being realized. The simple examples of these include the need for improved rapport between clinical departments, importance of accurate returns, importance of correct documentation, and need for continuing medical education and refresher courses.

On a more serious note, it is often quoted that QA needs to be integrated into routine practices if it is to have a significant impact on the quality of care (Pedro, 1995; Harvey, 1996). Malaysia has attempted to do this in several ways. Many of the QA indicators have been used as performance indicators or expenditure targets in monitoring spending and expenditure in the Modified Budgeting System2. On several occasions, the findings of QA have been used in the justification of budget and acquisition of resources. For example, the findings on monitoring the “percentage of pressure sores among bed-ridden patients” in a hospital had helped the management to convince the higher financial authority of the need to approve acquisition of additional ripple beds for the hospital.

QAP was initially introduced in Malaysia without additional human or financial resources. The national secretariat was assisted by personnel who contributed part of their time to support the QA activities.

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2 The Modified Budgeting System (MBS) is a budgeting system which has been pilot-studied since 1990 in three government agencies, including the Ministry of Health. The main objectives of MBS are: to encourage decentralisation of authority in budget management in line with the principle "let managers manage"; to encourage involvement of top management in budget management; and to improve the level of accountability in budget performance. To achieve these objectives, several important elements have been introduced. They include the use of expenditure targets, preparation of programme...
while performing their own job functions. It was only in 1993 that a secretariat with three staff members was approved and started functioning full time for QA activities. With the proven achievements and hard work, more staff positions were recently approved to support QA activities at the national level. A proposal is currently being submitted to support secretarial needs for QA at state and hospital levels.

QA has also succeeded in strengthening other quality improvement activities. For example, the maternal mortality audits which were undertaken at state and district levels were formalized through the establishment of the Maternal Mortality Review in 1991. This is now linked to the National QA Programme. This linkage allows matters which require inter-disciplinary and inter-sectoral actions to be more effectively coordinated and acted upon. Similarly, the Pre-operative Mortality Review, which originally began as a HSA project to examine the quality of anaesthetic services, is now a national programme which examines into all post-operative deaths in 20 public hospitals (Inbasegaran et al, 1996).

QA in Malaysia is also supported by other quality improvement activities which have a common goal towards providing quality care. These include total quality management, medical audit, quality control circle, quality control, nosocomial infection control and others. An evaluation is being carried out currently to assess and recommend how these efforts may be maximized and coordinated in a more efficient and effective manner towards achieving a common goal (Maimunah, 1997).

CHALLENGES ENCOUNTERED

The achievements attained so far did not come easily. Many defects were observed and barriers encountered. Most of the challenges encountered were issues related to perception, motivation and implementation of QA, in particular the NIA approach. The impression of “big brother” looking over your shoulder, searching for the “bad apples” as described by Don Berwick (Berwick, 1989) was one of the biggest hurdles to overcome.

There were several obvious misconceptions noted during the course of the implementation of the QAP. There was a general perception that the emphasis was on the process of collection and submission of data on indicators for it to be analysed at the Health Ministry headquarters. The passive role adopted by hospitals and districts was to be mere data providers rather than analysing the data against set standards and taking necessary action. Hence, investigations were done more to comply with the requirements rather than wish a genuine desire to identify the causes of possible shortfalls and to correct them. Since investigations were time-consuming, the increased workload without any perceived benefits had even resulted in the manipulation of data so as to avoid the “outlier” status. The guidelines developed to assist in the investigation of shortfalls for each of the NIA indicators were perceived to be too rigid which constrained the scope of investigations, although they were clearly stated as general guidance only. As a result, feedback on disagreement or recommen-
dations for the improvement of these guidelines were not forthcoming. This led to the investigations being carried out unsatisfactorily.

Many hospitals and states had also misconstrued all the indicators as direct measures of quality rather than as a 'flag' to examine an issue. Thus, when hospitals were not within standards for certain indicators, it led to the impression that these hospitals were providing sub-standard service. These hospitals went on the defensive and produced reports to justify why they were not "outliers". This defeated the purpose of the QAP which was to identify the causes of possible shortfalls and to correct them.

In many instances, the staff of the hospitals failed to see the significance or the clinical relevance of the indicators by which they were being judged. The lack of understanding of the rationale behind an indicator and its use led to confusion, resentment and resistance. This situation persisted even after a carefully selected representation of various clinical experts had spent long hours in discussion to revise these indicators through an interactive and rational process. This demonstrated that not all indicators which appear excellent on paper may be used effectively in practice.

Yet another misconception was that the QAP was a punitive measure to find fault with the hospitals. In contrast, a sense of complacency was observed among hospitals or districts which were not identified as "outliers", so that improvement beyond the pre-set standards was hardly attempted.

At the same time, several technical weaknesses were noted. A number of indicators were being used as proxies to detect shortfalls in a much broader area of concern. The validity of such an assumption had not been scientifically established, nor substantiated by studies or research. Some of the indicators were found to be insufficiently sensitive to detect shortfalls in quality, nor were they sufficiently specific to measure factors which were influenced by health care providers or unreliable because accurate data were not available. Indicators had therefore to be reviewed with input from care providers who were involved in QA activities.

There were also errors in coding and transcription so that some hospitals were wrongly identified as "outliers" (Nafisah et al, 1991). Incomplete documentation in case notes also posed challenges to investigators when attempting to identify causes of shortfalls. As a result of inadequate investigations, issues were not correctly identified, and in some instances these issues were not based on the investigation findings but on perceptions. Similarly, options for remedial actions were neither seriously considered nor explored fully and did not match the issues identified. They were simplistic in nature with no specific plans or details on how they might be implemented and evaluated. When several issues were identified, these were not prioritized based on importance, urgency and frequency of occurrence. When the remedial actions were identified...
they, too, were not prioritized in terms of importance and feasibility of implementation. The time frame for implementation was in some instances too short and unrealistic. It would appear that the entire exercise was not geared towards finding a solution to overcome the shortfall, but to write a report and comply with procedure. This led to frustration, both at the national and ground levels.

A number of challenges were encountered in the implementation of HSA and DSA. These were related mainly to the time-consuming nature of the studies, the difficulty of initiating remedial action, in maintaining staff initiative and interest in repeated evaluations and cyclical monitoring as well as the technical inability of local staff to conduct HSA/DSA projects. The sustenance of HSA and DSA at local levels seemed to be person-dependent, and this was closely associated with the proactiveness of local QA coordinators.

Introducing and implementing QAP is an important step forward for the MOH in its quest for quality. The path has been difficult, and it will be no less so in the future in order to sustain the enthusiasm, commitment and innovative actions of the care-providers and managers. It is an added workload over and above their normal duties. The process to ensure sustainability is a pressing challenge. We have been very fortunate in being able to obtain leadership and full support of clinical doctors and the management. Other allied health professionals in our organization have been actively involved in QA activities and are showing interest in developing programmes where initiatives originate from them and where ownership can rest with them. Nonetheless, in order to ensure sustainability in the future, an evaluation of quality improvement activities, including QA is, being conducted and it should be able to provide new directions for QA activities.

LESSONS LEARNED

The one lesson learnt from the process of developing and implementing QAP in Malaysia may be summarized in the proverb, "Where there is a will, there is a way". The shortcomings were turned into opportunities to move forward. The strong leadership provided by the pioneers of QA in Malaysia succeeded in guiding and motivating others through the difficult period. The strong commitment shown by the top management continues to uphold the morale of others to strive harder. The successes achieved were celebrated, and most important of all, QA activities have been carried out in good team spirit, involving various levels of health care personnel in the Ministry of Health.

Over the years we had received very useful feedback from clinical doctors, and a recurrent theme had been a request for greater involvement by the new members of the clinical departments. This was most encouraging and emphasized the need for continuous training programmes in quality activities to be conducted at state and institutional levels, as has been the practice for some years now. It is equally important...
for the organizational structure for quality activities to be dynamic and to be reviewed to ensure that it supports the needs of management as well as those who directly provide the care.

These challenges and opportunities have helped the MOH to improve the mechanics and approaches to achieve quality care. While some of these problems had been anticipated, others were the result of inadequate understanding of the concept of QA, the objective of the programme, the rationale for the approach adopted and the use of the indicators. Measures were taken to resolve these shortcomings such as strengthening the training programme and the feedback mechanism from national and state to lower levels, and modification of the monitoring and reporting process in the QAP. A shift of the emphasis of QAP from NIA to HSA/DSA was carried out in which personnel were given more freedom and flexibility to monitor and manage their QA activities.

THE CHALLENGES AHEAD

There are many more challenges ahead for QAP in Malaysia. First, the concept of quality needs to be considered in a different light where the viewpoint of the patient and the community must be taken more seriously. Quality goals should be moving targets, reset continually at higher and higher levels and continuous improvement must be the objective. To realize these challenges, an organization-wide commitment to quality and internalizing quality ethics at all levels of the Health Ministry is a necessity. Quality must be included explicitly in the strategic planning process and quality must be managed. Strong leadership in quality has to come from all levels and must be transparent. Senior managers must foster staff commitment and involvement in quality improvement by advocating and participating in the process. The management must show support by providing the necessary resources to carry out QA activities and they must be adequately prepared for their role as the "movers" of QA.

QA can only succeed if it is accepted as an integral part of daily practice and management and not perceived as an additional burden. QA will be meaningful and effective when it becomes the daily and personal, goal of everyone in the organization – clinicians, administrators, and clerical and support staff. However, these personal goals for optimal care cannot be realized unless it is the culture where all members of the organization accept individual responsibility for producing quality improvements in their own particular service. It is with this realization that the MOH launched its "corporate culture" as a strategy to instil greater commitment in the members of the organization in quality activities through the promotion of shared values of quality, teamwork, accountability and professionalism.

There is a need to achieve even greater integration of quality into the clinical and management systems. A good start has been made by integrating some of the quality, budget and annual performance targets. The leaders of the quality "programmes" and
activities have been advised to develop their own vision, mission, objectives and targets which should be in line with those developed by the Ministry of Health. These need to be fully implemented. In addition, there is a need to develop strategic goals with definite objectives of providing high quality health care, or achieving customer satisfaction. These should be specific actionable goals, such as ensuring that all medical reports are available within a week upon request, or to reduce by 10% the cost of high volume specifically-identified interventions.

There is also a need for us to know that initiatives taken do result in improvement. The need to develop careful, objective definitions of what is to be measured is critically important and requires strengthening in our quality activities. This, of course, includes our increasing emphasis on the use of consensus statements and practice guidelines and looking at outcomes of our interventions.

The attainment of the goal to provide quality service to the people cannot be achieved just by getting the MOH alone to institute quality measures. QA needs to be widely accepted by all health professionals, including those in the private sector. This is important as more than half of the registered medical practitioners in the country are in the private sector. Together with this is the rapid advancement in medical technology and the rising cost of health care as well as a greater awareness and demand for quality care from the community. A system needs to be created which will raise the level of involvement of the private health sector in the systematic monitoring and enhancement of quality. An accreditation system is currently being developed to facilitate this activity and a national society of quality in health is being planned to be established to support these aspirations. Thus, there is every reason to believe that the MOH will continue with its effort to make QA a success in Malaysia and with it, the achievement of care provision of the best possible quality.

ACKNOWLEDGMENT

The authors wish to thank Dr Peter Low Chock Seng for editing this manuscript.

References


Health Care Quality: An International Perspective


## Appendix A

### Examples of national quality assurance indicators

<table>
<thead>
<tr>
<th>Service Programme</th>
<th>Indicator</th>
</tr>
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</table>
| **Patient care**  | Death due to typhoid  
|                   | Death due to elective cholecystectomy  
|                   | Death due to haemorrhage in pregnancy  
|                   | Death due to eclampsia  
|                   | Hospital gross fatality rate  
|                   | Post-operative infection of clean wound  
|                   | Pressure sores among bed-ridden patients  
|                   | Plaster of Paris cast complications of limbs  
|                   | Bed occupancy rate (overall and by clinical disciplines)  
|                   | Average length of stay (overall and by clinical disciplines)  
|                   | Death due to gastroenteritis among children  
|                   | Myocardial infarction case fatality rate  
|                   | Acute respiratory infection case fatality rate among children  
|                   | Head injury case fatality rate  
|                   | Percentage of outpatients undergoing X-ray examinations  
|                   | Percentage of inpatients undergoing X-ray examinations  
|                   | Percentage of X-ray films rejected  
| **Health**        | Incidence rate of eclampsia  
|                   | Incidence rate of puerperal sepsis among home deliveries  
|                   | Incidence rate of severe neonatal jaundice  
|                   | Percentage of children below 1 year who had completed third dose of DPT/DT immunization  
|                   | Incidence of tetanus neonatorum  
|                   | Percentage of visual defect detected among Standard 1 school children  
|                   | Average notification time index for typhoid  
|                   | Morbidity index for typhoid  
|                   | Detection rate of samples contravening microbiological standards  
|                   | Detection rate of samples contravening non-microbiological standards  
|                   | Malarial deaths  
|                   | Dengue notification index  
|                   | Dengue outbreak control index  

<table>
<thead>
<tr>
<th>Service Programme</th>
<th>Indicator</th>
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<tbody>
<tr>
<td>Pharmacy</td>
<td>Proportion of production batches failed to batches tested for intravenous fluids</td>
</tr>
<tr>
<td></td>
<td>Proportion of batches failed to batches produced for intravenous fluids</td>
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<tr>
<td></td>
<td>Proportion of batches tested to batches produced for intravenous fluids</td>
</tr>
<tr>
<td></td>
<td>Annual turnover rate of stocks</td>
</tr>
<tr>
<td></td>
<td>Proportion of value of stocks written off annually to value of stocks held annually</td>
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<tr>
<td></td>
<td>Proportion of ward inspections requiring corrective action to total number of ward inspections</td>
</tr>
<tr>
<td></td>
<td>Proportion of prescriptions queried to total number of prescriptions received</td>
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<tr>
<td></td>
<td>Number of wrongly dispensed drugs</td>
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<tr>
<td>Dental</td>
<td>Percentage of repeat fillings to total fillings done on anterior and posterior permanent teeth</td>
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<tr>
<td></td>
<td>Percentage of schoolchildren covered</td>
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<td></td>
<td>Percentage of schoolchildren maintaining dentally fit status</td>
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<td></td>
<td>Rate of post-extraction complications</td>
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<td></td>
<td>Percentage of patients issued full dentures</td>
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<tr>
<td></td>
<td>Percentage of violation of optimum fluoride level at reticulation points</td>
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<tr>
<td></td>
<td>Percentage of 12 and 16-year-old children free from gingivitis</td>
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<tr>
<td></td>
<td>Percentage of 16-year-old children with complete dentition</td>
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<tr>
<td></td>
<td>Percentage of 12-year-old children with DMFX ≤ 3</td>
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<tr>
<td></td>
<td>Percentage of 6 and 12-year-old children with caries-free mouth</td>
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<td>Engineering</td>
<td>Residual chlorine (RC) violation</td>
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<td></td>
<td>Fecal Coliform (FC) violation</td>
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<td></td>
<td>RC + FC violation</td>
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<td></td>
<td>Downtime for autoclave</td>
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<td>Downtime for X-ray equipment</td>
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<td>Downtime for standby generator</td>
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<tr>
<td>Laboratory</td>
<td>Percentage of urgent laboratory tests</td>
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<td></td>
<td>Laboratory specimen rejection rate</td>
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<td></td>
<td>Performance indicator in chemical pathology</td>
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<td></td>
<td>Performance in bacterial identification and antibiotic sensitivity testing</td>
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<td></td>
<td>Performance in HB, TWDC and interpretative morphology</td>
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<td></td>
<td>Performance in coagulation</td>
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<td>Performance in blood banking</td>
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<td></td>
<td>Performance in histopathology</td>
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<td></td>
<td>Timeliness in urgent tests in clinical biochemistry</td>
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<td></td>
<td>Timeliness in CSF results</td>
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<td></td>
<td>Timeliness in histopathology</td>
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<tr>
<td>Service Programme</td>
<td>Indicator</td>
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</tr>
<tr>
<td>Training</td>
<td>Student-teacher contact hours</td>
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<td></td>
<td>Student-teacher ratio</td>
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<td></td>
<td>Completion of log book</td>
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<td></td>
<td>Completion of lesson plan</td>
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<td>Passing rate of examinations</td>
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Appendix B

Examples of hospital specific approach and district-specific approach projects

1. Documentation of in-patient medical records
2. Wound management in health centres
3. An audit of the prescription of thrombolytic treatment in patients with myocardial infarctions
4. Waiting time for emergency surgery on compound fractures
5. Postponement rate for elective surgery
6. Shortage of drug supplies in in-patient pharmacy
7. Appropriateness of admissions to the intensive care ward
8. Effectiveness of the appointment system in Kuala Krai Hospital
9. Compliance to treatment of patients with Hansen's disease
10. Delay in scrambling time to answer ambulance calls
11. An audit on blood ordering policy for elective surgical procedures
12. Audit on quality of case summaries in paediatric follow-up clinic
13. Reducing ante-natal admissions through day-care obstetrics
14. Delay in diagnosis and treatment of patients with pulmonary tuberculosis
15. Audit in anaesthesia: A one year report.
CHAPTER 13
HEALTH CARE QUALITY: EXPERIENCES IN INDONESIA

IGP WIADNYANA
NAMITA PRADHAN
PHILIP STOKOE

INTRODUCTION

The congenial economic environment coupled with the spread of education, improved standards of living, political stability and an increase in the people’s social status have made the community and organizations, including the health care profession, in Indonesia look more closely at the 'quality of care'. Important questions have emerged from this new accountability attitude such as: Is quality care being delivered in the holistic way of promotional, preventive, curative and rehabilitative health care delivery? Is quality being applied to health care delivery organizations? Is the level of quality being monitored and measured? Are there differences between geographical areas only or between different socioeconomic strata within the community? Are there accompanying structured organizations to accommodate quality of care issues? Is there a management information system to collect, compile, analyse and disseminate issues concerning the quality of care? Has quality of care suffered due to cost-awareness and cost-containment? Can quality be maintained in the face of medical/technological advancements and spiraling treatment costs? What is the association between the health care structure, process and outcome with the monitoring of the quality of care? What are the quality assurance roles of the government, community, health care institutions, medical care providers, reimbursement organizations, employers and the clients?

The paramount concern in Indonesia is whether the medical profession can assess the quality of care. Until very recently it was neither heard of nor even thought of to question the quality of care. Historically, medical professionals have considered themselves representatives of the 'divine healer' and almost beyond the law of accountability. Comments such as "medicine is an art form and not an exact science" are still a commonplace statement. Trying to quantify 'quality of care' was beyond the wildest imagination till the recent past. In a special communication Donabedian is quoted as follows: the quality of care was considered as being something of a mystery: real, capable of being perceived and appreciated, but not subject to measurement”. The authors would like to add to this statement: And not even conceptualized as being used as a yardstick to assess the practices of health practitioners.

To guarantee quality one has to measure the latter, and thus, before measuring the quality of care, one has to consider the following: Are we going by the historical route by measuring practitioner performance? Should the health care amenities be included in the measurement? Should the accessibility and availability of health care be included in the measurement? Should patient/customer satisfaction be included in the evaluation of
quality of health care? Should we try to measure the quality of care in relationship to patients behavioral attitudes?

Indonesia has adopted strong policies addressing quality and health care institutions and is currently implementing these policies through acceptable strategies at various levels. Figure 1 outlines the conceptualized central and peripheral policies and strategies, which are currently being implemented through various donor projects. However, we need to first look at the basic health structure as it exists in Indonesia.

**Figure 1**

**NATIONAL POLICIES AND IMPLEMENTATION STRATEGIES FOR QUALITY OF HEALTH CARE IN INDONESIA**

**PERIPHERAL STRATEGIES**

- Fitting quality into the organization and administrative infrastructure

**CENTRAL POLICIES**

1. Quality
   - Definition
   - Philosophy
   - Statement
   - Framework

2. Standard and guideline setting:
   (Clinical/non-clinical)
   - Structure
   - Process
   - Outcome
   - Quality

3. Specific quality issues:
   - Medical records
   - Accreditation
   - Licensing
   - Privileging
   - Credentialing

4. Technology
   - Assessment
   - Import

5. Information transfer

6. Medical curriculum re-definition

7. Continuing quality medical education

8. Risk management

9. Quality issues and the health law

**Preconditioning and training of essential staff**

**Development of hospital/health centre**
- Sponsorship
- Quality statement
- Philosophy/culture
- Plan

**Implementation Model**
- Quality Assurance
  - Assessment
  - Management
  - Improvement
- Standards implementation
- Accreditation
- Technology assessment
- System analysis
Health care system in Indonesia

The Republic of Indonesia is the largest archipelago in the world, consisting of more than 17,000 islands, of which about 931 islands are inhabited. The size of the islands ranges from a few acres to 534,460 sq.km as in the case of Kalimantan, which is the biggest island, followed by Sumatra, Irian Jaya, Sulawesi, and Java. Indonesia’s population, according to the 1990 Population Census, was 179,321,641, with an average annual rate of increase of 1.98% between 1981 - 1990. Indonesia is the fourth most populated country in the world. In 1997, the population was estimated to be about 200 million, of which 65% lived on the island of Java alone which accounts for only about 7% of the total area of the country. Seventy-eight per cent of the people live in rural areas. The literacy rate is 88.3% for males and 75.3% for females. The per capita income, according to the World Bank, was about US$ 670 per annum in 1992. In the last about five years Indonesia’s economic growth was at an average rate of 3 – 4% annually, which was contributed greatly to accelerating the country’s development programme, including health.

Indonesia is divided administratively into 27 provinces. The provinces are divided into kabupaten/kotamadya (districts/municipalities). At the district level there is a regency health office under the district autonomous government, which is responsible for the execution and implementation of health programmes. In each sub-district there is a health centre (HC) that provides accessible, comprehensive and integrated health care to the community in its area of responsibility, which is a sub-district or part of a sub-district.

Health infrastructure

Hospitals: There are four types of hospitals in Indonesia. These are classified as Class A, B, C and D, depending on their size and the manpower available. At the national level (Jakarta, Surabaya, Medan and Ujung Pandang) there are public hospitals with 1000-1500 beds (class A hospital), which are the national top referral hospitals. In each province there are public hospitals, class B with 400-1000 beds which are provincial-level top referral hospitals. These class B hospitals could also provide all kinds of medical specialist services but do not have many super-specialist services. In each district there are class C or D hospitals serving as referral units for health centres when specialized services are required such as surgery, ob-gyn, Pediatrics and internal medicine, with capacity ranging from 50 to 400 beds. The D class hospitals are gradually being upgraded so that each district would have at least a C Class hospital.

Health centres: In each sub-district there is at least one health Centre run by the government. Each of the HCs is headed by a medical doctor and has about 8-20 paramedical personnel. Under each HC, there are 2-5 sub-centres consisting of 1 or 2 paramedical personnel (usually a nurse or midwife), to provide limited services to the community in 1 or 2 villages within the HC’s geographical area of responsibility. One midwife is posted in each of the villages which are beyond the catchment areas of the health centre and sub-centre. Each HC serves about 20,000 - 50,000 population. At present, there are 6,950 health centres, of which 1,459 centres have an inpatient ward with an average of 10 beds each as the intermediate referral centre. The health centres are
supported by 6,024 mobile health centres (which are equipped with four-wheel vehicles or motor boats depending on the geographical location). There are 19,977 sub-centres and 36,000 midwives posted at the village level. Traditional birth attendants (TBAs) are still conducting almost 70% of the deliveries in the country. The health centres in Indonesia provide comprehensive integrated health services including preventive, promotional and curative services; they are also responsible for health development in their catchment areas through community participation activities and the application of innovative approaches. Health centres provide a broad range of basic services. Depending on the availability of personnel and facilities, the basic services provided would include maternal and child health; family planning; nutrition; environmental sanitation; prevention and control of communicable diseases; curative services including treatment of casualties due to accidents; health education; school health; sports health; community health nursing; occupational health; dental and oral health; mental health; eye health; and simple laboratory examinations.

Health centres operate under the administrative authority of the second level of regional government, i.e. the regency or district-level administration. They are administratively and technically responsible to the head of district health office. Health centres are headed by a physician who directs, coordinates and supervises its activities, though a number health centres lack a physician, especially in the outer islands. The administrative support services, personnel, finance, logistics, information, etc., are provided by an administrative section. The core operating budget for health centres is provided through the district-level routine budget, which is mainly financed indirectly from the central level through salary expenditure grants to regional government, other subsidies and fee revenues. The core budget tends to be sufficient to ensure the presence of the staff and minimal logistical support; funding for virtually all other activities is provided from other, mostly central budgetary sources (e.g. drug subsidies, salary supplements, etc.).

The role of the health centre is extended through several subordinate units, i.e. health sub-centres; trained midwives posted at village level and community-based integrated service posts ("Posyandu"). Health sub-centres are relatively simple health service units designed to support health centre activities in a smaller catchment area, usually two to three villages. The sub-centres, operating under the direction and guidance of the health centre doctor are usually headed by a nurse or midwife with a total staff of fewer than three persons; the sub-centre tends to provide curative care and maternal and child health services. Generally, each health centre has three to four sub-centres. Midwives posted at the village level are newly-graduated midwives who are in compulsory government service for three years and are posted at the village level in rural areas. They live with the community and provide MCH services to the community through the posyandus, beside attending the deliveries at home or at the community-based village maternity hut ("polindes"). At the periphery of the system is the community-based integrated services post (posyandu) at the village level. Posyandus are not permanently staffed facilities, but take the form of monthly "clinics" held by resident village health volunteers at borrowed premises. The Posyandu focuses on providing priority MCH services: immunization, nutrition, diarrheal disease control, antenatal care and family planning. A visiting team from the health centre or midwives at the village level provide supervision and technical support which is beyond the competence of the resident village health volunteers, viz., immunization, IUD insertion, ANC, etc.
Development Of Concept Of Quality Of Health Care

As mentioned earlier, there has been a growing concern in Indonesia to improve the access to and quality of health care. Given the steady economic development of the country there is an increasing demand for good quality health care. The health scenario in the country has been dynamic, continuously improving over the last two decades. One of the changes that have occurred over the last few years has been the change in the situation of the availability of manpower in the health sector. During the first few decades following independence, shortage of medical practitioners led the government to follow a policy whereby all medical graduates were required to join public service. However, supply slowly outstripped the demand, leading to a situation whereby the government revised its policy and currently appoints all fresh medical graduates for a period of three years on a contract, to serve in health centres, after which they are free to either join the public or the private sector.

As a result, there has been a steady increase in the availability of health personnel in private medical care. In the face of this competition, the need for better quality public health care has been strengthened. Introducing quality assurance programmes, both in the areas of primary health care, and hospital care is one of the major priorities of the government's initiative in health care. Through the five-year Development Plans, the emphasis has been on increasing the accessibility of health care to the people of Indonesia, including those living in remote and difficult areas. Using the primary health care approach, the National Health System has established a network of sub-centres, health centres and hospitals in all districts of the country so as to ensure access to health care. All the 3500 sub-districts of the country have at least one health centre. In some areas these health centres are equipped with 10 beds and can provide basic in-patient care. Sub-centres provide immunization, basic health care and health education.

It has been felt that physical expansion is not enough to ensure that the goal of providing health for all is achieved. The development of health services in this vast country has, at times, not been uniform throughout the country, especially in the difficult and remote areas. The utilization of the health infrastructure remains patchy and low. While much progress has been made in reducing the infant mortality rate, from 145 per 1000 live births in 1969-70 to 58 in 1993-94, the maternal mortality rate continues to be higher than other countries with similar economies, causing great concern to health administrators and policy-makers in the country. The main causes of maternal deaths are the "classical triad" which are hemorrhage (40%-50%), infections and sepsis (20%-30%), and toxemia in pregnancy (20%-30%). Based on the study conducted in 12 hospitals, the above-mentioned main causes of death covered 94% of the total maternal mortality, which was mainly due to late referrals or neglected emergency cases. Similarly, while remarkable progress has been made in controlling vitamin A deficiency, Iodine deficiency is still a major problem. Lack of resources, improper management and inappropriate application of technology sometimes make the situation worse. The main outline of the State Policy in 1988 as well as in 1993 emphasized the need to enhance the quality of health services besides ensuring equity. Having extended health services coverage to remote and under-served areas (urban and rural), the Government of Indonesia, in the 6th Five-Year Development Plan (1994-1999), has emphasized policies directed towards
improving the quality of care, particularly those that may affect a reduction in the maternal mortality rate. Efforts to improve the quality of care began when a classification of hospitals was attempted through the issue of a decree of the Minister of Health No. 033/Birhup/1072. However, it was soon realized that classification as a tool for improving quality had its limitations, and that it was still too early to set out goals for a quality programme. By 1981, the Army Hospital Gartot Subroto had already begun to implement a quality assurance programme based on complaints received from the clients. This programme was adopted by the Husada General Hospital three years later and gradually began extending to other hospitals.

One of the earliest instances of improving the quality of health care was tried out in the Dr Sutomo Hospital in Surabaya, East Java. As far back as 1985 a Nosocomial Infection Control Programme was launched in the hospital. The goal of the programme was to have clean surgical wounds at the clinical level. This activity was chosen as it was felt that it would not need additional resources and would be easy to monitor. A three-tier system was established - a committee of infection control at the management level, a team at the department level, and an infection control nurse stationed in many wards. A baseline survey showed that the Clean Surgical Wound Infection (CSWI) was at 3.74% in 1985 at the start of the programme. By 1988, this had been reduced to 1.02%. Moreover, with the reduction of CSWI there was a reduction of 344 days of hospitalization, thus leading to substantial reduction in costs.

In 1990, an ad hoc committee on quality was formed in the Directorate General of Medical Care, and one of its tasks was to define quality. A workshop on quality assurance was held in 1991. This workshop formulated an operational definition of quality assurance: Quality assurance is a systematic and continued process of measuring the level of services to compare with the standards and make corrections so as to reach an optimal health services delivery process with accepted outcomes. (Optimal service delivery = minimal acceptable level of service delivery based on available resources.) The following were to be the strategies to achieve this process.

The indicator used should be related to process and outcome, which is essential to determine quality, and not impact indicators; QA which is dynamic and flexible should be developed at various levels of services, at the contact point with the community, based on the specific problems of each programme area; increasing the motivation of the service implementers such that the climate and conditions are favourable; the process is focused on the quality aspect and not on quantity; measurement of QA is stressed at the contact points between the provider and the consumer (interface); it was to be achieved using the existing technology and within available resources and should appropriately fit within stipulations of the government, professional bodies, sponsors and peer groups.

The perception of quality of services depended on the expectations; different interest groups have different perceptions about the quality of health services. These were identified as:

1) The perception of the consumers is that the health services should be well organized, the place of delivery be neat, clean and not over-crowded, there should be reduction in the waiting period, and that service providers should be
sympathetic and approachable. The patients universally expect good, appropriate and affordable curative treatment;

2) The professionals’ and service providers’ view is that the services should be technically sound, their advice respected and they should be provided with the technology necessary for the provision of quality services;

3) The funding agencies expect that efficient and effective use is made of their financial resources; and

4) The owner of the service institution expects that a substantial income should accrue from the facility providing quality health care and that there should be no complaints, and that they should be able to survive in a competitive market environment.

During quality assessment, at times, the problems identified may not be solved locally, because the cause of the problem may relate to the total organization and the health care delivery system. Therefore, the solution of the problems would involve the total management system which would consist of the following: emphasis on continuous improvement and not just achievement of a standard; quality assurance as the responsibility of all health workers and not only of a person or unit who is in charge of monitoring of standards; understanding the objective of health care from the point of view of clients; the need to improve the organization, management financing and operation of the health system to correct deficiencies from the standards; total health system improvement not just of individual programmes; provision of qualified essential staff to implement and supervise QA programmes; a short-term orientation (in the context of long-term goals); and multi-level information transfer and rapid feedback from higher levels. Figure 2 gives a simulated national paradigm for a total quality management process.
The Quality Movement in Indonesian Hospitals

The major push for quality improvement in hospitals started in Repelita V and was further emphasized in Repelita VI. The Ministry of Health with the help of professional bodies, donor NGOs and universities (i.e. University Indonesia, University Gajah Madah,
University Air Langga) forged a strong hospital quality programme for hospitals, following a Hospital Diagnosis Study in 1989, which concluded that quality in hospitals needed to be improved. The first step was to precondition hospitals in quality and develop a quality culture supported by strong policies and appropriate strategies. Quality programmes were implemented in five Unit Swadana hospitals (i.e. government hospitals that are allowed to retain and use their revenues for operational and other purposes) and these addressed both the clinical and non-clinical aspects of health care delivery. A central QA committee was established with various departments or unit committees reporting the results of QA activities for coordination, integration and information transfer. Departments and units of hospitals were encouraged to start clinical and non-clinical QA activities on a small scale usually prioritizing problem areas. Certain departments selected time-sequence studies to identify and solve persistent problems which led to a delay in health care delivery. QA teams were schooled in various QA methodologies that they modified to suit their operational feasibility (i.e. cause and effect analysis, plan-do-act-monitor-modify-sustain, and Pareto priority analysis) and soon became proficient in their application. Clinical departments and units applied total quality assessment methodologies which included the following; clinical profile and system analysis, structure-process-outcome analysis, utilization review, standard and clinical guidelines setting, health professionals review, rational drug use, peer review, technology assessment, risk management, blood transfusion review and other pertinent issues.

Hospitals that had mastered the QA activities implemented total quality management (TQM) as their next step in quality improvement. TQM included the following activities: strategic QA planning, resource identification and mobilization to support QA activities, user-clientele-needs research, quality as part of the medical and continuing medical education curriculum, information transfer of quality results, quantitative and qualitative analysis for quality data, monitoring and evaluation of QA activities, management of personnel involved in QA, continuous process involvement, clinical and non-clinical outcome orientation, and the continuous multi-level and multi-focal training of quality methodologies.

Currently the Indonesian hospital quality programme has undergone many changes that have benefited the patient and the provider. Improved quality has led to a better perception of hospital services in the eyes of the patient which, in turn, has led to increased utilization resulting in better revenues for the hospital. The Indonesian hospital quality model has progressed from an autocratic, top-down, focus-oriented QA programme to a holistic type practical paradigm which is a decentralized, participative management type model that is continuously improving the structure, process and outcome of hospital health care delivery. Hospital quality programmes have passed from the police-action, finger-pointing and fault-finding type of activity, and have been transformed into programmes of risk management, utilization review, knowledge transfer, customer-payee-sponsor-professional satisfaction, outcome-orientated and total health care improvement of the health care delivery process. Quality of care is changing from a single team handling quality assurance to department-units being responsible for their own operational quality standards formulation, implementation and management. The future paradigm calls for corporate sponsorship, managerial and administrative patronage, increased middle- and floor-level supervisor involvement as facilitators, participation by
all types and levels of hospital professionals, and the involvement of the community in the hospital QA programme.

**Hospital accreditation programme:**

One of the early quality programmes initiated by the Ministry of Health was the Hospital Accreditation Programme. The National Health System (NHS), 1982, stated that "the means for the accreditation of hospitals need to be established in the near future, used in developing policies to strengthen or improve the quality of hospitals." Accordingly, an accreditation section was set up in the Ministry of Health. The idea was to establish a mechanism that will assess hospitals against standards to ensure attainment of these standards. It envisages setting up of an accreditation organization with members from the government as well as the private sector. The method includes a pre-accreditation survey, followed by an accreditation survey done by designated surveyors. All hospitals are sought to be accredited but in a phased manner and in stages, starting with five basic services of administration and management, medical services, emergency services, nursing services and medical record services, followed by seven supporting services including operating, radiology, laboratory, high-risk perinatal care, hospital infection control, central sterilization, safety, fire and disaster plans. This programme has been successfully implemented in many hospitals nationwide.

**Quality Improvement Activities in Family Planning**

The first formal family planning quality improvement activities were initiated by AVSC (Access to Voluntary and Safe Contraception) with PKMI (Perkumpulan Kontrasepsi Mantap Indonesia) in 1983, focusing only on voluntary sterilization (VS) as a "quality assurance" approach. The system consisted of standards for service delivery, supervision visit to VS clinics each quarter, and the use of check-lists. This quality assurance system was seen as a way to monitor the provision of services in all these newly-upgraded clinical sites as well as get a handle on the increasing incidence of morbidity and mortality. Around this time, as part of a bilateral project with BKKBN (National Family Planning Coordinating Board), PKMI organized a three-day national meeting on quality assurance. General QA concepts were discussed which included various QA activities in Indonesia. In 1988, PKMI prepared several documents for the VS, QA system, including special reporting forms and an internal quality improvement component. It was recommended that all hospitals that were part of this system should hold monthly meetings to discuss quality problems and to decide on solutions.

Starting in 1988, BKKBN expanded its QA system to cover all the 27 provinces. In 1990 the Private Sector Family Planning (PSFP) project was initiated with a quality assurance component. One of the thrusts of this project was to strengthen professional organizations, including the Indonesia Midwife Association (IBI), in quality. In 1990-1993 BKKBN conducted a Quality Indicators study. The BKKBN and the Population Council jointly sponsored an international meeting on Quality of Care in Bandung in 1992, which was attended by 10 countries from the Asia and the Middle East. In preparation for this international meeting, BKKBN held a national meeting in December 1991 to gain a consensus on what quality of care (QC) meant in Indonesia. A wide variety of organizations and people attended this national meeting, which produced lively discussion of the theory and practice of the quality of care in Indonesia's family planning
programmes. Around this time (1991-1993), as part of a government-wide campaign, BKKBN undertook its own "Quality Circle" (Gugus Mandala Mutu or GMM) programme for its staff. In 1993, a Quality of Care Project was started and this project helped in: (1) making accessible a good deal of QC material in the Indonesian language; (2) starting and maintaining a dialogue between BKKBN, Depkes and various NGOs concerning QC, and (3) funding two research studies that dealt with basic non-clinical quality of care issues. This project helped several BKKBN bureaus (Contraceptive Services Bureau, Bio Medical Research Bureau) to start developing their own QA concepts, papers and models.

In 1994, there was a major breakthrough in QA, with the formation by the BKKBN of a national steering committee for family planning quality improvement (Panitia Peningkatan Mutu Nasional). Members of this national steering committee included the Deputy Minister for Manpower and Programme Development (Training and Research) as chairman, personnel from BKKBN, several members from Depkes (MOH), professional associations and the Consortium for Health Sciences. The BKKBN has progressed rapidly in the field of quality assurance and is currently under the auspices of donor projects conducting new operations research into quality issues and implementing quality strategies that are applicable nationwide.

Field experience in QA in PHC from three study areas.

The quality assurance programme (QAP) as it evolved in Indonesia became more concerned with promoting and supporting workers to improve the many processes in their work and not only adhere to fixed standards (though development of uniform standards is an important component of the QAP in Indonesia.). It meant helping personnel to set performance standards that are realistic in the local setting and to monitor their progress. In practical terms, the Indonesian QA is a problem-identification and problem-solving approach, linking improvement in quality to continuous assessment of performance. It begins with a multi-disciplinary team identifying a problem or problems. Using various methods of analysis, the team identifies the causes of the problem and formulates measures to improve the situation; at the same time it monitors the implementation to achieve the standard and finally lays down new performance standards based on current information, technology and the demand of the clients. This process is repeated to identify the problems, find the causes of the problems, implement the remedial measures and finally again to monitor results, thus achieving continuous total quality improvement.

A: Experience from Sukaresmi Health Centre at Cianjur district, West Java

The health centre covers an area of approximately 6,000 sq.km., providing services to five villages with a combined population of approximately 40,173. The manpower available within the working area of the health centre was as follows: 1 medical doctor, 1 dentist, 2 midwives, (one of them posted in the village), 1 assistant midwife, 1 female nurse, 1 vaccinator, 1 assistant nutritionist, 1 sanitarian, 2 male nurses, 2 drug dispensers, and several other non-paramedical personnel. One four-wheel vehicle was available to be used as mobile health centre. Funds for this project were provided by WHO.
The health centre provided 13 of the 18 HC services: maternal and child health, family planning, nutrition, environmental health, communicable disease control activities, dispensary (pharmacy) services, school health, community health nursing, community health education, dental and oral health, mental health, simple laboratory examinations and report and record-keeping. The health centre supported two sub-centres, four village clinics/dispensaries and 70 integrated service posts (posyandu). There was only one midwife posted at village level in the area covered by the health centre.

Though various measures of health centre performance indicated that the Sukaresmi Health Centre was fulfilling its role within the district health system, there remained operational and managerial support problems that adversely affected the quality of care provided, thus limiting the health centre's ability to effectively influence a reduction in the maternal mortality rate. The project was conducted in four stages:

**Stage I: Identifications of problems**

The health centre staff and relevant district-level personnel, working in close collaboration with members of the community, and assisted by the investigators, identified and prioritized problems relating to the quality of maternal care provided by the health centre. They introduced a modified check-list for ante-natal care developed by the Aga Khan Foundation to observe the ante-natal care provided by the midwife at the health centre and interviewed pregnant mothers after ante-natal care. The observation and interviews were conducted by the investigators. The number of pregnant mothers observed and interviewed was 18. Based on this, the possible causes of the problems were identified and guidelines for focus group discussions were formulated by the team of investigators. Towards that end, a separate series of focus group discussions were held between the groups of health centre staff and district-level personnel on one hand and among members of the community on the other. The use of a dual-track approach, using a series of focal group discussions for health centre staff/district-level personnel, and a second series of focal group discussions for the community, was seen as a means of maximizing the input and contribution of community members, especially of those persons who might be intimidated or hesitant to enter into a full and frank discussion in the presence of government officials. The results from the two groups were integrated into a single list of priority problems and their possible causes, which reflected both the provider and community perspectives.

**Stage II: Suggesting solutions**

In the second stage a potential course of action (solution) was identified for addressing the "root causes" of the priority problem mentioned above. The dual-track approach which elicited both the provider and community perspective was employed under the guiding principle that each of the two groups was asked to address those aspects that reflect the group's relative competencies. The specific courses of action (suggested solutions) with their related time-frames, resource requirements, name(s) of individuals within the "implementing units" - the community, health centre, sub-centre, district health office - that had immediate responsibility for the implementation of specific planned activities, as well as a list of indicators for monitoring and evaluating the desired change...
and a framework to guide the final evaluation, was integrated into a formal "implementation plan". The "implementation plan" was developed by health centre staff, relevant district level personnel and members of the community as warranted (i.e. for specific courses of action that involved the participation/collaboration of the community), which was used in Stages III and IV of the project. Support and assistance of the investigators was provided for the development of the "implementation plan".

**Stage III - Implementing the solutions to the problems**

Based on the "implementation plan" developed in Stage II, health centre staff, with support from the district-level health team and in collaboration with the community, began to undertake the specific sets of activities required to address the operational function /managerial support problems identified as adversely influencing the quality of care. As an initial phase in the implementation process, health centre staff and the relevant district-level personnel, with assistance from the investigators, collected the requisite baseline data for periodic monitoring and to allow for an effective final evaluation of the impact of the project. As part of the monitoring function, they also assessed the progress at regular intervals and made adjustments as required in the project's implementation plan.

**Stage IV - Evaluating the solutions**

At the completion of the implementation stage, an evaluation was undertaken based on the evaluation framework developed in Stage II, i.e. Suggesting Solutions. In assessing the impact of the solutions, attention was focused on analysing why solutions were successful or unsuccessful in achieving a real change, and developing a series of the "lessons learned" that could be applied to other areas within Indonesia as well as in other countries.

**B. The Lampung study**

A study was carried out for quality assurance in maternal health and neonatal care in the Lampung Tengah district of Lampung province. This project aimed at building a consensus on quality assurance, capacity-building, training and trying to incorporate quality assurance in the daily routine of every staff member. It also aimed at developing indicators for the quality of services. The processes used included technical meetings, development of an instrument for data collection, data collection, conceptual framework and plan of action for implementing QA, and a workshop to disseminate the concept and evaluate the results. Interviews were carried out with the service-providers. The following are some of the conclusions of the interviews:

*Interviews with the health centre doctors*

On the provision of Fe (iron) tablets to pregnant mothers, the responses were not consistent. It appeared that there were no standard guidelines for the provision of Fe tablets to pregnant mothers; the same inconsistent response was also found for the Hb (Haemoglobin) test for pregnant mothers. Most of the blood pressure instruments at the
health centres, sub-centres and those of the midwives posted in the villages were not working; most of the doctors did not quite understand fully the objectives of post-natal care; the records for postnatal care were not uniform; most of the doctors did not receive any feedback whenever they referred patients to the district hospital; the cause of maternal or neonatal deaths was not investigated to prevent more deaths by the same cause; non-utilization by health centres of the standard operational procedures for antenatal, post-natal and neonatal care (e.g. at places they were kept on the shelf but not used; sometimes they did not reach the health centre at all). The training needs identified by the health centre doctors were: detection of high-risk pregnancy; management of high-risk cases and timing of referrals; management of obstetrics emergency cases; refresher courses for health centre doctors and health centre midwives; and management of MCH programme and its application in the field.

Interviews with midwives at village level:

The midwives at the village level needed additional practical training, especially in the field of administration and management, and also in the field of technical skills such as ante-natal care and recording and reporting. Coordination among the district health officer, the CDC section chief and the vaccinators was needed for the provision of tetanus toxoid to pregnant mothers by midwives at the village level; and training to midwives on how to record and report the delivery of essential services.

Interview at the district hospital:

The Central Lampung district hospital had 11 specialists. The Standard Operation Procedure (SOP) in the hospital was considered important for the general practitioners, nurses and midwives for handling emergency cases. Apparently nothing had been done to improve the quality of service in the hospital; discussion of the referral cases between the specialist and the health centre doctors had never been conducted; and medical audit had never been implemented.

Interview with district health officer

No noticeable concerted effort was made to improve the quality of service; discussion of referral cases between the specialists and the health centre doctors not carried out.

These results were discussed by a multi-level team and a mutually agreed upon programme was drawn up to be implemented in selected health centres in the district.

C. Experiences from the study in East Java and West Nusa Tenggara

Ten health centres participated in this study - five in East Java and five in Nusa Tenggara Barat (NTB). The centres in East Java were typically larger than those in NTB and were headed by more senior physicians. A baseline survey, or systems analysis, of the quality of care in three basic health services (ante-natal care, management of acute respiratory infections (ARI), and immunization) was conducted in May - June 1994. The results of the systems analysis were given to the senior staff of the health centres and they were asked to prepare plans of actions to address the deviations from standards. The ten HCs were then divided into three groups; each group was given a different set of initial inputs
in an effort to determine the separate effects of these inputs. Two HCs were initially provided with more guidance than the results of the systems analysis; these were dubbed as the “data feedback” centres. In the second "treatment", district supervisors were trained to use check-lists to observe service quality. The check-lists were drawn from the systems analysis and were detailed standards for the three basic services plus diarrhoea management and malaria care. Four health centres were intensively supervised using these check-lists; this was the essence of the "supervision-based" approach to improving quality. The senior staff of the last four health centres received 12 hours of training in basic problem-solving and team management approaches; this became the "team-based" approach. The distinction between these three types of “treatment” became blurred as additional inputs were provided in an effort to achieve an impact on service quality. During the four months of the experiment, the health centres were monitored by an individual called "a circuit rider". They had to remind the Health Centre staff of the existence of the experiment; they had to provide timely inputs of informal training and advice; and keep a careful account of what was occurring in the clinics and add their own inputs regarding the implementation in each clinic.

The results were positive, with every clinic achieving substantial improvements in compliance with quality standards. Prior to the experiment the service quality in the three health services was low: maternal risks were not assessed; ARI patients seemed to be treated in an almost random fashion; and vaccinations were plagued by non-sterile techniques. At the conclusion of the experiment these problems had been virtually eliminated. Further, several clinics had gone beyond compliance with the standards to address more complex problems with service quality; these included areas as diverse as patient waiting time, service quality in other health services, patient education and cure effectiveness. The baseline study, which included the systems analysis, was composed of three elements: First, there was direct observation of health workers. Detailed standards that had been adapted from international sources and field-tested extensively in Indonesia were the bases of the observations. In each health centre, the researchers observed 25 cases for each standard (ANC, ARI and vaccination). Health workers were then tested for their knowledge in each area. Finally, existing patients were asked questions about their knowledge of the service they had received. The results showed that despite the national emphasis on reducing maternal mortality, assessment of maternal risk was rare. It was found that only a few of the patients seen for respiratory complaints were assessed for chest retraction or rate of respiration, and the treatment of the ARI patients seemed to follow no consistent or empirical basis. Vaccination techniques were generally sound but there were many instances of non-sterile techniques used. Counselling was found to be weak in all areas of implementation.

Initially there were three types of interventions. In the first case, the health centres received only the results of the system analysis as well as three hours’ assistance in preparing a plan of action. In the second intervention, the health centres were supervised three times a month by district supervisors using check-lists based on performance standards. These same supervisors later visited the other clinics in the experiment to communicate the standards and distribute check-lists for internal use by health centre staff. The last intervention consisted of 12 hours of training in problem-solving and team processes. All the health centres were then visited periodically by the researchers. The ‘circuit rider’ visited each facility approximately every ten days. An international research consultant and two national researchers made additional periodic visits. During the three
month life of the experiment, one facility received a dozen or more of these visits. Within all these health centres, the health centre chief, a doctor, discussed the plan of action with other staff and a QA team was usually formed to address activities aimed at improving quality and adherence to standards. Some of these teams functioned as true teams; in other instances, their role was limited. The doctor then conducted informal training on the standards, which was followed-up by monitoring the health workers, usually with the same checklists used by the supervisors. In most instances, health workers were also provided with new job aids to provide visual reminders of the standards. In almost all health centres there were problems of resistance from one or more health workers. This resistance was overcome through reconditioning, persistent monitoring and direct supervision.

A second survey of clinical service quality was conducted in November 1994. The sample sizes were reduced to 12 observations for each service; the minimum sample size consistent with the LQAS (Lot Quality Assurance Sampling) methodology. In most areas compliance with standards reached or approached 100 per cent and there was a definite improvement in quality operations. However, the quality programmes are extended beyond simple adherence to standards, with several of the health centres tackling the more difficult problems. Some examples of quality improvement were: a) Chloroquine-resistant malaria was a growing problem in some areas of NTB. Prior to the experiment, a clinic in an endemic area had treated nearly all malaria patients based on clinical signs since the patients were unwilling to wait 90 minutes for the blood analysis to be completed; consequently, nearly all patients were treated with chloroquine. The clinic staff initiated a programme of aggressive counselling of patients to await the results of the slide examination. At the end of three months over 70 per cent of malaria patients now waited for the slide results. Fears that the increased wait might reduce utilization were unfounded as the visit rate increased slightly. This change contributed to a clear health impact as the incidence of Plasmodium falciparum malaria found in the health centre was reduced to about 50 per cent in one month, and these patients now received effective treatment. The nurse in another health centre, sensitized to issues of quality by the implementation of standards, realized that non-sterile procedure was being used for injections, with needles and syringes often re-used five times without sterilization. The simple corrective action was to sterilize these needles and syringes was implemented, which contributed to improved quality. As more complete examinations were performed, the waiting time for patients increased. In some health centres the staff responded to this problem by providing improved seating facilities, in others by keeping the waiting patients occupied with taped health education messages, or by redistributing tasks among health workers to handle the greater demand, and in yet others by dividing the examination tasks to speed patient flow. These examples prove that simple corrective actions can and do improve the quality of clinical and non-clinical health activities.

Lessons learned from QA Experiences

Every text on quality reminds us that without top-level support, quality improvement efforts are doomed to failure. Strong political sponsorship and well-defined policies are the first essentials, with senior-level support and multi-level coordination being vital. All three studies showed that some health centre chiefs moved quickly in quality
improvement efforts; however, others showed little or no inclination to get started. However, the presence from time to time of senior officials in these facilities to inquire about the progress of the QA programme had a galvanizing effect.

Appropriate clinical and non-clinical standards should be available. The health centre staff need little external support to improve compliance with standards. They also find the presence of clear standards reassuring. The standards tell them exactly what is good care and they know that they are fulfilling their professional duty when they follow those standards.

Patients, when given adequate explanations about delays experienced while seeking care, recognize and appreciate quality service. They come to expect the higher standard of care. In the third study, no health centre reported a decline in utilization; some even registered slight increases.

Staffs are quick to understand technical quality. The common perception of untrained staff is that quality problems arise from a lack of resources. Their answer to quality problems is for their organization to give them more supplies, better facilities and advanced training. But after training in QA, and knowing the results of the systems analysis, health workers realized that the solution to most of the quality problems was in their hands. Health delivery institutions have to develop and define their own quality culture.

Quality can be improved. The dramatic quality improvements achieved in a short period of time was the most encouraging lesson to come out of this research. Three dimensions of quality emerged – first, who defines the problems; second, certain problems deal with simple compliance with process and effect outcomes; and third, complexity of analyses is required as the programme progresses. The availability of facilitators to help facilitate the process is important, as is the implementation of an ongoing monitoring and evaluation system to sustain the quality initiative.

There has been evidence of the effectiveness of the programme, which was manifest in the increase in the number of safe deliveries and improvement in the case management of malaria and ARI. At the central level it resulted in taking a closer look at the standards and to remove inconsistencies. However, the availability of standard resources and standard operational procedures is not an assurance that the quality of service would be improved. In one health centre, the staff had mastered the standard operational procedure for the ANC, though they were not performing according to the standard because of lack of technical supervision. Training and motivation of the implementing staff members are needed. The climate and conditions of the working environment need to be made favorable for supporting the staff in order to improve the quality of service. Some system of incentives or rewards may be needed.

Good quality of service needs to be combined with good coverage of the service to make an impact on the community at large. To achieve both quality and coverage, a better management of the service is required. Feedback to the health centre and district-level staff on the results of the observation and focus group discussion enabled the health centre to realize their shortcomings and try to take corrective measures to solve the simple as well as complex problems assisted by staff at the district level. They have been able to
produce a sound plan for the solution of the service quality problems. The supervision
directed by district level staff is not only limited in time but also covers only the
administrative aspects of the programme. Supervision on the technical aspects of the
programme should be enhanced. Although decentralization of execution and budget
planning for health care delivery have been implemented at the district level, yet
continuous facilitation and guidance from the provincial and central levels is still required.
The ownership of the quality programme should be decentralized to facilitate
sustainability and institutionalization. Team work, participation, integration and
coordination need to be reiterated. It is also essential to involve the community, peers,
professional bodies, donors as well as the private sector in the quality programme.
Quality has to be a team effort that requires cooperation among teaching institutions,
professional bodies, peers and other sectors to ensure its long-term sustainability. Finally,
it is equally important that quality activities do not increase operational costs and thus
prove a barrier to the provision of care to the poor and the needy.

ROADBLOCKS EXPERIENCED IN THE INDONESIAN QUALITY
MOVEMENT

Roadblocks experienced worldwide are very similar to the ones experienced in Indonesia.
These are: inadequate definition of policy, statement, philosophy, sponsorship and
objectives; insufficient preparation of the health delivery environment; rapid deployment
of central policies without careful systematic planning; lack of essential personnel;
resistance from medical doctors and other health care professionals; inadequate
monitoring and evaluation; poor institutionalization of the quality process; lack of follow
through; and lack of strategic long-range central/peripheral sustainability plans.

Conclusion

Quality assurance in Indonesia is here to stay. It forms an important strategy in the
delivery of primary health care services to the people. The health centre staff can be
motivated by continuous stimulation and encouragement provided the top-level managers
are motivated and enthusiastic to improve the quality of services. The Indonesian
Ministry of Health has stressed health care quality as one of its national priorities. It has
outlined the philosophy that embraces health care delivery, which is: appropriate,
acceptable, accessible, affordable, sustainable and conforming to national professional
standards. Health care delivery should be available to all members of the user-
community irrespective of their economic, social, geographical or religious stratification.
Indonesia is participating in the global trend of total quality improvement, and is setting
down policies and operational strategies that are being implemented nationwide. The
focus of the national policy is to include quality which is holistic and incorporates the
principles of promotional, preventive, curative and rehabilitative care. The policy
includes all members of the medical fraternity, including medical doctors, nurses and
paramedical, medical and non-medical support staff. The national policy is also aimed at
professional and payee satisfaction without forgetting that the client or the patient always
comes first.
The Ministry of Health has embarked on its new policy of converting general hospitals from purely social units to financially self-sufficient units, and this has made policy-makers and national strategists to perceive quality as a priority. Policy-makers feel that health care institutions at all levels of the system can increase their utilization by improving the health care quality, thus improving revenue to the institutions, which can, in turn, reduce government subsidies to hospitals. It is recognized that national policies will fall short without the corporate will, ownership and sponsorship. It calls for the cooperation of the medical fraternity, especially medical doctors, to take upon themselves the yoke of quality as a willing partner and thus promote the effort as a nationwide endeavour.

Other policies and implementation strategies that accompany the blueprint of national health care quality include: a statement of philosophy and mission; specific aims and objectives; an acceptable nomenclature for its national quality programme; administrative and operational definitions; preconditioning of individuals and institutions; national training at all levels; setting-up of professional standards; development of an operational and administrative timetable; appointment of monitoring and evaluation committees; institutionalization of policies; nationwide expansion; area-specific approach to quality; sustainability and global participation in health care quality information-sharing.

In conclusion, no change in any medical system can take place without the national will, sponsorship and backing which has contributed to health care reform in the quality sector in Indonesia. It is hoped that the models presented in this chapter might be of help to other developing countries while they struggle in their quest for expansion of quality in their respective health care systems. It is good to remember that Rome was not built in a day and, thus, the Indonesian Ministry of Health looks forward to the process of QA, TQM and continuous quality improvement to provide its population with continuous, appropriate and acceptable care in the new millennium.

Acknowledgements

The authors would like to acknowledge the following people and institutions for their leadership in the Indonesian quality movement: Dr H. Soejoga, Dr N. Kumara Rai, Dr Brotowasisto, Dr Adj Muslihuddin, Dr Bagus Mulyadi, Dr Soemarja Aniroen, Dr Budi Hartono, Prof Dr Rukmono, Dr Karyadi, Dr Samsi Jacobalis and other Unit Swadana Hospitals, Indonesian universities and various health centres. Space does not allow the authors to mention everybody else by name and they do duly apologize for the same.

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Hospital Accreditation in Developing Countries

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INTRODUCTION

The recession of the 1980s in Latin America resulted in the deterioration of the social sector and, therefore, hospitals. To remedy this situation and strive for an acceptable level of quality, hospital accreditation processes have begun to be implemented in most countries in the region during the 1990s, supported by the Pan American Health Organization Regional Office for Americas of the World Health Organization. Hospital accreditation in Latin America consists of a process of continuously evaluating institutional health resources, periodically and confidentially, with a view to assure the quality of care, through previously accepted standards, to progressively improve some 16,000 facilities (47% of which are private) with beds, physically and functionally. Standards may be minimal, defining a foundation or base, or more elaborate and demanding, defining different levels of satisfaction.

Accreditation implies confidence in a hospital by the population. It might be said that a health care facility is accredited when the availability and organization of its resources and activities conform to a process whose final result is a satisfactory quality medical care. In almost all cases this can be achieved without major investments in infrastructure. With most of developing countries carrying high foreign and internal debts it is highly unlikely that resources are available for massive investments in physical or functional areas.

In 1951, the American College of Surgeons, the American College of Physicians, the American Hospital Association, and the American Medical
Association cooperated to form the Joint Commission on Accreditation of Hospitals, also as a result of the need to improve the quality of care in the US. Today it is the primary instrument, used by the U.S. Health Care Financing Administration, to transfer funds to hospitals. Only hospitals that have passed an accreditation process are contracted. Other regions of the world have also employed this method, such as Australia, Canada, the province of Catalonia in Spain, and England, that has a ‘self-evaluation’ programme. In Asian countries, the accreditation process is also beginning to be implemented in Thailand, Indonesia, Republic of Korea, and Taiwan. In Thailand, standards are currently being tested in 35 pilot hospitals, and in Indonesia standards for five hospital services or areas in more than 100 hospitals, have already been developed and implemented. In Taiwan, 547 hospitals have met accreditation requirements, and the Republic of Korea is in a pilot stage, drafting a new law including the specific codes creating a core accreditation organization.

In almost all countries in Latin America and the Caribbean, the process began to be implemented through national meetings, primarily after the II Conference on Hospital Accreditation (1992). In the Andean sub-region, Bolivia, Colombia and Peru obtained significant success; all these countries already have their respective manuals of Standards and Indicators for Hospital Accreditation. In Central America, Guatemala achieved the most success and in the Caribbean, the Dominican Republic is in the process of accrediting all its private hospitals. Cuba had hoped, by the end of 1997, to have 60 hospitals accredited. At the end of 1995, PAHO/WHO, headquartered in Washington, D.C., sponsored the III Conference on Accreditation in Latin America, where all the advances achieved in this region's countries were presented and future goals discussed (see Annex).

In all successful cases, it was possible to identify a leader in the process. Sometimes this leadership initiative came from the private sector, as in Guatemala, or from the public sector, as in Peru. Some approaches were paired where the public sector was represented by health ministries, and the private sector represented by private hospital associations, as in the case in Brazil. In spite of recommendations that the National Accreditation Commission be multi-institutional, and should represent both the public and private sectors, including broad representation by private institutions, the presence of the Ministry of Health is essential because of its prestige in emerging countries, and the capability of transferring resources within the process of national hospital accreditation.

THE LATIN AMERICAN ACCREDITATION MODEL

The basic reference mechanism in Latin American countries was the Accreditation Manual, published by PAHO/WHO in several languages, with adaptations for each country, province or state. This instrument was designed keeping the reality of the developing countries and, hence, Latin American hospitals, in view.
Nearly 70% of the hospitals in Latin America and the Caribbean (16,000 hospitals with 1 million beds) have fewer than 70 beds, including Brazil (65% of 6,000 Brazilian hospitals)\textsuperscript{4}. Although there are prominent public and private medical centers, comparable to the most advanced in any other nation, a large number of these hospitals would not withstand the minimum evaluation to guarantee a permanent level of quality. Currently, these hospitals reflect deep discrepancies in quality among different services of the same hospital, independently of the number of beds.

Faced with this scenario, PAHO/WHO developed a hospital accreditation model, with the support of Member countries, appropriate for this region, to be discussed extensively at the country level, that is flexible enough to allow for adaptations of major differences between one sub-region and another\textsuperscript{*}. The first step in developing the Hospital Accreditation Manual was to convene a small group of two or three specialists in hospital management to devise standards and qualitative indicators for these standards (or evidence of performance of the standards) for each of the units of a general community hospital. During this preliminary activity, the group consulted scientific entities and various specialists. This document was later thoroughly reviewed by national experts and adaptations were made as needed.

All standards were organized by increasing the related degrees of satisfaction (or complexity) in such a way that to attain a superior level of quality for a specified hospital service, the standards for inferior levels necessarily would have to be satisfied. The standards sought to evaluate - within a single service - aspects of structure, processes, and results through qualitative and dynamic evidence of performance or indicators that reflect the quality of services provided. To establish a given level for each item, the evaluation should begin at inferior levels, until finding the level whose requirements are not completely satisfied.

Qualitative indicators, or evidence of performance, are described for each standard and designed to ascertain the degree to which measures prescribed by standards are carried out and their effect on patient care. The data collection process for observing qualitative indicators was designed to be as simple as possible. The results should offer information useful to those in decision-making or managerial positions to help them make necessary changes. For countries that do not have sufficient valid or reliable information for statistical analysis, or where adequate numerical data have not been collected, the indicator for each standard will be

\textsuperscript{*} "Hospital" is defined by PAHO/WHO as an establishment, having at least five (5) beds, that admits patients and guarantees basic diagnostic care and treatment with organized clinical equipment, proof of admission, and continued care provided by physicians. Also included are 24-hour nursing services and therapeutic care provided directly to patients, with availability of laboratory, radiology, surgery, and/or obstetrics services, as well as organized medical records for rapid observation and following of cases.
Health Care Quality: An International Perspective

determined by qualitative observation using surveyor consensus. In the future, and to the extent that data are collected and analysed, one will be able develop statistical interpretations to establish quantitative indicators or indices for standards. Currently, qualitative indicators point to sources where surveyors can seek evidence, or where a hospital can show surveyors that it is, or is not, complying with the stated standard(s). These sources might be documents, interviews, medical reports, patient's records, etc.

The model of the Accreditation Manual for Latin America and the Caribbean covers all services of a general hospital for treatment of acute cases. It was published to serve not as a set of paradigms, but rather as an illustrative guide for national multi-institutional commissions when formulating their own evaluation tools.

Increasingly complex standards, or those that evolve continually, were established for each hospital service, from an initial threshold to more sophisticated levels. These standards represent the expected level of desired care, practice, or method defined by national experts and/or professional associations. In each situation, the initial standard is the required minimum limit of quality. No country's hospital hopes to find itself below this level, within a specified period of time, for example. As these initial standards are met, subsequent steps are addressed to reach successive standards. Thus, when the standard for level 1 is met, the next step is to reach level 2, then 3, progressively.

As a hospital is not comprised of independent or isolated services, it is necessary that all of its services, from the laundry to the operation room, or to staffing of the intensive care unit, for example, have reached at least the level one standard to be accredited and receive the resulting reputation for good quality medical care.

An isolated service is not 'accredited'. Even if a hospital unit is fully equipped and is of exceptional quality in some units or services, with levels of sophistication at three or four, the institution will continue to be accredited at the first level if the other services do not exceed the first level. In the case of Chile, there is a national organ of the Health Ministry, that 'accredits' hospital infection control units in hospitals. We have been recommending that they avoid using the term 'accreditation' for this type of surveillance activity, because often the infection control organ or commission exists but many other hospital services are not satisfactory.

This methodology attempts to reinforce the fact that hospital structures and processes are so integrated that poor functioning in one component interferes throughout the system, and in the final result. Thus, a hospital is or is not accredited as a whole, indivisible unit. Distinct levels of accreditation are not established for each type of service. It is commonly observed that hospitals perform complicated clinical procedures; however, the surgical centre, for example, must interrupt its activities for lack of linens; or hospital services are good but the nutrition department leaves much to be desired.
Latin America's hospital accreditation is a method of ongoing consensus, rationalization, and hospital organization. The first instrument for the explicit and objective technical evaluation of quality is the Accreditation Manual, and the second, of great importance, is the Accreditation Commission, which should be apolitical, multi-representational, and should undertake its work quietly and periodically. When under exclusive governmental control, this Commission endures frequent distortions because of the innumerable political pressures placed on government officials, and, as a result, hospitals either do not undergo the correct accreditation process or do not implement corrective measures recommended by the Accreditation Commission.

The private sector in Latin America, for all its cultural tradition of dependence on the public sector, will still need State incentives for some years for the development of social actions, of which health is an important part, and which frequently requires subsidies to correct programme deficiencies, especially those for medical care for the more underprivileged in the population. If Accreditation Commissions are regulated exclusively by the private sector they will lose the force of incentives that, in Latin America, almost always result from government initiatives.

Another threat is the appearance of multiple accreditation entities, competing among each other, and setting different standards, priorities, and fees. This can affect the entire accreditation process negatively, leading to the possibility that if a hospital is not accredited by one entity, it may be accredited by another, under different standards. It is essential to have uniformity; therefore there must be a National Commission that applies uniform accreditation standards to be followed by State or provincial entities.

During many meetings, sponsored by PAHO/WHO in various countries, we observed that the best recommendations for setting up these commissions always involved the participation of (i) providers, (ii) buyers of services, and users, along with representatives from the public sector (especially the Ministry of Health and Social Security), and (iii) the private sector (hospital associations), and technical support from non-medical professional associations as well as country's most distinguished medical associations or academies.

The discussion at these meetings of the profile of suggested surveyors concentrated on professionals of unquestionable prestige and experience. Individuals with these qualities would be needed to carry out relevant recommendations and assess improved hospital functioning through visits lasting several days, followed by internal discussions to resolve challenges encountered. Accreditation is always periodic, confidential, and established with deadlines for correction of flaws. Accreditation in Latin America, in reality, will be a process of permanent education for hospital management.

Physicians in Latin America, as in other countries, frequently use implicit, subjective criteria to judge the quality of medical care.
Each hospital, locally, should develop its own explicit criteria to guarantee quality, carefully established by its medical, nursing, and health authorities. Examples of proposed explicit criteria include examination when undertaking a particular surgery; how a diagnosis of streptococcus could only be confirmed by microbiological culture; or that time frames for submitting laboratory tests be the minimum acceptable for obtaining results. These explicit criteria facilitate evaluation by non-medical personnel, simplifying future processes for accreditation.

As an initial focus for implementing and guaranteeing hospital quality, the use of accreditation programmes contributes to a planned and progressive change in habits. Professionals in all units and services are prompted to evaluate institutional strengths and weaknesses by establishing clear goals and constantly mobilizing the work force, thus improving objectives to guarantee better quality medical care. Accreditation should precede any other initiative for evaluating quality, such as 'Total Quality', 'Continuous Quality Monitoring', 'ISO 9000', etc. Already, there are hospitals in Latin America trying to implement the ISO 9000 methodology in one unit, while other services exhibit quality levels incompatible with reasonable hospital functioning.

Critics of accreditation methodology, especially those with little experience in developing countries, are not aware of the serious problems faced by these institutions. During the initial years of this model of 'continuous quality improvement programme', it will be necessary to work mainly with structural standards (physical infrastructure, human resources, technology updates) and procedural standards for the main processes in key areas of productivity, such as promoting the preparation of organizational and procedural manuals, including detailed description of practices, patient and material flows, as well as patient admissions, medical records, drugs and food distribution. Only in a subsequent phase can we proceed to evaluate procedural standards for clinical services, standards or clinical protocols.

When the preliminary procedures are under way, it will be possible to implement a quantitative data collection system for all services - non-existent until then in most hospitals of the region - and begin to assess the outcomes and impact of medical care. It is unsustainable to recommend to these countries that they should begin their accreditation programmes through output standards when serious structural and most essential procedural processes have not yet been resolved.

Our methodology proposes that each service or hospital department standard reflects increasing satisfaction, depicting an environment of continuous improvement, because there will always be standards of higher complexity to pursue. Before, during and after an evaluation for accreditation, officials must gradually develop items to identify and distinguish discrepancies between practices and acceptable standards of quality, finding ways to correct or reduce deficiencies through the institutional prestige rewarded to the one who brings forward the most challenges and presents appropriate solutions.
New channels of communication must be pursued, prompting needed changes and overcoming resistance to the implementation of quality standards, made compatible with the value system of the hospital community. In this process, nurses play an essential role for they are, out of all those who work in hospitals, the only professional group with a permanent presence, having learned managerial and clinical auditing concepts during and after academic training in Latin America, and with unique skills to help in the assessment, implementation, and monitoring of the entire accreditation process.

**MAJOR CHALLENGES**

The major challenges we faced in implementing hospital accreditation in Latin America were:

1. **Legal considerations** such as executive orders, laws, or regulations of the Ministry of Health that are important and useful but not the paramount factor. In some cases, such as Colombia or Guatemala, the change in health ministers hindered the implementation policy, even having just been announced by decree, regulations, etc., if the new minister did not consider it a priority to encourage the national process of accreditation for political reasons. Thus, the initiative was delayed until another minister pressed the issue.

2. **Lack of a national commission on hospital accreditation**, inter-institutional and independent, which is always the goal to be reached, although it is not easy to achieve a consensus among the different actors in the public and private health sectors to work together with a common goal.

3. **The role of public or private social security and private health insurance** is vital for implementation since the link among accredited hospitals in their list of providers characterizes the importance of hospital accreditation as an instrument to ensure quality of care for the clients of these institutions. Private businesses are beginning to analyse this situation although, unfortunately, no country until now has had a process to tie national accreditation to contracts for hospital services.

4. **The non-application of minimum standards**, as opposed to optimum standards. The need to implement basic accreditation standards still exists in this phase of development of the 16,000 hospitals in Latin America. This seems to be the most rational approach since no country would have satisfactory human and financial resources to correct deficiencies throughout all of its hospitals, whether structural or process-related, using optimum standards. Because the methodology anticipates that each hospital service will have increasingly complex standards, it is possible to expect that the highest standards would be considered ideal. Generally, professional associations, for example, of medical or nursing category, always strive to
establish optimum standards, although when starting to implement the accreditation process, they convince themselves that it is not possible to begin with very sophisticated levels. Consequently, very few hospitals, in the short term, manage to be in a position to implement optimum standards.

5. Standards for ALL hospital services instead of for a few units. Approval of particular units or isolated programmes has been supported by some groups, such as in Chile or the state of Paraná, Brazil, by those in charge of the Program for Prevention and Control of Hospital Infections, as mentioned above, or isolated accreditation of hospital laboratories as proposed in Brazil, Dominican Republic or Mexico. A hospital may have a good programme in place to control infections or clinical laboratory, but this does not always ensure that other services are in a position to be accredited, even using minimum standards.

6. Risk of assigning points, or giving a precise value or numerical score to findings. This approach resulted in problems because in some cases, the sum total of points fell within a category of 'excellent' or 'good', while masking an area 'with lesser points', having serious problems (false positives). Instead of giving a score, the surveyors, by consensus, agreed at the end of the accreditation visit, whether the hospital was or was not accredited, or if some time was required to correct deficiencies (partial accreditation).

7. Misuse of utilization indicators. Utilization indicators such as 'length of stay' or 'occupancy rate' are not indicators of quality for accreditation since the 'case mix' is unknown. These data describe the use of services or productivity, not their quality.

8. Confusing licensing with accreditation or categorization. Until now, some countries, such as Haiti and Nicaragua, have not instituted a national hospital licensing system, or an initial health permit for construction or renovation, that is generally issued by municipal authorities, and that almost always deals only with observable structural features (licensing). Other countries, such as Argentina, classify their hospitals by categories, where one hospital could perform a given procedure but others could not. This classification (categorization) is usually done in an area of regionalized services in an attempt to rationalize the use of the same. When a country tries to use accreditation as a tool for licensing and categorization, such complexity is created so as to render accreditation impractical.

9. Incentives and sustainability of a national accreditation programme. Although accreditation is voluntary on the part of hospitals, these institutions must have some incentive for accepting the accreditation process. In the United States, the vast majority of hospitals survive as a result of patients covered by MEDICARE, or social security for the elderly. For a hospital to be contracted
of specialized consultants helping the hospital to overcome its managerial or technical difficulties. Assessment teams generally include a physician recognized for his/her skills, a nurse with far-reaching experience in hospitals, and an administrator with a solid background in hospitals. In Latin America, most of the hospital administrators are physicians, but in the surveyor team they are only 'administrators', leaving the clinical side to be observed by the physician on the team (Figure 1).

10. Role of a leader. The presence of a leader who strongly supports accreditation and promoting and implementing its concepts, is essential in any country.

11. Role of surveyors. The accreditation process must always be viewed as an auxiliary and permanent educational activity for hospital staff; never a bureaucratic inspection or critical audit in search of victims. The basic role of surveyors should always be seen as that of specialized consultants helping the hospital to overcome its managerial or technical difficulties. Assessment teams generally include a physician recognized for his/her skills, a nurse with far-reaching experience in hospitals, and an administrator with a solid background in hospitals. In Latin America, most of the hospital administrators are physicians, but in the surveyor team they are only 'administrators', leaving the clinical side to be observed by the physician on the team (Figure 1).

**PRIMARY LEVEL OF HEALTH CARE**

Upon reviewing proposed changes, hospitals in Latin America should not lose sight of the fact that they are part of a social

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**Figure 1: Features of the accreditation model in Latin America**

1. **INCREASINGLY COMPLEX STANDARDS**
   (Constant encouragement for continuous improvement)

2. **ABSENCE OF POINT SYSTEMS**
   (To avoid the appearance of false positives)

3. **NON-CATEGORIZATION**
   (System not tied to classifications)

4. **QUALITATIVE INDICATORS or EVIDENCE OF PERFORMANCE**
   (Use of these indicators until reliable data exist)

5. **UPDATES EVERY TWO YEARS**
   (Always seek to update the manual for new circumstances)

6. **ESTABLISHMENT OF REGIONAL COMMISSIONS**
   (Regional adjustments without compromising the national model)
context where other health services always exist, and that although more resources and materials are committed toward improving quality, a considerable number of challenges remain to be solved in spite of successes achieved from within the institution. It is noteworthy that in Latin America, 50 to 70% of medical care in emergency hospitals is for primary care, and these services are overwhelmed and care disorganized. Such cases could be treated with greater ease and quality at reasonably well-equipped health posts, centres, or clinics in close proximity to a hospital.

Investment of resources at these primary levels, even before considering humanistic aspects, is related to the functional survival of the hospital as a highly complex, expensive, and well-respected medical care facility. Investments in diagnosis and care of cases, treatable at primary level health care facilities, represent significant savings for hospitals that need not care for these more simple pathologies. A serious side-effect is that hospitals are not able to devote quality medical care to these cases because of pressures from demand; they are forced to concentrate exclusively on a patient's chief complaint, not emphasizing important aspects such as health promotion and prevention of disease. This can be addressed with greater efficiency in a network of health posts or centres.

For a hospital to implement a programme to guarantee quality, it should be under permanent managerial scrutiny, redistributing resources according to priorities contingent upon services, and maintaining constant balance between short- and long-term objectives. New programmes developed from the current emphasis on quality aspects contribute to new ideas, replacing outdated concepts or habits. True hospital leaders, who know how to take advantage of this impetus, will introduce 'new' concepts about the social mission of the organization to offer services of excellent quality in which responsibility falls on the hospital as a 'family' and not on an individual, as seen in the 'Luis Calvo Mackenna' Hospital, in Santiago, Chile.

The establishment of precise short- and long-term measurable objectives, and frequent monitoring, will transform plans into actions, establish organizational strategy, and implement these programmes or solutions. During the designing of strategic planning of the hospital mission, the need to interpret all aspects of the sociology of medical care, analysing the environment outside the hospital, patient access to the institution, and the ability of the hospital to meet community demands, will surface naturally (Table I).

THE CASE OF HOSPITAL ACCREDITATION IN BRAZIL

Brazil represents an interesting case study of the hospital accreditation process in emerging countries. In March of 1997, the President of the Republic of Brazil and the Minister of Health launched the programme '1997/98 - The Year of Health in Brazil'. This included a formidable array of priority government policy directives, actions, and
### Table 1. Summary of the hospital accreditation situation in Latin America*

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*The author will be pleased to inform the names of institutions in the above-mentioned countries for further information.*
goals. For the first time, the Ministry of Health, among the activities to improve quality of health services, proposed to coordinate the process of evaluating the quality of client care in public and private hospitals through an initiative known as Hospital 'Accreditation'.

This term was introduced in Brazil at a seminar, organized by the Pan American Health Organization (PAHO/WHO) in 1992, in Brasilia, three years after the I Latin-American Conference on Hospital Accreditation (PAHO/WHO, Washington, D.C., 1989). The objective for introducing this word into Portuguese was to give it the same meaning as in other countries since 'accredited' hospitals deserve all the credits, inspire confidence, or are incontestable.

Four accreditation initiatives were implemented in four states of Brazil in mid-90s. The first, in São Paulo, was developed by the São Paulo Association of Medicine and the Regional Board of Medicine; the second, in the State of Rio Grande do Sul, was led by the private sector through its Hospital Association Program; the third, in the state of Paraná, was started by the State Health Department, and the fourth, in Rio de Janeiro, is an association of the National Academy of Medicine, Brazilian College of Surgery, and the Institute for Social Medicine of the State University of Rio de Janeiro. This current proposal by the Ministry of Health seeks to consolidate these different groups, recommending the use of common criteria to evaluate quality. This methodological conciliation among Brazilian initiatives is essential so that patients are aware that criteria for quality are the same in any state in the country.

As neighbouring nations of MERCOSUR, the sub-regional intercountry agreement among Argentina, Brazil, Paraguay and Uruguay, have already begun their accreditation processes, these procedures will facilitate future care of patients in accredited hospitals in Member countries. They will be assured that medical care adheres to similar standards of quality. All these initiatives should follow the basic criteria proposed during the meetings organized by PAHO/WHO so that future clients may be confident of receiving the same treatment independent of where that treatment is delivered, provided they seek hospitals accredited under the same methods.

The Brazilian proposal for a national commission structure, approved by the Ministry of Health, features a board of directors, made up of three main components: (i) representatives of private hospital providers, as hospital associations, federation of hospitals (unions), university hospitals, and entities representing charitable or religious hospitals; (ii) Private buyer representatives, such as HMO’s, insurance companies, medical cooperatives, etc.; and (iii) the public sector, as the Ministry of Health, National Committee of municipal or state health secretaries, etc.

In addition to this board, there are representative groups that will make up the future consultative board, composed of (i) health professional associations, such as medical associations, associations of
nurses, and other professional entities; (ii) academic organizations that will support the executive branch of the national commission with ongoing recommendations for improvement and updates of standards and preparation of training material for hospital administration; and (iii) representatives from state accreditation agencies.

Financing for the national commission is expected to be through the Health Ministry and health service provider and buyer resources. These different sources will assure political independence of the commission and its sustainability.

OBJECTIVES OF THE BRAZILIAN PROGRAMME

1. To promote the introduction of a permanent accreditation process at the national level, with the establishment of the National Commission on Hospital Accreditation, to improve quality of care through periodic accreditation of hospital systems;

2. To encourage the establishment of multi-institutional commissions, at the state level, for hospital accreditation, based on national criteria;

3. To institute mechanisms at the hospital level for self-assessment and continuous quality improvement of medical care;

4. To establish standards and qualitative indicators (evidence of performance) for inclusion in the accreditation and evaluation manuals; and

5. To consult regularly with public and private institutions responsible for medical-hospital care.

TASKS FOR ACCREDITATION PROGRAMME IMPLEMENTATION IN BRAZIL

1. Conceptual and methodological consolidation of the programme, with participation of state surveyors.

2. Establishment of a commission to review/revise the accreditation manual.

3. Consultation meetings at the state level.

4. Consultation meetings at the national level.

5. Consolidation of the principles of the accreditation manual and of surveyor's tools. Pilot study in hospitals representing private and public sectors, with small and large number of beds, in all sub-regions of the country, with twelve experienced surveyors.

6. Review of legislation and proposals for the establishment of a programme and a national accreditation organization.

7. Standards for the establishment/formulation of state organizations for hospital accreditation.

9. International seminar to present the Brazilian Program on Hospital Accreditation sponsored by the Ministry of Health.

FINAL WORDS

No quality programme could ever be introduced into an unqualified clinical facility. Aspects related to the training, certification and re-certification of the medical profession in Latin America will likely be the greatest challenges for the health sector in the new century. Recruitment, development, evaluation and retention of hospital staff, but more importantly, the knowledge and skills of those in a clinical environment, are inherent in quality programmes. It would be inexcusable to continue passively accepting the situation in which medical teaching is carried out by medical schools without adequate training services, 'medical residencies', or schools not providing guidance and preceptorship, or in a situation with lack of appropriate legislation on periodic assessment of medical practices.

The United States, with more than 5,000 accredited hospitals, is undoubtedly the most advanced country in terms of control of medical and hospital care. Various evaluation mechanisms are used, based on rigorous quality standards in its respective structures, processes, and results. All these tools do not, however, prevent the health industry from being a target of legal suits. Although the world's main paradigms on the medical structure and quality of care are found in the US, legal suits against physicians for malpractice or negligence distort the entire quality assurance system, causing medical care to be extremely defensive and forcing hospitals to enact true preventive 'habeas corpus' to defend themselves against possible lawsuits.

Unless mechanisms are implemented urgently through hospital accreditation in the not too distant future, Latin American countries will have to contend with the same punitive legal actions because of their vulnerability to hospital or physician's negligence or malpractice. This must be avoided at all costs, long before the current absence of quality evaluation mechanisms leads to legal intervention or financial pressures, not felt in the current system. The other threat is that, instead of the implementation of self-assessment methods, followed by external assessment by the state joint commission surveyors, the accreditation process will be imposed by independent HMOs or private health insurance.

As a view toward the future, we visualize accreditation not only for hospitals, but for the entire health service network, at primary, secondary and tertiary levels. In this regard, the W. K. Kellogg Foundation is developing a pilot project for the accreditation of health service networks in two municipalities in Brazil and two in Colombia. Accreditation is performed based on 19 broad and important areas or dominions, that need to be observed by a health service network, within a specific geographical area or local health system. Five standards and five sub-standards,
including their respective qualitative indicators, are proposed for each area or dominion.

If this pilot project runs according to expectations, the Network Accreditation Manual will be implemented in other community health service development projects, supported by the W. K. Kellogg Foundation. Currently, health ministries allocate funds to the local levels without any instruments to verify accountability and whether these resources are being applied appropriately, making a positive impact on the health of the population served. This will be another approach benefiting emerging countries in their efforts to assess the use of financial resources allocated to municipalities, within the policy of government decentralization that is occurring in all Latin American countries.

SUMMARY

The process of hospital evaluation through accreditation is characterized by the need for standardizing all services according to recognized quality standards. Accreditation is a method of consensus and rationalization of hospital operations. The first tool for the explicit and objective technical evaluation of quality is the accreditation manual, and the second, of overall importance, is the accreditation commission, which should be apolitical and multi-representational, going about its work quietly and periodically.

After the II Conference on Accreditation (1992), PAHO/WHO sponsored a number of national meetings in Latin America and the Caribbean, covering practically all countries of the region. In Brazil, most of the progress was observed in the states of Rio Grande do Sul, São Paulo, and Paraná. In the Andean sub-region, the success achieved by Bolivia, Colombia and Peru was impressive. In Central America, Guatemala achieved the most progress. In the Caribbean, the Dominican Republic is going through a full accreditation programme of its private hospitals and Cuba intended to have 60 accredited hospitals by the end of 1997.

If quality control mechanisms are not implemented urgently through hospital accreditation, countries will find that, in the near future, they will be facing punitive legal consequences because of their vulnerability, whether as a result of hospital negligence or malpractice. This should be avoided at any cost, long before the current absence of quality evaluation mechanisms leads to legal intervention or financial pressures, not felt in the current system.
Annex

Chronology of the Guatemalan hospital accreditation process*

1. 1990 - Presentation of the Accreditation Manual prepared by the Pan-American Health Organization/World Health Organization - PAHO /WHO for national authorities, representing the private and public sector.
2. 1991 - Establishment of the National Accreditation Commission.
5. Pilot self-assessment evaluation in the ‘Hospital San Juan de Dios’ and validation of strategies
   5.1 Contact with hospital authorities
   5.2 Training of staff on concepts of accreditation; presentation of the Manual to governing bodies and hospital committees
   5.3 Configuration of the Hospital Accreditation Committee
   5.4 Self-evaluation, based on the proposal standards of services and tasks by managers
   5.5 Design of situational profile
   5.6 Plan of action to improve the standards that did not reach the minimum level
   5.7 Training and monitoring the plan of action
   5.8 Assessment of services by the internal accreditation committee
   5.9 Report to the hospital authorities
   5.10 Continuation of the cycle...
7. 1994 - II National Seminar on Hospital Accreditation
8. Self-assessment in 16 national hospitals
9. 1994 - Participation in the Sub-regional Meeting of Central America and the Caribbean, with participation by nine countries (PAHO /WHO, Mexico, D.F.)
10. Continuation of the process with establishment of an internal hospital committee, plans of action, and evaluation of the accreditation process
11. 1995 - Reformulation of some standards and indicators
12. Continuation of cycle....

* This model also was followed by other countries.
** This scheme was presented at the XII Annual ISQUA Conference in St John’s, Newfoundland, Canada
References


Before I begin, let me specify my terms of reference. I take it that there are two ways to safeguard and improve the quality of health care.

One is to design and operate the system of health care in a way most conducive to good performance.

Another is to have in place a mechanism to constantly review performance, find out why it does not meet expectations, and take action to improve it.

Exactly what action is taken depends on what one determines or believes the difficulty to be.

And that action can be of two kinds.

First, one can engage in educational and motivational activities that directly influence those who provide or receive care; and second, one can modify system design so as to influence indirectly the behavior of providers and recipients.

In this paper, I shall be thinking of the quality of clinical care, which should be the central concern of quality assurance.

And, of the two kinds of quality assurance, I shall have in mind mechanisms that review performance and act to adjust it.

Finally, I shall conceive of the effectiveness of such mechanisms as a kind of process, consisting of several steps:

First, introduction and implantation;
Then of implementation;
Then of modifications in behaviour;
And then, finally, of progress toward health.

What do we know about the prospect of success at each of these steps? What do

* This chapter comprises a paper presented by Dr Avedis Donabedian at the 1st Oklahoma Conference on Managing Care and Quality in Oklahoma City, USA, in February 1997. The paper was so refreshing and had a number of valuable concepts and lessons that we thought it would be befitting to use it as the closing chapter for this book. This paper is intended to keep the discussion on quality open and to encourage the reader to continue learning more about it. – Ed.
we know about the factors that influence success or failure?

The answer, alas, is that we know very little. There are very few controlled studies. There is, mostly, a large number of anecdotal reports, of stories of experience: "We did so and so, and look what happened!"

From such reports we could conclude that almost every method of performance review and readjustment can be successful, to some degree, in some situations.

And yet, we find that these same methods, under other circumstances, fail to succeed; and that there is no one method regularly superior to the others.

From these stories of experience, I conclude that success or failure does not depend on the method of review and readjustment, in itself, but on an interaction between the method and the circumstances of its application.

Unfortunately, we do not have now a theory that can explain and predict these interactions. Rather we have many theories, and have also a number of eclectic formulations, total quality management (TQM) for example.

Nevertheless, guided by experience, theory and some speculation, one can extract from the literature on effectiveness certain themes that I shall now try to present.

In order to do so in an orderly fashion, I shall divide the factors believed to influence effectiveness into two large groups: "Contextual" and "Operational."

The contextual factors are the situation in which quality assurance is to be introduced and implemented. I shall mention four such factors.

1. Perhaps the most general and most fundamental principle of effectiveness is to be found in the concept of "culture".

   By "culture" we mean what one believes and values; how reality is seen and interpreted; how it is proper to behave; how things are done. This includes how quality is defined, who is responsible for it, and in what ways.

   It is often said that some forms of quality assurance amount to a "thought revolution," one that requires corresponding cultural change. Some features of that change include assumption of responsibility for quality at the highest reaches of an organization; the diffusion of that responsibility throughout the organization; a corresponding empowerment of care-giving personnel; and a less authoritarian form of governance.

2. But, one might ask, how is this cultural change to come about?

   The usual answer is, "through leadership," which is the second of my contextual factors.

   Leadership can be exercised not only at the top of an organization, but at every level, and in every group. Partly it is associated with positions of authority, but other things matter as much, if not more:
These include the ability to persuade; to motivate; to inspire trust; to set a personal example. For that reason, most clinicians want to have in charge of the quality assurance apparatus one of their own: a clinician senior in rank, and of unquestioned competence.

3. This preference is related to a third contextual factor — that of "sponsorship".

In clinical practice, sponsorship by the relevant professional association (of physicians, of nurses, and so on) is a key resource.

4. Both leadership and sponsorship imply still another determinant of effectiveness, that of "formal organization".

Within formal organizations leadership can be exercised, interpersonal interactions are intensified, and cultural change hastened. Where such organization is lacking, as in the private practice of ambulatory care, a substitute has to be created.

My four contextual factors, therefore are: "culture," "leadership," "sponsorship," and "formal organization."

I now turn to the second category of factors: the ones I have called "operational".

In order to present the operational factors in systematic fashion, I shall use a model of health behaviour that offers the following steps:

- There is a demonstrable, consequential, legitimate need.
- Something can be done to meet the need.
- That which will be done, or is done, is the right thing done in the right way.
- There are demonstrable, useful results, free of unforeseen, harmful consequences.

I shall say a few words about each of these.

One: There is a demonstrable, consequential, legitimate need.

A genuine conviction that performance needs to be improved is the indispensable first step in the process of quality assurance. Such conviction must exist in the organization, in the group, and, ultimately, in each individual, insofar as that individual's own performance is concerned.

Many things contribute to the attainment of this conviction:

- External requirements and standards
- Group discussions within an organization
- Credible data that document performance
- Comparison of performance with professional standards
- Comparison of performance among similar institutions and among colleagues
- Self-imposed goals, especially as to expected improvements in health
• Personal participation in need identification, standard setting, data collection, and interpretation of data.

• And face-to-face discussion with a trusted senior colleague, in small groups, or privately as individuals.

The second step in the progression I have postulated is as follows: Something can be done to meet the need.

In addition to the availability of resources, the general principle here is that of "empowerment".

Groups and individuals who become aware of needs to improve, or of opportunities for improvement, should feel able to act, either to bring about change directly, or by communicating with responsible persons.

If needs and opportunities are identified, but no one listens, or nothing is done, cynicism and apathy result. The quality assurance enterprise is doomed!

The third step in the progression of the model is as follows: That which will be done, or is done, is the right thing done in the right way.

The introduction of performance review can be very threatening. It is essential, therefore, that those who are to be subjected to such review know in advance that there will be proper respect for what they believe to be right and proper, and that what ensues will be, and is, good and useful to themselves and to their clients.

Here, several "principles" come into play.

1. The first is the principle of "congruence." This means that what is done, or proposed, should fit existing values and norms. It should be seen not as a foreign intrusion, but as a return to the purer, more authentic traditions of the health care professions.

Therefore, the purposes of the quality assurance enterprise should be to advance patient welfare, to reinforce professional responsibility, and to serve the need of professionals to know and to continue to learn.

As to the methods of review, these should be as similar as possible to the ways in which professionals think and practice. It is disturbing to ask professionals to adopt concepts and methods borrowed from the industrial sector. And it is unnecessary to do so, since much of what seems new in such concepts and methods is indigenous to and traditional in the health care professions.

Here are some examples:

• Professionals wish to monitor their own work
• Led by a colleague they respect and trust
• To study patterns of performance rather than individual mistakes
• To identify failures in underlying processes and structures
• And to rely on education and motivation rather than punishment.
2. These, and similar, preferences are related to still another principle, that of "ownership".

Professionals wish the quality assurance enterprise to be theirs rather than someone else's - and that (as I have already said) by virtue of:

• cultural congruence
• professional leadership
• professional sponsorship, and
• personal participation.

3. And through ownership we move on to two other principles:

• of "relevance," and
• of "utility."

I mean that the quality assurance enterprise operates in areas of interest to professionals; where they work; where they exercise responsibility; where they can bring about change.

Performance review must aim to accomplish what professionals should wish to be done in any case.

Two further observations remain to be made:

1. I believe that what I have described as congruence with professional culture and preferences applies also to every other group subject to performance review.

2. And, secondly, although the quality assurance enterprise must seek congruence with the prevailing culture, it is, itself, a powerful force in bringing about cultural change or redefinition; as it reinforces existing norms it can create new ones as well.

And now I am ready for the fourth step in my model, as follows: there are demonstrable, useful results, free of unforeseen, harmful consequences.

We could call this the principle of "fruition".

It must be clear that, as a result of performance review, something is done, and that the consequences are right, good, and useful.

It is utterly destructive to have quality assurance become merely a tissue of ostentatious pronouncements, or only busy work: onerous, boring, unrewarding, useless.

Even worse, if it should lead to dilution of professional responsibility, distortion of professional responsibility, stereotyping of practice, discouragement of innovation, legal hazard, fearfulness, evasion, concealment, and ultimate demoralization.

Fortunately such evils do not often occur, but we must always be on our guard against them.

And now I am ready to conclude my sketchy account of what I believe influences effectiveness or ineffectiveness in performance review and readjustment.

I have kept to the last the single most important factor of all.
To my mind, the single most important condition for success in quality assurance is the determination to make it work. If we are truly committed to quality, almost any reasonable method will work. If we are not, the most elegantly constructed mechanism will fail.

Let us leave this place determined to hold the stewardship to quality as a sacred trust.

Once again, we dedicate ourselves to that high calling.
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