

Primary Health Care Quality: What can Iraq Learn From International Experience?

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Acronyms

| | |
|-------------|-----------------------------------|
| MOH | Ministry of Health |
| IHSS | Iraq Health Systems Strengthening |
| PHC | Primary Health Care |
| IOM | Institute of Medicine |
| CQI | Continuous Quality Improvement |
| ARI | Acute Respiratory Infection |
| HIS | Health Information System |
| QA | Quality Assurance |
| QI | Quality Improvement |
| TQM | Total Quality Management |
| QC | Quality Councils |
| HPT | Human Performance Technology |
| GP | General Practitioner |

I. Introduction

Since the fall of Saddam Hussein's regime, the reconstruction of basic services, including the health care system and service delivery is an essential priority. Currently, access and utilization of basic health services is not a problem, a surprising fact given the lack of infrastructure, security issues and socio-political barriers in Iraq. However, the health care system inherited from the Saddam era is wrought with deficiencies and inefficiencies. Health infrastructure and sanitation is inadequate, technology is outdated, providers are grossly underpaid and under trained, prescription drugs are overly and unnecessarily prescribed, and health care facilities at all levels of care are in need of better management. Given these conditions, it is not surprising that health outcomes indicate poor population health. For example, infant mortality more than doubled from 50/1000 in 1990 to 107/1000 in 2000, one of the highest rates in the Middle East. The change from a dictatorial to a democratic government, at both central and governorate levels, provides opportunities for the Iraqi Ministry of Health (MOH) to analyze the health systems' problems and generate solutions. (Hussein and Liu, 2003)

1.1 IHSS's foci and interventions to improve Primary Health Care

Iraqi Health System Strengthening (IHSS) project is funded by the United States Agency for International Development (USAID) and led by Abt Associates Inc. to provide technical assistance to the Iraqi Ministry of Health (MOH). One of IHSS' foci is to improve Iraq's primary health care sector. Primary health care is unique among health care settings because it is here that health care providers and consumers first meet and interact. The exchange is brief, but its impact on consumers is enduring and influences perceived quality in all dimensions of health care delivery. (Regional Committee for Eastern Mediterranean) It is therefore essential that patients, as consumers of care, receive equitable, cost effective and high quality primary care, and that quality improvement is carefully considered and implemented.

IHSS will promote the improvement of primary health care quality by delivering a package of interventions. These interventions include, but are not limited to: service delivery kits for health centers, training for primary doctors, nurses and health care managers, public health education campaigns, capacity building for governorate health policy makers, innovation in referral systems, accreditation and supervision of health centers, and the use of motivations to improve primary care performance. As part of IHSS' quality improvement effort, primary health care quality will be assessed, and the effectiveness of IHSS interventions on primary health care quality will be analyzed. Before quality can be improved, it must first be measured. The literature reviewed for this report demonstrates that quality can be scientifically measured and quality improvements can be systematically implemented.

1.2 Lessons from the last ten years

Resource inputs in primary health care over the last ten years have been substantial. The Oil for Food program delivered by the United Nations has provided the greatest assistance. At the time the program was terminated in November 2003, approximately \$31 billion worth of humanitarian supplies, including food, medicine, health supplies, centers and hospitals, had been delivered to Iraq under this program (United Nations, 2003). UNICEF, WHO and other organizations have also contributed substantial resources to child and population health in the form of health resources, supplies and education, however their efforts have not always had the desired outcomes. For example, UNICEF and WHO disseminated clinical guidelines on several common diseases that are posted in some health centers, but few doctors actually follow those guidelines in their medical practice. Interventions have been delivered, but their effectiveness has rarely been documented. (Hussein and Liu, 2003).

1.3 Objectives of this report

The people of Iraq are in immediate need of a primary health care system, which is effective, feasible, equitable and efficient. Efforts toward quality improvement must be mobilized in a timely manner to ensure that Iraqis receive the care they deserve and care that can be sustained.

The objectives of this report are (1) to review the international literature on both theoretical and operational definitions of quality of care, (2) to develop a framework that guides the definition and measurement of primary health care quality, (3) to review the literature on the management of primary health care quality; and to explore international experience on how to improve the quality of primary health care, and (4) to propose a set of indicators that are suitable for Iraq health center situations. Based on international lessons, measures and methods to improve quality in primary health care in Iraq will be recommended.

2. Defining Primary Health Care Quality

2.1 Theoretical and generic definition of quality

In basic terms, quality is defined as having a high degree or grade of excellence. Something of quality is of high value, is useful and efficient.

In the business realm, quality assurance methods have been used for several decades to improve the efficiency of production systems. More recent years have seen a significant increase in the use of quality assurance methods to improve the quality of health care. "Quality assurance can be defined as all activities that contribute to defining, designing, assessing, monitoring, and improving the quality of health care... These activities can be performed as part of the accreditation of facilities, supervision of health workers, or other efforts to improve the performance of health workers and the quality of health services." (Quality Assurance Project, 1999) Quality assurance in the health care industry has

received a great deal of attention because its consequences are the relief of human suffering, improved health status, and controlled costs in the “production system” or service delivery (Bowers et al, 2002).

2.2 Theoretical and generic definition of health care quality

Experts struggled for decades to formulate a single concise, meaningful and generally applicable definition of the quality of health care (Derose & Petitti, 2003)

Despite widely argued, researched and disseminated literature on health care quality, no official definition quality exists. The Institute of Medicine’s (IOM) definition of quality is one of the most frequently referenced definitions in the literature in the last 10 years. The definition states:

Quality of care is the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge (Lohr, 1997).

The IOM study found more than 100 definitions of quality, but this definition seems to be the most appropriate because it is broad enough to cover several traditional quality-measurement domains and emerging domains (Friedman, 1995). In this definition, “health services” refer to all services that affect health, including physical and mental illnesses. The definition also applies to a broad range of health care providers (physicians, nurses, dentists, therapists, and various other health professionals) and to all settings of care (primary care, secondary care, tertiary care, as well as nursing homes, community sites and even private homes) (Lohr, 1997). Quality of care that individual plans and providers deliver should be taken into account, and should also be considered across an entire system.

This definition suggests that (1) quality performance occurs on a continuum, theoretically ranging from unacceptable to excellent; (2) the focus is on services provided by the health care delivery system; (3) quality may be evaluated from the perspective of individuals or populations; (4) research evidence must be used to identify the services that improve health outcomes; and (5) in the absence of scientific evidence regarding effectiveness, professional consensus can be used to develop criteria (McGlynn, 1997)

This definition focuses on outcomes, but does not imply that outcomes are an optimal measure of quality. Rather, good quality health services should, among other attributes, increase the likelihood of desired health outcomes. The IOM’s definition can be restated as” health care quality is the extent to which structure and process maximize the likelihood of good health outcomes (Bowers & Kiefe, 2002)

Health care quality is often divided into two parts: Technical quality and perceived quality (Brook et al, 2000):

- Technical quality: The patient receives only the procedures, tests or services for which the desired health outcomes exceed the health risks by a sufficiently wide

margin. Each of these procedures or services is performed in a technically excellent manner.

- Perceived quality: Patients are treated in a humane and culturally appropriate manner and are invited to participate fully in decisions about their therapy.

Lohr (1997) categorizes quality into the following groups:

- Dimensions: structure, process and outcomes
- Perspectives: patients, providers, purchasers, system
- Services: primary, secondary, tertiary; preventive and curative, mental health services
- Providers: physician, nurse, dentists, etc
- Setting: hospital, nursing home, and even provider homes
- Individual vs. population:
- Type of users: elderly, children, women

2.3 Operational Definition of health care quality

Once a definition of quality is determined, it must fit into an operational framework so that it can be measured, changes may be implemented, and then evaluated. Measuring the quality of care has traditionally relied on a framework developed by Avedis Donabedian (1980) of structure-process-outcome, which is outlined below.

Structure

Structure refers to the resources of the health system. Resources may be categorized as individual and group practitioners (their attributes such as age, specialty board certification, licensure, type and level of training), as well as facilities (location, ownership, patient load, accessibility, government certification and accreditation, physical attributes, including safety, policies and procedures). (Friedman, 1995 & Donaldson, 1999). Structure asks the question, “are the necessary resources available to provide effective, efficient medical care?” (Longo, 1994)

The problem with evaluating with structure variables is that there is substantial evidence that the relationship between structure variables and process and outcome variables are weak, inconsistent and sometimes paradoxical. It is unwise to develop public information on quality on care that is based solely on structural measures (Meyer, 2001).

Process

Process measures the performance of health care providers, and can include aspects of how consumers seek and obtain care. Provider performance is rated on interpersonal care (service, timeliness and convenience), technical aspects (timeliness and accuracy of diagnosis, clinical examinations, appropriateness of therapy and treatment, and dispensation of drugs). (Friedman, 1995 & Donaldson, 1999). Process asks the questions, “Have the processes necessary for providing effective and efficient medical care been provided?” and “Are these processes in control, ensuring that ‘outputs’ consistently meet requirements?” (Longo, 1994)

There is substantial evidence that process is associated with health outcomes. It provides the harshest judgment of the quality of care. For the vast majority of medical conditions process measures will need to be used to assess quality. Regardless of what we would like to have happen, most of the quality indicators that we should use will be process based. (Brook et al., 2000)

Outcome

Outcome is the end result of care, or what has happened to patients, including measures of survival, unintended effects of treatment, and the relief of symptoms (Donaldson, 1999). End results include: health status, functional status, mental status and the general well being of the patients and populations. (Friedman, 1995 & Brook, 2000) Outcomes can be measured in quantifiable terms, such as morbidity and mortality, and with qualitative measures, such as patient satisfaction.

One of most significant problems with health outcomes is that they are uncertain. There might be other factors involved with changes in health outcomes besides quality improvements, resulting in weak association between health care and outcomes. In addition, changes in health outcomes of interest often occur several years later. There are also problems of differences in case mix. The same disease may have different levels of severity, risk adjustment is difficult and costly, and sometime is impossible due to unavailability of data (Brook et al., 2000)

Quality may be measured in each of the three components or in some combination. The literature contains conflicting views about which measures are most useful and productive, and what should be measured at what time.

Perspectives of Health Care Quality:

The literature outlines several perspectives of health care quality (Derose & Petitti, 2003 & McGlynn, 1997):

- *Health care professional perspective:* Providers tend to view quality in terms of the attributes and results of care, leading to definitions of quality that emphasize technical excellence and the characteristics of patients/professional interaction.
- *Patient perspective:* Patients tend to view quality in terms of their own preference and values, leading to definitions of quality that encompass satisfaction with care as well as outcomes such as morbidity, mortality and functional status.
- *Health care plans (insurers) perspective:* Insurers tend to place greater emphasis on the general health of the enrolled or covered population and on the function of the organization, leading to a definition of quality that takes into account the ability of the plan to meet the needs of enrollees.
- *Purchaser's perspective:* Purchaser tends to be concerned about population-based measures of quality and organizational performance, leading to a definition of quality that is similar to that of health care plans with more concern of costs, and appropriateness of care.

In the practice of measuring quality of care at system level, these perspective need to be balanced.

2.4 Fitting the operational definition health care quality with primary health care

Operational definitions of primary health care vary across the literature. Weisman et al. (1995) define primary health care as the point of first contact with the health system, proving ongoing care for new and old problems, identifying and coordinating specialty health care needs, and providing comprehensive services. The Institute of Medicine defines primary health care as the “the provision of integrated, accessible health care services by clinicians who are accountable for addressing a large majority of personal health care needs, developing sustained partnership with patients and practicing in the context of family and community.” (Seid et al., 2001)

Despite differences in definitions, there is general consensus that primary care is accessible to a given population, “longitudinally continuous, adequately communicated, contextual (based on a provider’s accumulated knowledge of the patient and family) comprehensive and coordinated.” (Seid et al., 2001) The nature of the primary care relationship between providers and consumers, such as accessibility of facilities, first contact and length of time patients receive care from a given physician, the accuracy and appropriateness of provider and patient knowledge, and the comprehensiveness of care all affect the quality of primary care delivery. Quality can be measured within primary health care in the structure-process-outcome framework delineated in the following section.

3. A framework for measuring primary health care quality

A medical outcomes study by RAND/UCLA (one of the earliest comprehensive studies) used the following conceptual framework to measure quality of care.

| <u>Structure</u> | <u>Process</u> | <u>Outcomes</u> |
|---|---|---|
| <p><i>System Characteristics</i></p> <ul style="list-style-type: none"> • Organization • Specialty mix • Financial incentive • Workload • Access/convenience • <p><i>Provider Characteristics</i></p> <ul style="list-style-type: none"> • Age • Gender • Specialty training • Economic incentive • Beliefs/attitude • Preference • Job satisfaction • <p><i>Patient Characteristics</i></p> <ul style="list-style-type: none"> • Age • Gender • Diagnosis and condition • Severity • Comorbid conditions • Health habits • Beliefs/attitude • Preference | <p><i>Technical Style</i></p> <ul style="list-style-type: none"> • Visits • Medications • Referrals • Test ordering • Hospitalization • Expenditures • Continuity of care • Coordination <p><i>Interpersonal Style</i></p> <ul style="list-style-type: none"> • Interpersonal manner • Patient participation • Counseling • Communication level | <p><i>Clinical Endpoints</i></p> <ul style="list-style-type: none"> • Symptoms and signs • Laboratory values • Death <p><i>Functional Statuses</i></p> <ul style="list-style-type: none"> • Physical • Mental • Social • Role <p><i>General Well-being</i></p> <ul style="list-style-type: none"> • Health perceptions • Energy/fatigues • Pain • Life satisfaction <p><i>Satisfaction with Care</i></p> <ul style="list-style-type: none"> • Access • Convenience • Financial coverage • Quality • General |

This framework was created to 1). “Determine whether variations in patient outcomes are explained by differences in system of care, clinician specialty, and clinicians’ technical and interpersonal styles”, and to 2).”Develop more practical tools for the routine monitoring of patient outcomes in medical practice.” (Tarlov et al., 1989)

3.1 Prerequisites and necessary conditions for successful measurement of quality in primary health care

According to a report from the Regional Committee for the Eastern Mediterranean (2000), the following three questions must be considered before quality is measured in any primary health facility or system:

- *Is there a vision?* What will the measures of quality illuminate about PHC? Can changes be strategically implemented and managed? A vision of quality primary

health care should advocate the basic principles of equity, capacity building, community empowerment and partnerships.

- *What are the missions and main objectives of measuring quality in PHC?* The mission and objectives of measuring quality should reflect the unique aim of the PHC organization and should focus on day-to-day realities and activities.
- *How will these measurements direct the future of PHC?* In order for quality improvements (based on measures) to be implemented, leadership must make a firm commitment to quality improvement. Who will lead and how do we lead people toward active participation? PHC authorities should know the current situation, available resources and human resources, and should have strategic plans as well as the necessary structure to carry out quality improvements. (Regional Committee for the Eastern Mediterranean, 2000).

After the theoretical foundation has been laid, Derose & Petitti (2003) claim that three fundamental questions must be asked with regard to the measurement of quality of primary care:

1. Will the measurement of quality be valid and reliable?
2. Will the method be useful in developing approaches to improve quality?
3. Will the method produce better care?

The purpose of measurement must be clarified in order to guide the selection and development of measures. Measures are most successful in driving improvements when the actions they represent are evidence-based and are “actionable,” meaning that changes are performance driven and measures can be acted upon. Measures are actionable when stakeholders, such as payers or patients, support them. It will never be possible to produce an error-free measure of quality of care. Because measures of quality can unfairly harm institutions and physicians, every effort should be made to use state-of-the-art measures, even if their use requires additional expenditures (Derose & Petitti, 2003).

Measures to improve quality have the potential to improve the quality of primary health care patients receive, cut costs and allocate resources effectively, increase utilization, and to reduce the referral of patients to more expensive secondary and tertiary care. In order for these desired outcomes to come to fruition, responsibilities for measurement must be defined, primary health care workers must be oriented on quality, elements of measurements must be disseminated to all interested parties, and a gradual course of quality improvement implementation must exist. (Regional Committee for the Eastern Mediterranean, 2000). Creating conditions, which are conducive to quality measurement and improvement before embarking on the task of measurement, is fundamental to its success.

3.2 Frameworks in the literature—models, strategies and methods for measuring PHC quality

The literature on quality in primary health care presents several models for measuring quality. The framework most commonly cited is Donabedian’s structure-process-outcome measurements. This section presents this framework in depth, weighing the

advantages and disadvantages of each particular measure within the PHC sector. Methods of applying the measurements are also discussed.

3.2.1 Structure-process-outcome conceptual framework

Structure

In the operational definition of primary health care, structure refers to the facilities themselves (the plant infrastructure, types of equipment and supplies, pharmaceuticals, and lab tests) as well as the presence of physicians, nurses and their professional knowledge/training. In primary health care, structural measures of quality are generally poor estimates of health outcomes, but serve as good indicators where resources are constrained (Peabody et al, 1994).

Process

Process is measured by the quality of treatment/care rendered by physicians, nurses and other health care providers and by the consumers' method of electing primary care providers. These processes include physical examinations, immunizations, screenings, antenatal and prenatal care, counseling and education of patients regarding their condition and preventive measures, and prescription of drugs. For process measures, it is important to consider sources of data. Available sources of data include: observational studies of primary care in action, survey data of providers and consumers (surveys, questionnaires and interviews), medical records, and administrative records. Brook et al (1996) caution that each source of data produces a different view of quality and will vary depending on who is collecting the data (policymakers, physicians, etc.). He also argues that process assessments produce the harshest judgment of quality. However, they are the most useful and effective for the vast majority of medical conditions in PHC (Brook et al, 2000).

Outcome

Outcome measures for primary health care include patient satisfaction and perception of care, parent/relative satisfaction with care of family members, and overall health status of an individual or population as a result of primary care treatment and referral. Some researchers caution that outcome measures are easily influenced by external factors beyond the control of primary health care. Another argument against the use of outcome measures is that they do not demand accountability because many outcomes of interest occur years later. Also, in terms of patient satisfaction, some do not believe patients are equipped with the knowledge to judge the technical quality of care. Outcome measures, they argue are therefore poor measures of quality (Brook et al, 2000, Maggi et al, 1997).

Others argue that outcome measures are among the key data necessary for assessing the quality of primary health care providers, and that outcome measures give decision makers information that directly translates into economic terms they can understand. Yasin (1995) argues that primary health care should be customer oriented and that ultimately what matters most, in terms of effective care, are patients' perceptions. Additionally, in rural areas and/or developing countries, patients' perceptions of quality of care underpin the relationship between quality of care and utilization of health services (Baltussen, 2002). The higher the quality, the more populations will utilize primary care facilities.

For this reason, other researchers argue that outcome is an invaluable measure of quality (Merry, 1987).

Any one or combination of these structure-process-outcome attributes of primary health care may be measured for quality. Selection depends on the aim and particular audience of the researcher.

3.2.2 *Models of measuring quality within the framework*

Within the structure-process-outcome framework, there are a variety of ways to measure quality and a variety of ways to implement quality improvement based on the measures. The following are some of the models currently available in the literature.

Quality Improvements

In order to implement measures of quality, a decentralized government structure must be created in a given country. A central body (a unit or doctorate) at the Ministry of Health in a particular country should form a quality improvement division for Quality Assurance/Improvement (QA/I) purposes. This division would have the following responsibilities:

- Screening and evaluating the current situation in the country including PHC;
- Setting, testing and communicating standards for different levels of care;
- Preparing manuals, newsletters and books on QA/I;
- Providing training on QA/I to health care staff at all levels;
- Inspecting and monitoring technical and administrative activities of primary health care facilities;
- Preparing and participating in the studies; collaborating with the activities of other organizations of similar nature.

To implement QA/I techniques at primary health care level, *quality councils* should be formed at the regional/district level. Each council consists of a director of the health center, a nurse or paramedic, a pharmacist, an administrative person, and representatives from the community and nongovernmental organizations. They meet regularly and may choose to have a *quality teams* which are “acting organs for implementing activities in their respective areas” in the regions and a *steering committee* charged with providing a “good forum by bringing all the quality council coordinators together for joint planning and monitoring of activities. Membership of the steering committee may be broadened to include representatives of different disciplines in health as well as from other sectors related to health care, namely universities, the private sector, and other public entities, thus giving it a national flavor” (Regional Committee for the Eastern Mediterranean,2000).

Quality control activities

The following are activities, which can be used for performance/process measures as discussed by Kutner (1998).

1. **Credentialing and Profiling.** Accreditation sets universally accepted standards for physician performance. Accreditation and profiling do the following: (1) review physicians' credentials, (2) verify physicians' agreements to adhere to the AMA's code of ethics and to participate in continuing medical education and peer reviews, (3) conduct on-site reviews of their offices and clinics, (4) evaluate clinical performance and (5) review the results by measuring clinical outcomes and conducting periodic surveys of patient's health status and satisfaction with health care providers.

2. **Medical Report Cards.** Standardized report cards on performance and outcomes data on health maintenance organizations, hospitals, and other institutions as well as individual physicians are compared.

3. **NCQA (National Commission for Quality Assurance)—HEDIS (Health Plan Employer Data and Information Set)** is designed to standardize how health plans measure and report performance information and indicators.

According to Kutner (1998), it is essential that physicians insist on receiving performance and outcomes data in a timely and useful manner. They must also demand resources for measuring the quality of care and then for implementing the changes necessary for improvements.

Practice Visiting

Practice visiting is a method of assessing various aspects of general practice designed in Sweden. It includes inspection, observation, analysis and recording of practice activity followed by feedback of results in order to promote improvement. A general practitioner (GP) visits and evaluates another practice. The visiting GPs have the option of including interviews or questionnaires to highlight other concerns made obvious by the visiting process. About 6 weeks after the visit, a feedback session conducted by the visiting GPs is given to members of the practice under evaluation. The authors of this study believe that colleagues with less experience in quality development but who are willing to learn and to become engaged in quality improvement in their practices would be willing to adopt the method. Another approach would be to employ external, skilled assessors instead of colleagues. If practice visiting is integrated with continued medical education in the form of small group work, the findings and the insights derived from the practice visits, with educational support, can be taken forward and used to promote change. (Eliasson et al, 1998)

Quality Circles

A quality circle is a group of service providers who meet regularly to solve problems related to the quality of their work. It is a bottom-up approach, and has shown considerable success in the developing world. A quality circle is usually made up of 4-10 people who can contribute to the effective running of an organization. There are 4 main parts involved:

- Circle Members (those in manufacturing or delivery of services)
- Circle Leader (supervisor)
- Circle Facilitators (provide initial training to members and leaders in problem-solving and leadership skills)
- Circle Coordinator (managing a quality circle program).

The problem-solving process is owned by the quality circle, who decides which problems to tackle and how. They have a structured approach to problem solving which might involve the following:

1. Develop a list of problems
2. Select a problem over which they have control
3. Analyze the cause of the problem
4. Propose possible solutions
5. Select a solution based on feasibility of implementing and prospects of success
6. Implement where possible
7. Present to management
8. Implement and monitor effects.

Quality circles are good models for countries, regions or sectors interested in measuring quality and implementing quality improvements (Cibulskis et al, 1993).

Conceptual framework for measuring treatment of a specific disease

One way to measure quality in a PHC facility is to measure the way a specific disease is treated. A matrix should include both dimensions of care (effectiveness, safety, etc.) and patient needs (staying healthy, living with illness, etc). A conceptual framework follows:

| Health care needs | Effectiveness | Safety | Timeliness | Patient centeredness |
|---------------------------------------|----------------------|---------------|-------------------|-----------------------------|
| <i>Staying healthy</i> | | | | |
| <i>Getting better</i> | | | | |
| <i>Living with illness/disability</i> | | | | |
| <i>End of life care</i> | | | | |

Priority areas can be identified and flushed out in this conceptual framework, which was developed by the Agency for Health Care Research and Quality (AHRQ, 2002). They use heart disease as an example of a disease to be flushed out in the framework. “In thinking about the effectiveness of care for heart disease, one could identify categories of care having to do with staying healthy (e.g., screening for risk factors), getting better (e.g., treatment of acute myocardial infarction [AMI]), and living with illness and disability (e.g., management of hypertension).” Analyzing dimensions of care and patient needs may reveal important gaps in service delivery. This framework is therefore an effective measure of the quality of care rendered.

Outcome measurement method

The emergence of outcome measures, offers new opportunities for making the quality of health care a more universally defined and measurable entity. According to Merry (1987) objective outcome measures are among the key data necessary for assessing the quality of health care providers. Merry argues that better health outcomes translate into more worker time on the job and potentially lower health care benefit costs. Outcome measures give decision makers information that directly translates into economic terms they can understand.

This model considers both perceived and technical quality:

Examples of quality elements to measure subjective/perceptual aspects of care:

- Responsiveness of emergency department personnel
- Efficiency of admitting department
- Care and attentiveness of nursing and technical staff
- Menu and food quality
- Convenience of visiting hours

Examples of quality elements to measure clinical outcomes of care:

- Death
- Infections
- Other complications
- Unplanned surgery
- Drug reactions
- Readmissions (in less than one week following discharge)

A model for measuring excellence uses both subjective/perceptual and objective/clinical definitions as a foundation (Merry, 1987). An example is shown below.

Objective/clinical quality
High *Low*

| | | | |
|---|-------------|---------------------------------|-------------------------------|
| Subjective/ Perceptual Quality | <i>High</i> | Excellence A | Image enhancement B |
| | <i>Low</i> | High-tech, low-tech C | Lose-lose D |

3.3 Challenges in quality measurement

In the last 30 years, research has demonstrated that (Anderson et al, 2002):

- Health care quality can be measured
- Quality varies enormously
- Process is more important than structure
- Quality improvement is possible, but difficult
- There is no uniform tool kit that can be used for measuring quality in non-research settings.

The literature gives several examples of how and why to measure quality in PHC delivery. However, several authors and researchers also caution that there are many challenges to measuring quality. This section outlines some of the challenges presented in the literature.

McGlynn (1997) argues that there are six major challenges to measuring quality, all of which present a particular challenge in measuring quality in PHC. They include the following:

1. *Balancing competing perspectives*—There are several stakeholders and competing perspectives in measuring quality. Purchasers are generally most concerned with how money is spent. Patients are concerned with individual care and needs. A physician’s focus will most likely be on the best way to control costs while delivering the most effective treatment. These perspectives must be considered and areas of agreement should define the central focus for quality measurement.
2. *Developing an accountability framework*—Accreditation standards and report cards are necessary for accountability, but precarious in that they define the dividing line between individual and health system responsibility. A framework must weigh these responsibilities fairly.
3. *Establishing explicit clinical criteria*—Standardize assessments of quality by using rules that are known to those being assessed and that can be updated over time. Criteria should address: technical quality, providers’ skills and criteria development.

4. *Selecting indicators for external reporting*—Indicators should be relevant, scientifically sound, and feasible or they will not accurately demonstrate quality in the primary health care service.
5. *Financial incentive and quality goals*—Mechanisms to control expenditures, report card measures, and preventive services must consider current knowledge about optimal levels of interventions for various conditions. Since, many quality measures send a signal to health care system to increase services, one must have a long-term commitment to quality since savings will not be realized in the short-term.
6. *Facilitate information system development*—Large gaps exist in the availability of detailed clinical information and routine assessments from the consumer perspective. An information system must be developed that can respond to the important quality monitoring questions (McGlynn, 1997).

Other authors point to data collection as a serious challenge for measuring quality. Carey (2000) states that different stakeholders have different goals in mind when they gather data. For example, insurers and purchasers of care may want to capture data in a provider report card in order to judge accountability. Providers may choose to capture data through basic statistical and process measures in order to improve the effectiveness of treatment.

Moscovice and Rosenblatt (2000) explored challenges of measuring quality in rural environments. The following aspects of data collection could be barriers to effective quality measurement of PHC in rural areas:

1. Small sample size: May create volume/outcome issues.
2. Data availability: Records may be spotty, incomplete or nonexistent.
3. Denominator issues: Areas may only be vaguely defined as a unified population of people living in a defined geographic area. Migration is also possible and difficult to map.
4. Shortage areas: Certain areas may not have a sufficient number of medical personnel and may lack facilities that are adequate to provide basic health care.

The challenges of measuring quality at the PHC level vary according to the audience of the measure, the location of the measure, the subjects of the measure, and its intended use. All of these factors should be clearly established before specific criteria for measurement are determined.

4. Indicators used for measuring quality in PHC

Over the years, a variety of methods have been used to evaluate the quality of health care. These methods include (Hermida et al, 1999):

- Record review and audit
- Tracer conditions—either retrospective or concurrent (Lindstrom et al., 1997)
- Interviews with health care providers
- Written and oral examinations
- Interviews and focus groups with populations

- Interviews and focus groups with exist patients
- Direct observation of delivery of health services
- Surrogate patients
- Retrospective review of adverse outcomes

In most developed countries, service quality is measured by reviewing medical and other written records. However, this approach has not proved useful in environments where medical records are “incomplete, inconsistent or even non-existent. In these types of situations, methods such as direct observation of care and/or exit interviews with patients are more commonly used (Hermida et al., 1999).

4.1 Effective indicators in primary health care

Different perspective and definitions of quality call for varied approaches to measuring quality. It is helpful to clarify the purpose of measurement in order to guide the selection and development of measurements.

The Joint Commission for Accreditation of Healthcare Organizations (JCAHO) defines an indicator as a “quantitative measure that can be used as a guide to monitor and evaluate the quality of important patient care and support service activities” (Loeering, 1994). In terms of quality, the validity of an indicator is determined by the extent to which it raises questions about the quality of patient care provided by the PHC facility. An indicator is valid if it helps the PHC facility identify opportunities for improvement in its organization and delivery of care (Loeering, 1994).

Lavizzo-Mourey (1994) highlights the characteristics of an ideal set of quality indicators, many of which can be applied to PHC. Indicators should adhere to the following criteria:

- *Important*—Primary care practices or treatments measured should make an impact on the health of the individual and on the health status of a given population or nation.
- *Comprehensive*—Taken together, measures should allow for a complete assessment of PHC services. They should encompass a variety of conditions and facilities and be applicable to all age groups and special populations.
- *Concise*—Indicator must be to the point so that all stakeholders and interested parties have the time to read and analyze measures and can do so in an efficient manner.
- *Independent of one another*—Measures that are dependent, connected or associated with one another will produce an inaccurate picture of PHC.
- *Reliable*—The measure must be exact and must “hit the nail on the head every time.”
- *Valid*—Indicators must measure what they claim to measure. Resources will be invested to improve care, so there is no use and potential danger in a measure that is false.
- *Vetted*—Untested measures, no matter how sensible, are dangerous.
- *Burdenless*—If an indicator requires a large collection of data, manipulation or is costly, it is ineffective.

- *Interpretable*—Consumers, patients and providers at all levels of PHC must be able to understand the measures.

As Lavizzo-Mourey (1994) concludes, no single set of indicators will satisfy all of the criteria. However, the above characteristics should be considered before a set of indicators for measuring quality at the PHC level are developed.

Furthermore, Jencks (1995) discusses the importance of construct validity in developing effective indicators. Construct validity is the degree to which an indicator measures what it intended to measure. The following criteria are important to consider in developing indicators with good construct validity:

- *Access*—Indicators measuring access should include those “factors that research has shown to strongly influence at least whether needed care is received and ideally whether outcome are changed.”
- *Process* —Indicators should measure processes that science has shown are “strongly linked to better outcomes, not just processes that are widely used or popular.”
- *Outcomes*—Indicators should be adjusted for the risk carried by the patient treated (i.e. age) and should reflect the quality of primary care delivered.
- *Satisfaction*— Indicators measuring “satisfaction should be reliable, “sensitive to differences among institutions and independent of any patient factors (such as social class) that are difficult to measure.”

For the purposes of construct validity, clinicians should review medical records to determine whether their assessment of the particular process of care matches with the indicator. The selection of appropriate indicators should be supported by a consensus of respected consumer representatives and advocates (i.e. community leaders) (Jencks, 1995).

4.2 Models

The following are models of studies, each of which intended to develop a set of indicators for a specific geographic area or a specific area within PHC. These models may provide useful guidance in the development of indicators sets for evaluating the quality of PHC in Iraq.

4.2.1 Model of how to select indicator sets

A study on geriatric post-acute care found that an intensive process is necessary to determine which indicators are the most useful and relevant. They used this process for both process indicators and outcome indicators. First, they conducted a literature review to collect indicators (regardless of measurability and feasibility). Then each indicator was assigned a domain. These domains included: physical function outcomes, mental health outcomes, quality of life outcomes, utilization outcomes, physiology outcomes, satisfaction outcomes, and process of care. Then an expert panel was formed to review the indicators and rate them from 0-2 (0 being negligible, 2 being extremely important for

assessing quality of care). They were also asked if they had experience using the indicator. Ratings were consolidated and indicators selected based on their scores. (Johnson et al., 2002)

4.2.2-Model studies using indicators of quality in PHC

Table 1 provides a comprehensive overview of studies, which selected indicators for measuring quality of PHC.

Table 1

| Name of Study | Objectives of Study | Domains of Study | Indicator Sets Selected* | Method | Results and Discussion |
|---|---|---|---|---|--|
| Equity Gauge: Monitoring Health Sector Reform Progress in South Africa (Health SystemsTrust, 1999) | To provide a basis for monitoring whether efforts by government to reduce the historic inequalities in the provision of health care, were having an impact. | Structure Process Outcome | Infrastructure and Equipment Human resources Pharmaceuticals Health information and management systems Quality of clinic services | The indicators for this study were chosen in consultation with health service providers, health service managers (at national, and district levels), researchers and other key stakeholders. 160 surveys were sent to rural and urban clinics | This study revealed differences in the quality of service provision between provinces as well as between rural and urban areas. |
| Measuring Quality of Care in South Africa (Edwards-Miller, 1998) | To present the extremely wide range of factors that affect quality of care in service provision, and to a challenge to the public sector to increase the percentage rating services as excellent. | Structure Process Access | Infrastructure Service and drug provision Staff knowledge Access to services | Not listed | In order to improve quality of PHC, there is a need to increase the percentage of clients who rates services as excellent. |
| Parent's Perception of Primary Care: Measuring Parent's Experiences (Seid, et al, 2001) | To develop a measure of pediatric primary care quality that is brief, practical, reliable and valid for use by pediatricians, patients, | Perception Patient Satisfaction Access Outcome | Communication, Comprehensiveness, Longitudinal continuity, Coordination, Contextual knowledge, Access | 23 item survey was administered to 3371 parents of children in kindergarten through sixth grades in a large, urban school district. | P3C is a practical, reliable and valid measure of parents' reports of pediatric PHC. It could be used alone or with other measures to enhance outcomes |

| | | | | | |
|---|--|--|---|---|--|
| | <p>policymakers and health system leaders (called P3C)</p> | | | | <p>and evaluate the impact of system changes on the delivery of PHC.</p> |
| <p>Gender and Patient Satisfaction with Primary Care (Weisman, et al, 2000)</p> | <p>To analyze the relationship between patient gender and satisfaction with primary care visits</p> | <p>Patient Satisfaction Structure Process Outcome Access</p> | <p>Accessing Care, Visit Content, Amenities, Overall rating</p> | <p>Survey data was collected using 1691 women and 760 men making primary care visits</p> | <p>This analysis revealed statistically significant differences between men and women in the ratings of various aspects of primary visits. Gender analysis and patient satisfaction could benefit PHC in terms of quality.</p> |
| <p>Measuring Quality of Care with Routine Data, Performance Indicators (Giuffrida, 1999)</p> | <p>To investigate the impact of factors outside the control of primary care on performance indicators proposed as measures of quality of primary care.</p> | <p>Process Outcome</p> | <p>Analyzed admission rates for asthma, diabetes, & epilepsy. Timely and effective care of these conditions in primary care could be expected to reduce the risk of admission to hospitals.</p> | <p>A multiple regression analysis relating admission rates standardized for age and sex for asthma, diabetes, and epilepsy to socioeconomic population characteristics and to the supply of secondary care resources.</p> | <p>A performance indicator designed to improve that outcome should relate only to those factors that are under the control of the staff to whom it is being applied.</p> |
| <p>Evaluating the Quality of Primary Health Care in Rural Clinics in Ghana (Amonoo-Lartson et al., 1985)</p> | <p>To examine patterns of health care in rural health centers and satellite clinics and to explore the use of performance criteria to improve health station staff</p> | <p>Structure Process Outcome</p> | <p>Data was collected on structure, process and outcome. The indicators used in the study concerned childhood malaria (evaluate treatment by the medical</p> | <p>Structured observation of patient encounters with three categories of health care providers. Questionnaire.</p> | <p>There is a need to review the criteria with health center staff and specific training curricula for health providers should be studied. Criteria should meet</p> |

| | | | | | |
|--|--|--------------------------|---|--|---|
| | training programs and develop diagnostic treatment policy. | | assistant) and prenatal care (evaluate attention given by the midwife) and postnatal health education (evaluated care of the community nurse). | | local norms of care. |
| Quality of Care in Public and Private Primary Health Care Facilities: Structural comparisons in Jamaica (Peabody, et al., 1994) | To bring attention to several important differences in the quality of care being provided by public versus private and urban versus rural facilities that might not have been anticipated. | Structure Process | Infrastructure Equipment and supplies (basic, sophisticated, delivery) Staffing (physician, midwife, nurse) Pharmaceuticals Maternal Counseling Laboratory tests | Questionnaire Survey. Questions in survey were “yes/no” or a numerical selection on a brief scale listing 4 or 5 choices. | Public clinics provide better prenatal diagnosis, counseling and family planning services than the private clinics. Private clinics were in better conditions, better equipped with better supplies and able to provide lab test in a timely manner. Urban clinics were better provisioned with equipment, supplies and pharmaceuticals. Rural clinics were in better repair. |

*Table 2 provides a comprehensive list of indicators within sets.

4.3 List of appropriate indicators

There are a number of different indicator sets that may be used at different times, depending on what is to be measured and for whom measures will be reported. This section delineates indicators found in the literature which are appropriate measures of quality in PHC and which fit within the larger categories of structure, process, and outcome.

Structure Indicators:

| <u>Structure</u> | <u>Measure</u> |
|---|--|
| Infrastructure | |
| Availability of continuous and safe water | % of clinics with water (in a region/ public or private/ urban or rural) |
| Clinics with a toilet for use by patients and in good working order | % in a defined area |
| Availability of uninterrupted electricity | % of clinics with electricity (in a region/ public or private/ urban or rural) |
| Clinics with a standby generator in working order | % in a defined area |
| Availability of communication infrastructure -Telephones -Fax machines -Two way radio transmitter -E-mail | % of clinics with communication infrastructure (in a region/ public or private/ urban or rural) |
| Emergency response time to clinic emergencies | Less than one hour, one to two hours, more than two hours |
| Conditions of: -Roof -Floor -Electrical system -Plumbing -Yard Maintenance -Security -Safety of the building -Cleanliness of building/rooms | Rating system: (ie: if conditions are adequate the PHC facility receives one point, no point if there is a problem) |

| <u>Structure</u> | <u>Measure</u> |
|---|--|
| Equipment and Supplies | |
| <i>Basic equipment</i> -Infant scales -Thermometers -Stethoscope -Sphygmomanometer -Tape measures -Adult scales | % of equipment present, 80% is standard % of clinics with 50% or more of the listed items on hand, <50% Point system |
| <i>Sophisticated equipment</i> -Autoclave -Centrifuge -Microscope -Glucometer | % of equipment present % of clinics with 50% or more of the listed items on hand, <50% Point system |
| <i>Basic Supplies</i> -Syringes -Needles -Urine/stool containers -Urstrix -Bandages -Scissors | % of equipment present, 80% is standard % of clinics with 50% or more of the listed items on hand, <50% Point system |
| <i>Delivery Supplies</i> -Linens -Mucous extractors -Vitamin K/silver nitrate -Diagnostic sets (supplies for internal exam) -Fetal stethoscope | % of equipment present % of clinics with 50% or more of the listed items on hand, <50% Point system |
| <i>Availability of hospital beds</i> | |
| | |
| Pharmaceuticals -Availability of prescription medicines -Proportion of essential drugs in use that have been tested for potency (national level) | In a specific region, for a specific population (% with access) % per PHC facility |

| <u>Structure</u> | <u>Measure</u> |
|---|--|
| Staffing | |
| -Clinics with a full physician staffing -Clinics with full midwife staffing -Clinics with full nursing staffing -Clinics with full midwife, & nurse staffing | % in public or private, urban or rural settings |
| -Accreditation of physicians -Accreditation of nurses -Accreditation of midwives | Accreditation standards developed by country, Ministry of Health |
| -Years of training and education -Staff knowledge | |
| | |
| Proportion of a minimum list of defined skills which have been learned by specific categories of personnel | |
| Proportion of personnel (physicians) per 10,000 people | Measured by geographic region |
| | |
| Access | |
| -Accessibility for travel -Availability of roads bridges, public transportation -Routine care accessibility -Evenings or weekend hours | % of population with access |

Process Indicators

| <u>Technical Aspects</u> | <u>Measure/Description</u> |
|--|--|
| Overall patient care | As reported in survey, questionnaire, interview or observed in PHC facilities, medical or administrative records |
| Cares for and treats patients well | |
| Good clinical examination | |
| Dispensation of drugs | |
| Appropriate prescription | |
| Makes a good diagnosis | |
| Use of diagnostic equipment | |
| Appropriate referral | |
| Follow-up, continuity, monitoring patient during his/her stay | |
| Administration of injections | |
| Questioning of patient | |
| Drugs dispensed rapidly | |
| Recognizing one's limits | |
| Giving advice (how to take drugs) | |
| Appropriate care (bandages, injections) | |
| Screenings Physical, TB, cervical cancer, HIV, syphilis, mammography, breast cancer, pap smear, physical breast exam, blood cholesterol | |
| Preventive Counseling Smoking, diet/weight, exercise, alcohol/drug, calcium, domestic violence and STIs | |
| Appropriate prenatal care | |
| Appropriate rate of immunizations | |
| Performance according to standards (PATS) | |
| <i>Behavioral and Interpersonal Aspects</i> | |
| Overall reception | As reported in survey, questionnaire, interview or observed in PHC facilities or Physician/provider report cards |
| Compassion and support | |
| Access to doctor upon arrival | |
| Interest, attention paid | |
| Kindness, politeness, respect | |
| Waiting time | |
| Devotion, willingness to serve, being at patient's disposal | |
| Communication Doctor explained things Doctor listens to patient Satisfactory time spent with patient | |

Outcome Indicators

| <u>Outcome</u> | <u>Measures/Descriptions</u> |
|--|--|
| Recovery, cure | % of patients treated per PHC clinic |
| Rapid recovery, rapid cure | % of patients treated per PHC clinic |
| Mortality Infant Child Adult | Rate per population served by the PHC clinic |
| Morbidity | Rate per population served by the PHC clinic |
| Consumer Satisfaction | |
| Patients satisfied with PHC visit content -Personal interest shown to patient and medical problems -Patients questions answered and answers understood -Thoroughness of examination treatment -Physician knew what happened to you in other visits -Explanations of medical procedures and tests -Appropriate amount of time spent during the PHC visit -Overall satisfaction with care | As reported in survey/questionnaire/interview in PHC clinic |
| Patients very satisfied with personnel: -Physician -Nurse -Administration -Other primary health care staff | As reported in survey/questionnaire/interview in PHC clinic |
| Longitudinal continuity -Access to place of care over time -Access to regular provider over time | -% of patients who stayed with same place/provider more than 2 years -Average number years patients stays with place/provider |

Sources: (Roemer and Montoya-Aguilar, 1988)
 (Weisman, et al., 2000)
 (Seid, et al, 2001)
 (Haddad, et al 1998)
 (Anderson et al, 2002)

4.4 A few words of caution

The aim of the indicators presented is to analyze the performance of primary health care and all of its components. Freeman (2002) outlines two principal uses of indicator systems: as a “summative mechanism for external accountability and for verification in assurance systems,” and as a “formative mechanism for internal quality improvement.” Ultimately, indicators are intended to identify areas, which can systematically and

efficiently be improved. As Freeman cautions in his study, any health service embarking on quality measurement should attempt to establish whether those measure will produce the desired effects and at what cost.

Performance or process indicators in particular could lead to ineffective measures or measures that could have unintended consequences. Sheldon (1998) argues that problems could arise in three control systems:

1. *Measures*—Data can be manipulated. The service can become so intent on achieving high performance marks that it distorts efficient activity.
2. *Interpretation of results*—Change variation, small numbers or rare outcomes, make interpretation of results difficult.
3. *Action in light of results*—An effective framework of action must be defined in order to convert results into real change.

Performance measurement is still in its infancy. “Literal interpretation of the results may be misleading because substantial variation may exist across indicators that are designed to measure the same clinical event.” (Gross, 2000) Furthermore, Guiffirda et al (1999) claim that demographic composition, socioeconomic factors, measures of population health and secondary care could contribute to variation of health outcomes measured by performance indicators. Outcome measures can be precarious in that they sometime measure outcomes, which are influenced by factors other than quality of PHC.

In order to avoid ineffective or untended consequences of indicators, due caution must be exercised. Indicators should relate only to those aspects of care, which can be altered by the staff whose performance is being measured. (Guiffirda et al, 1999) Clear objectives must be delineated, stakeholders must be involved in their development, and ‘soft’ data should be used to aid interpretation. There is much to be gained by the vigilant use of performance indicators and much to be lost if they are used without appropriate caution. (Freeman, 2002)

5. International experience of how to improve primary health care quality and evidence of the impact on quality indicators

Representative strategies applied to quality improvement (Brook et al., 2000):

- Continuous quality improvement (audit and feedback)
- Use of regulations
- Focused incentives
- Behavioral interventions
- Academic detailing (local opinion leaders, and outreach visits)
- Education interventions (continuing education, and self-instructed learning)
- Use of information systems (provider reminder systems, and computer decision support systems)

Measuring quality in health care, and primary health care in particular, has gained increasing attention and importance across the globe in the last decade. In both industrialized and developing countries quality improvement is a top priority. There has

been an explosion in the development of performance indicators and the ways in which they have been measured at all levels of PHC. This section attempts to outline some important international lessons in measuring quality and their impact on quality indicators.

Burkina Faso—User's opinions on the quality of PHC services were measured at the urban and rural levels. A 20-item scale, including 4 subscales related to health personnel practices and conducts, measured the adequacy of resources and services, health care delivery, and financial and physical accessibility. It was administered to 1081 users of 11 health care centers in the health district of Nouna, in rural Burkina Faso. As a result, improving drug availability and financial accessibility to health services have been identified as the two main priorities for health policy action. Policymakers need to respect these patient preferences, as they are potential means to increase utilization of health care (Baltussen, 2002).

Saudi Arabia—Quality improvements have been a concern of the government, and have been implemented with little foreign assistance. A 9-month diploma course was developed for medical students to learn quality management and assume appropriate roles in its implementation. In primary care, the government set up the *Program of Supportive Supervision (POSS)* in 1995 to strengthen quality assurance and improvements in primary care centers. The POSS' objectives are to facilitate communication between the MOH and directorates and within the directorates, to train the directorate managers, to monitor other trainings, and to use quality indicators to assess the effectiveness and outcomes of the different programs at the health center level. As of the year 2000, all regions had been visited at least once a year and evaluated. Regional managers were trained in utilization of indicators. Information on quality improvements had been published and disseminated, and more national research projects were underway (Al-Assaf, 2000).

Jordan— The quality improvement paradigm was applied to one pilot governorate that was the best demographic representative. The project emphasized four intervention approaches: reorganizing for quality, training for quality, implementing quality assurance activities, and assessing quality improvements. The Minister of Health chose a quality coordinator, and a quality council (QC) was developed with representatives from various disciplines. The primary role of the QC is to provide education and training, set and monitor compliance with standards, and to facilitate quality improvements through problem solving. In the example given, the QC checked the cost of child immunizations, identified inefficiencies, implemented changes, and reduced the cost of the program without reducing coverage. QCs began in governorates as pilot programs and were expected to expand throughout the country (Al-Assaf, 2000).

Mozambique—A study evaluated curative care at the PHC level. Its goal was to put together expertise and initiatives from vertical programs, in an integrated, comprehensive and long-term effort to enhance health workers' skills and improve standards of curative care. Activities were done in each province including: evaluation of health units, discussion of results and training integration of control of diarrheal disease (CDD), acute

respiratory infection (ARI), malaria, sexually transmitted diseases (STDs) at the provincial level; and diffusion of Essential Drugs Program (EDP) manuals. The cycle was conducted in Gaza, Nampula, Manica, Inhambane, Sofala, Zambezia and Maputo provinces (Chambule et al, 1996).

Ghana—PHC in rural clinics was evaluated to ensure an adequate level of health care, provide opportunities for improving the training of health personnel, and help health planners to plan more appropriately. The evaluation provides a model that can be aimed at providers serving the greatest proportion of the populations, and with a focus on the performance of three categories of non-physician health providers at health stations. The indicators used in this study were childhood malaria (medical assistants were evaluated) and prenatal care (midwives were evaluated) and health education (community health nurses were evaluated). Data was collected through surveys and provider observation. Focus groups of stakeholders and a sample that were observed evaluated the results. This evaluation highlighted the need to review criteria with health center staff and the need to develop specific training curricula for health providers. This is a low cost assessment of the quality of care in a rural PHC setting. (Amonoo-Lartson et al, 1985)

Nigeria—In this study, PHC supervisors were trained for 3 days in the use of QA methods and tools and improvement of HIS (health information systems). Health worker performance of diarrhea case management was assessed, using a simulated case, to measure the impact of supervision. Gaps in quality were monitored over a two-month study period. As a result, PHC supervisors introduced a checklist during monthly visits to facilities to monitor how workers managed cases of diarrhea. Performance in history taking, physical examination, disease classification, treatment and counseling improved over the evaluation period. A HIS audit found that a variety of reporting methods were used at the PHC facilities. After HIS reporting was standardized, the number of health facilities using a daily disease registry significantly improved during the study period. (Zeitz et al, 1993)

Uganda—A study in Uganda argues that in developing countries, a “management-by-results approach” is a common strategy for improving health care services. Yet “sustainable quality improvements are rarely achieved because underlying material and logistical weaknesses are not addressed.” In the context of recent decentralization and sociopolitical change, Total Quality Management (TQM) was launched in Uganda. The focus of the program was on development and dissemination of standards or guidelines, determining the needs of patients and their families, strengthening communication between health care providers and users, and using data to identify gaps in quality. Trainings were launched at the district level, and methods were introduced through quality-awareness workshops. District leaders developed work plans to collect data, apply solutions and create measures that could result in change. A key aspect to the success of TQM was found to be the national quality assurance committee’s support visits to districts. Overall, results were very tangible and positive (e.g. a reduction in maternal mortality, a reduction in waiting times, and increased patient satisfaction, increased morale, etc.) A central lesson of the program is that it is fundamental that local political and government leaders be involved in the quality improvement process. Also,

basic needs of health workers must be met. “Quality stems from an attitude or mindset fostering continuous service improvement” (Omaswa, 1997).

Bahrain—Bahrain provides free or highly subsidized primary, secondary and tertiary services to all residents. There are 21 PHC centers in the country. The project’s goal was to improve a pilot health center by incorporating Continuous Quality Improvement (CQI) and Human Performance Technology (HPT). It identified problems in key areas (e.g. organizational structure, personnel decisions, budgets, appointment system, roles of staff, supervision system focus on improvement and physical layout) and engineered solutions for each. This resulted in more time spent with patients, increased levels of satisfaction, more cost effective/efficient practices, and the possibility of expanding the program to other centers (Benjamin, 1998).

Mexico—A research report studied the quality of public and private PHC by evaluating the treatment of children with specific conditions (diarrhea and acute respiratory infections—80% of children who died of these conditions had received medical care). The study found that public GPs performed better than private GPs in diarrhea and ARI management. This applied to both dietary management and prescription of antimicrobial and symptomatic drugs. Research found this could likely be attributed to the fact that unlike public GPs, private GPs are not required to meet regulations, and or have work monitored or controlled. Also, private GPs work in isolated conditions, which limits their ability to learn from colleagues and/or keep their skills upgraded. In addition, many private GPs (especially in rural areas) also own pharmacies, where they tend to prescribe drugs when other treatments are more appropriate (e.g. antimicrobials for diarrhea instead of oral rehydration salts). In this study, tracking two specific conditions gave valuable insight into quality of private and public PHC delivery (Bojalil et al, 1998).

United States of America—The Agency for Health Care Research and Quality (AHRQ) produces an annual report on health care quality in the USA. The report includes a broad set of performance measures that are used to monitor quality. The preliminary set of measures is based on the consensus of experts (interagency workgroup) in various areas (e.g diabetes, heart disease, types of cancer). Measures are mapped out into a conceptual framework. Final measures include measures of equity, efficiency, and multiple reporting products (AHRQ, 2002).

USA-Women—Women who use Centers of Excellence (CoE) for first contact of primary care were significantly more likely to be highly satisfied. Women served in CoEs generally received more clinical preventive services and experienced higher levels of satisfaction (which the report used to define quality). Factors contributing to this increased satisfaction were: an environment more sensitive to topics in women’s health, continuity and breadth of care, and treatment by female physicians. (Anderson et al., 2002).

The development of women-centered quality indicators is important for several reasons. First, appropriate quality measures in women’s health contribute to health plan report cards that are meaningful for women. Second, quality measures contribute to quality

improvement efforts in women's health care at the health plan or organizational level. Third, quality measures are essential to further a health services research agenda, which will reduce gender disparities in process and outcome of care (Weisman, 2000).

Rural USA—When studying in the rural environment it is important to keep cultural sensitivity in mind. Friendliness and courtesy may have more weight in the rural area, data technologies are necessary, staff needs to be trained in CQI, and quality improvements should be systematically reported to the public. The customer is the best judge of quality (Yasin et al, 1995).

To improve the measurement of quality in the rural setting, a number of issues must be addressed, including: small sample size, limited data availability, definition of areas, rural population preferences and lower priority for formal quality-of-care assessment in shortage areas. As managed care extends from the urban areas, there will be an inevitable collision between the ability to provide care and the ability to measure quality. A national standard for health care quality is not an attainable goal. Accrediting agencies, third-party carriers and health insurance purchasers need to develop rural health care quality standards that are practical, useful, and affordable (Moscovice, et al, 2000).

United Kingdom--Indicators can be successfully transferred between countries. There are considerable benefits in using work from another setting in developing measures of quality of care. However, indicators cannot simply be transferred directly between countries without an intermediate process to allow for variation in professional culture or clinical practice (Marshall et al, 2003).

6. Proposed Indicators of PHC Quality in IHSS, and Hypothetical Links Between IHSS Interventions and Quality Indicators

One of the objectives of IHSS' monitoring and evaluation activities is to assess the quality of primary health care and to analyze the attributions of IHSS interventions on the quality of primary health care. Recommended tools for the measurement of PHC quality are outlined and the impact of the interventions based on quality measures are discussed in this section.

6.1 Proposed indicators of PHC quality in IHSS

Proposed indicators to be used to measure quality of Iraq's health care industry are categorized as highly recommended, recommended, and somewhat recommended in Table 3.

Table 3. Proposed Indicators of PHC Quality

Structure Indicators

| | Highly Recommended | Recommended | Somewhat Recommended |
|---|---------------------------|--------------------|-----------------------------|
| Infrastructure | | | |
| Availability of continuous and safe water | | | |
| Clinics with a toilet for use by patients and in good working order | | | |
| Availability of uninterrupted electricity | | | |
| Clinics with a standby generator in working order | | | |
| Availability of communication infrastructure -telephones -fax machines -two-way radio transmitter -e-mail | | | |
| Emergency response time to clinic emergencies | | | |
| Conditions of: -Roof -Floor -Electrical system -Plumbing -Yard Maintenance -Security -Safety of the building -Cleanliness of building/rooms | | | |
| | | | |
| Equipment and Supplies | | | |
| <i>Sophisticated equipment</i> -Autoclave -Centrifuge -Microscope -Glucometer | | | |
| | | | |

| | | | |
|---|--|--|--|
| <i>Basic equipment</i> -Infant scales -Thermometers -Stethoscope -Sphygmomanometer -Tape measures -Adult scales | | | |
| <i>Basic Supplies</i> -Syringes -Needles -Urine/stool containers -Urstrix -Bandages -Scissors | | | |
| <i>Delivery Supplies</i> -Linens -Mucous extractors -Vitamin K/silver nitrate -Diagnostic sets (supplies for internal exam) -Fetal stethoscope | | | |
| Availability of hospital beds | | | |
| | | | |
| Pharmaceuticals -Availability of prescription medicines -Proportion of essential drugs in use that have been tested for potency (national level) | | | |
| | | | |
| Staffing | | | |
| -Clinics with a full physician staffing -Clinics with full midwife staffing -Clinics with full nursing staffing -Clinics with full midwife, & nurse staffing | | | |
| -Accreditation of physicians -Accreditation of nurses -Accreditation of midwives | | | |
| -Years of training and education -Staff knowledge | | | |
| Proportion of a minimum list of defined skills which have been learned by specific categories of personnel | | | |
| Proportion of personnel (physicians) per 10,000 people | | | |

| | | | |
|--|--|--|--|
| | | | |
| Access -Accessibility for travel -Availability of roads, bridges, & public transportation -Routine care accessibility -Evening or weekend hours | | | |

Process Indicators

| | Highly Recommended | Recommended | Somewhat Recommended |
|--|--------------------|-------------|----------------------|
| Technical Aspects | | | |
| Overall patient care | | | |
| Caring for and treating patients well | | | |
| Good clinical examination | | | |
| Dispensation of drugs | | | |
| Appropriate prescription | | | |
| Personnel doing their jobs well | | | |
| Making a good diagnosis | | | |
| Use of diagnostic equipment | | | |
| Appropriate referral | | | |
| Follow-up, continuity, monitoring patient during his/her stay | | | |
| Administration of injections | | | |
| Questioning of patient | | | |
| Drugs dispensed rapidly | | | |
| Recognizing one's limits | | | |
| Giving advice (how to take drugs) | | | |
| Appropriate care (bandages, injections) | | | |
| Screenings Physical, TB, cervical cancer, HIV, syphilis, mammography, breast cancer, pap smear, physical breast exam, blood cholesterol | | | |
| Preventive Counseling -Smoking -Diet/weight -Exercise, -Alcohol/drug -Calcium -Domestic violence -STIs | | | |
| Appropriate prenatal care | | | |
| Appropriate rate of immunizations | | | |
| | | | |

| | | | |
|---|--|--|--|
| <i>Behavioral and Interpersonal Aspects</i> | | | |
| Overall reception | | | |
| Compassion and support | | | |
| Access to doctor upon arrival | | | |
| Interest, attention paid | | | |
| Kindness, politeness, respect | | | |
| Waiting time | | | |
| Devotion, willingness to serve, being at patient's disposal | | | |
| Communication Doctor explained things Doctor listens to patient Satisfactory time spent with patient | | | |

Outcome Indicators

| | Highly Recommended | Recommended | Somewhat Recommended |
|--|--------------------|-------------|----------------------|
| Recovery, cure | | | |
| Rapid recovery, rapid cure | | | |
| Mortality Infant Child Adult | | | |
| Morbidity | | | |
| | | | |
| Consumer Satisfaction | | | |
| Patients satisfied with PHC visit content -Personal interest shown in patient and medical problems -Patient's questions answered and answers understood -Thoroughness of examination & treatment -Physician knew medical history -Explanations of medical procedures and tests -Appropriate amount of time spent during the PHC visit -Overall satisfaction with care | | | |
| Patients very satisfied with personnel: -Physician -Nurse -Administration -Other primary health care staff | | | |
| Longitudinal continuity -Access to place of care over time -Access to regular provider over time | | | |

6.2 The measurement/intervention link

The intention of using indicators to improve quality is to implement changes. The act of measuring changes, implementing them and monitoring their effect is called what Meyer calls a "quality cycle." Its components are "plan, do, study, act." IHSS intends to follow this cycle in order to implement quality improvements in Iraq's primary health care industry. As Figure 1 shows, each step is dependent and predicated on the preceding step (Meyer, 2001).

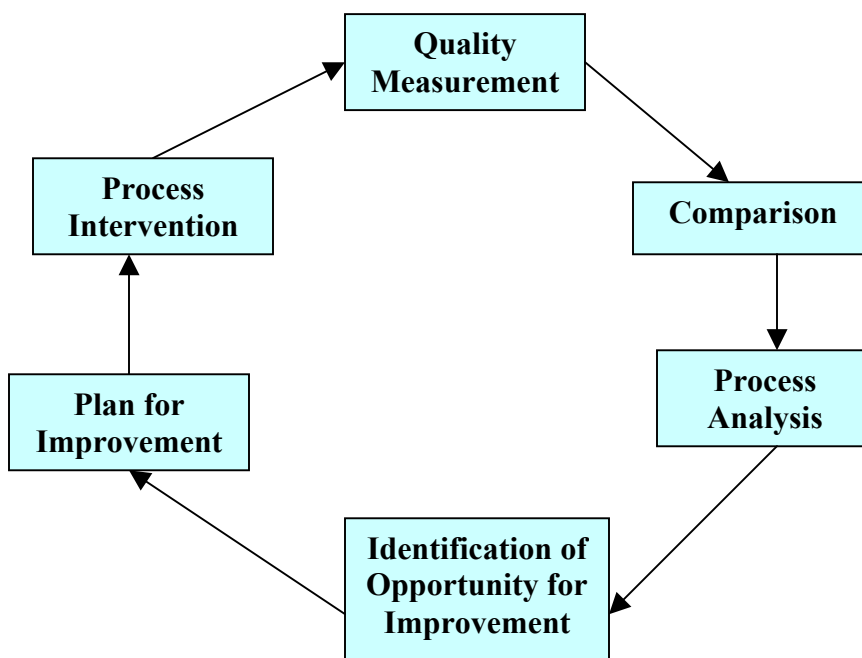


Figure 1: Quality improvement cycle (Meyer, 2001).

Quality will be measured using IHSS selected indicators. A comparison is made between the outcomes of the measured and internationally tested quality standards for PHC. Opportunities for improvement are identified and chosen based on the criteria set forth in the quality circles model. Selected problems over which there is control, the cause of the problems analyzed, possible solutions are proposed and then selected based on the feasibility of implementing solutions and their prospects for success. Solutions are then implemented (Cibulski et al., 1993).

The quality improvement cycle is implemented so that quality is continually measured in PHC, continually monitored and evaluated and improved upon in a sustainable fashion.

7. Conclusion

It is essential that a system of measuring and implementing quality improvements be part of the conceptual framework for rebuilding Iraq's primary health care industry. Quality measurement is a burgeoning movement globally. Quality can be scientifically and systematically measured in PHC in the structure-process-outcome framework, although due caution must be exercised. Since the fall of Saddam Hussein's regime, Iraq's nascent primary health care system has a unique opportunity to incorporate the quality measurement framework into the decentralized design of primary health care.

REFERENCES

- Agency for Healthcare Research and Quality, "NHQR preliminary measure set," 2002. Retrieved September 2003 from <http://www.ahrq.gov/qual/nhqr02/nhqrprelim.htm>.
- Al-Assaf AF, "Introducing quality in healthcare: an international perspective," *Journal for Healthcare Quality*. 1999: 21(1):4-15.
- Amonoo-Lartson R, Alpaugh-Ojermark M, Neumann A, "An approach to evaluating the quality of primary health care in rural clinics in Ghana," *Journal of Tropical Pediatrics*. 1985;31(5):282-5.
- Anderson RT, Weisman CS, Scholle SH, Henderson JT, Oldendick R, Camacho F, "Evaluation of the quality of care in the clinical care centers of the National Centers of Excellence in Women's Health," *Women's Health Issues*. 2002: 12(6):309-26.
- Baltussen RM, Ye Y, Haddad S, Sauerborn RS., "Perceived quality of care of primary health care services in Burkina Faso," *Health Policy and Planning*, 2002: 17(1):42-8.
- Benjamin S, Mandil M, Seaman M, "Bahrain: quality improvement in primary health care," *International Journal for Quality in Health Care*. 1998: 10(5):448-50.
- Bojalil R, Guiscafre H, Espinosa P, Martinez H, Palafox M, Romero G, Gutierrez G, "The quality of private and public primary health care management of children with diarrhea and acute respiratory infections in Tlaxcala, Mexico," *Health Policy and Planning*. 1999:13(3):323-31.
- Bowers MR, Kiefe CI, "Measuring health care quality: comparing and contrasting the medical and the marketing approaches," *American Journal of Medical Quality*. 2002: 17(4):136-44.
- Brook RH, McGlynn EA, Cleary PD, "Quality of health care. Part 2: measuring quality of care," *New England Journal of Medicine*. 1996: 335(13):966-70
- Brook RH, McGlynn EA, Shekelle PG, "Defining and measuring quality of care: a perspective from US researchers," *International Journal for Quality in Health Care*. 2000:12(4):281-95.
- Carey RG, "Measuring health care quality. How do you know your care has improved?" *Evaluation and the Health Professions*. 2000: 23(1):43-57.
- Carlson KJ, "Women's primary health care and the search for quality," *Women's Health Issues*. 2001: 11(4):300-5; discussion 309-25.
- Centers for Disease Control and Prevention, "Community indicators of health-related quality of life--United States, 1993-1997,"

JAMA. 2000; 283(16):2097-8.

Chambule J., Chonguiça MC, Ferruccio V, Machatine G, Valigy IV, MoH Mozambique, "Strengthening curative care at PHC level in Mozambique," 1996. Retrieved September 2003, from http://www.who.int/dap-icium/posters/2P32_TXT.html.

Cibulskis RE, Edwards KN., "Quality circles and their potential application to rural health care in Papua, New Guinea.," *Papua New Guinea Medical Journal*. 1993; 36(2):107-13.

Derose SF, Petitti DB, "Measuring quality of care and performance from a population health care perspective," *Annual Review of Public Health*. 2003; 24:363-84.

Donabedian, A, "Evaluating the quality of medical care," *Milbank Quarterly*. 1966; 44:166-203.

Donaldson MS, Nolan K., "Measuring the quality of health care: state of the art," *Joint Commission Journal on Quality Improvement*. 1997; 23(5):283-92.

Edwards-Miller, J., "Measuring quality of care in South African clinics and hospitals," 1998. Retrieved September 2003 from South African Health Review at <http://www.hst.org.za/sahr/98/chap14.htm>.

Eliasson G, Berg L, Carlsson P, Lindstrom K, Bengtsson C., "Facilitating quality improvement in primary health care by practice visiting.," *Quality in Health Care*. 1998; 7(1):48-54.

Freeman T., "Using performance indicators to improve health care quality in the public sector: a review of the literature," *Health Services Management Research*. 2002; 15(2):126-37.

Friedman MA., "Issues in measuring and improving health care quality," *Health Care Financial Review*. 1995; 16(4):1-13.

Gross PA, Braun BI, Kritchevsky SB, Simmons BP, "Comparison of clinical indicators for performance measurement of health care quality: a cautionary note," *Clin Perform Qual Health Care*. 2000 (4):202-11.

Giuffrida A, Gravelle H, Roland M, "Measuring quality of care with routine data: avoiding confusion between performance indicators and health outcomes," *BMJ*. 1999; 319(7202):94-8.

Haddad S, Fournier P, Potvin L, "Measuring lay people's perceptions of the quality of primary health care services in developing countries," Validation of a 20-item scale. *International Journal for Quality in Health Care*. 1998; 10(2):93-104.

Haddad S, Fournier P, Machouf N, Yatara F, "What does quality mean to lay people? Community perceptions of primary healthcare services in Guinea," *Social Science and Medicine*. 1998: 47(3):381-94.

Health Systems Trust, "Equity gauge: health systems trust monitoring health reform progress in South Africa," Retrieved September 2003 from http://www.healthlink.org.za/hlink/equitypub/mont_equity.htm.

Hermida J, Nicholas DD, Blumenfeld SN, "Comparative validity of three methods for assessment of the quality of primary health care," *International Journal for Quality in Health Care*. 1999: 11(5):429-33.

Hussein N, Liu X. "Field visits to 11 governorates by IHSS staff: a trip report," unpublished report, Abt Associates Inc., 2003.

Jencks SF, "Measuring quality of care under Medicare and Medicaid." *Health Care Financial Review*. 1995: 16(4):39-54.

Johnson M, Holthaus D, Harvell J, Coleman E, Eilertsen T, Kramer A, University of Colorado Health Sciences Center, "Medicare post-acute care: quality measurement final report, 2002." Retrieved September 2003 from <http://aspe.hhs.gov/daltcp/reports/mpacqm.htm>.

Kimberly JR, "Assessing 'quality' in health care: issues in measurement and management," *International Journal for Quality in HealthCare*. 1997: 9(3):161-2.

Kutner JS, "The value of measuring health care quality," *Hosp Pract (Off Ed)*. 1998: 15;33(6):11-2, 15-6, 22.

Lavizzo-Mourey R, "Measuring quality in health care reform," *Journal of Health Care for the Poor and Underserved*. 1994: 5(3):202-11; discussion 212-3.

Loegering L, Reiter RC, Gambone JC, "Measuring the quality of health care," *Clinical Obstetrics and Gynecology*. 1994: 37(1):122-36.

Lohr KN, "Use of insurance claims data in measuring quality of care," *International Journal of Technology Assessment in Health Care*. 1990: 6(2):263-71.

Lohr KN, Medicare: A Strategy for Quality Assurance. Washington DC, National Academy Press, 1990.

Lohr KN, "Measuring and improving quality and performance in an evolving health-care Sector," *Clinical Laboratory Management Review*. 1997: 11(4):272, 265-71.

- Longo DR, Daugird AJ, "Measuring the quality of care: reforming the health care system," *American Journal of Medical Quality*. 1994: 9(3):104-15.
- Maggi S, Myers GC, "Measuring health care quality: methodological challenges," *Aging (Milano)*. 1997: 9(3):161-3.
- Marshall G, Shroyer AL, Grover FL, Hammermeister KE, "Time series monitors of outcomes: new dimension for measuring quality of care," *Medical Care*. 1998: 36(3):348-56.
- Marshall MN, Shekelle PG, McGlynn EA, Campbell S, Brook RH, Roland MO, "Can health care quality indicators be transferred between countries?" *Quality and Safety in Health Care*. 2003: 12(1):8-12.
- McGlynn EA, "Six challenges in measuring the quality of health care," *Health Affairs*. (Millwood). 1997: 16(3):7-21.
- Merry MD, "What is quality care? A model for measuring health care excellence," *QRB Quality Review Bulletin*. 1987: 13(9):298-301.
- Meyer GS, "Balancing the quality cycle: tackling the measurement-improvement gap in health care: Part I," *Nutrition*. 2001:17(2):172-4.
- Moscovice I, Rosenblatt R. "Quality-of-care challenges for rural health," *Journal of Rural Health*. 2000: 16(2):168-76.
- Omaswa F, Burnham G, Baingana G, Mwebesa H, Morrow R, "Introducing quality management into primary health care services in Uganda," *Bulletin of the World Health Organization*. 1997: 75(2):155-61.
- Peabody JW, Rahman O, Fox K, Gertler P, "Quality of care in public and private primary health care facilities: structural comparisons in Jamaica," *Bulletin of the Pan American Health Organization*. 1994: 28(2):122-41.
- Quality Assurance Project, "Institutionalization of quality assurance," Retrieved March 2004 from <http://www.qaproject.org/pubs/PDFs/Institutionalization.pdf>.
- Reerink IH, Sauerborn R, "Quality of primary health care in developing countries: recent experiences and future directions," *International Journal for Quality in Health Care*. 1996: 8(2):131-9.
- Regional Committee for the Eastern Mediterranean, World Health Organization, "Quality assurance and improvement in health systems with special reference to primary health care: a shared responsibility." Retrieved September 2003 from <http://www.emro.who.int/RC47/AnnotatedAgenda-Item11b.htm>.

Roemer MI, Montoya-Aguilar C, Quality assessment and assurance in primary health care. WHO Offset Publication No. 105. 1988.

Seid M, Varni JW, Bermudez LO, Zivkovic M, Far MD, Nelson M, Kurtin PS, "Parents' perceptions of primary care: measuring parents' experiences of pediatric primary care quality," *Pediatrics*. 2001;108(2):264-70.

Sheldon T, "Promoting health care quality; what role performance indicators?" *Quality in Health Care*. 1998; 7(Suppl):S45-S50.

Tavrow P, Kim YM, Malianga L, "Measuring the quality of supervisor-provider interactions in health care facilities in Zimbabwe," *International Journal for Quality in Health Care*. 2002; 14 Suppl 1:57-66.

United Nations, Office of the Iraq Programme Oil-for-Food, Fact Sheet, Retrieved March 2004 from <http://www.un.org/Depts/oip/background/fact-sheet.html>.

Weisman, CS, Cassard, SD, Plichta, SB, "Types of physicians used by women for regular health care: implications for services received," *Journal of Women's Health*. 1995; 4:407-416.

Weisman CS, "Measuring quality in women's health care: issues and recent developments," *Quality Management in Health Care*. 2000; 8(4):14-20.

Weisman CS et al, "Gender and patient satisfaction with primary care: tuning in to women in quality measurement," *Journal of Women's Health & Gender-Based Medicine*. 2000; 9(6):657-665.

Yasin MM, Green RF, "A strategic approach to service quality: a field study in a rural health care setting," *Health Mark Q*. 1995;13(1):75-85.

Zeitz PS, Salami CG, Burnham G, Goings SA, Tijani K, Morrow RH, "Quality assurance management methods applied to a local-level primary health care system in rural Nigeria," *International Journal of Health Planning and Management*. 1993; 8(3):235-44.