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## Quality Improvement and Clinical Audits

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### INTRODUCTION

This chapter is intended to provide managers and healthcare providers with basic information for establishing and implementing quality improvement measures of services and care in resource-limited settings. Although the focus of this book is on gynecological services, the reader will realize that the principles of quality improvement are the same irrespective of whether one intends to apply them to a unit, department or the whole health facility. The methodologies are derived from those described by experts in quality improvement and have been successfully applied in facilities with resource constraints. Whenever possible, experiences resulting from application of such approaches are elaborated.

Health facilities are composite units whether they are small stand-alone clinics or large multi-specialist hospitals. A functioning health facility is a complete system composed of interacting elements which form a complex whole<sup>1</sup>. By understanding the components of a system in the context of health service delivery and health facilities, it is possible to appreciate its dynamics and ultimately recognize the reason for its current performance status. This information is essential in designing improvement measures.

There are many opportunities for a facility to embark on quality improvement. It is good to realize that these opportunities are always there, waiting to be utilized. Below are listed events or situations which can trigger initiation of quality improvement programs. The list serves only as example.

#### **Demands from users and society**

These include introduction of payment systems for health services, introduction of a complaint system

in a health facility, political or media pressure and boycott of bad health services.

#### **Demands from staff**

Healthcare providers including the health institutions managers would like to work in a safe environment, have the necessary basic equipment and materials to enable them to perform well and want to be allocated tasks according to their respective knowledge and skills. Quality management is one method that can assist in ensuring that these conditions are met in order to make the facility function and improve the motivation of staff and management.

#### **Health insurance institutions**

Health insurance institutions and companies also demand certain levels of quality to be achieved before the facility can be approved to provide services to their clients. These institutions develop or use existing standards of services which must be abided to by the providers/facilities.

#### **Licensing and accreditation systems**

Licensing and accreditation authorities develop sets of quality prerequisites (standards) on behalf of the state. These prerequisites have to be fulfilled before a facility is certified to provide specified services. This is followed by periodical re-evaluation to ensure constant conformity to those standards.

#### **DEFINITION OF QUALITY IN HEALTHCARE**

There are many definitions of quality that are described in the literature. Unfortunately, there is no

single definition that is agreed to by all quality experts. The difficulty in defining quality is compounded by the fact that some features of quality are implicit while others are explicit; some are qualitative while others are quantitative; some apply to the user while others apply to providers and management. During discussions on the definition, one fact is definitive: that quality refers to people – provider, management, consulting firms, patients, relatives, clients and the community served by the facility. These are the key stakeholders of quality in healthcare. However, there is no clear boundary between provider and user because at one time the provider may become the user while the management is the provider. Using this classification, three definitions of quality in health emerge.

#### **The health service provider view of quality**

Quality means proper performance (according to standards) of interventions that are known to be safe and affordable to the community served, and that have the ability to cause reduction of disease and suffering, of death from diseases and accidents, disability and malnutrition<sup>2</sup>. It is the degree to which health services increase the likelihood of desired health outcomes consistent with current professional knowledge<sup>3</sup>.

#### **The management perspective**

Quality may be defined as conformance to specifications<sup>4</sup>. From the health manager's point of view, *quality* means optimizing material inputs and practitioner skill to produce health<sup>3</sup>.

From the above definitions it may be concluded that good quality of healthcare is the result of interplay of five key elements:

- The working place is *equipped* according to assigned tasks.
- There are *adequately trained and motivated staff* in sufficient number and appropriate skills mix.
- *Standards and norms exist*, they are known to all and are utilized.
- The client (patient, relatives and caretakers, service providers, the management and community served) is *satisfied* by the services offered.
- Staff and management are *aware and motivated to do better*.

#### **The perspective of patients or users**

Patients, users and the community define quality in healthcare as the ability and capacity of a healthcare system to satisfy their needs (users/clients/patients, providers, community/society).

#### **PRIMARY COMPONENTS OF A SYSTEM**

The basic components of a system are *inputs, processes and outcomes*. The *inputs* are the resources used in the provision of health services. These will include human, financial and material resources. Specific examples will include: medical staff (skills), buildings, amenities (electricity, water supply, communication, sanitation facilities etc.), medicines and medical supplies, equipment and finances.

Interaction of patients/clients with the providers will define the *processes*, the act of diagnosing, treating, preventing and rehabilitating. In other words, processes make use of inputs in order to produce results or outputs. The processes may include among others patient registration, history taking, physical examination, clinical investigations (laboratory and imaging), patient counseling and treatment.

Various processes are not directly linked to the patient. The patient might not even know that such processes do exist until their presence or absence affects processes directly linked to the patient. Some examples are staff administration, storage of drugs and supplies, internal and external communication, data collection and processing and many others. When the above (inputs and processes) are put together, they form what is referred to as a quality system. A quality system is therefore a collection of resources, organizations, equipment, people (staff, management) and procedures that implement quality policy<sup>4</sup>.

As mentioned above, *outputs* are results of interaction among inputs and processes. These may include vaccinated children, patients counseled on disease prevention, women screened for cervical cancer etc. Output is the evidence that interaction between inputs did occur. It is the revelation of quality of inputs, processes or both. When appropriately and adequately measured, outputs provide useful information to improve inputs and processes. Outputs of one step in healthcare may serve as input in another step within the same health facility (system). Figure 1 simplifies the main components of a system and how they are related to each other.

In order to better understand what is entailed in such a system, it is important to appreciate what is inside each of the components mentioned above. Take an example of a patient attending a gynecology clinic of a district hospital. Outline all steps this patient will undergo from registration until the patient is discharged after several days (assuming she is treated surgically). Illustrate the steps and the processes on a piece of paper, then answer the following questions:

- Which are the inputs (resources) needed for this patient to get properly treated?
- What processes are involved in the treatment of this patient?
- Identify intermediate and final results following treatment.

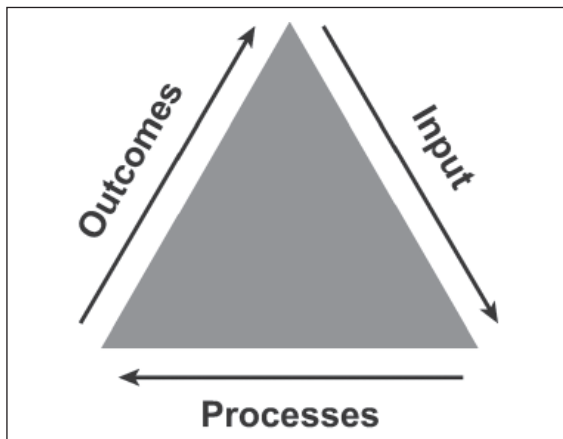


Figure 1 Key components of a system

Figure 2 summarizes (does not exhaust) the inputs, processes and results in the example above.

Those items not captured in the illustration are nevertheless equally important; if all were included, the figure would be jumbled and not easy to understand. This may be taken as evidence that a health facility is a complex system that needs to be studied and understood fully in order to be able to introduce changes. Just one result is mentioned with its beneficiaries in the example above but other results cover a wider range of people – patients and clients, staff and consulting companies or individuals and equally important are the communities benefiting from the facility.

Quality dimensions are a collection of characteristics of a process or service that help to understand how customers might define quality<sup>1</sup>. These will include among others the following; technical competence, technical performance, safety, effectiveness, efficiency, accessibility, interpersonal relations, continuity of care, amenities and choice of service. To better understand how these dimensions are used to develop standards, examples are provided in Table 1.

#### FACTORS ENABLING QUALITY IMPROVEMENT

There are factors which should be considered by the quality team as enablers for a successful quality improvement program. The role of the quality team is to encourage and re-enforce these factors.

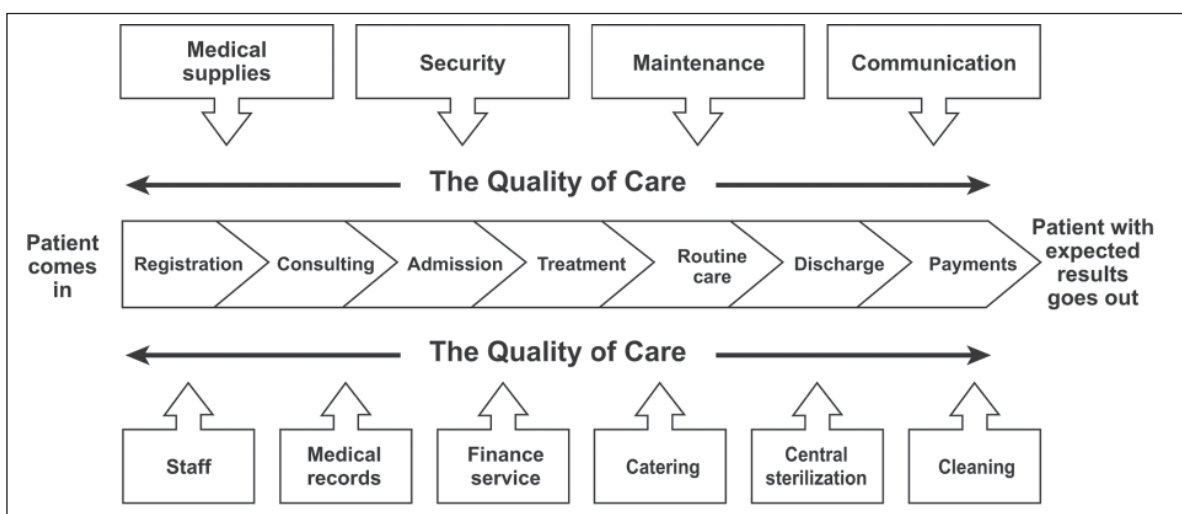


Figure 2 The gynecology unit flow chart: inputs, processes and results

## GYNECOLOGY FOR LESS-RESOURCED LOCATIONS

**Table 1** Dimensions of quality<sup>2</sup>

<i>Dimension</i>	<i>Explanation</i>	<i>Examples of standards</i>	<i>How to measure quality</i>
Provider knowledge and skills	Knowledge and skills of health providers (capability)	Gynecology department have staff competent in counseling for HIV/AIDS	Test the knowledge and competence of care providers in the department
Technical performance	Tasks carried out by a health worker or facility in their usual situation is in line with set guidelines and standards	Woman of child bearing age presenting with lower abdominal pain should be investigated for ectopic pregnancy	Direct observation patient-provider encounter
Safety	Minimizing the risks of injury, infection and harmful side-effects or other dangers	No blood transfusion to be done without previous testing for HIV, syphilis and hepatitis B status	Review of laboratory results on a sample of blood
Effectiveness	Degree of achievement of desired results	A patient undergoing surgery should be ambulant within 48 h	Review surgical patient files in ward
Efficiency	The ratio of inputs of service processes to associated costs	The cost for any method of family planning should be less than \$1 per month	Cost analysis
Accessibility	Degree to which health services are not restricted by geographic, economic, social, cultural, linguistic or organizational barriers	At least one of the staff in the gynecology clinic can speak the native language of the area	Interview of the nurse
Interpersonal relations	Trust, respect, confidentiality, courtesy, responsiveness, empathy, effective listening and communication	All family planning clients must perceive that they are being treated with courtesy	Exit interview of the patient. Focus group discussions with patients
Continuity of care	Involves delivery of care by the same provider every time and appropriate referral/communication between providers	There should be a referral process in each clinic	Interview of health providers. Review of referral guidelines
Amenities	Physical appearance of health facility, cleanliness, comfort, privacy	The gynecology wards should be clean at any time	Inspection of the facility
Choice of service	A situation whereby client is allowed to make informed choice	Client seeking family planning services must have explained the various methods available	Ask the clients

### **Commitment**

The members of a quality team have to show the way by working as a team, learning and motivating each other and staff. They should keep to the meeting schedules, practice punctuality and document processes and share with the staff and management.

### **Honesty and respect**

The team has to show sincerity and humor in working together. Open-mindedness will ensure

sustainability of the team through encouragement of each other. Team members should respect each other's and the staff's ideas as well as worries.

### **Innovative thinking**

Approaches that will become successful in one facility will not, as a rule, become successful in another facility. The team and staff should think of new ways of doing things that will bring positive results more efficiently and effectively.

### Materials and management support

Quality improvement may be expensive and may need additional resources in the beginning but ultimately quality services are more efficient than poor services. Management is expected to support these initiatives by providing resources and commitment to the initiative.

### Support of key players

As mentioned above, it is only through support of the management and all staff that quality programs will become effective.

### OBSTACLES TO QUALITY IMPROVEMENT

In addition to the enablers mentioned above, quality teams should be aware of barriers as well. They are essentially the opposite of the enablers. These include insufficient commitment of resources (the team), resistance to change (both staff and management), usual thinking (in the box) and unsupportive management<sup>1</sup>. The quality team has a role to overcome these obstacles in order to register success.

### THE ROLE OF FUNDING IN QUALITY IMPROVEMENT OF HEALTHCARE

Adequate financial resources are categorically necessary for quality improvement in health services and care. Regardless of the fact that health financing in developing countries has improved in the recent past and there is evidence of increasing availability of equipment, supplies and medicines, there is little or no accompanying improvement in satisfaction of patients, staff and communities served<sup>5</sup>. There are several reasons for this situation. One important reason is that there is a mismatch in the efforts to improve quality. Faulty processes and resources not provided according to assigned tasks outweigh improvement in inputs. It can therefore be concluded that funding for improved quality of care is important but not the magic bullet to solve the problem of low quality of healthcare. A lot of improvement in quality of services can be achieved without huge increase in financial resources. A successful quality improvement program will therefore focus on improvement of the processes of healthcare and of course strengthening the quality of inputs with the purpose of increasing satisfaction of providers, patients and the communities.

Looking back at one of the definitions of quality which states that it is performance according to standards, then it is almost a rule that a critical number of service providers with the appropriate skills mix must be there for the performance to match the required standards. Absolute shortage of health staff in poor countries has hampered most of the efforts to improve quality of care. On the other hand, poor quality may be the reason for shortage of staff as well! Functional quality improvement programs will address issues of health provider's administration and management, including planning for staff recruitment, allocation to tasks, appropriate remuneration, appropriate training and capacity development, supervision, motivation, communication and the like. Staff need to be supported to use their maximum production potential and made to see that the facility exists because of their individual and team efforts. This does not mean however, that in places where there is shortage of staff then quality improvement should not be deployed. Tangent improvements can still be realized by doing the following:

- Balancing staff numbers according to work load across the facility.
- Allocating tasks according to knowledge, skills and experiences.
- Avoid unnecessary shifting of staff from one function area to another. Note that this will mean again training and capacity building to this staff in order to be able to take up the new tasks.
- Improvement of transparency communication.
- Sharing mission and vision of the facility.
- Recognizing individual and team efforts.
- We can do better today than we did yesterday is shared by all.

### Summary

- Health facility performance is a result of interaction of inputs and processes.
- Quality improvement does not come as an unexpected result; it has to be made an integral part of management functions and process of healthcare (planned, implemented, monitored, evaluated and re-planned).
- Improvement of processes is a prerequisite to the improvement of the whole system.
- Initially the facility staff will experience an increased work load but later the feeling becomes more satisfying due to better work results.

## STEPS TO INTRODUCE QUALITY IMPROVEMENT IN A HEALTH FACILITY

### Establishment of a hospital quality improvement team

Quality improvement is always thought to be everybody's responsibility. In the majority of cases it ends up being no one's liability. Quality teams have been shown to be effective in responding to this challenge. Voluntary membership to this team will ensure high motivation and sustainability of the efforts. The size of the team depends on the size of the facility. In moderately sized hospitals (100–200 beds) 6–10 members to the team is just the appropriate size. Bigger teams will not increase efficiency or effectiveness of the team. They may even be counterproductive in the sense that it takes longer to reach consensus in cases where a decision has to be reached through discussions and mutual agreement. Nevertheless, staff members who are known to be influential and capable of inspiring other staff, should be encouraged to become part of this team. The team is expected to have at least the following characteristics:

- Members are well motivated to undertake the tasks of improving quality of services and care across the facility.
- Multilevel representation – from top management to attendants and helpers.
- Mixed knowledge levels – from specialists to unskilled laborers.
- Gender sensitive – proportionate representation of male and female staff.
- Senior staff (age) and the youth,
- Representative from physically challenged staff members.
- Representation from the key function units as defined by the facility.

A quality team for a department, e.g. gynecology department, will consist of similar characteristics as mentioned above. The multilevel in this perspective will refer to the units within the department. However, the department does not work in isolation within a hospital. Representation from the key function areas supporting the department such as laboratory, radiology, theatre and out-patient departments must be included in the team to ensure completeness and comprehensiveness.

Once the nomination is complete, the team will develop basic norms for its operation. The most im-

portant norm is respect among members. Respect will entail listening to each other, sharing of ideas and communication. In this perspective, working as a team to solve problems and decision making through discussions and consensus will prevail<sup>6</sup>. It is important to understand that this team aspect is vital to its work, as otherwise, the routine hierarchy will prevent more junior, but maybe more knowledgeable, members giving their input. An experienced moderator (internal or external) may be required. The moderator, will not only support building capacity of the team in moderation skills, but ensure each member has opportunity to participate and finally support the team in documentation of the processes, which is key to success. The moderator should only moderate the process and not engage in discussions of the content.

### Defining tasks and responsibilities

The quality team will be in a position to perform better if its duties are well elaborated and understood by all concerned (the quality team members, facility staff, facility management, patients and the community served). It is therefore important to handle this step with great care. The team may need support from a committed and experienced person in order to manage this step. A trained person within the hospital or from another hospital or even the ministry should be sourced to support. If there are nationally developed tasks for a facility quality team, these must be adapted. However, centrally developed tasks are very general. The facility quality team should study these but modify them according to the specific needs of the facility.

The main task of the team is to foresee that services are provided according to the defined standards on a day-to-day basis by all staff in their respective places of work in particular and the whole facility in general. The following are some of the tasks that may be included in the list:

- Support translation and adaptation of national standards for facility use and initiate their development where national standards are lacking.
- Oversee that individuals and teams always perform according to standards.
- Link service providers and patients/staff to the management in the context of quality of care.
- Advise the management in cases of complaints related to services and/or ethics.

- Support staff and management to apply appropriate quality improvement approaches and tools.
- Develop innovative approaches that will ensure sustained quality practice in the facility.
- Conduct facility performance assessment, analyse results and develop action plans and follow up their realization.
- Communicate assessment results to respective teams, units or departments.
- Support staff to design and implement corrective measures that will appropriately address performance mistakes.
- Support staff to develop quality improvement measures which guarantee increasing staff and patient/client satisfaction to the services.
- Advocate the advantages of quality improvement to management, staff and communities.

**Initial training and planning for quality improvement**

Capacity building to the team to undertake their roles and responsibilities is of paramount importance. This training should be designed in such a way that it does not pull out the most skilled and most motivated staff from the facility for too long. It is important not to forget that most facilities have shortages of staff. The most convenient way is to organize such training in the afternoon. This will enable hospital staff to work in the morning when most facilities are usually busiest. This approach however has some disadvantages. Participants will be tired when they come to afternoon classes. This means the facilitator will need to apply extra efforts to stimulate and maintain their attention and participation. The second disadvantage is that the training takes more days. In case an external facilitator is employed to run the training, it means staying longer and therefore more costs will be incurred.

**Purpose of the training**

The training is intended to provide quality team members with basic knowledge on quality improvement in healthcare. The sessions will expose them to different tools and approaches to address quality issues. Ultimately, members are expected to deploy this knowledge to their co-workers in order to build a culture of continuous quality improvement in the whole health facility – staff and

management. The participants will conceptualize approaches to quality improvement and build up skills to apply various tools for quality improvement. They will get to understand which tools are useful in different steps of planning, implementation and evaluation of quality improvement measures. Moreover this training will be used to build up a spirit of teamwork among staff members.

**Topics to be covered**

There is no standard in the list of topics to be covered during this training. However the topics listed in Appendix 1 will benefit all members regardless of whether they are previously trained or not.

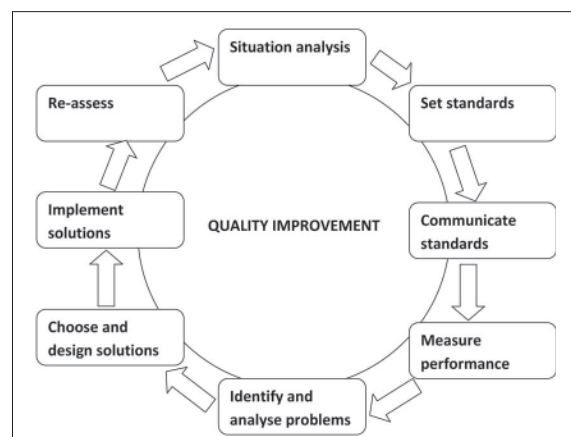
**THE QUALITY IMPROVEMENT CIRCLE**

The circle presented in Figure 3 has eight steps. It is in principle part of the well-known Deming circle, commonly known as the PDSA (Plan, Do, Study, Act) circle<sup>4</sup>.

The steps will require studying and understanding the different tools that may be employed in order to achieve each step. Note should be taken that application of several tools may be required to achieve one step while a single tool may be used to achieve two steps or more. This training will need to stimulate the team and other staff members to study, conceptualize and even produce their own tools that will support them to achieve respective objectives.

**Step 1: Situation analysis**

This step entails a complete and thorough assessment and analysis of the existing situation regarding quality



**Figure 3** The quality improvement circle

levels. The information resulting from this step is necessary for development of immediate and future interventions which will lead to better quality of services. It will answer two basic questions in the quality perspective – ‘where are we now (needs and challenges)?’ and ‘Where do we want to go (priorities and targets)?’ Some of the tools which are useful to collect and analyse data in order to establish baseline information and the current quality situation are presented below. There are however, many other tools and approaches in existence. Facilitators of this training may see the necessity to expose the team to more approaches and tools. This should be encouraged, but with care. Trainees should be exposed to approaches and tools which are most likely applicable in their particular facility.

The following features may be used to determine an appropriate tool in this perspective: the tool needs to be simple, user friendly but should be able to provide close to an exact overview on the performance level at any particular time. This tool should aim to help a unit, a ward, a department or a hospital to make rapid cross-sectional performance measurement. The indicators should be based on national indicators or reputable international publications.

**Analysis of patient flow in a facility**

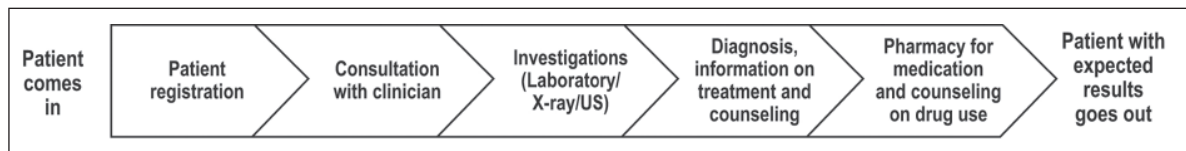
The following step will help the team to develop its own performance assessment tool that is simple and effective for the purpose. In order to be able to do so, it is advised to track patient flow in the facility (see Figure 1). This exercise will allow team members to understand the different steps a patient takes while in the facility. Figure 4 gives an example of a patient track in a gynecology outpatient services

and ward in a hospital. This analysis provides information on the different steps that the patient experiences during care in the out-patient clinic. It provides clues to the different staff members involved during this process. Use the examples in Table 1 to analyse the dimensions of quality involved in each process of patient care. In order to improve quality of care, performance gaps have to be recognized and changes instituted as deemed necessary. All staff involved in the process has to be involved in implementing those changes. This applies to the Figure 5 as well.

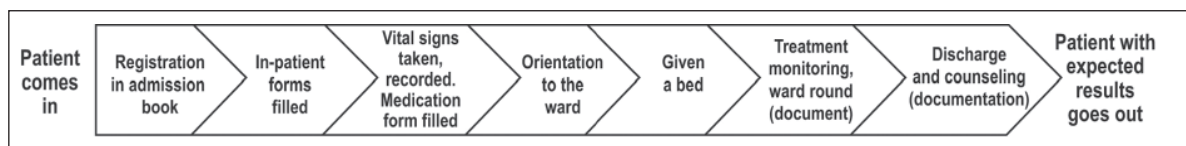
It is advisable to be as complete as possible at this step. To give a clear picture of this step, the team should visit appropriate function areas and accurately document their findings. Once the analysis is completed, the team will be able to identify main service areas, resources required and used and the processes undertaken at each step. The team should start documenting indicators of performance at each step through the function areas. The following table provides a general framework to help team members to identify relevant function areas and its related processes (Table 2). This will also formulate a foundation for development of performance assessment tool for the inputs, processes and results.

Service areas refer to the complete unit or department of the facility, with a team of experts and supportive staff working together (as a team) to provide services or patient care. It is clear in the table and illustrations that service areas do not work alone. They depend on products of other service areas in order to perform.

Processes refer to the procedures in the service areas (e.g. gynecology clinic). They are interlinked activities that use resources in the clinic (doctors’ and nurses’ time, medicines, medical supplies,



**Figure 4** Analysis of patient flow in gynecology out-patient department services or clinic



**Figure 5** Analysis of patient flow in gynecology ward – an example



**Table 2** The main service areas and key processes in gynecology department

<i>Broad classification</i>	<i>Main service areas</i>	<i>Example of processes</i>
Management services	<ul style="list-style-type: none"> <li>• Infrastructure and equipment management</li> <li>• Waste management</li> <li>• Procurement for material and drugs</li> </ul>	<ul style="list-style-type: none"> <li>• Staff hygiene practices</li> <li>• Waste management functions</li> <li>• Maintenance functions</li> <li>• Organization and timeliness of procurement</li> </ul>
Diagnostic services	<ul style="list-style-type: none"> <li>• X-ray services</li> <li>• Laboratory services</li> <li>• Ultrasound</li> <li>• Instant checks (e.g. pregnancy tests)</li> </ul>	<ul style="list-style-type: none"> <li>• Efficiency, reliability and quality of X-ray, laboratory and ultrasound services</li> </ul>
Clinical services	<ul style="list-style-type: none"> <li>• Gynecology outpatient</li> <li>• Gynecology inpatient</li> <li>• Operating theatre</li> <li>• Pharmacy</li> <li>• Hematology and blood transfusion</li> <li>• Physiotherapy</li> </ul>	<ul style="list-style-type: none"> <li>• Patient registration</li> <li>• Medical records archiving</li> <li>• Outpatient triaging</li> <li>• Consulting (doctor or nurse)</li> <li>• Admission</li> <li>• Ward rounds</li> <li>• Operative procedures</li> <li>• Post-surgery monitoring</li> <li>• Counseling</li> <li>• Discharge</li> <li>• Physiotherapy services</li> <li>• Pharmacy services</li> </ul>

equipment, electricity, water etc.) in the various steps of treating the patient. The results of each set of procedures serve as inputs for the following step (see Figures 2 and 4). This process goes on until the expected clinical outcomes are reached.

Take the following example of a patient consulting the gynecology clinic at a district hospital (Table 3). See possible steps that such a patient may take while in the clinic. Note also some performance indicators which may be drawn from tracking this patient.

From this example one can identify service areas, condition of infrastructure and amenities, staff and equipment. Moreover processes involved in out-patient department consultations can be pointed out, together with staff attitude and motivation. From the information above, standards for equipment and processes can be developed and assessment indicators can be drawn (see below).

### Step 2: Set standards

Standards are statements of expectations for inputs, processes and outcomes of a system necessary to ensure quality healthcare<sup>7</sup> (Table 4). Therefore standards are the minimum acceptable levels of

practices on performance based on the environmental situation, knowledge, resources and statement of the expected quality<sup>7</sup>.

This step requires extensive review of documents including: national health policy guidelines, national standards and indicators, scientific literature, especially (systematic) reviews, annual facility reports, supervision guidelines and reports and others. In these documents, there will be important evidence-based information that can be used.

Note should be taken that the process of developing standards needs a lot of care and consultations. Reference should be done in the existing national standards, World Health Organization (WHO) standards or reputable publications. Staff, management and patients should be involved in refining standards until a consensus is reached. The final version of standards should then be used to adjust the performance assessment tool developed earlier (see Tables 1–3).

Note at this step that for each performance indicator that has been developed so far a standard must be defined and agreed against which performance can be assessed later. As mentioned earlier in this chapter, standards for inputs and processes can be obtained from national standards documents, WHO

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**Table 3** Tracking patient flow in gynecology outpatient clinic: an example

<i>Step</i>	<i>Possible indicators and potentials for improvement</i>
1 Patient walks into reception area of the clinic	<ul style="list-style-type: none"> <li>• Ramp to ease access for disabled and those in wheel chair etc.</li> <li>• The waiting area is shaded</li> <li>• Enough space for each patient to sit down</li> <li>• The area is tidy</li> <li>• Windows, doors and ceiling are in good state of repair</li> <li>• The place is well ventilated</li> <li>• Direction signs present and readable to patients with poor vision</li> <li>• Waste bins available</li> <li>• Enough and clean toilets for waiting patients</li> <li>• Toilet facility for disabled</li> <li>• How long does it take for the patient to be attended to?</li> <li>• Triage nurse available and active</li> <li>• Triage guidelines present and used</li> </ul>
2 Registration	<ul style="list-style-type: none"> <li>• Receptionist greets the patient</li> <li>• Receptionist is friendly and supportive</li> <li>• How long does it take to register and retrieve patient file?</li> </ul>
3 Waiting to see doctor	<ul style="list-style-type: none"> <li>• Patient informed about the steps she will undergo</li> <li>• How long does it take to wait?</li> </ul>
Consulting room	<ul style="list-style-type: none"> <li>• Consultation room has enough space</li> <li>• The room is well lit (natural light is preferred)</li> <li>• The room is clean, well arranged and smells fresh</li> <li>• There is evidence of privacy (physical, e.g. door lock, and sound) in the room</li> <li>• There are chairs for patient and the escort (relative)</li> <li>• Basic examination equipment available (see Chapter 1)</li> <li>• One functioning blood pressure machine</li> <li>• One functioning stethoscope</li> <li>• Weighing scale for taking patient weight</li> <li>• 2 thermometers</li> <li>• Microscope and slides</li> <li>• Gloves</li> <li>• Complete and clean trays for gynecological examination</li> <li>• Doctor greets the patient</li> <li>• Doctor is friendly and supportive</li> <li>• Complete history taking done</li> <li>• There is a clean examination couch</li> <li>• Doctor washes hands with soap before touching patient</li> <li>• Doctor asks for permission to examine the patient</li> <li>• Chaperone present</li> <li>• Full examination</li> <li>• Doctor clearly explains to patient what he/she is doing</li> <li>• The examination couch is cleaned with antiseptic after use</li> <li>• Doctor explains the diagnosis and what will be done in terms of investigation, treatment admission or referral</li> <li>• No distraction of doctor, e.g. to attend phone calls</li> <li>• Adequate length of consultation</li> </ul>
5 Admission	<ul style="list-style-type: none"> <li>• Patient escorted to the ward</li> <li>• Adequate written communication on admission and plan of treatment</li> <li>• Nurse greets the patient and explains procedures in the ward</li> <li>• Staff is friendly and empathic</li> <li>• Drugs and other supplies are readily available at admission etc.</li> </ul>

**Table 4** Example of performance standards

Service area	Process	Possible standard
Gynecology outpatient clinic	Patient registration	All patients consulting the gynecology outpatient services should be registered in the medical records
	Staff hygiene	Doctor or nurse must wash hands using soap and water before touching a patient
	Laboratory services	Laboratory investigation for malaria parasites in a blood sample should be completed on the same day of request

standards and other reputable documents (scientific literature). In case all these documents have not revealed information on a standard for the item, then an expert in the field should be consulted. At the end of this exercise the performance tool will be close to completeness. Following regular use of the tool, the team will identify new areas that need to be assessed and more indicators and standards will be developed.

### Step 3: Communicate standards

Explaining at an early stage the need for change allows people more time to adjust their expectations and think about how to deal with the changes<sup>1</sup>. After the standards are finalized and agreed upon, they must be communicated to the users (staff and management and other beneficiaries/stakeholders of the facility – patients, relatives and the community). It should be made clear to the stakeholders that these standards will be changed and improved according to need.

Team members will spear-head the process of communicating these standards to their fellow staff. Feedback from the staff will be discussed during the following sessions and recommendations positively considered. This can be done in clinical meetings, other general staff meetings or in quality circle meetings if they exist (see description about quality circles below).

### Step 4: Performance measurement

This step involves conducting the first comprehensive facility assessment using a performance measurement tool. Performance will be measured using

the defined standards. Deviation from the standard is expressed as a percentage. The results will form a baseline performance level against which the successive assessments will be compared. The following paragraphs will help you to design your own quality performance assessment tool.

### Data collection tool to determine performance level

To be able to assess performance in a service area, a systematic method of data collection is required. A tool containing instructions on how to collect data (*observe and question item*) is developed in a systematic way to measure performance of expected processes in the service area. These measurements or indicators must be specific (unambiguous) and capable of extracting necessary information for immediate, intermediate or later use. It will be a waste of time and resources to collect information which will not be utilized because it is not useful.

The measurements will be used to collect quantitative information about service standards and processes from the facility. Each measurement should therefore be simple but reliable in the sense that it can measure:

- Current performance status of the facility as compared to standards
- Changes over a period of time
- Changes related to implementation of interventions.

If there is no evidence-based information already available then one of the methods to develop these measurements is through brainstorming followed by testing them in the actual work place. Finally, they are refined before use and improved periodically according to needs.

The results of assessment using these measurements, are recorded in a form of scores (0, 1 or 2) which translates to the performance level of that particular process measured. The assessment includes direct observation while a process is being executed, scrutiny of records or asking specific (prepared) questions to staff or patients (interviews). Table 5 provides some examples.

The process above will be repeated until all service areas and necessary processes are covered. This assessment list must be as complete as possible. It might not be thoroughly complete in the beginning, but it must be improved with time in order to make the assessment complete and comprehensive.

**The assessment checklist/questionnaire**

The steps above have by now provided enough information to prepare a questionnaire/checklist for assessment. Table 6 provides examples of how the checklist could look. It is advised to place different service areas in separate sheets. The sheets must be arranged in a logical form according to the patient flow analysis above.

**Table 5** Defining ‘observe and question’ items

Service area	Process	Observe and question
Gynecology out-patient clinic	Patient registration	Is every patient in the clinic registered? Is the registration complete? Is the register professionally maintained (clean, no missing pages, correct number flows etc.)?
	Prevention of cross-infection	Is there flowing water for hand washing? Is there soap at the hand washing point? Does the clinician (doctor or nurse) wash hands with soap and water in between touching patients? Are there sufficient clean examination gloves in the clinic (compared to expected number of patients on that day)? How many clinic days in the last month was there shortage of examination gloves?

**Table 6** Service area: gynecology out-patient clinic – patient registration process

S/N	Observe/question	How to assess	Score
1	Is every patient or client attending in the clinic registered?	Take names of 20 patients randomly. Check how many of those patients appear in the register	
2	Is the registration complete?	Take 10 patient files randomly. How many of those files have each part of the registration correctly and completely filled?	
3	Is the register professionally maintained?	Look at the register: clean, no missing pages, correct number flows, no advertent mistakes	
<b>TOTAL SCORE</b>			
<b>Performance in % (total score/maximum possible score)</b>			

**The assessment process**

Just an appropriate number of knowledgeable staff should do the assessment. Large assessment teams have not been shown to improve efficiency, and may worsen shortage of staff which is a common experience in resource-constrained facilities. A team of up to five well-trained staff can do assessment of obstetrics, gynecology and out-patient services in one day. If supportive services such as laboratory functions, radiology and pharmacy services need to be included, then an additional half day may be needed. For a complete performance assessment of a district hospital in Tanzania (average 150 beds), 2.5–3 days may be needed using the same five well-trained assessors.

- The assessment team meets before, to review the checklist and plan the work.
- A master copy of the assessment tool is printed out.
- A precise schedule on what to be done and by whom is prepared.
- Assessment team leader will help the team to share the tasks rationally.

**Scoring**

- 0 score (not performed at all or not available),
- 1 point, sometimes or irregularly performed or present but not functioning, and
- 2 points, well performed or always available and functioning. Application of the 1/3 rule.

**Application of the 1/3 rule**

For many procedures and performances, documents or outcomes the 1/3 rule can be applied as a cut-off point for valuing of the indicators:

- If a procedure is less often performed or documented than 33% (1/3) it counts as if it was not performed or documented at all, 0 is given.
  - If a procedure is performed or documented between 33% and 67% of the time (1/3 to 2/3) the performance level is considered irregularly performed; 1 point is given.
  - If the procedure is performed more often than 67% (2/3) then it counts as if it is always performed, 2 points are given.
- What would you suggest to be maintained? What would you suggest to be changed?
- Friendliness and competence of staff
    - Do you feel you were well taken care of? Listened to? Allowed to suggest your treatment plan?
    - What makes you feel that staff were or were not friendly?

The above list should be extended to cover the areas of service as much as possible. Team members should be encouraged to brainstorm and complete the list. It should however not be too long because during the actual interview, it may put off the patient and responses may become increasingly irrelevant. Moreover one should remember that the interviewee may be still sick or recuperating and therefore not ready for long interviews.

Just an appropriate number of patients should be interviewed. If the number is too small, it might not bring out all important issues while too many might take too long to accomplish and the information will be just a repetition of what is already known. The team will decide when to stop these interviews, especially when it is clear no new information is being collected. Between 10 and 20 interviews should suffice.

### Patient interview

As mentioned above, one of the targets for quality improvement efforts are the patients. Assessment of their level of satisfaction is absolutely necessary. Information should be sought from the patients about their needs and expectations from the facility. The best approach is to conduct a patient interview, using questionnaires. It should be conducted as an exit interview and the answers should bear names to assure that patients are free from possible consequences by staff after the interview.

The following issues can be included in the questionnaire. Respondent must be encouraged to give as many details as possible regarding his/her response. Short answers such as yes and no will not be useful as a source of qualitative information that can be used to draw interventions later. To ensure this, it is important to consider how the questions are formulated to avoid 'yes' or 'no' being the only answer possible.

#### *Items to consider in patient interview questionnaire*

- Waiting time
  - Example – how long did it take you to go through the different steps in the facility – waiting at reception, registration, waiting to see a doctor, laboratory, X-ray etc.?
- Satisfaction with services, accessibility, acceptability
  - Are you satisfied with services you were offered? Why?
  - Will you come back to this facility if you fall sick again? What are the reasons for your answer?
  - Will you advise family members and friends to use this facility? Why?
- Quality of services and suggestions on improvement

### Staff interview

Staff members are important stakeholders in quality improvement. Their involvement in quality programs is of paramount importance. Staff interviews will reveal important information pertaining to their needs and suggestions on what should be done to improve satisfaction of both patients and staff to the services. Semistructured questionnaires are the best tools to be used in this case. This approach will offer interviewees opportunities to venture into as many areas as they may wish, while being carefully guided by the interviewer. The interviewee should be reassured once again that the information collected will never be personalized. No personal information, e.g. name, should be collected. The following issues can be included in the leading questions:

- Appropriateness of his/her formal training to tasks in the facility/ward.
- Need for additional training specifying areas of training and appropriateness to expected tasks and why this training is deemed important.
- On the job training issues.

## GYNECOLOGY FOR LESS-RESOURCED LOCATIONS

- Reasons for the current performance levels.
- Quality of services in the facility and what can be done to improve it.
- Subjective judgment of the working place – safety, buildings, amenities, equipment, stationery and supplies.
- Work organization.
- Motivation – what is done now and what additionally can be done to boost motivation.
- Communication within the department and outside.
- Leadership issues ‘what would a good leader do?’

### *Analysis of results*

At the end of each sheet there is a provision for calculating quantitative performance in the form of a percentage. Results can be tabulated using Table 7 in order to understand them better.

When the table is completed, it will contain information from all assessed service areas including laboratory, X-ray department, ultrasound services, state of buildings, environmental maintenance etc. From this table, one can tell which service areas

**Table 7** Performance results table

	<i>Service area</i>	<i>Process</i>	<i>Total score</i>
1	Gynecology	Registration	
2	OPD clinic	Consultation	
3		Diagnosis, information and counseling	
		Subtotal: gynecology OPD clinic	
4	Gynecology ward	Registration	
5		Vital signs monitoring	
6		Ward round	
7		Discharge and counseling	
		Subtotal: gynecology ward	
8	Operating theatre	Hygiene	
9		Sterilization	
10		Patient monitoring	
11		Recovery room services	
12		Documentation	
13		Audit	
		Subtotal: operating theatre	
	Mean score		

OPD, out-patient department

have problems. It is possible to tell which processes show the largest gap compared with the standards.

The patient and staff interview data will be analysed using qualitative data analysis techniques. The commonest method is to cluster or group the responses accordingly. From these clusters, problem statements (described below) can be formulated.

As an example, an open question was put to 16 patients immediately after being discharged from a maternity ward in a district hospital. The question was, ‘According to your experience being a patient in this hospital, what is the single most important service you would suggest to be improved?’ The following were the responses:

1. Pregnant women should have their own laboratory room
2. Reduce delays in pharmacy
3. Pregnant women should receive services free of charge according to government regulation
4. Both out- and in-patient department toilets and bathrooms should be cleaned regularly
5. Staff should stop asking bribes from patients
6. Relatives must have a room to stay near the hospital
7. Patients should be monitored on a regular basis and not until one complains
8. Two patients sharing a hospital bed should stop
9. Reduce delays in investigations
10. Pharmacy cashier needs to be closer to dispensing window
11. Reduce drug shortages
12. Nothing, services are good
13. Staff should respond to patient needs
14. Improve privacy
15. Increase staff number
16. Lab services need to be faster

Looking at the responses from 16 different patients, you realize that some are related, e.g. 1, 9 and 16 are related to lab services. They will therefore form one cluster which may be called laboratory services. Numbers 4, 5, 7, 13 and 15 are related to staff administration and performance and can also form their own cluster and so forth. As described below, problem statements can be formulated from these clusters.

### **Step 5: Identify and analyse problems**

Following the assessment problems areas will be identified. A problem is the difference between the

performance assessment results and its corresponding standards. Problems are always presented in statements which are clear, precise and specific. They should answer the following questions:

- Who is affected, what is the problem?
- Where is it occurring?
- How does it affect the patient/client?
- How big is the problem?

An example is shown in Box 3.

**Box 3** Example: 60% of patients admitted in the gynecology ward of Hospital X are not regularly monitored for blood pressure

Check whether it has all qualities of a problem statement:

**Who:** it is the patients admitted in gynecology ward who are affected

**What:** the problem is that they are not monitored for blood pressure

**Where:** in gynecology ward of Hospital X

**How:** as a standard, all admitted patients should be monitored for blood pressure, temperature, pulse rate and respiration rate at least twice a day. Without regular measurement postoperative complications can't be detected.

**How big:** Half of all patients admitted in that particular ward are affected

The information already gathered will be useful in the process of identifying the possible reasons for this performance below standard. Presumably the following reasons account for the problem:

- Blood pressure is monitored but not documented
- Shortage of vital signs monitoring sheets
- Shortage of staff
- Shortage of blood pressure measuring equipment
- Insufficient knowledge on how to measure blood pressure and on the importance of this measurement.

This information will then be analysed further to determine the root causes of the above problem.

In Box 3, only one technique is described although there are many.

**The 'why-because' technique**

This is primarily a brainstorming technique. From the hypothetic assumptions above on why blood pressure is not monitored, the team will analyse the problem by asking the question 'why' as far as a reasonable answer can be generated. An example is shown in Table 8.

It is assumed that below this level, there was no reasonable answer coming out. The root cause or primary cause of this problem is therefore that no staff member was assigned to make sure blood pressure machines are regularly maintained so nobody feels responsible. A possible solution might be to assign someone to this task and make sure he or she succeeds in doing so. As noted in this example, the primary cause may be well outside the department or unit. This is the reason quality improvement should cross departmental boundaries.

The above procedure has to be repeated for all identified problems and their presumed immediate causes. In the course of analysing causes, it may become necessary to reformulate the problem statement.

Tip – interventions are set to address root causes of a problem and not immediate causes.

**Step 6: Choose and design solutions**

The result of the above exercise is a long list of problem statements and their root causes. One problem may have several primary causes. The objective of step 6 is to develop interventions which will address identified primary causes of problems. It is important to note that not all problems can be solved at the same time. Moreover it is advised to start with a few of those problem causes that are easy to solve within the limits of the available resources and which can bear tangible results within

**Table 8** The 'why-because' analysis of a problem.  
Problem: 60% of patients admitted in gynecology ward of Hospital X are not regularly monitored for blood pressure

Why?	Because there is shortage of blood pressure machines
Why?	Because BP machines frequently break down
Why?	Because they are not regularly maintained
Why?	Because nobody feels responsible for this
Why?	Because nobody was assigned for this task

a short time (this is called a ‘quick win’). This will motivate the teams and the staff in general.

The following exemplifies possible interventions that may be developed for a department of gynecology:

- A. The maintenance department of Hospital X designs and implements a maintenance program for blood pressure machines within 3 months.
- B. Hospital management procures and installs a new 200 liter autoclave machine for the central sterilization unit by the end of the year.
- C. The doctor in charge of the gynecology ward to conduct 3-day training sessions for 35 nurses of gynecology ward on group counseling skills within 6 months.
- D. The gynecology ward nurse in charge to hold once-weekly assessment of documentation of vital information (registration, medication and vital signs).
- E. Hospital pharmacist to provide emergency medications for use during the night every day to the person in charge of night shift in gynecology ward.
- F. The gynecological team to conduct monthly audits on complications and near-miss cases.

When the list of desired interventions is long, it is necessary to classify into immediate interventions and the list of those which can come later. To make this classification, a tool called prioritization matrix is used. First, develop criteria for prioritization (Table 9). These could include the following:

- 1. Effectiveness (the intervention is capable of bringing about desired improvements within reasonable time).
- 2. The results will be positively appreciated by both staff and patients.
- 3. Technical feasibility (easy to implement).
- 4. There are adequate resources to carry out this intervention.

- 5. Authority to carry out such interventions is available.

If a prioritization criterion is strongly true give 2 points, if moderately true give 1, if not true give 0 points.

The results show that priority interventions are A and D. These are the ones to be carried to the intervention matrix (Table 10). (Note that the above is only an example.) This is best done by using Excel, but if you don’t know how to use Excel, you can use a normal Word table as in the example as well.

**Step 7: Implement solutions**

The planning part is almost complete. Results of every step in the process have to be presented, discussed and justified. If there are critical disagreements, that part has to be re-worked according to inputs from the staff and presented again. Once approved by staff, the following step will be to present to all stakeholders (management and staff jointly). At the end of the meeting, copies of the intervention matrix will be distributed to the stakeholders. One copy will be displayed in the gynecology ward in order to constantly remind staff in that ward. Results of the interventions will be displayed as well.

Implementation will start as soon as approval has been obtained from the stakeholders. Follow-up of implementation will be done in each quality team meeting that is expected to be at least once a month.

*The quality circles*

In the context of gynecology services in a hospital or a stand-alone clinic, quality circles can be defined as a group of staff from the same service area in the department or clinic who meet regularly to discuss their work and how to improve it. The ideal number of members in a quality circle is between 8 and 10. The mainstay of quality circles is meeting regularly every week or 2 weeks. In the

**Table 9** Prioritization matrix

<i>Intervention</i>	<i>Criterion 1</i>	<i>Criterion 2</i>	<i>Criterion 3</i>	<i>Criterion 4</i>	<i>Criterion 5</i>	<i>Total</i>
A	2	2	2	2	2	10
B	1	1	0	0	2	4
C	2	2	1	2	2	9
D	2	2	2	2	2	10
E	2	2	1	2	2	9



**Table 10** The intervention matrix

<i>Activity</i>	<i>Indicators</i>	<i>Goal</i>	<i>Resources</i>	<i>Responsible person</i>	<i>By when</i>
The maintenance department of Hospital X designs and implements a maintenance program for BP machines	BP machines breakdown time in gynecology ward of Hospital X is reduced from 15 days to 2 days per month	BP machines maintenance schedule displayed in the ward. BP machines maintenance done and signed out	Maintenance technician, spares and supplies for maintenance	Mr Y (maintenance technician)	August 2011
The gynecology ward nurse in charge to hold once-weekly assessment of documentation of vital information (registration, medication and vital signs)	Documentation of patient vital information increases from 50% to 80%	Weekly assessment reports presented during all staff meetings	Assessment sheets	Nurse Z	October 2011

BP, blood pressure

meeting they usually pick one work challenge, they analyse the challenge, its causes and impacts, identify solution or solutions, set up an action plan to address the challenge, implement and follow up the results. The strength of this quality improvement approach is the fact that the team remains the same over a long period of time and they can easily follow up changes, as they are the implementers as well. Ideally all team members must have initial training from an experienced facilitator. A clear link and support from the department management must be established. Documentation of each meeting must be done in order to be able to follow up and refer to the recommendations.

Quality circles can address issues related to quality improvement and beyond, but they do not replace or work on behalf of the quality teams. Such circles should not be used as a forum for addressing staff demands, neither are they a solution to all challenges in the work place.

Assessment results and the gaps list can be channelled to these quality circles for them to discuss and identify causes and solutions. They should be encouraged to make own action plans and follow up implementation results.

### **Step 8: Re-assessment**

It is the individual health worker at the facility who can make changes for the better. This is why self-assessment becomes of crucial importance. It can show the health worker who is doing the assess-

ment how important his or her own work is for the entire process of care and performance of the hospital in general. This practice should be encouraged throughout the facility.

A re-assessment should be planned after a particular agreed period, e.g. every 6 months and should be agreed among stakeholders. It should be timed to match expected progress according to the intervention matrix. Re-assessment has two purposes: to check progress following interventions implemented and to identify new problem areas. The information collected during re-assessment will be compared with the results of the baseline assessment in order to draw a clear picture of success or challenges. Re-assessment should focus on the areas identified for improvement during the previous assessment.

### **Self-assessment**

This is a method of identifying one's strengths and weaknesses. An individual or a team will conduct assessment of their respective performance using the same standards and tools which are used in external assessment.

During the overall hospital (department) assessment, areas of strength and weakness are identified by the assessors and communicated. Departmental and functional unit action plans are developed with the intention of addressing the performance gaps and sustaining identified strengths. Specific activities are developed in line with responsible people and

time limits. After a period of implementation, the individual or team would like to know what has changed in the direction of filling the performance gaps. Using the same tools, a self-assessment is conducted. Using the example above the performance gap and planned action is reiterated as follows:

*Performance gap* In the gynecology ward of Hospital X only 50% of the patient vital information (registration, medication and vital signs) is documented.

*Target* Documentation of patient vital information increases from 50% to 80% within 1 year.

*Activity* The Gynecology ward nurse in charge to hold once-weekly assessment of documentation of vital information (registration, medication and vital signs) and communicate results to all staff.

In this example, individual ward nurses can do self-assessment to improve this indicator. At the end of a work shift the nurse can check again all admitted patients during the shift and make sure that all vital information data is filled in the appropriate register. The nurse will also check all patient monitoring sheets to ensure that patient vital signs are checked and correctly filled in the sheets. Once every week, the nurse in charge will do ward assessment to ensure that patient information is correctly filled in the appropriate registers. Once in a while, the ward staff may decide to assess all other performance indicators related to their respective ward and identify their strengths in conformance to the standards. They will also identify their weak areas and develop new strategies that will ensure full conformance to all standards according to the defined indicators.

## CLINICAL AUDITS

As it may seem clear from the descriptions above, quality improvement is an essential part of change management. In practical terms there are two types of change management: the classical type of change management whereby a group of people (e.g. hospital management, and policy makers such as the Ministry of Health) decides on what is to be changed and later the decision is channelled to the rest of staff for implementation without questions. This type is common particularly when there is overarching policy change that has to be implemented. It works poorly because it does not take into consideration individual staff expectations and their ways of life in the facility. The second type may be

referred to as organization-wide involvement in quality improvement. This type allows the facility stakeholders (staff, management, users and the community) to take part. The ideas and inputs from the users and the community to have a better health facility are part of it. It will allow staff across the facility to discuss and give inputs that will make the management take into consideration disruptions of staff expectations, their fears and their life in the change process. This will positively support staff to manage changes more on an individual basis.

Successful introduction and management of change will be reflected in the improvement of clinical outcomes, reduce errors in clinical care and improved staff and patient safety.

Clinical audits contribute to the achievement of these outputs through introduction of clinical care standards and monitoring. Clinical audit in gynecology mainly deals with postoperative complications.

### Clinical audit as a tool for quality improvement

Clinical audit is a quality improvement process that seeks to improve patient care and clinical outcomes through systematic review of care against explicit criteria and the implementation of change. The aim is to find out what went wrong, why and how this can be prevented in future. So audit is related to quality improvement and the use of clinical standards, e.g. national guidelines. The most important feature of clinical audit is performance review to confirm that what is supposed to be done is done and in the right way. If there is anything less, the process provides a clue on what to be done to improve the situation.

Audit is well known and established in many regions of the world for maternal mortality. Apart from its role in quality improvement these audits have helped to produce global data on maternal mortality as well. Figures on surgery-associated mortality and morbidity however are lacking. WHO initiated the 'Safe Surgery Saves Lives-Initiative' through its patient safety program in 2007 to close this gap. You can find out more about this initiative under [http://www.who.int/patient\\_safety/en/](http://www.who.int/patient_safety/en/).

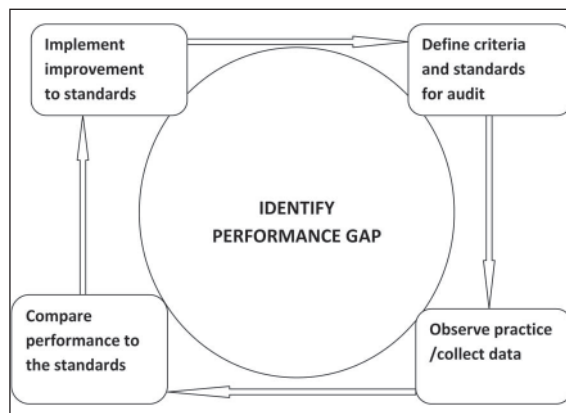
According to Weiser *et al.*<sup>8</sup> around 234 million major operations are carried out globally per year which results in approximately 7 million complications including 1 million deaths. The Safe Surgery Saves Lives Measurement and Study Groups together

with WHO have developed a checklist for surgical interventions which can serve as a standard for auditing peri- and postoperative complications in gynecological surgery. It can be downloaded in several different languages from <http://www.who.int/patientsafety/safesurgery/en/index.html>. You are encouraged to adapt the list to your circumstances.

Typically, the clinical audit process identifies performance gaps (areas of service which need improvement), develops and carries out actions to eliminate or narrow the gaps and then re-assess to ensure that these changes have a sustainable effect. Figure 6 summarizes clinical audit process in form of a cycle. A clinical audit team in gynecology can be regarded as a quality circle team with regular meetings. The audit cycle is similar to the quality improvement cycle and will result in an intervention matrix as described above for performance assessments.

### Identification of performance gaps

A performance gap is the variation between the current performance and the performance according to standards. In step 4 of the quality circle, it is possible to identify clinical gaps which may be found in the form of substandard care or clinical errors which will lead to clinical complications including situations like postoperative hemorrhage, infection, disability or in the worst situation, even death. The most common audits will be mortality audits but there are other possible entries to auditing including an isolated problem encountered during practice, recommendations from patients, staff, relatives or communities, that are worth investigating further or even clinical conditions that



**Figure 6** Clinical audit process cycle

involve high costs where there is a possibility of improvement. This is called *criterion-based audit* as it deals with the assessment of one criterion only. An important criterion-based audit is the critical incident or near-miss audit. This audit deals with incidents where something nearly happened and was developed initially in aviation security. A near-miss audit is important because such an event can show weak spots in a process before someone gets hurt.

Clinical auditing will strive to identify possible causes of the complication and suggest prevention of similar or other complications in future. The identification of performance gaps through near-miss or mortality audit will start with a case analysis. You should treat this analysis as the patient-flow analysis in step one of the quality circle. The same accounts for example in the audit of a cluster of postoperative fever between January and December of year X, where you will go through several patient files.

### Define criteria and standards

This step refers to the tasks to be accomplished by the audit. The audit should answer specific questions that will detail processes where standards were observed during the process of care, but also reveal specific areas where standards were not adhered to. These questions will be formulated as statements which are referred to as audit criteria. For example, 'the patient was informed about the procedure', is a criterion; 'at least 80% of patients undergoing the procedure reported being informed', is a standard. Sometimes the result of an audit will be that there was no standard for an intervention and this is why something happened. In this case, the audit can help to formulate this standard.

### Observe practice/collect data

This step refers to collection of necessary information according to the defined criteria. From the onset it must clarify which patient(s) will be included, staff involved in the care of those patients and the specific period over which the criteria apply. In some cases it is only one patient who is involved, e.g. in case of maternal death. In other instances a number of patients may be involved, e.g. patients who acquired postoperative sepsis from January to December last year etc.

### Compare performance to the standards

In this step the results of data collected are matched with the defined criteria and the standards. This comparison will indicate where standards were met and where not, together with reasons for this situation. It is the reasons for substandard care which will be used to define strategies for improvement in the future while aspects where standards were met will be used to define sustainability measures.

### Implement improvement towards standards

Design and implementation of improvement measures following clinical audit is similar to step 6 onwards as defined in the text above.

## SUMMARY AND CONCLUSIONS

Quality of health services and care is assumed to be everyone's responsibility but it ends up being nobody's liability. To give quality a high priority in the health system it needs to be an integral part of the system itself. There should be explicit commitments from the policy all the way down to the communities served.

At hospital level, quality should be part of the management processes. The hospital management teams need to develop hospital vision and mission and effectively communicate these to all staff members and its clients. Hospital quality teams, composed of members from different levels, take care of the day to day quality issues in the facility. The members need to be given initiation training on their roles and responsibilities and supported to adopt or develop the facility standards. It is the responsibility of all staff members to strive to abide by or surpass the standards agreed by all.

Quality circles are one of the modern methods of quality improvement. Performance assessment is a method of collecting data pertaining to current performance and identifying gaps that need to be addressed in order to reach standards for all processes in the hospital. The information has to be used to determine corrective measures and responsible members to implement those measures. Regular assessment helps individuals to sustain already achieved standards, identify and address emerging challenges.

Clinical audits are an essential part of quality management in hospitals and primary health facilities. The method is based on a similar approach as described in the main text whereby the facility identifies

standards for clinical processes and sets approaches to collect data on performance based on those processes. Ultimately all remedial measures will focus on redirecting processes to the set standards.

In conclusion, we can say, there are no known reasons not to improve quality of health services and care. The speed of realizing standard performance at any level will be determined by availability of the right policies, commitment, management at all levels, and resources availability.

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### Further reading

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**APPENDIX 1**

## Key topics in training of hospital/department quality teams

<i>Main topic</i>	<i>Subtopics and methods</i>
The quality team	Roles and functions
Workshop objectives	Presentation and discussions
Definitions	Definition of quality
	Definition of quality in healthcare
Quality dimensions	Lecture discussions
National quality in health policy and framework	Lecture discussions
	Health sector strategy (emphasis on quality)
	National quality in health framework
Hospital performance assessment tool	Elaborating function areas and key processes
	The performance indicators
	Development of critical standards
Types of assessment	Self-assessment
	Comprehensive department assessment
	Peer assessment
Performance assessment of the department – how to do it	Structural, key processes and key outcomes
Analysis of results and identification of performance gaps	How to analyse and interpret results quantitatively and qualitatively
Presentation of assessment results	Lecture discussion
Formulation of problem statements	Presentation and discussion
Prioritization methodologies	Lecture presentation
	Group work
Development of interventions	Lecture discussions
Preparation of action plans	Discussion and documentation