Quality Improvement Manual

Commissionerate of health and family welfare, Telangana

INDEX

Introduction

Quality of Care is one of the key elements of the right to health. As the country population grows there is parallel growth in the health care needs and expectations.

The Telangana government aim at ***"To provide the highest possible level of health services to all people in Telangana through delivery of promotive, preventive, curative, palliative and rehabilitative health services at all levels".*** Good quality of care enhances clients' satisfaction and their use of services. It increases job satisfaction and motivation among service providers, leading to effective and efficient utilization of resources. This culture of quality will become the basis upon which health services provided will continuously improve, and result in a better health outcomes for the service users.

The challenges can be overcome through concerted action of key stakeholders and the application of scientifically grounded management methods to enable the reliable implementation of high-impact interventions for every patient every time needed.

The Quality Improvement Manual

The State Quality Assurance Cell developed the Manual of QI Methods for Primary Health care centers and this was used as a guide for QI implementation. It is the first version in QI concepts and approaches as well as explaining concepts using the local context and different programme areas. QI identifies where gaps exist between services actually provided and expectations for services. It then lessens these gaps not only to meet customer needs and expectations, but to exceed them and attain unprecedented levels of performance.

Purpose:

The purpose of the Quality Improvement efforts at all TVVP Hospitals is to ensure delivery of the best possible care for our patients. It is the goal of this plan to provide a mechanism and process to identify opportunities to improve care and services by measuring, assessing, and improving care in accordance with National Quality Assurance Standards.

Scope:

All employees and patients coming to the TVVP hospitals

Responsibility:

Quality Assurance Manager & Quality Assurance Team

Distribution:

Heads of respective hospitals &departments, Quality Assurance Manager, hospital employees

Objectives:

- To facilitate and oversee the implementation of the chosen strategies for overall Quality Assurance and Quality Improvement (QA/QI) initiative in the hospital in line with the quality policy of the TVVP
- To develop Annual plan for QA/QI in line with quality Assurance and Improvement plan as per the National Quality Assurance Standards
- To oversee improvement of the quality via National Certification including provision of guidance advice and necessary support for taking care of new processes and changes in the system required for any such certification

Quality Improvement Concepts

This section is an introduction to the QI concepts which include definitions, perspectives, dimensions and principles of QI.

Definition of Quality

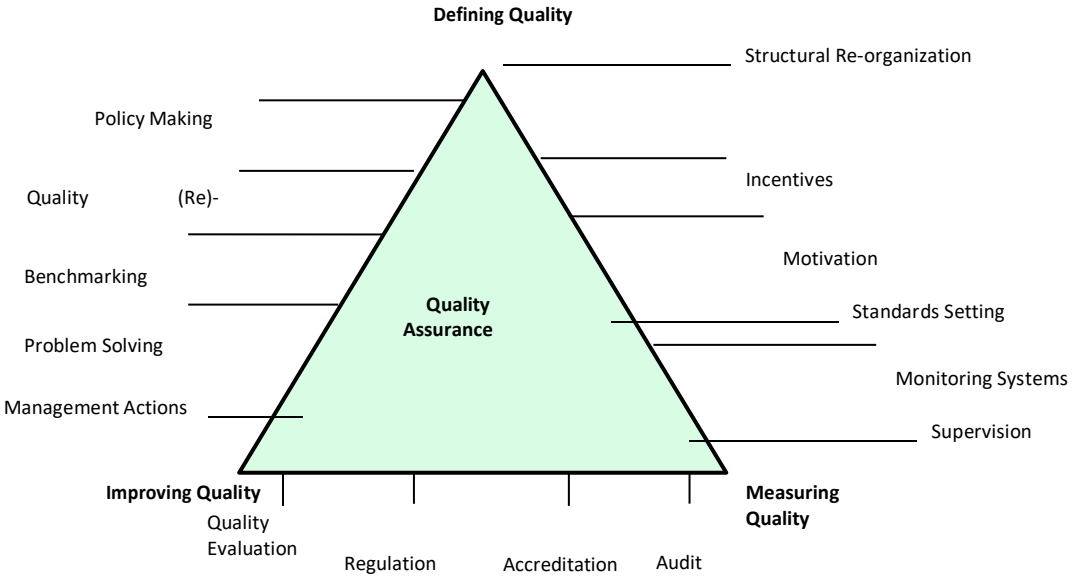
As per WHO "the extent to which health care services provided to individuals and patient populations improve desired health outcomes. In order to achieve this, health care must be safe, effective, timely, efficient, equitable and people-centered."

The Quality Assurance Triangle

Quality Assurance is based on a sound system design followed by continuing performance evaluation leading to appropriate educational-motivation activities and to readjustments in system design. It is a set of activities that are planned for, carried out systematically or in an orderly manner and continuously to improve Quality of care.

The QA triangle incorporates three core QA activities;

Figure 4: The Quality Assurance Triangle



All 3 points of the QA triangle are essential, interrelated and mutually re-enforcing components of QA. In practice, QA is a cyclical, iterative process that must be applied flexibly to meet the needs of a specific program. The QA process may begin with a comprehensive effort to define standards or it may start with a small-scale QI activity.

Process Details:

The hospital follows a structured quality assurance and continuous monitoring programme, developed by District Quality Assurance Committee, on the basis of NQAS standards.

Structure for Quality Assurance:

The following structure has adopted by all our TVVP Hospitals for carrying out processes related to QA.

Quality Assurance:

Documentation system: Hospitals have developed its documentation on policies, procedures, programmes, guidelines etc. These have been developed by State Quality Team in consensus with Medical Superintendents of the TVVP hospitals, reviewed by Supervising Officers and have been approved by Commissioner, TVVP.

District Quality Team: Quality assurance related activities within the hospital is planned, undertaken, and controlled by District Quality Team which is a multidisciplinary team having representation from various clinical, non-clinical, and administrative departments. Details of team, its scope of work, frequency of meeting and mode of operations are detailed in the operational guidelines for Quality Assurance in Public Health Facilities (Page No: 25-27) published by Ministry of Health and Family Welfare, Govt of India.

District Quality Assurance Manager: The District Quality Assurance Manager has overall responsibility of coordinating the work of NQAS certification. His / her responsibility will include:

- To issue various documents to departments from time to time and train the trainers
- To keep a record of all the documentation of the hospital, in relation to certification
- To delegate the activities in departments and ensure its timely completion
- To regularly receive feedbacks from departments regarding status of their work related to certification preparation.
- To plan and execute regular assessment of the hospital by using NQAS checklists, collection of data related to KPIs, PSS in accordance with certification standards.
- To coordinate all such activities required for quality assurance and continuous

monitoring of the hospital.

Departmental coordinator: Each department of the hospital has been appointed with one in charge / coordinator. The responsibility of these coordinators will be

- Receive and retain all the documents and official correspondence related to certification from time to time
- To inform and orient the staff of their department on policies and procedures developed for their department
- To ensure the completion of all the work assigned to their department for NQAS certification preparation
- To organize regular training programmes for staff of their department on best practices.

1. The programme:

The programme is comprehensive and covers quality assurance of input, process and outcome. This has been developed by State Quality Assurance Team and implemented by various committees, DQAM and other personnel.

Quality assurance and continuous monitoring programme is developed for following areas

Departmental Score Cards

1	Accident & Emergency	7	Nutritional Rehabilitation Center (NRC)	13	Laboratory Services
2	Outdoor Department	8	Operation Theatre	14	Radiology & USG
3	Labour Room	9	Post Partum Unit	15	Pharmacy
4	Maternity Ward	10	Intensive Care Unit	16	Auxiliary Services
5	Paediatric Ward	11	Indoor Patient Department	17	Mortuary
6	Sick New Born Care Unit (SNCU)	12	Blood Bank	18	General Administration

Thematic Score Cards

1	Service Provision	5	Clinical Services
2	Patient Rights	6	Infection Control
3	Inputs	7	Quality Management
4	Support Services	8	Outcome

The departmental scores & outcome indicators / thematic scores / KPIs / PSS described in the page no: 63 to 70 of Operational Guidelines for Quality Assurance in Public Health Facilities cover all parameters which are related to the quality of services and safety of patient, staff and visitors.

Large secondary care hospitals like District Hospitals can have survey on monthly basis. Smaller

facilities like PHCs and CHCs may take PSS scores on quarterly basis, remaining all like departmental scores & outcome indicators / thematic scores / KPIs on monthly basis.

DQAM may be responsible for collecting the data / feedback.

For getting the valid results sample size should be adequate. Refer page no: 69 of Operational Guidelines for Quality Assurance in Public Health Facilities, 2013.

Data / feedback collected should be analyzed. Analysis should generate overall as well as area / attribute wise score. Lowest performing two attributes should be identified and root cause analysis should be done for them.

Action plan should be prepared on causes identified during root cause analysis including corrective and preventive action to be taken, time line and person responsible for taking action. Compliance to action should be reviewed monthly.

Procedure for implementing the Quality Assurance Programme in TVVP Hospitals is as follows:

- The programme which is applicable hospital wide and which is applicable for infection control is explicitly tabulated. Quality Assurance Team and Hospital Infection control committee shall implement monitor and improve the programme.

- The indicators developed by NQAS are incorporated in the reports. This report gives the figures for all indicators, which is reviewed and subsequent actions is taken based on adherence to standard value, by Hospital administration and DQT.

- The programme applicable for laboratory, radiology, intensive care area and OTs shall be implemented through departmental in charge under the vigilance of District Quality Team. Each of these departments shall maintain a quality assurance register with the key characteristics of their department laid. Compliance to the key characteristics shall be identified from acceptance norms / criteria. The record shall be endorsed in the register as 'C / PC / NC' (C for Compliance, PC for partial compliance and NC for non-compliance). The record shall be entered at frequency defined in the table.

Purpose	Methodology	Responsibility	Remark
Setting goals and objectives	Setting of vision, mission, quality policy & objectives and service standards through DQAC and approval of Commissioner - TVVP.	DQT & DQAM	Refer service standards
Infrastructure	Identifying infrastructural requirement including physical facility, manpower and equipment. This is determined on the basis of work load and change in scope of work	MS / RMO	Reference is taken from IPHS standards.
Policies, procedures and other documentation requirement	This documentation is done to develop systems and processes that are necessary to provide uniform service of desired level of quality and communicate it to relevant personnel.	DQAM	Reference is taken from Operational Guidelines-NQAS
Compliance monitoring	Compliance is monitored and non-conformity is tracked for taking corrective and preventive actions. This is done through compliance monitoring registers kept in various departments	All the staff of the hospital and Quality Assurance Team / Departmental coordinator	Reference is taken from Operational Guidelines-NQAS
Walk through monitoring	Walk through monitoring or physical monitoring is done by designated member of DQT, Hospital infection control committee, hospital safety committee, DQAM, RMO and MS	DQT, Hospital infection control committee, hospital safety committee, DQAM, RMO and MS	Following aspects are specially looked for infection control, hospital safety, record maintenance and policy compliance

Indicator monitoring	A list of key performance indicators has been developed to monitor the key features necessary for quality assurance. These are developed for structure, process, clinical and managerial activities. A monthly report is generated with all these indicators which is reviewed for necessary action by District Quality Assurance committee	DQAM and DQT	Refer Key Performance Indicators
Training and orientation	Necessary training is organized at regular intervals	DQT and DQAM	Refer all policies & SOPs
Continuous process	The contents of this programme are reviewed every month by District Quality Assurance Committee and quarterly by State Quality Assurance Committee for adequacy.	DQT / DQAM / SQT	Following aspects is reviewed every year: 1) Objectives and service standards 2) Adequacy of documentation 3) Monitoring and Evaluation 4) KPIs and PSS 5) Structure for implementation and targets

In line with our goal of providing quality services in our TVVP hospitals, we had developed and set our mission, vision, quality policy, and service standards.

Our Vision

"TVVP Hospitals provides comprehensive healthcare at free of cost for all sections of people of Telangana without any limitation of caste, colour, religion or ethnicity"

Our Mission

- **To provide healthcare services to the patients ensuring best quality scientific and ethical standards.**
- **To continuously upgrade the quality of medical practice and education.**
- **To develop simple and innovative technologies for prevention, diagnosis and treatment of diseases.**

Quality Policy

TVVP hospitals are committed to our patients and their families with more emphasis on providing service excellence in healthcare with honesty & dignity by following National Quality Assurance Standards.

Quality Objectives:

- **To promote a safe environment for patients and staff to facilitate a culture of quality throughout all TVVP hospitals in the state of Telangana.**
- **To monitor, measure, assess and improve our performance to achieve service excellence and patient satisfaction.**
- **To facilitate continuous learning and development of personnel.**
- **To empower and involve all personnel in continual quality improvement.**

1. **Service standards:**

- Standards of service and adequate degree of patient care can be provided to the extent proper and workable ratio between doctor to patient, nurse to patient and beds to patients are maintained, as also the extent of availability of resources and facilities. Consistent with this every possible effort will be made by this hospital to provide standard services.

- To provide access to hospital and reasonable medical care to all patients who visit the hospital / ensure availability of beds / ensure treatment of emergency cases with at most care and promptness.

- The hospital has necessary manpower / infrastructure &equipment required for providing the services mentioned in service provision and system to ensure such services is in place.

- To prescribe a workable maximum waiting time for outpatients, before they are attended to by a qualified doctor and / or specialist and continuously strive to improve upon it.

- To ensure that all major equipment in the hospital are maintained efficiently in proper working condition by issuing timely work orders for Annual Maintenance Contracts / Comprehensive Maintenance Contracts for all the major equipment.

- Reliability and promptness of diagnostic investigation results is ensured by sending the samples for external quality assurance for all measuring equipment in the labs and whenever possible such reports will be made available.

- If any equipment is out of order, information regarding the same shall be displayed suitable indicating the alternate arrangements, if any, as also the likely date of re-commissioning the equipment after repairs and replacement.

- To keep the hospital and its surroundings, clean, infection-free and hygienic by adhering to Swachata Guidelines for Public Health Facilities, 2015.

- All patients and visitors to the hospital will receive courteous and prompt attention from the staff and officials of the hospital in the use of its various services. The patient's rights are protected as per National Quality Assurance Standards.

- A regular system of obtaining feedback / complaints from the patients and public is in place through call center based CFMS with dedicated number (Customer Feedback Management System) / Help Desk / Complaint boxesand periodic surveys. The inputs from these are continuously used for improving the service standards.

- When things go wrong or fail, appropriate action is taken on those responsible for such failures and action taken to rectify the deficiencies. Complainants will also be informed of the action taken, if requested.

- In case of likely persistence of the deficiency, the reasons for the delay in rectifying the deficiency and the time taken for rectifying the same will be displayed prominently for the information of the public.

- Special directions are given to the non-medical staff to deal with the patients and public courteously. Any breach in this regard when brought to the notice of the hospital authorities shall be dealt with appropriately.

- To Identify all condemnable items in the facility (Unserviceable / obsolete / condemned) and take necessary action for immediate condemnation / disposal. For more details refer Lr.No.104CH&FW/NHM/QA/2017.

- To follow Bio-waste Disposal 2016 guidelines through proper Segregation of waste, Collection, Transportation and disposal by outsourcing agency. Monitoring of infection control practices can be done by Infection Control Committee (ICC) which has been constituted as per G.O M.S No: 54.

- Hospital follows all policies, processes, programmes, committee meetings; regulatory guidelines, which have been prepared to meet the standards of NQAS.

2. Initiatives of Internal and External Quality Assurance Programme:

Internal Quality Assurance activities-

a) Housekeeping Checklist
b) Dietary checklist
c) Linen Checklist
d) Ambulance checklist
e) Running Quality controls in Laboratory
f) Running Quality Controls in CSSD
g) Microbiological Surveillance of critical areas such as labor room, OT complex, ICU, SNCU, NBSU, Post-operative wards for every 15 weeks through swabs and air samples.
h) Internal monitoring rounds by DQAM, Superintendent and Matron and preparation of action plan for gaps identified.
i) Overhead water tank cleaning by Municipality.
j) Overhead tanks and drainage cleaning by Civic authorities for every 03 months/ when required.
k) Water testing by RWS laboratory on Chemical and Biological indicators for every 15 days.
l) Gardening/ landscaping by Horticulture department.

External Quality Assurance Activities-

a) Validation of test results from CMC- Vellore/ AIIMS- New-Delhi
b) Obtaining Form- B for USG machine.
c) AERB clearance for X-ray machines.
d) Fire NOC from Fire department- Requested to instruct fire department to do help in assessment of fire requirements in obtaining fire NOC and also conducting training and mock drills for staff.
e) Electricity audit by electricity board.
f) Seismic staff assessment by E.E of TSMSIDC.
g) TLD badges can be procured and put to use by the x-ray technician. The same used TLD badge can be sent to BARC, Mumbai to determine the radiation exposure.

Standard Operating Procedures & Control:

Preparation of Document: Need for SOPs shall be identified on a continual basis through feedback of staff, addition of new services in line with NQAS. Once a need for a document is identified DQAM / MS along with the concerned personnel prepares the document specifying the details and responsibility of implementation. Document is prepared in prescribed format and its location is identified in master list of documents.

Review and Approval: All prepared documents are reviewed by appropriate head of the department / Medical Superintendent and approved by Commissioner-TVVP. No document without approval signature of Commissioner-TVVP shall be considered official. The stamp of 'CONTROLLED' shall be put on approved document.

Issue and distribution: An officially controlled document can be distributed and issued only after approval from Commissioner-TVVP. Only photocopy of the approved documents shall be issued and not the original document. The document shall be issued to departmental in charge or Head of the department. A record of document issuance shall be kept by DQAM, indicating name of issued document, date of issue, receiving person and signature of receiving person.

Maintenance of document

Master copy: Master copy of all documents shall bear the original signature of Superintendent. Master copies will be kept in separate under the custody of DQAM.

Issued copy: Responsibility of maintenance of issued copies lies with receiver of the document (departmental in charge) In-charge shall keep a checklist of all documents received and maintained by him/her. All issued documents are to be kept at workplace and prevented from loss, tampering or unofficial change in contents. The issued copy shall be available and accessible to all the staff of the department and they shall be encouraged to read it.

Addition of new document: Any new document to be added in officially controlled documents of the hospital shall be added in appropriate Area of Concern of NQAS.
Amendments: Need for amendments in an existing document are identified through staff feedback and DQT meetings.

For minor amendments, (like spelling mistake, grammatical error etc.) the rectification shall be done by pencil in issued document by departmental in-charge and in master document by DQAM. All such minor amendments shall be reported to State Quality Team, who shall maintain a record of all such amendments in document amendment sheet.

For major amendments, (like change in content of the document) the amendment shall be done by DQAM and approved by Commissioner-TVVP. Amended copy shall be given revision number and revision date. All such amended documents shall be distributed and issued to departments through a circular which shall specify to replace the existing document with revised document and destroy the obsolete copy.

Review of documents: All documents shall be reviewed once in a year, by DQAM, HODs and DQT. Based on the review following decision shall be taken

- Continue with the existing document: In this case a circular shall be circulated indicating that the documents to be continued to use in its present form
- Revision of the issue: In this case a new issue of the complete documentation set shall be printed and all modifications and amendments shall be incorporated. Revision number on each document shall be given '00' and issue number shall be changed to next higher number.

Obsolete documents: A copy of all obsolete documents shall be retained in documentation control file under the custody of DQAM. All obsolete documents shall be labeled with pen as 'OBSOLETE'

Monitoring: Quality coordinator shall periodically check the availability, upkeep and updating of the official controlled documents issued in wards and departments. Any non-conformity to document control procedure shall be recorded in compliance monitoring register and appropriate action shall be taken.

Records of document control: The records related to document control shall be kept by DQAM. All records shall be kept in 'Document Control' File. The file should contain:

- Master list of all document
- Distribution and issue record
- Record of amendments
- Obsolete documents

1. Preventive Actions by using Quality methods and tools:

The DQAM shall be perpetually vigilant and identify potential sources of non-compliance and areas that need improvement. These may include trend analysis of specific parameters such as turnaround time, risk analysis and introducing proficiency testing for self-assessment.

Where preventive action is required, a plan is prepared and implemented. All preventive actions must have control mechanisms and monitor for efficacy in reducing any occurrence of non-compliance or producing opportunities for improvement.

2. Corrective Actions by using Quality methods and tools:

The DQAM takes all necessary corrective action when any deviation is detected in Quality Management System.

3. Root Cause Analysis

Deviations are detected by:

- Patient complains/feedbacks
- Non-compliance receipt of items/sample
- Non-compliance at Internal/external Quality Audit
- DQT Reviews

The DQT conducts and coordinates the detailed analysis of the nature and root cause of non-compliance along with the responsible persons from the respective sections.

4. Selection and Implementation of Corrective Actions

Potential corrective actions are identified and the one that is most likely to eliminate the problem is chosen for implementation. Corrective action is taken into consideration the magnitude and degree of impact of the problem. All changes from corrective action is documented and implemented.

5. Monitoring Of Corrective Actions

The Medical Superintendent and DQAM shall monitor the outcome parameters to ensure that corrective actions taken have been effective in eliminating the problem.

6. Quality Improvement and Patient Safety priorities 2010

- Standardize our systems, processes, policies and procedures across the hospital.
- Adopt, implement and monitor compliance of the International Patient Safety Goals.
- Optimize Electronic Health Records which will eliminate medical errors and improve patient care.
- Develop training programs for all employees on principles and practice of healthcare quality.
- Achieve NQAS certification.

7. Risk Management Framework

Refer “Reporting of adverse incident’s policy”

The QI Methodology and Steps

QI methods are applied to improve the safety and quality of patient care and provide health care workers with the tools to: (i) identify a problem; (ii) measure the problem; (iii) develop a range of interventions designed to fix the problem; and (iv) test whether the interventions worked.

There are many QI methodologies like; six sigma, lean organization, 5S, CQI, Total Quality Management (TQM), root cause analysis, PDSA, Performance Improvement, etc. In Telangana, the Quality cell recommends initiation of QI interventions in health facilities to start with the 5S which is the initial component of the 5S - CQI – TQM methodology as a fundamental background to CQI

5S (Sort, Set, Shine, Sustain and Standardize)

5S is a management tool, which originated in Japanese manufacturing sector. It is used as a basic, fundamental, systematic approach for productivity, quality and safety improvement in all types of organizations. It is a workplace organization method that uses a list of five Japanese words: Seiri, Seiton, Seiso, Seiketsu and Shitsuke. Translated into English: Sort, Set, Shine, Sustain and Standardize.

The 5S's list describes how to organize a work space for efficiency and effectiveness by identifying and storing the items used, maintaining the area and items, and sustaining the new order.

Steps in 5S

1) **Sort (Seiri)** - Eliminate all unnecessary tools, parts. Go through all tools, materials, and so forth in the plant and work area. Keep only essential items and eliminate what is not required, prioritizing things per requirements and keeping them in easily-accessible places. Everything else is stored or discarded

2) Set in Order to Flow or Stream (Seiton) - Arrange the work, workers, equipment, parts, and instructions in such a way that the work flows free of waste through the value added tasks with a division of labor necessary to meet demand. When applied correctly with flow established this step eliminates the majority of the non- value-added time and allows the rest of the zero defect philosophy to be enabled.

3) Shine (Seiso) - Clean the workspace and all equipment, and keep it clean, tidy and organized. At the end of each shift, clean the work area and be sure everything is restored to its place.

4) **Standardize (Seiketsu)** - Ensure uniform procedures and setups throughout the operation to promote interchangeability.

5) **Sustain (Shitsuke) -** Make it a way of life. This means commitment. Ensure disciplined

adherence to rules and procedures of 5S to prevent backsliding.

Continuous Quality Improvement

An approach to quality management that builds upon traditional quality assurance methods by emphasizing the organization and systems: focuses on "process" rather than the individual; recognizes both internal and external "customers"; to improve processes teamwork and effective communication.

CQI is a long term approach to work that systematically seeks to achieve small, incremental changes in processes in order to improve efficiency and quality.

CQI uses a set of statistical tools to understand subsystems and uncover problems, but its emphasis is on maintaining quality in the future, not just controlling a process.

The Model for Improvement

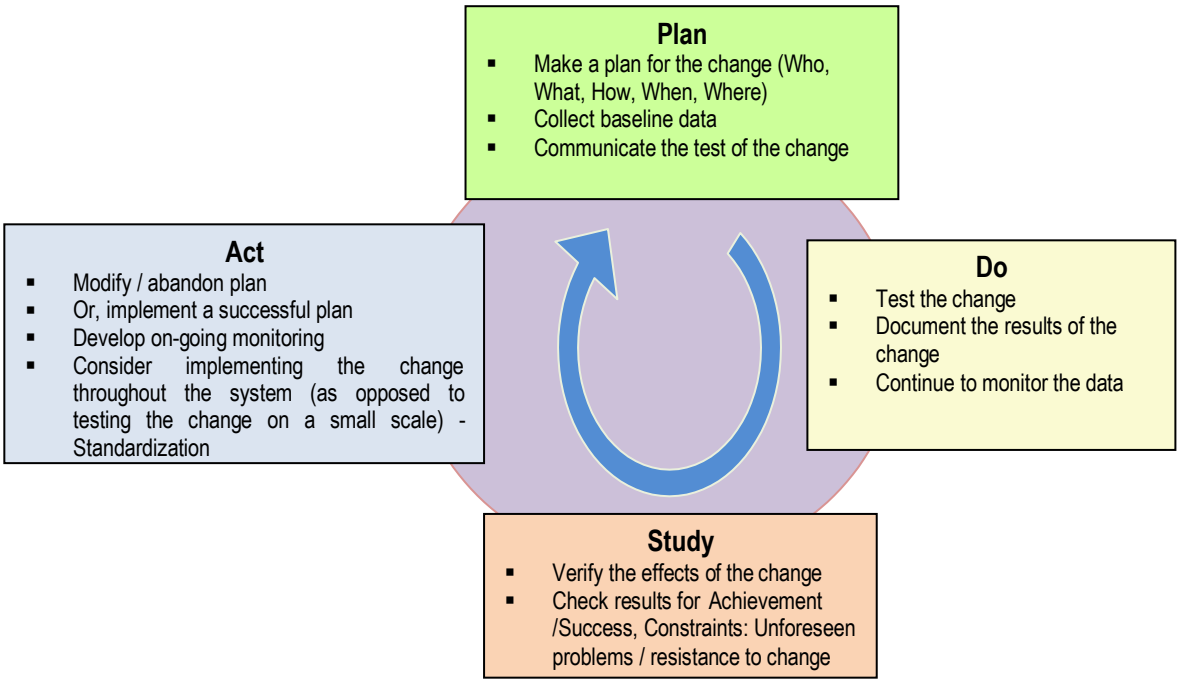
The Model for Improvement is a simple but powerful framework for structuring any QI project. QI methodology identifies unnecessary, redundant, or incorrect parts of processes, and then changes processes in ways believed to yield improvements.

The Plan, Do, Study, Act (PDSA) Cycle

The PDSA cycle approach of small scale, rapid tests of change is a recognized approach to achieving this. Using this approach changes can be tested, refined and re-tested a number of times until the change is reliable, quickly and with minimal resource use.

The purpose of PDSA QI efforts is to establish a functional or causal relationship between changes in processes (specifically behaviors and capabilities) and outcomes.

Figure 12: Shewhart's Cycle for Learning and Improvement (Plan, Do, Study, Act Cycle)



Plan

Plan to test the change/possible solution identified in step 3 above. This involves planning for:

- What is to be done
- Who is to do it
- How is it to be done (management of change)
- How will it be monitored

Do

Make changes designed to correct or improve the situation.

- Test the change
- Verify the change is being tested according to plan
- Collect data about the process being changed for the following "Study" step

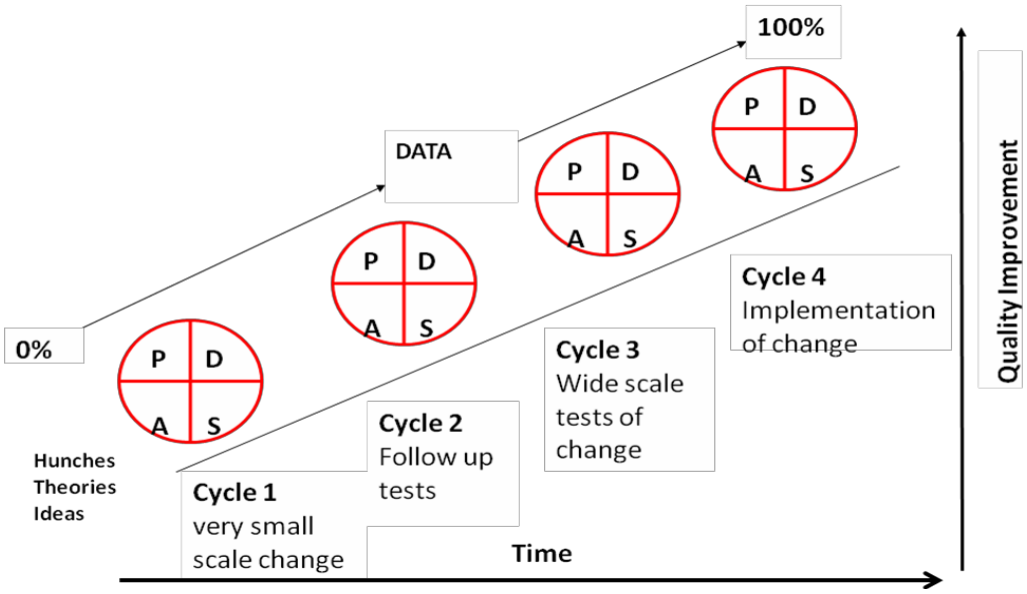
Study

Study the effect of these changes on the situation i.e. achievements / success or constraints: unforeseen problems or resistance to change. Collect data on the new process and compare to the baseline. This is where control charts, documentation journals, pictures, etc are used – they show the effects of changes on a process over time. Evaluate the results and then replicate the change or abandon it and try something different.

Act

If the result is successful, standardize the changes and then work on further improvements or the next prioritized problem. If the outcome is not yet successful, look for other ways to change the process or identify different causes for the problem.

Figure 13: PDSA and CQI



Implementing Changes

After testing a change on a small scale, learning from each test, and refining the change through several PDSA cycles, the team can implement the change on a broader scale — for example, for an entire pilot population or on an entire unit.

Quality Improvement Tools

There are many QI tools however; this manual will focus on those commonly used. When you set out to improve quality, the first thing to do is identify the processes that need improvement. This can be done using a number of methods such as reviewing service delivery data, getting feedback from clients through surveys, suggestion boxes, simply asking clients about their experiences. Once the problem areas are identified, a brainstorming session should occur with a variety of people who are involved with the processes. The target problems are decided upon and a list of possible causes is identified.

Some of the essential tools for the discovery process are;

PROBLEM IDENTIFICATION AND ANALYSIS TOOLS

1. Brainstorming
2. Pareto Charts

3. Cause-effect / Fishbone Diagrams
4. Flowcharts

DATA MANEGEMENT TOOLS

5. Check Sheets
6. Histograms
7. Control Charts
8. Scattered Diagram

Problem Identification and Analysis Tools

Problem identification and analysis tools will be used to define the source of variation in a process, allowing planning to decrease inappropriate variation and improve quality.

1. Brainstorming

This is a way of group to generate as many ideas as possible about a given subject in a very short time. Individuals in a group propose various ideas as they occur to them. Brainstorming sessions can help bring new groups together, and get team function off to a good start. It can be structured (systematic) or unstructured (random). In a structured brainstorming, everybody is asked to make their contribution in an orderly sequence. In unstructured brainstorming, there is no order, and participants contribute randomly.

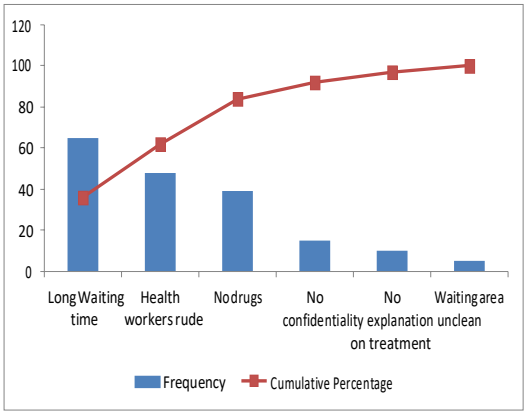
Rules for brainstorming:

- A chairperson is selected
- The group agrees on the subject / topic
- All ideas are written down as they come
- Ideas presented are not discussed immediately during brainstorming
- While ideas are still coming, no criticism is allowed

After the ideas are exhausted, the group then categorizes priorities, and selects the best ideas, by voting or consensus.

2. The Pareto chart - help teams focus on the small number of really important problems or their causes. It can be used to display categories of problems graphically so they can be properly prioritized. Pareto charts are useful throughout the performance improvement process - helping to identify which problems need further study, which causes to address first, and which are the "biggest problems."

Figure 16: Pareto Chart



A Pareto chart contains both bars and a line graph, where individual values are represented in descending order by bars, and the cumulative total is represented by the line. It shows the proportion of the total problem that each of the smaller problems comprise.

Once a major problem has been selected, it needs to be analyzed for possible causes. Cause-and-effect diagrams scatter plots and flow charts can be used in this part of the process.

3. The Cause-Effect / Fishbone Diagram

The Cause & Effect (CE) diagrams are often called Ishikawa Diagrams, after the inventor, or 'fishbone' diagrams because it looks like a skeleton of a fish. It is a tool for discovering all the possible causes for a particular effect. The major purpose of the Fishbone diagram is to act as a first step in problem solving by generating a comprehensive list of possible causes.

The Fishbone diagrams allow the team to identify and graphically display all possible causes related to a process, procedure or system failure. The method for using this diagram is to put the problem to be solved at the head, then fill in the major branches. The major categories of causes are put on major branches connecting to the backbone, and various sub-causes are attached to the branches.

Constructing a Fishbone Diagram

1. **Define the problem (effect) to be solved.** This first step is probably one of the most important tasks in building a cause and effect diagram. While defining your problem or event, your problem statement may also contain information about the location and time of the event. On the cause and effect diagram the problem is visually represented by drawing a horizontal line with a box enclosing the description of the problem on the tip of the arrow.

The "effect" or problem should be clearly articulated to produce the most relevant hypotheses about cause. If the "effect" or problem is too general or ill defined, the team will have difficulty focusing on the effect, and the diagram will be large and complex.

2. Identify the key causes of the problem

- In this step, the primary causes of the problem are drilled down by using brainstorming techniques.
- Often these causes are categorized under

- Manpower, minutes (time), materials, money, and machines (equipment)
- People, policies, products and procedures

- The team should add or drop categories as needed when generating causes. Each category (or step) should be written into the box. Generally, using three to six categories works best.

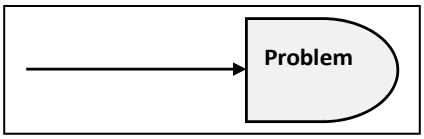
3. Identify the reasons behind the key causes

- Brainstorm as many causes for each of the key causes. Tools such as the 5 Whys can help your team to drill down to these sub-causes.
- Each major branch (or step) should include three or four possible causes.
- Keep asking "why?" and "why else?" for each cause until a potential root cause has been identified.
- If a branch has too few, lead the group in finding some way to explain this lack, or ask others who have some knowledge in that area to help.
- These suggestions should be written down and connected to their appropriate key cause arrow (see the figure 16).
- If an idea fits on more than one branch, place it on both.
- Be sure that the causes as phrased have a direct, logical relationship to the problem or effect at the head of the fishbone or tree diagram
- Check the logic of the chain of causes: read the diagram from the root cause to the effect to see if the flow is logical.

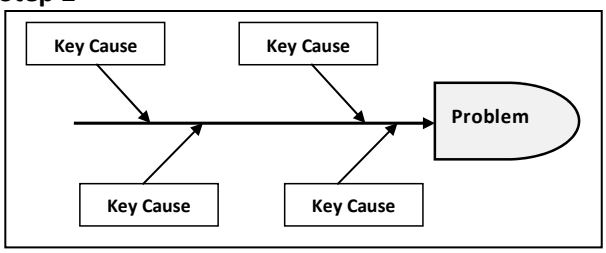
A root cause is one that: (1) can explain the "effect," either directly or through a series of events, and (2) if removed, would eliminate or reduce the problem. Think about and select those causes that, if successfully addressed, will allow you to make significant progress toward the desired result.

Figure 17: Illustration Steps in drawing a fishbone diagram

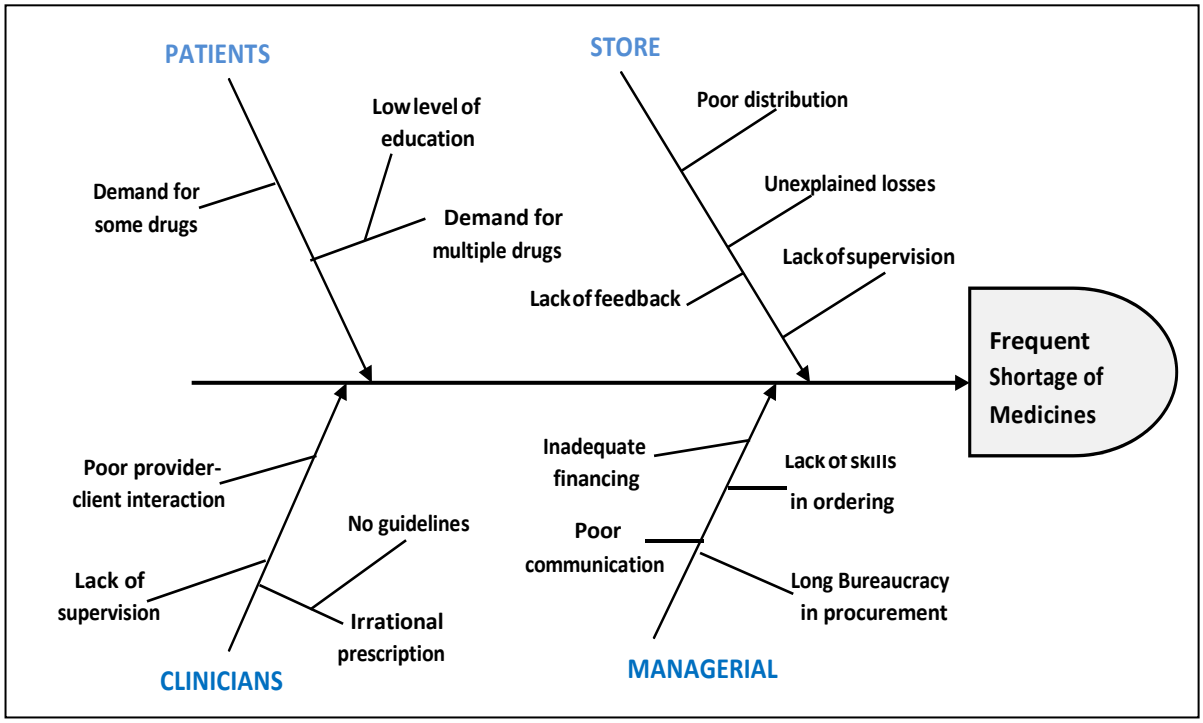
Step 1



Step 2



Step 3



5. Flow Charts

A process map, also known as a flowchart , outlines all the different steps in a process. Flow charts are graphic representations of how a process works, showing the sequence of steps. Flow charts help QI teams identify problems that can be fixed. It is a fundamental tool that should be used with all QI initiatives because it gives team a clear insight into its processes.

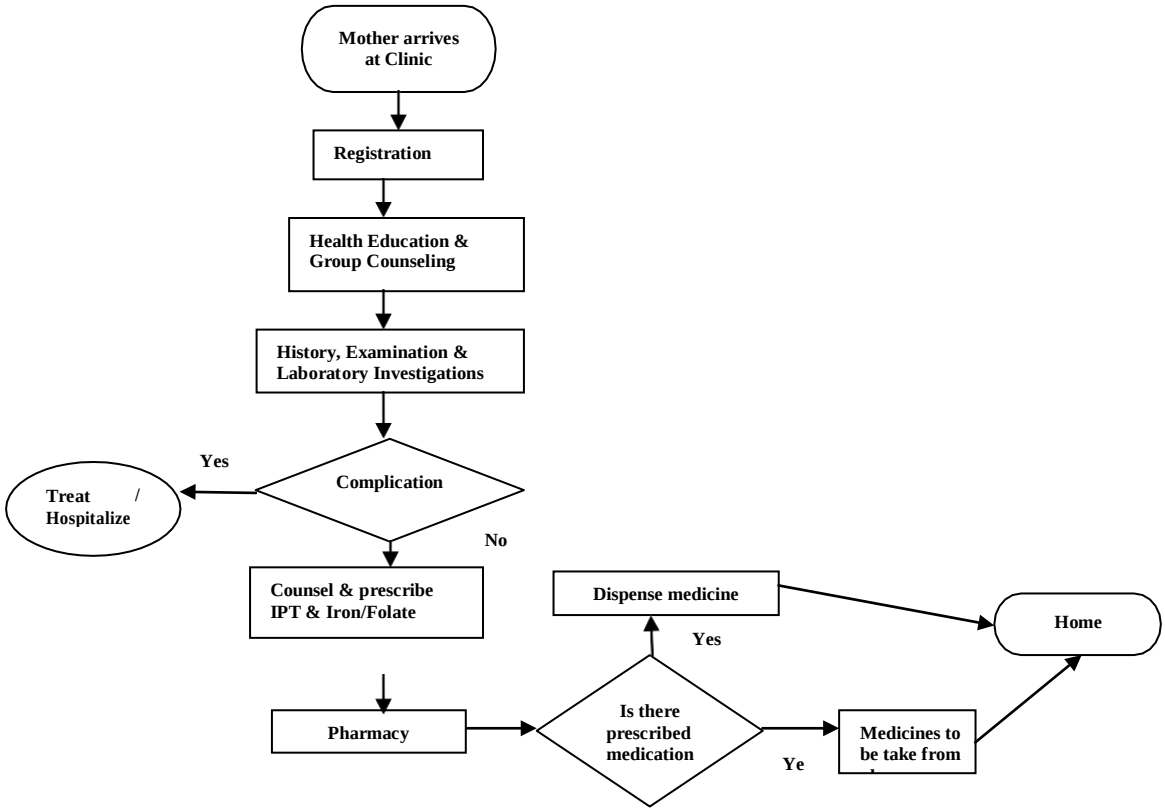
After a process has been identified for improvement and given high priority, it should be broken down into specific steps and displayed on paper in a flow chart. By writing down each step in a process currently taking place, a flow chart helps to clarify how things are currently working.

Once you have completed your flowchart ask the following questions:

- Where are the bottlenecks? How could we address these?
- Are there inconsistencies in how things are done? What can be standardized?
- Can things be done?
    - In a different order?
    - In parallel?
    - By a different person with better or same quality, at lower or same cost?
- Can steps be located closer to each other to reduce travel?

- Does each step add value? If not, can it be eliminated?

Figure 18: Example of a flow chart of antenatal care services



Flow charts are mainly used to:

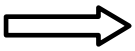
- Understand process by identifying flow of events in the process being examined e.g.
  - Number and sequence of steps the users take to use health services
  - Time required for each step
- Detect bottlenecks, unnecessary steps, repetitions and other obstacles
- Consider ways to simplify process to improve it
- Determine areas for monitoring or data collection
- Identify those to be involved in or affected by the improvement process (facility staff, patients, relatives)
- Identify and allocate tasks in a given process
- Formulate questions for further research
- Benchmark progress

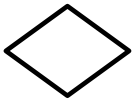
Basic Flow Chart Symbols

Flow charts use a set of standard symbols to represent different actions:

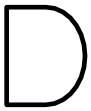

Start / End points in the process

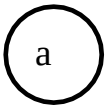

A process, something being done


Process flow


Yes / No Decision or branch point


Cloudy step


Delay/bottleneck



Connector

Data Collection and Analysis Tools

Data must be collected and analyzed. A number of tools can be used for data collection and analysis including check sheets, histograms, run charts, etc.

1. Check Sheet (Tally Sheet)

The check sheet is a simple document that is used for collecting data in real-time and at the location where the data is generated. The document is typically a blank form that is designed for the quick, easy, and efficient recording of the desired information, which can be either quantitative or qualitative. When the information is quantitative, the check sheet is sometimes called a tally sheet. The HMIS provides tally sheets for various routine data needs e.g. immunization, OPD attendance, etc.

Example of a tally

	Mon	Tues	Wed	Thur	Fri	Total
BCG Vaccination	𝍸 𝍸 𝍸	𝍸 𝍸 I	𝍸	𝍸 I	IIII	43
Measles	𝍸			𝍸		19
DPT	𝍸 𝍸	𝍸	𝍸 𝍸	𝍸		42

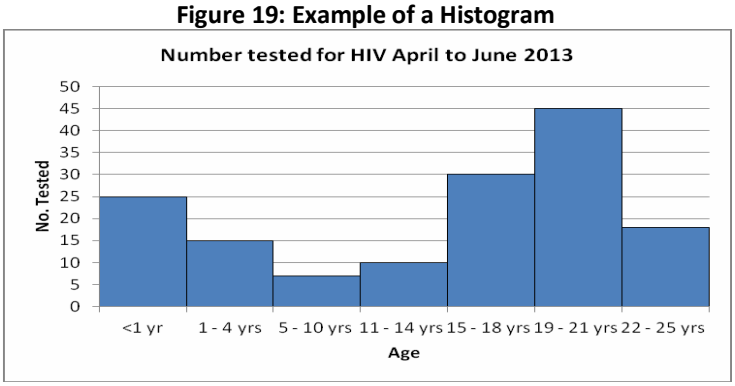
2. Histogram

Data collected on the check sheet is put on the histogram. This is a vertical bar chart which depicts the distribution of a data set at a single point in time. A histogram facilitates the display of a large set of measurements presented in a table, showing where the majority of values fall in a measurement scale and the amount of variation.

The histogram is used in the following situations:

1) To graphically represent a large data set by adding specification limits one can compare.
2) To process results and readily determine if a current process was able to produce positive results and assist with decision-making.

Figure 19: Example of a Histogram



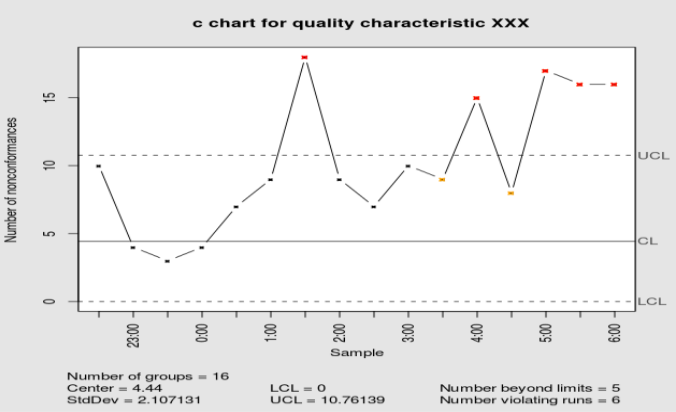
Control Charts

Control charts, also known as Shewhart charts (after Walter A. Shewhart) or process-behavior charts, are a statistical process control tool used to determine if a manufacturing or business process is in a state of control.

If analysis of the control chart indicates that the process is currently under control (i.e., is stable, with variation only coming from sources common to the process), then no corrections or changes to process control parameters are needed or desired. In addition, data from the process can be used to predict the future performance of the process. If the chart indicates that the monitored process is not in control, analysis of the chart can help determine the sources of variation, as this will result in degraded process performance. A process that is stable but operating outside desired (specification) limits (e.g., scrap rates may be in statistical control but above desired limits) needs to be improved through a deliberate effort to understand the causes of current performance and fundamentally improve the process.

The control chart is one of the seven basic tools of quality control. Typically control charts are used for time-series data, though they can be used for data that have logical comparability (i.e.

you want to compare samples that were taken all at the same time, or the performance of different individuals); however the type of chart used to do this requires consideration.



Scatter Diagram

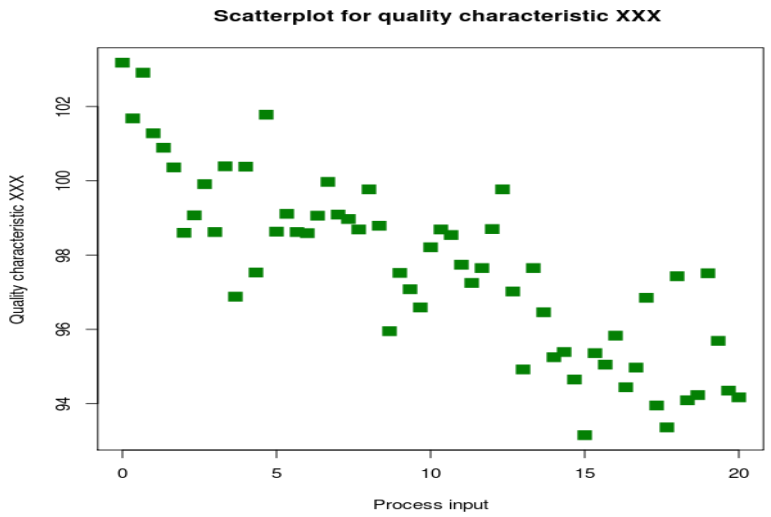
A **scatter plot** (also called a **scatterplot**, **scatter graph**, **scatter chart**, **scattergram**, or **scatter diagram**) is a type of plot or mathematical diagram display values for typically two variables for a set of data. Scatter charts can be built in the form of bubble, marker, or/and line charts. If the points are color-coded, one additional variable can be displayed. The data are displayed as a collection of points, each having the value of one variable determining the position on the horizontal axis and the value of the other variable determining the position on the vertical axis.

A scatter plot can be used either when one continuous variable that is under the control of the experimenter and the other depends on it or when both continuous variables are independent. If a parameter exists that is systematically incremented and/or decremented by the other, it is called the control parameter or independent variable and is customarily plotted along the horizontal axis. The measured or dependent variable is customarily plotted along the vertical axis. If no dependent variable exists, either type of variable can be plotted on either axis and a scatter plot will illustrate only the degree of correlation (not causation) between two variables.

A scatter plot can suggest various kinds of correlations between variables with a certain confidence interval. For example, weight and height, weight would be on y axis and height would be on the x axis. Correlations may be positive (rising), negative (falling), or null (uncorrelated). If the pattern of dots slopes from lower left to upper right, it indicates a positive correlation between the variables being studied. If the pattern of dots slopes from upper left to lower right, it indicates a negative correlation. A line of best fit (alternatively called 'trendline') can be drawn in order to study the relationship between the variables. An equation for the correlation between the variables can be determined by established best-fit procedures.

A scatter plot is very useful when we wish to see how two comparable data sets agree to show

nonlinear relationships between variables. The ability to do this can be enhanced by adding a smooth line such as LOESS. Furthermore, if the data are represented by a mixture model of simple relationships, these relationships will be visually evident as superimposed patterns.



Six sigma

Six Sigma (6σ) is a set of techniques and tools for process improvement. It seeks to improve the quality of the output of a process by identifying and removing the causes of defects and minimizing variability in manufacturing and business processes. It uses a set of quality management methods, mainly empirical, statistical methods, and creates a special infrastructure of people within the organization who are experts in these methods. Each Six Sigma project carried out within an organization follows a defined sequence of steps and has specific value targets, for example: reduce process cycle time, reduce pollution, reduce costs, increase customer satisfaction, and increase profits.

A six sigma process is one in which 99.99966% of all opportunities to produce some feature of a part are statistically expected to be free of defects (3.4 defective features per million opportunities).

Six Sigma is useful to:

- Continuous efforts to achieve stable and predictable process results (e.g. by reducing process variation) are of vital importance to business success.
- Manufacturing and business processes have characteristics that can be defined, measured, analyzed, improved, and controlled.
- Achieving sustained quality improvement requires commitment from the entire organization, particularly from top-level management.

Features that set Six Sigma apart from previous quality-improvement initiatives include:

- A clear focus on achieving measurable from Six Sigma project.
- An increased emphasis on strong and passionate management leadership and support.
- A clear commitment to making decisions on the basis of verifiable data and statistical methods, rather than assumptions and guesswork.

Six Sigma projects follow two project methodologies. These methodologies, composed of five phases each, bear the acronyms DMAIC and DMADV.

- DMAIC is used for projects aimed at improving an existing health care process.
- DMADV is used for projects aimed at creating new process designs.

DMAIC

The five steps of DMAIC

The DMAIC project methodology has five phases:

- ***Define*** the system, the voice of the customer and their requirements, and the project goals, specifically.
- ***Measure*** key aspects of the current process and collect relevant data; calculate the 'as-is' Process Capability.
- ***Analyze*** the data to investigate and verify cause-and-effect relationships. Determine what the relationships are, and attempt to ensure that all factors have been considered. Seek out root cause of the defect under investigation.
- ***Improve or optimize*** the current process based upon data analysis using techniques such as design of experiments, poka yoke or mistake proofing, and standard work to create a new, future state process.
- ***Control*** the future state process to ensure that any deviations from the target are corrected before they result in defects. Implement control systems such as statistical process control, observation, and continuously monitor the process. This process is repeated until the desired quality level is obtained.

DMADV or DFSS

The five steps of DMADV

The DMADV project methodology, known as DFSS ("Design For Six Sigma") features five phases:

- ***Define*** design goals that are consistent with customer demands and the strategy of public health.
- ***Measure*** and identify CTQs (characteristics that are Critical To Quality), measure product capabilities, production process capability, and measure risks.
- ***Analyze*** to develop and design alternatives
- ***Design*** an improved alternative, best suited per analysis in the previous step
- ***Verify*** the design, set up pilot runs, implement the process and hand it over to the process owner(s).

NOTE: Within the individual phases of a DMAIC or DMADV project, Six Sigma utilizes many established quality-management tools that are also used outside Six Sigma.

Committees

Quality assurance is a cyclical process which needs to be continuously monitored against defined standards and measurable elements. Regular assessment of health facilities by their own staff and state level functionaries, 'effective action-planning' for traversing the observed gaps and periodic assessment to improve the quality is the only way in having a viable quality assurance programme in public health. The sustainable focus of the quality assurance programme would be enhancing the satisfaction level among users of the government health facilities and reposing trust in public health system.

Therefore, Government hereby notifies that, National Quality Assurance Programme has been adapted by the state by constituted 8 committee for further implementation.

S.No.	Committees
1	Audit Committee (Medical / Death / Prescription audit)
2	Hospital Infection Control Committee
3	Pharmaco-Therapeutic Committee
4	Risk & Safety Committee

5	Ethics Committee (Applicable where DNB course is in place)
6	Quality Assurance Core Committee
7	Grievance Redressal and Disciplinary Committee
8	Vishaka (or) Anti-Sexual Harassment Committee

AUDIT COMMITTEE(AC):

- Conduct medical records audit to ensure that they are accurate, clinically pertinent as per STGs, complete and readily available for continuing patient care, medico-legal requirements, and medical research.
- Ensure that medical staff completes all the medical records of patients under their care by recording a discharge diagnosis and writing discharge summary(where required) for each discharged patient within a specified period of time.
- Approve and control the introduction of new medical record forms used in the facility. (All forms should be cleared by the AC before being put in use)
- Evaluate and review periodically the prescriptions in the hospital and recommend corrective actions.
- Evaluate and monitor adverse drug reaction / transfusion reaction case records of both active and discharged patients.
- Conduct mortality & morbidity review for the month, retrospectively.
- Selected cases shall be reviewed after case history presentation by one of the members.
- The focus of discussion is on process and system change, with the aim of developing recommendations to prevent a similar adverse outcomes in the future.
- This is not a forum to discuss individual competence, where competence issues are apparent, the chairperson should consider referring the matter to the appropriate authority.
- Everyone involved in the case under review should be given the opportunity to report to the meeting.
- Review all the policies / procedures related to medical care and recommend the corrective actions if any.

Frequency	**Location**	**Time**
Monthly on 2nd Tue	**Medical Superintendent Chamber**	**2.00pm - 4.00pm**
Proposed Members in the committee		
1	Medical Superintendent	Chairperson
2	RMO	Vice Chairperson
3	District Quality Assurance Manager	Member Secretary
4	CS / CAS -General Medicine	Member

5	CS / CAS-Paediatrics	Member
6	CS / CAS-Anaesthesia	Member
7	CS / CAS-Orthopaedics	Member
8	CS / CAS-General Surgery	Member
9	CS / CAS-Obg & Gynaecology	Member
10	In-charge - Laboratory Services	Member
11	In-charge - Blood Bank	Member
12	Nursing Superintendent	Member
13	Medico-legal advisor	Ex Officio Members

HOSPITAL INFECTION CONTROL COMMITTEE:

- Disseminate, implement and monitor compliance to G.O.M.S.No: 84, dt. 08/10/2015.
- Develop strategies and implement best practices to minimize hospital acquired infections.
- Monitor hospital acquired infection rates and investigate outbreaks.
- Disseminate hospital acquired infection rates to the care providers and develop a culture of good practices.
- Review results and identify areas of improvement and training needs by regularly auditing different areas.
- Review and recommend policies / procedures related changes if any.

Frequency	**Location**	**Time**
Monthly on 1st Tue	**Medical Superintendent Chamber**	**2.00pm - 4.00pm**
Proposed Members in the committee		
S.No.	**Designation**	**Role**
1	CS / CAS – Microbiology / Pathology	Chairperson
2	Infection Control Nurse	Member Secretary
3	CS / CAS - General Medicine	Member
4	CS / CAS - Anaesthesia	Member
5	CS / CAS - ENT	Member
6	CS / CAS - Paediatrics	Member
7	CS / CAS - Orthopaedics	Member
8	CS / CAS - General Surgery	Member
9	CS / CAS – Obg & Gynaecology	Member
10	RMO	Member
11	Nursing Superintendent	Member

12	In-charge for Maintenance	Member
13	In-charge for Sanitation & Security	Member
14	Medical Superintendent	Ex Officio Member
15	RMO	Ex Officio Member
16	District Quality Assurance Manager	Ex Officio Member

PHARMACO-THERAPEUTIC COMMITTEE:

- Evaluate proposals from doctors to introduce new products into the formulary.
- Review medication management throughout the hospital.
- Review
  1. Drug recall
  2.Drugs added and removed from the formulary
  3. Analyse ADR report and corrective action taken
  4. Medication errors and corrective action taken
  5. Cost / Vendor and manufacturer evaluation
  6. Corrective actions taken in reducing the waiting time of the patients in the queue lines
  7. Training of pharmacists and nurses.
- Review policies / procedures and recommend the changes if any

Frequency	**Location**	**Time**
Monthly on 2nd Wed	**Medical Superintendent Chamber**	**2.00pm - 4.00pm**
Proposed Members in the committee		
S.No.	**Designation**	**Role**
1	Medical Superintendent	Chairperson
2	CS / CAS-Anaesthesia	Vice Chairperson
3	CS / CAS-General Medicine	Member
4	CS / CAS-Pulmonology	Member
5	CS / CAS-Paediatrics	Member
6	CS / CAS-Pharmacology	Member
7	CS / CAS-Microbiology	Member
8	CS / CAS-ENT	Member
9	CS / CAS-Orthopaedics	Member
10	RMO/AO - Responsible for Pharmacy Purchases	Member
11	Nursing Superintendent	Member
12	In-charge, Pharmacy stores	Member
13	In-charge, OPD dispensaries	Member
14	In-charge, Aarogyasri dispensaries	Member
15	District Quality Assurance Manager	Ex Officio Member

RISK & SAFETY COMMITTEE:

- Devise a framework for adverse events monitoring, management and prevention.
- Devise a systematic course of action for analysis of all reported incidents within a specified time frame and formulate recommendations for implementation.
- Ensure education and training to support safety and quality improvement.
- Conduct safety audits, assessments and recommend corrective action.
- Act as advocates at Government level for the quality and safety issues which cannot be resolved by the Hospital Administration.

Frequency	Location	Time
Quarterly on 4th Fri	Medical Superintendent Chamber	2.00pm - 4.00pm
Proposed Members in the committee		
S.No.	Designation	Role
1	Medical Superintendent	Chairperson
2	CS / CAS-Anaesthesia	Vice Chairperson
3	CS / CAS-General Medicine	Member
4	RMO	Members
5	In-charge, Lab Services	Member
6	In-charge, Purchases	Member
7	Nursing Superintendent	Member
8	Maintenance	Member
9	Technician-Radiology	Member
10	In-charge, Sanitation & Security	Member
11	District Collector	Ex Officio Member
12	Representative-TSMSIDC	Ex Officio Member
13	District Quality Assurance Manager	Ex Officio Member

ETHICS COMMITTEE (Applicable where DNB course is in place):

- Review all research projects involving human subjects
- Develop and recommend policies / procedures that define ethical principles for conduct within the hospital.
- Act as patient advocate on bio-ethical issues and educate medical personnel, patients, and their attendants about hospital policies / procedures regarding ethical issues.
- Provide advisory consultation and review in cases where ethical dilemmas are perceived by the patient's / patient's attendants, medical team, or other staff members.

Frequency	Location	Time
As per Requirement	Seminar Hall, Dept of GM	3.00pm - 4.00pm
Proposed Members in the committee		
S.No.	Designation	Role
1	Retd. Judge, High Court, Telangana	Chairperson
2	CS / CAS-General Medicine	Member Secretary
3	CS / CAS-General Surgery	Member
4	CS / CAS-Microbiology	Member
5	CS / CAS-Forensic Medicine	Member
6	External Member	Professional Member
7	External Member	Ethicist
8	External Member	Social Worker

QUALITY ASSURANCE CORE COMMITTEE:

- Monitor the average time taken for initial assessment of the in-patients.
- Monitor the average time taken for initial assessment of emergency patients.
- Ascertain the percentage of inpatient cases wherein care plan with desired outcomes is documented and counter signed by the clinician.
- Verify the percentage of inpatient cases wherein screening for nutritional needs has been done.
- Scrutinize the percentage of in-patient cases wherein the nursing care plan is documented.
- Examine the adverse events occurring in the hospital.
- Look over the sentinel events occurring in the hospital.
- Monitor audits covering all the areas of organisation are conducted at regular intervals as means of continuous monitoring.
- Review all the audit findings observed and recommend corrective & preventive measures for the findings observed during the audits.
- Review department wise all SOPs in the hospital and recommend the changes if any.

Frequency	Location	Time
Monthly on 3rd Wed	Medical Superintendent Chamber	2.00pm - 3.00pm
Proposed Members in the committee		
S.No.	Designation	Role
1	Medical Superintendent	Chairperson
2	CS / CAS-General Medicine	Vice Chairperson
3	District Quality Assurance Manager	Member Secretary

4	RMO	Members
5	CS / CAS-Orthopaedics	Member
6	CS / CAS-General Surgery	Member
7	CS / CAS-Anaesthesia	Member
8	CS / CAS-Radiology	Member
9	In-charge, Laboratory Services	Member
10	CS / CAS-Paediatrics	Member
11	Nursing Superintendent	Member
12	In-charge, Maintenance	Member
13	In-charge, Pharmacy Services	Member
14	In-charge, Sanitation & Security	Member
15	A.O / Office Superintendent & In-charge, Accounts	Ex Officio Members

GRIEVANCE REDRESSAL AND DISCIPLINARY COMMITTEE:

- Handle all the employees grievances (Individual grievances / Complaints of employees / Referred by the Hospital Administration).
- Sort out the problems and find the solution irrespective of the employees and his/her position.
- Suggest the preventive measures not to repeat the same problem in future.
- Take unbiased decision and it has to be respected and accepted by the staff without any issue.
- Review policies / procedures related to grievance redressal and recommend the changes if any

Frequency	**Location**	**Time**
Monthly on 4th Tue	**Medical Superintendent Chamber**	**3.00pm - 4.00pm**
Proposed Members in the committee		
S.No.	**Designation**	**Role**
1	Designation	Role
2	Medical Superintendent	Chairperson
3	RMO	Vice Chairperson
4	Nursing Superintendent	Member Secretary

5	CS / CAS-General Medicine	Members
6	CS / CAS-ENT	Member
7	A.O / Office Superintendent	Member
8	District Quality Assurance Manager	Ex Officio Member
9	Union Leaders	Ex Officio Member

VISHAKA (OR) ANTI-SEXUAL HARASSMENT COMMITTEE:

- Organize a mechanism for registering complaints that are safe, accessible and sensitive.
- Look into the truth of the allegations contained in the complaint.
- Decide whether the facts contained in the complaint make out a case of "sexual harassment" in light of the definition contained in the Policy.
- Look into the truth of any allegation of retaliation against / victimization of the complainant or any other person assisting her as a result of such complaint having been made or such assistance having been offered.
- Recommend the penalties / action to be taken against any person found guilty of having sexually harassed the complainant, up to and including termination.
- Recommend the penalties / action to be taken against any person found guilty of having retaliated against / victimized the complainant or any other person assisting her as a result of such complaint having been made or such assistance having been offered.
- Recommend appropriate psychological, emotional and physical support (counselling, security and other assistance) for the victim.
- Recommend the penalties / action to be taken against any person found guilty of having made false claims of having been sexually harassed, up to and including termination.
- Monitor the follow-up action to be taken by the administration on receipt of the Report of the Committee.
- Publicize the names and contact numbers of the responsible persons who can be contacted when required.
- Review policies / procedures related to the policy and recommend the changes if any

Frequency	**Location**	**Time**
As when Required	**RMO Chamber**	**2.00pm - 3.00pm**
Proposed Members in the committee		
S.No.	**Designation**	**Role**
1	RMO	Chairperson
2	CS / CAS of Medical Branch (lady)	Vice Chairperson
3	CS / CAS-of Surgical Branch	Member Secretary

4	CS / CAS-Dermatology	Members
5	Nursing Superintendent	Member
6	Office Superintendent	Member
7	Medical Superintendent	Ex Officio Member
8	Social Worker	Ex Officio Member

Measuring Quality / Quality Control

Measuring quality consists of quantifying the current level of performance or compliance with expected standards. Measures tell you whether the changes you make are actually leading to tangible improvement. This gives you concrete evidence to support your case for change, and they also increase buy-in for the initiative.

It involves:

- Defining indicators
- Developing or adapting information systems to provide data on performance related to the indicators
- Analysis and interpretation of results
- Support Supervision
- Establishing systems for Monitoring & Evaluation

Types of indicators

QI initiatives should use four types of indicators to help create targets and achieve their aims:

- **Productivity Indicators** reflect volumes and adequacy of the services provided.
- **Efficiency Indicators** measures utilizations of the services within given resources. it also reflects on the proficiency of service providers.
- **Clinical Care Indicators** directly indicate the quality of a particular clinical processes or outcome.
- **Service Quality Indicators** are assigned to perception of users about quality of services, their comfort and satisfaction level.

KEY PERFORMANCE INDICATORS FOR DISTRICT HOSPITAL						
Type	**S No**	**Quality Indicator**	**Numerator**	**Denominator**	**Formula**	**Frequency**
Productivity	1	Bed Occupancy Rate	Total Patient bed days (Midnight head count of each day added for the month of all patients) Exclusion – New-borns in Maternity Wards and Day Care Patients	Product of Total number of functional beds in the hospital and days in the month Exclusion:- Labour Room Tables and Observation Beds	(Total Patient bed days *100/Functional beds*days in month)	Monthly
	2	Lab test done per thousand patients	Total number of tests done for both OPD and IPD patients Exclusion - Test done at Point of care	Total number of patients attended during the month Inclusion:- Both OPD and IPD cases	(Total number of lab tests done*1000/Total number of patients attended)	Monthly
	3	Percentage of cases of High Risk Pregnancy/obstetric complication out of total registered pregnancies at the facilities	Total number of high risk pregnancies registered at the facility Inclusion:-Severe Anaemia ,PPH, PIH/Eclampsia/Pre Eclampsia, Retained Placenta, HIV Positive Pregnant women, Septic Cases, Obstructed labour including C-Section Exclude:- Referral without any interventions	Total number of obstetric cases admitted in the hospital	Total number of complicated pregnancies registered at the facility*100/Total Obs admissions	Monthly
	4	Percentage of surgeries done in night out of total surgeries	Total major surgeries conducted during night including LSCS (8 PM to 8 AM) Exclusion – Minor Surgeries	Total major surgeries conducted in Hospital (Day+Night) Exclusion – Minor Surgeries	Total number of major surgeries conducted in night time*100/Total number of major surgeries conducted	Monthly

	5	Percentage of surgeries done during day out of total surgeries	Total number of planned major surgeries conducted during day time (8 AM TO 8 PM)	Total major surgeries conducted in Hospital (Day+Night)	Total number of planned major surgeries conducted*100/ Total number of major surgeries	Monthly
	6	C-Section Rate	Total number of C-section delivery conducted	Total deliveries conducted	Total number of C-section deliveries conducted*100/ Total number of deliveries conducted	Monthly
Efficiency	7	Emergency Death Rate	Total number of deaths in emergency Exclusion:- Brought dead	Total number of registered patients in emergency Exclusion - Cases referred out	Total number of deaths in emergency*100 /Total number of registered patients in emergency	Monthly
	8	Referral Out Rate	Total number of patients referred from the facility Inclusion:- Emergency and indoor cases Exclusion:- LAMA & absconding	Total admission in the facility Exclusion:- Day care Procedures	(No of cases referred out from the hospital*100/ Total no. of cases admitted)	Monthly
	9	Major Surgeries per surgeon	Total number of major surgeries conducted	Total number of surgeons appointed in the facility Inclusion:- Ortho, Gynae, Obs, General surgeon, EMOC trained doctors	Total number of major surgeries conducted/Total number of surgeons appointed	Monthly

	10	OPD Per doctor	Total number of patients attended in OPD	Total number of doctors available in the hospital Inclusion: Regular, contractual, Part Time Exclusion:- Doctors not engaged in OPD like MS, Radiologist, Microbiologist	Total number of Patient consulted in OPD/Total number of doctor appointed for OPD	Monthly
	11	External Quality Score for Lab tests(Median Value)			Take Median of all scores obtained (Arrange scores in increasing order- Pick the middle value if numbers are odd- Take average of middle two values if numbers are even)	Monthly
	12	Percentage of stock out of vital drugs (RMNCH+A)	Total stock outs occurred for essential commodities each day added for the month Inclusion – List of vital drugs(RMNCH+A)	Product of Total no. of Commodities and days in the month	Total no. of Stock out days for Essential Commodities*100/ Total no. of commodities*Days in Month	Monthly
Clinical care and safety	13	Maternal death rate	Total number of maternal deaths during the month	Total number of pregnant women admitted	Total maternal deaths*100/Total admission	Monthly

	14	Neonatal death rate	Total number of neonatal deaths Inclusion – Neonate died during first 28 days while admitted in the hospital including Out borns admitted in neonate ward/SNCU Exclusion – Still Birth	Total no. of neonates admitted including live births in Hospital and out born admissions	Total number of neonatal deaths*100/No of Live births and Neonatal admission	Monthly
	15	Percentage of cases for which maternal death review done	Total number of maternal deaths review done during the month	Total number of maternal deaths occurred	Total number of maternal death review done*100/Total number of maternal deaths	Monthly
	16	Average length of stay	Total Patient bed days (Midnight head count of each day added for the month of all patients)	Total number of discharges. Inclusion:- Normal discharge, LAMA, Abscond, Referral, deaths	Total Patient bed days /Total Discharges	Monthly
	17	Surgical site infection rate	Total number of Surgical site infection detected (Any purulent discharge,absess, spreading cellulitis at surgical site during the month after the surgery)	Total number of surgeries conducted (major & minor surgeries)	(Total number of surgical site infection detected*100/Total number of surgeries Conducted)	Monthly
	18	Percentage of mortality out of total SNCU admissions	Total no of new-born deaths occurred in the SNCU Inclusion – Inborn and Out born	Total no of new born admitted in the SNCU Inclusion – Inborn and Outborns	Total number of deaths in SNCU*100/Total new born admissions	Monthly

	19	Number of Sterilization failure			Total number of cases detected with sterilization failure Inclusion:- Failure cases after issuing of certificates of sterilization for both male and female sterilization	Monthly
	20	Number of Sterilization Complications			Total number of complications detected after male and female sterilization surgeries.	Monthly
	21	Number of deaths after Sterilization			Total number of deaths after male or female sterilization surgeries	Monthly
	22	Blood Replacement Rate	Total no. of Blood Unit issued on replacement in each day added for Month Exclusion – Blood Units issued without replacement	Total no of blood unit issued in the month Inclusion- Blood Unit issued with out replacement	Total number of blood unit issued on replacement*100/Total number of blood units issued	Monthly
	23	Percentage of deliveries having partograph recorded	Total number of delivery cases where partograph filled completely Exclusion:- Partial or incomplete filled partograph	Total number of deliveries conducted Inclusion:- Cases shifted to OT	Number of delivery cases partograph recorded*100/Total number of deliveries conducted	Monthly

	24	Antibiotic Use Rate	No of OPD Slip/Indoor Case sheet found with prescription of IIIrd or IVth generation antibiotics during Monthly Prescription audit	Total no of case records reviewed during prescription audit (At least 30 each for OPD and IPD)	Total number of cases antibiotic prescribed*100/ Total number of prescription audited	Monthly
Service Quality Indicator	25	Left against Medical advice (LAMA) Rate	Total number of LAMA patients from the facility Exclusion:- Abscond and referral cases	Total admission in the facility	(No. of LAMA Patients from the facility*100/Total no. of admission)	Monthly
	26	Patient Satisfaction Score (IPD)	Sum of *average satisfaction score* of each respondent (Average satisfaction score = sum total of scores of attributes/number of total attributes)	Total number of respondents	Mean of scores given by each patients in Patient satisfaction survey for indoor patients done each month on statistically adequate sample (at least 30)	Monthly
	27	Patient Satisfaction Score (OPD)	Sum of *average satisfaction score* of each respondent (Average satisfaction score = sum total of scores of attributes/number of total attributes)	Total number of respondents	Mean of scores given by each patients in Patient satisfaction survey for outdoor patients done each month on statistically adequate sample (at least 30)	Monthly

	28	Registration to Drug time			Average time taken by a patient from entering in queue for OPD registration to finally getting drugs at Pharmacy counter observed in time motion study done at peak hours on sample basis (at least 5% patients but not less than 30)	Monthly
	29	Percentage of JSY payments done before discharge	Total No. of JSY beneficiaries got payment before discharge	Total no. of JSY beneficiaries registered in the month	Total number of JSY payment before discharge*100/ Total registered patients under JSY	Monthly
	30	Percentage of women provided drop back facility after delivery	Total no of women provided drop back each day added for month Exclusion – Referral transport to higher Centre	Total no. of deliveries conducted at the facility including C-Section	Total number of women provided drop back after delivery*100/Total number of deliveries conducted	Monthly

AUDIT

Audit in healthcare is a process used by health professionals to assess, evaluate and improve care of patients in a systematic way. Audit measures current practice against a defined (desired) standard. It forms part of clinical governance, which aims to safeguard a high quality of clinical care for patients.

NQAS standards recommended to do two types of audit in Public health facility.

MEDICAL AUDIT:

Medical Audit is a planned programme, defines as the review of the clinical care of patients provided by the medical staff only.

- Which objectively monitors and evaluates the clinical performance of all practitioners
- Which identifies opportunities for improvement and
- Provides mechanism through which action is taken to make and sustain those improvements.

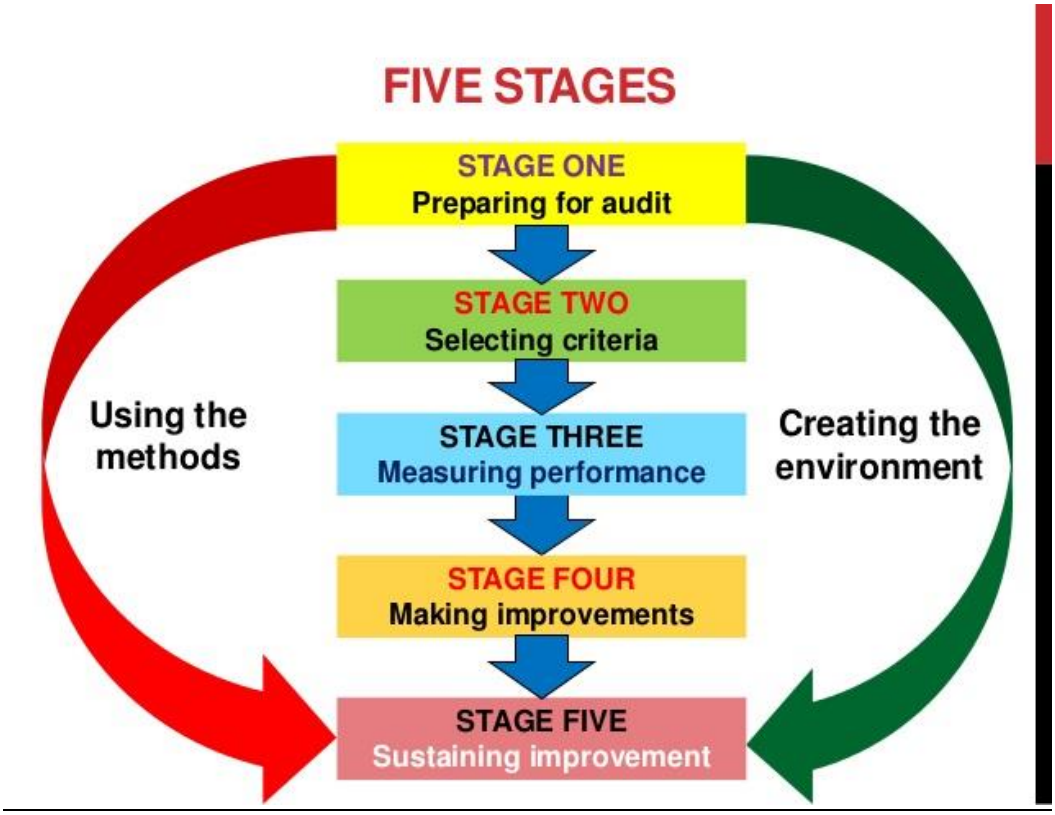
NEED FOR MEDICAL AUDIT

1. Professional motives- Health care providers can identify their lacunae & deficiencies and make necessary corrections.
2. Social motives- To ensure safety of public and protect them from care that is inappropriate, suboptimal & harmful.
3. Pragmative motives- To reduce patient sufferings and avoid the possibility of denial to the patients of available services; or injury by excessive or inappropriate service.

PURPOSE OF MEDICAL AUDIT

1. To plan future course of action
• it is necessary to obtain baseline information through evaluation of achievements for comparison purpose with a view to improve the services.
2. Regulatory in nature
• ensures full & effective utilisation of staff and facilities available.
3. Assess the effectiveness of efficiency of health programmes & services put into practice.

Stages of Audit



MEDICAL RECORD AUDIT FORMAT

Patient MR no : **Date of audit :**

Sample size: 30/Month **Responsible person: Medical Records Keeper**

Data Verification: MS/RMO/DQAM

S.N	Relating to records	0	2	Remarks
1	Patient particulars such as. Demographic details recorded or not			
2	Is general consent is taken from the patient / attendant at the time of admission?			
3	Is the initial assessment of patients done according to the guidelines by nurses?			
4	Are history physical examination, diagnosis & treatments available?			
5	Are the medication orders written in a uniform location in the record?			
6	Are the drug allergies entered at appropriate place in the record?			
7	Did the medial officers visit the patient at least twice a day?			
8	Are the rounds duly named, signed, dated and timed by concerned doctors?			
9	Are the laboratory entered in the record at appropriate place?			
10	Is the summary of the case been recorded at the time of discharge / referral/ death?			

Signature of the auditor **Signature of Evaluator**

PRESCRIPTION AUDIT

What is Prescription audit?

Def: "Rational use of drugs requires that patients receive medications appropriate to their clinical needs, in doses that meet their own individual requirements for an adequate period of time, at the lowest cost/no cost to them and their community" as per WHO.

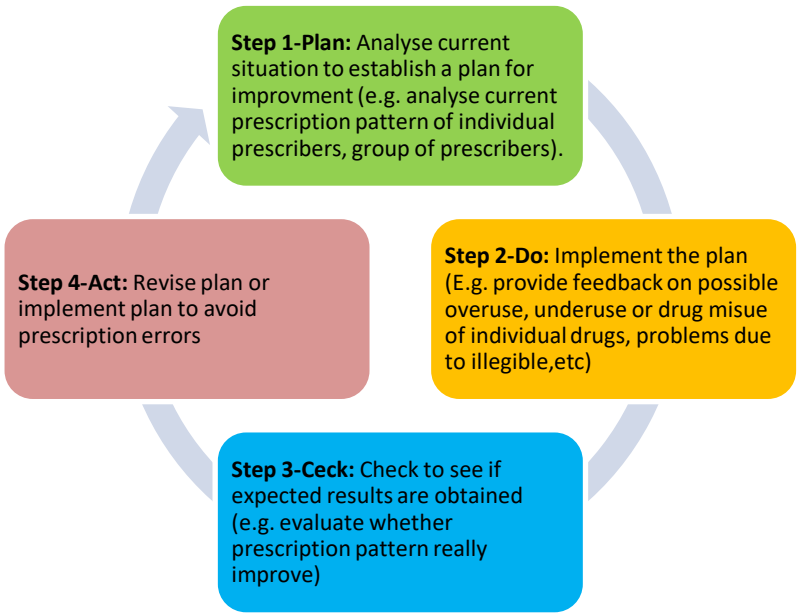
The rationality of prescribing pattern is of utmost importance because bad prescribing habits including misuse, overuse and underuse of medicines can lead to

- Unsafe treatment
- Exacerbation of the disease
- Health hazards
- Economic burden on the patients
- Wastage of resources

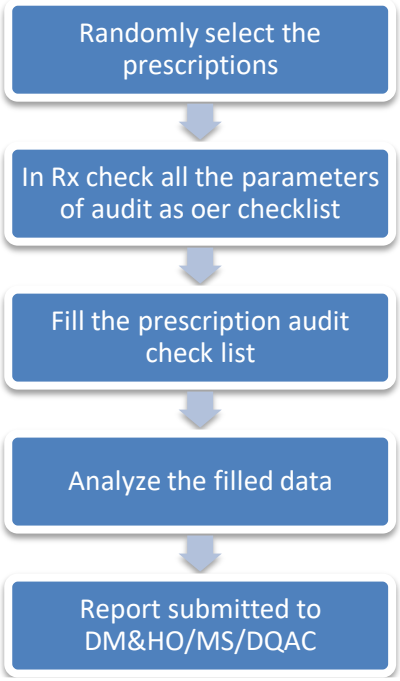
Objectives

- Ensuring that drug therapy meets current standards of care
- Controlling out of pocket expenditure
- Preventing problems related to medication
- Evaluating the effectiveness of drug therapy
- Identification of areas of practice that require further education of practitioners

Audit Cycle



Auditing steps



Audit checkpoints

1. First five check points(UHID, Patient name, Area of audit, Doctor name, registration number) must be entered.
2. The all other points shall be marked as Yes/No/Not applicable
3. Details of Doctors should contains
    - Name
    - Registration number
    - Designation
    - Degrees

Legal stamp containing doctor details is allowed

4. As per MIC guidelines Rx must be in capital letters and should have generic drugs(According to hospital formulary), if Non-generic drugs has been identified mention in remarks(No. of drugs prescribed are in Non-generic, Quantity).
6. The most important check point is, for each Drug- Dose, Route, Frequency shall mention.
7. In wards/ICU if any drug is prescribed as verbal order, the orders must be highlighted as verbal orders and it should be counter signed by duty doctor.
8. The note of Know drug allergies, Food drug allergies is mandate.
9. All medication errors should be entered in the checklist in remarks column. Types of errors as follows
    - Prescription error

- Dispensing error
- Administration error

Prescription Error:- Incorrect drug for a selected patient, Errors in quantity and indication, Prescribing contraindicating drugs.

Dispensing error:-

- Receipt of the prescription supply of a dispensed medicine to patient
- Occurs primarily with drugs having similar name or appearance
- Example :lasix® (frusemide) and losec® (omeprazole)
- Other potential dispensing errors include – wrong dose – wrong drug or – wrong patient.

Administration error:-

- Discrepancy between drug received by patient & drug therapy intended by prescriber
- Errors of omission - the drug is not administered
- Incorrect administration technique & administration of incorrect or expired preparations
- Deliberate violation of guidelines

10. In case of Medication errors/ADRs follow the guidelines

Prescription Audit Checklist

GOVERNMENT OF TELANGANA																			
PRESCRIPTION AUDIT																			
	DATE:			TIME:				DEPARTMENT:			OPD/IPD								
	SAMPLE SIZE:		OPD-50/M	IPD-30/M			RESPONSIBLE PERSON:		HEAD NURSE/INCHARGE SISTER				DATA VALIDATOR:				MS/RMO/DQAM		
S.No.	UHID NO.	PATIENT NAME	OPD/WARD/ICU	DOCTOR NAME	DOCTOR REG NO.	DATE	TIME	Rx CONTAINS GENERIC DRUGS	DOSE	ROUTE	FREQUENCY	VERBAL ORDER	HIGH RISK	KNOW DRUG ALLERGY MENTIONED	Dr.SIGN	NURSE SIGN	Rx-LEGIBLE/ILLEGIBLE	REMARKS	
1																			
2																			
3																			
4																			
5																			

PATIENT SATISFACTION SCORE (PSS)

OPD Patient Feedback

Patient satisfaction is used to collect the opinion of services and treatment provided for patient for improving the services. It can be collected from patient/Relative's/ friends.

Sample size: Minimum-30 per month, in general please refer DISTRICT/AREA assessor guidebook

S.NO.	ATTRIBUTES	POOR (1)	FAIR (2)	GOOD (3)	VERY GOOD (4)	EXCELLENT (5)	REMARKS
1	Availability of sufficient in formation at registration counter						
2	Waiting time at the registration counter	more than 30 mts	10-30 mts	5-10 mts	Within 5 mts	Immediate	
3	Behaviour and attitude of staff at the registration counter						
4	Cleanliness of the OPD, B athrooms & toilets						
5	Attitude & communication of Doctors						
6	Time spent for examination and counselling						
7	Availability of Lab and radiology tests.						
8	Promptness at Medicine distribution counter						
9	Availability of drugs at th e hospital dispensary						
10	Your overall satisfaction during the visit to the hospital						

IPD Patient Feedback

Patient satisfaction is used to collect the opinion of services and treatment provided for patient for improving the services. It can be collected from patient/Relative's/ friends.

Sample size: Minimum-30 per month, in general please refer DISTRICT/AREA assessor guidebook

S.NO.	ATTRIBUTES	POOR (1)	FAIR (2)	GOOD (3)	VERY GOOD (4)	EXCELLENT (5)	REMARKS
1	Availability of sufficient in formation at Registration/Admission c ounter						
2	Waiting time at the Regist ration/ Admission counter	more than 30 mts.	10-30 mts	5-10 mts	Within 5 mts	Immediate	
3	Behaviour and attitude of staff at the registration/ admission counter						
4	Your feedback on discharge process						
5	Cleanliness of the ward						
6	Cleanliness of Bathrooms & toilets						
7	Cleanliness of Bed sheets / pillow covers etc						
8	Cleanliness of surroundings and campus drains						
9	Regularity of Doctor's attention						
10	Attitude & communication of Doctors						
11	Time spent for examinati on of patient and counseling						
12	Promptness in response b y Nurses in the ward						

13	Round the clock availability of Nurses in the ward hospital						
14	Attitude and communication of Nurses						
15	Availability, attitude & promptness of Ward boys/girls						
16	All prescribed drugs were made available to you free of cost.						
17	Your Perception of Doctor's knowledge						
18	Diagnostics Services were provided with in the hospital						
19	Timeliness of supply of diet						
20	Your overall satisfaction during the treatment as in patient						

EMPLOYEE FEEDBACK

Name of the Employee: **Department :**

Date: **Contact Number:** **E mail:**

Sl .No	Parameter	Excellent	Very good	Good	Need Improvement	Un-satisfactory	NA	Remarks / Yes/No
1.	Are you satisfied with your job?	Very satisfied	Satisfied	Neutral		Very dissatisfied		
2.	How do you rate your leadership?							
3.	Decision making by the Hospital in charge?							
4.	Is there a clarity of roles and responsibilities?							
5.	How do rate the distribution of workload among employees?							
6.	Are your suggestions acknowledged ?	Always	Mostly	Sometimes	Rarely	Never		
7.	How are the promotion avenues?							

Sl .No	Parameter	Excellent	Very good	Good	Need Improvement	Un-satisfactory	NA	Remarks / Yes/No
8.	How do you rate the coordination and cooperation of your co workers in discharging your duties.							
9.	How do you rate your building and infrastructure?							
10.	Do you have the basic office /working equipment like PC table etc.							
11.	Have you been provided with AC/Cooler in your workplace?							
12.	Is there an appreciation/recognition of your good work?							
13.	How would you rate the motivation level of employees?							
14.	Time taken to receive payments due to you?	Least time	Low	Average	High	Unusually long		
15.	Are you happy with the current appraisal system?							
16.	How do you rate the opportunities for training & skill development ?							
17.	Do you get an opportunity to use the PC & printer?							
18.	Wow do you rate the current Grievance redress system?							
19.	Are you given the opportunities for expressing opinion/views on work related topics?	Always	Mostly	Sometimes	Rarely	Never		
20.	Have you been provided the housing facility?							
21.	How likely would you be to refer a friend to Hospital as a place to work?	Very Likely	Likely	Unsure	Unlikely	Very unlikely		
22.	Overall experience of working with ospital/Health Centre							

Describe two best things about your hospital as :
Signature_____