THE REPUBLIC OF UGANDA

MINISTRY OF HEALTH

5S-CONTINUOUS QUALITY IMPROVEMENT (KAIZEN)-TOTAL QUALITY MANAGEMENT IMPLEMENTATION GUIDELINES IN UGANDA

December 2019

FOREWORD

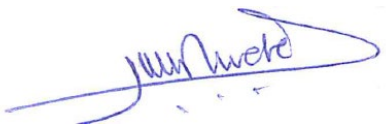
The Government of Uganda is committed to providing quality health care services which are friendly, safe, efficacious, having well maintained medical equipment and supplies, with competent health workers operating under a conducive working environment. Clients have the right to receive quality healthcare services where both the service provider and consumers' safety is taken as a key priority.

The Ministry of Health (MoH) working together with the other key stakeholders considers 5S-Continuous Quality Improvement(CQI or KAIZEN)-Total Quality Management (TQM) approach as the foundation of all health care service interventions in the country as outlined in the Health Sector Quality Improvement Framework and Strategic Plan 2015/16-2019/20. To facilitate operationalisation of the framework in the health sector, MoH developed the 5S Guidelines in 2013. This edition however did not include the component for CQI(KAIZEN) and TQM which necessitated the review of the guidelines. The revised guidelines have also streamlined the QI tools and further added a section for rolling out 5S-CQI(KAIZEN)-TQM in the health sector. The review process of the guidelines was both consultative and participatory that involved the various QI actors across the national health system.

All health facility managers are expected to embrace 5S-CQI(KAIZEN)-TQM approach and ensure that the QI structures are in place and functional at the different levels of healthcare service delivery. It is important to note that leadership is of paramount importance and a driver for change of mind-set and general improvement of health system operations. The 5S-CQI(KAIZEN)-TQM model requires minimal resources to implement and yet can generate results that are impressive and of tremendous impact on work places despite resource constrained settings in the health sector.

The overall changes introduced in the guidelines are seen as a useful contribution towards improved access to quality of healthcare services and the general functionality of both the public and private health facilities in Uganda. I therefore wish to urge all health managers, district leadership, health service providers, development and implementing partners, civil society organisations and health consumers to support the effort to use and roll-out the revised 5S-CQI(KAIZEN)-TQM guidelines 2019 across the whole country.

For God and My Country



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The development process was a consultative one covering a wide range of stakeholders including the Quality Improvement Implementing Partners, National and Regional Referral Hospitals, Private Not for Profit (PNFP) and the Faith-based Organisations and was spearheaded by the SCAPP Department (SCAPP-D).

Special acknowledgement goes to the taskforce members below who provided a lot of technical inputs in the guidelines.

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Lastly, sincere acknowledgement is given to JICA for facilitating the taskforce meeting.

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ABBREVIATIONS AND ACRONYMS

5S	Sort, Set, Shine, Standardise and Sustain: a set of practices for improvement of work environment
AAKCP	Asia-Africa Knowledge Co-Creation Program
AHSPR	Annual Health Sector Performance Report
CQI	Continuous Quality Improvement
DHT	District Health Team
DLT	District League Table
DQIC	District Quality Improvement Committee
GH	General Hospital
HAI	Hospital Acquired Infection
HC II	Health Centre II
HC III	Health Centre III
HC IV	Health Centre IV
HFQAP	Health Facility Quality Assessment Programme
HMIS	Health Management Information System
HRO	Highly Reliable Organisation
HSD	Health Sub-District
JICA	Japan International Cooperation Agency
LLU	Lower Level Units
LQAS	Lot Quality Assessment Sampling
M&E	Monitoring and Evaluation
MOH	Ministry of Health
NQIC	National Quality Improvement Committee
NRH	National Referral Hospital
PDCA	Plan-Do-Check-Act
PDSA	Plan-Do-Study-Act
PNFP	Private Not for Profit
QC	Quality Control
QI	Quality Improvement
QIC	Quality Improvement Committee
QIF&SP	Health Sector Quality Improvement Framework and Strategic Plan
QIT	Quality Improvement Team
RQIC	Regional Quality Improvement Committee
RRH	Regional Referral Hospital
SARA	Service Availability and Readiness Assessment
SLIPTA	Stepwise Laboratory Improvement Process Towards Accreditation
SLMTA	Strengthening of Laboratory Management Towards Accreditation

SOP	Standard Operating Procedures
SUO	Standard Unit of Output
TB	Tuberculosis
TQM	Total Quality Management
UBOS	Uganda Bureau of Statistics
UCMB	Uganda Catholic Medical Bureau
UMMB	Uganda Muslim Medical Bureau
UNMHCP	Uganda National Minimum Health Care Package
UPMB	Uganda Protestant Medical Bureau
USAID	United States Agency for International Development
USPA	Uganda Service Provision Assessment
WHO	World Health Organization
WIT	Work Improvement Team
YSP	Yellow Star Program

EXECUTIVE SUMMARY

5S-Continuous Quality Improvement (KAIZEN)-Total Quality Management (5S-CQI(KAIZEN)-TQM) Implementation Guidelines will provide guiding principles to the implementation of 5S-CQI(KAIZEN)-TQM approach.

STATE OF QUALITY OF HEALTH SERVICES IN UGANDA

With improved support from the government and implementing partners focused on health system strengthening initiatives since 2010, there has been major progress in the delivery of health services. However, the Ugandan health sector still has a number of gaps from the aspects of safety, effectiveness, access, equity, technical competency, patience and family-centred care. Since 2000, many methodologies have been applied in Uganda to assess and improve the quality of health service delivery. Currently there are many partners supporting the programmes of Ministry of Health and Local Governments to operationalise the Quality Improvement Framework and Strategic Plan (QIF&SP). Most of the districts and health facilities in Uganda are implementing quality improvement initiatives using the 5S and CQI(KAIZEN) at all levels.

INSTITUTIONALISATION OF 5S-CQI(KAIZEN)-TQM

There are two categories of actors in the context of 5S-CQI(KAIZEN)-TQM practice. A 5S-CQI(KAIZEN)-TQM facilitator is a person who can technically support 5S-CQI(KAIZEN)-TQM practice, and he/she is required to have proper knowledge of 5S-CQI(KAIZEN)-TQM, leadership and seven elements of management and skills of training in 5S-CQI(KAIZEN)-TQM and co-active coaching. A 5S-CQI(KAIZEN)-TQM implementer is one who carries out 5S-CQI(KAIZEN)-TQM activities. QI focal person or 5S-CQI(KAIZEN)-TQM coordinator/manager, who is appointed to lead Quality Improvement Team (QIT) for implementation of 5S-CQI(KAIZEN)-TQM at facility level, Work Improvement Team (WIT) leader, who leads the implementation at department/unit level, and all staff members are categorised as the implementers.

It is recommended that health facilities that perform 5S-CQI(KAIZEN)-TQM activities excellently at national level are designated as “National Showcase Facilities”. They should be the visible models that enable other health facilities to learn 5S-CQI(KAIZEN)-TQM and to roll it out effectively and efficiently.

BASIC CONCEPT OF 5S-CQI(KAIZEN)-TQM

[WHAT IS 5S?] 5S (literally five initials of words i.e. Sort, Set, Shine, Standardise and Sustain) is a set of management activities, which originated from the Japanese manufacturing sector. Firstly “Sort”, “Set” and “Shine” are practiced, followed by implementing “Standardise” to set up mechanisms to keep their level high. “Sustain” is

the state that practice of "Sort", "Set" and "Shine" becomes routine with use of mechanism to "Standardise". 5S can be applied to all departments in a health facility.

[WHAT IS CQI(KAIZEN)?] CQI(KAIZEN) is an approach originally developed in the manufacturing sector in Japan to improve the productivity, and can be applied to health services, which involve a similar complicated process of service production. It is a process to minimise the following unwanted conditions for production of goods and services expressed by Japanese words: "Muri" (irrational burden), "Muda" (waste of time and resources) and "Mura" (irregularities).

[WHAT IS TQM?] TQM is a comprehensive and participatory approach to ensure quality of goods and services. In the health service delivery, TQM aims at embedding awareness of quality in all processes of the facility. It involves improvement of work environment through 5S and work process through CQI(KAIZEN).

IMPLEMENTATION OF 5S

10 steps are taken to implement 5S and divided into the following four phases.

[PHASE 1: PREPARATORY PHASE]

Step 1: Sensitisation of Health Facility Staff on 5S-CQI(KAIZEN)-TQM Concepts

Step 2: 5S training of the Hospital Management

Step 3: Familiarisation of QIT with 5S-CQI(KAIZEN)-TQM

Step 4: Situation Analysis

Step 5: Identification of Priority Areas

[PHASE 2: INTRODUCTORY PHASE]

Step 6: 5S training at the Priority Areas

Step 7: Establishment of WIT at the Priority Areas

[PHASE 3: IMPLEMENTATION PHASE]

Step 8: Implementation of Sort, Set and Shine

Step 9: Setup of Mechanisms to Standardise

[PHASE 4: MAINTENANCE PHASE]

Step 10: Keeping Status of Sort, Set and Shine.

This step is followed by extension of 5S practice to the next target areas.

FROM 5S TO CQI(KAIZEN)

While all staff members continue to spearhead "Sort", "Set" and "Shine" in the health facility with use of the mechanism for "Standardise", they need to prepare to move forward to CQI(KAIZEN). It brings individual skills to work effectively in small groups, solve problems, collect and analyse data and self-management within a peer group.

IMPLEMENTATION OF CQI PROCESS(KAIZEN PROCESS)

Following seven steps are taken to implement CQI process (KAIZEN process).

Step 1: Selection of CQI(KAIZEN) theme

Step 2: Situation analysis
Step 3: Root cause analysis
Step 4: Identification of countermeasures
Step 5: Implementation of countermeasures
Step 6: Assessment of effectiveness of the countermeasures
Step 7: Standardisation of the effective countermeasures

FROM CQI(KAIZEN) TO TQM

Considering service quality in all departments and sections is called TQM. It is a health service management strategy aimed at embedding awareness of quality in all organisational processes. Client satisfaction or management of financial and human resources should be dealt with through TQM.

TOOLS FOR 5S IMPLEMENTATION

Following tools are developed to help implementation of 5S practice.

- Red tag
- Zoning and alignment
- X-Y axis
- Numbering/alphabetical coding
- Colour coding
- Labelling
- Safety sign
- Symbols
- Signboard and map
- 5S corner

TOOLS FOR CQI(KAIZEN) IMPLEMENTATION

Following tools are used for problem identification and analysis at CQI process (KAIZEN process).

- Brainstorming
- Value stream map
- Affinity design
- Cause-effect/fishbone diagram
- Tree diagram
- Pareto chart
- Flowchart
- Matrix diagram

Tools for data use at CQI process (KAIZEN process) are as follows.

- Check sheet/tally sheet

- Histogram
- Scatter chart
- Control chart
- Run chart
- Benchmarking

SUPERVISION AND M&E OF 5S-CQI(KAIZEN)-TQM

National 5S-CQI(KAIZEN)-TQM facilitators supervise National and Regional Referral Hospitals under the direction of National Quality Improvement Committee, while regional and district facilitators support General Hospitals and health centres respectively in accordance with Quality Improvement Committee at each level. The support supervision will be conducted at least quarterly. Monitoring and evaluation (M&E) of 5S performance will be done monthly within the facilities and at least annually for evaluative purposes.

The facilitators and QIT members will evaluate the status of 5S-CQI(KAIZEN)-TQM performance, record the findings and propose suggestions address the challenges. 5S M&E Sheet, calculator for scoring 5S and 5S scorecard will be used for M&E. The MOH's Health Facility Quality Assessment Program (HFQAP) can be also used to indirectly evaluate the performance of 5S activities. It should be noted that performance of 5S through the M&E Sheets complements the score of HFQAP from the aspect of 5S.

When a health facility implements the 7 steps of CQI(KAIZEN) process, "CQI(KAIZEN) Progress Check Sheet" can be used for M&E. A clear category is set to score the status of progress ranged from 0 to 2 for items of evaluation at all steps. The facilitators will supervise health facilities with use of the 5S-CQI(KAIZEN)-TQM Supervision Tool.

The Documentation Journal is used to summarise information on the progress of QI activities.

CHAPTER 1 INTRODUCTION

1.1 Background

Quality of health services is a key element of the right to health and has been a major concern in Uganda for many years. Ministry of Health (MOH) is implementing the Health Sector Quality Improvement Framework and Strategic Plan (QIF&SP) 2015/16-2019/20 that provides a common framework to policy makers, planners, programme managers and implementers, development partners and all health service providers.

5S-Continuous Quality Improvement (KAIZEN)-Total Quality Management (5S-CQI(KAIZEN)-TQM) is a series of approaches to ensuring quality of goods and services mainly utilised in the Japanese industrial sector. QIF&SP 2015/16-2019/20 recommends health facilities to start 5S ("Sort", "Set", "Shine", "Standardise" and "Sustain") as a fundamental background to CQI[1] or KAIZEN (a Japanese word meaning "Change for the Better"[2]). Implementation of the approaches commenced at Tororo General Hospital as the pilot in 2007 and was rolled out to the other health facilities.

For effective implementation of 5S-CQI(KAIZEN)-TQM, MOH developed the 5S Implementation Guidelines in Uganda in 2013 in collaboration with the Project on Improvement of Health Services through Health Infrastructure Management supported by Japan International Cooperation Agency (JICA). The Guidelines focused on 5S but provided very limited information on CQI(KAIZEN) and TQM. As MOH is spearheading to scale up the 5S-CQI(KAIZEN)-TQM approaches in line with the QIF&SP 2015/16-2019/20, it is critical to guide implementation of CQI(KAIZEN). Since 5S-CQI(KAIZEN)-TQM is a continuum of practices, it is necessary to transform the existent 5S Guidelines into the 5S-CQI(KAIZEN)-TQM Guidelines through enrichment of CQI(KAIZEN) and TQM.

The 5S-CQI(KAIZEN)-TQM Guidelines will provide guiding principles to the implementation of QIF&SP 2015/16-2019/20, and complementary information for the Quality Improvement Methods: A Manual for Health Workers in Uganda, especially in terms of 5S practice. The Guidelines will also supplement a series of job aids for implementation of 5S-CQI(KAIZEN)-TQM like the 5S Handbook and the 5S-CQI(KAIZEN)-TQM Facilitators' Guidebook.

1.2 Objectives of the Guidelines

The 5S-CQI(KAIZEN)-TQM Implementation Guidelines are to:

1) Provide guidance on how to implement the quality improvement (QI) approaches at all levels of health service delivery; and
2) Standardise 5S-CQI(KAIZEN)-TQM.

[1] MOH (2016) *Health Sector Quality Improvement Framework and Strategic Plan 2015/16-2019/20*, p11

[2] In Japanese, "KAI" means change or improvement, and "ZEN" means good or better.

1.3 Target Users

The target users of the 5S-CQI(KAIZEN)-TQM Implementation Guidelines include managers, administrators, project and programme implementers, health service providers as well as facilitators and implementers of 5S-CQI(KAIZEN)-TQM in MOH, Health Institutions, District Health Teams (DHT), Health Sub-Districts (HSD) and health facilities. The Guidelines are also for development and implementing partners involved in the QI approaches.

1.4 Structure of the Guidelines

The 5S-CQI(KAIZEN)-TQM Guidelines comprise eight chapters. Chapter 1 provides a background of the Guidelines. Chapter 2 reviews the status of quality of health services in Uganda, a brief history of quality improvement and the genesis of 5S in health facilities. Chapter 3 outlines how to roll out 5S-CQI(KAIZEN)-TQM nationwide for both public and private health service providers. Basic concepts of 5S-CQI(KAIZEN)-TQM and sequences of implementation from 5S through CQI(KAIZEN) to TQM are described in Chapter 4 and 5 respectively. The tools used for implementation of 5S and CQI(KAIZEN) are outlined in Chapter 6 and Chapter 7 respectively. Chapter 8 provides guidance on supervision, monitoring and evaluation (M&E) of the 5S-CQI(KAIZEN)-TQM implementation.

The users of the Guidelines can skip the following sections on details of CQI(KAIZEN) and TQM as far as you are the uninitiated for 5S-CQI(KAIZEN)-TQM:

Chapter 5:	5.4 PDCA (PDSA) Cycle and CQI(KAIZEN)
	5.5 7 Steps of CQI Process (KAIZEN Process)
	5.6 From CQI(KAIZEN) to TQM
Chapter 7:	7.1 Tools for Problem Identification and Analysis
	7.2 Tools for Data Use
Chapter 8:	8.4 Tool for M&E of CQI(KAIZEN)
	8.6 Documentation Journal

CHAPTER 2 STATE OF QUALITY OF HEALTH SERVICES IN UGANDA

2.1 State of Quality of Health Services in Uganda

The QIF&SP 2015/16-2019/20 defines the following strategic objectives of the health sector: 1) to improve the client/patient perception of the health services; 2) to improve patient safety; 3) to improve health worker occupational health and safety; 4) to provide logical, effective and efficient documentation for the QI processes and activities; 5) to comply with the health sector service delivery standards; 6) to reduce cost of health care through waste; and 7) to have services provided by qualified health workers[3].

With improved support from the government and implementing partners focused on health system strengthening initiatives since 2010, there has been major progress in the delivery of health services. Uganda Demographic and Health Survey 2016 shows under-five mortality seen a 58% decrease and infant mortality a 51% decrease from 2000/01 to 2016[4]. According to the Annual Health Sector Performance Report (AHSPR) 2017/18, the facility-based fresh still birth reduced from 13 per 1,000 deliveries in 2015/16 to 9.4 in 2017/18, and the number of maternal deaths among 100,000 health facility deliveries also improved from 148.3 in 2016/17 to 104 in 2017/18[5]. The availability of health commodities in the last quarter of FY 2016/17 as measured by a basket of 41 commodities increased to 85% in 2017/18 from 83% in 2016/17[6], training and recruitment of additional health workers have facilitated the delivery of maternal health interventions, with skilled attendance at birth improving significantly over recent years.

However, the Ugandan health sector still has a number of gaps from the aspects of safety, effectiveness, access, equity, technical competency, patience and family-centred care. The AHSPR 2017/18 pointed out that over 34% of the people in Acholi, 17% in Karamoja, Toro and Kigezi had to travel more than 5km to access health services, while in overall 86 of the population access healthcare within a 5km radius[7]. Inefficiency was observed by a long average length of stay of 4.7 days as opposed to the target of 3 days[8]. Client satisfaction with health services varied considerably by level and ownership of health facility. According to the Client Satisfaction with Services in Uganda's Health Sector, the level of satisfaction ranged from 16.3% at regional referral hospitals (RRH) to 37.9% at specialized clinics[9] against the overall national client satisfaction target of 75%.

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[3] MOH (2016) *QIF&SP 2015/16-2019/20*, p1

[4] Uganda Bureau of Statistics (2018) *Uganda Demographic and Health Survey 2016*, p134

[5] MOH (2018) *Annual Health Sector Performance Report 2017/18*, p15

[6] *Ibid.* pp18-19

[7] *Ibid.* p16

[8] *Ibid.* p12

[9] Team Initiatives Limited (2019) *Client Satisfaction with Services in Uganda's Health Sector: Use of the SERVQUAL Model (Draft Report)*, Ministry of Health, Republic of Uganda, p12

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. Currently in Uganda, there is a growing number of consumer and provider initiatives that campaign for the rights of individual clients or groups which has led to increased public awareness of rights to quality of care. To improve outcomes of care while reducing costs, the application of CQI(KAIZEN) with combination of 5S as foundation is needed.

2.2 Brief History of Quality Improvement in the Health Sector of Uganda

Since 2000, many methodologies have been applied in Uganda to assess and improve the quality of health service delivery.

2.2.1 The Yellow Star Program

The Yellow Star Program (YSP) was introduced in 2000 in 12 districts as a quality improvement intervention in Uganda under the Delivery of Improved Services for Health II Project (1999-2001) funded by United States Agency for International Development (USAID). The Uganda Program for Human and Holistic Development Project (2003-2007) scaled up the YSP to 39 districts in Uganda. By 2010 it was effectively introduced in 39 out of 80 districts.

The YSP monitored 35 basic standards under six categories: (i) infrastructure and equipment, (ii) management systems, (iii) infection prevention, (iv) Information, Education and Communication, Inter-personal Communication and relationships, (v) technical competence and clinical skills in key services areas, and (vi) client-focus or termed “customer-service”. The Yellow Star was awarded to facilities that achieved and maintained 100% of these standards for a minimum of two consecutive quarters.

Currently, YSP assessments are rarely carried out, routine supervision is ad hoc, and documentation of findings and recommendations is lacking. The constraints include inadequate funds to conduct radio talks, community dialogues and reward of facilities.

2.2.2 The District League Table

The District League Table (DLT) was introduced in the health sector during Health Sector Strategic Plan I in 2002/03. It has since then been used annually as a tool for assessing performance of Local Governments in the health sector.

The DLT evaluates management and service delivery output indicators that are reviewed periodically to remain relevant and aligned to the sector strategic plan core indicators. However, the DLT indicators fall short on qualitative performance measures/indicators.

2.2.3 The Standard Unit of Output

Hospitals contribute tremendously to the outputs of essential clinical care as a key component of the Uganda National Minimum Health Care Package (UNMHCP). The

assessment of hospital performance is conducted annually and reported upon using the Standard Unit of Output (SUO) in the AHSPR. The SUO is a composite measure of outputs that allows for a fair comparison of volumes of output of hospitals that have varying capacities in providing the various patient care services. Over the years there has been improvement in the hospital SUO but there is increasing demand to measure the quality of services against the outputs.

2.2.4 The Uganda Service Provision Assessment

The 2007 Uganda Service Provision Assessment (USPA) Survey was conducted by the MOH in collaboration with the Uganda Bureau of Statistics (UBOS) and Macro International Inc. It was the first national facility-based survey to cover maternal and child health and HIV/AIDS services, facility-level infrastructure, sexually transmitted infections, tuberculosis (TB) and malaria. The information collected from 491 health facilities was used to assess the capacity of health facilities in Uganda to provide high-quality services. The findings were to be used by policymakers, planners, and programme managers as well as assist health providers to determine the strengths and weaknesses of health facilities during the implementation of health care delivery programmes.

2.2.5 Service Availability and Readiness Assessment

The MOH with support from World Health Organization (WHO) conducted two surveys on Service Availability and Readiness Assessment (SARA) in 2012 and 2013 in 102 and 209 health facilities respectively. The SARA is designed to generate a set of core indicators on key inputs and outputs of the health care system, which can be used to measure progress in health system strengthening over time. The availability of tracer indicators aims to provide objective information about whether a facility meets the required conditions to support provision of basic or specific services with a consistent level of quality and quantity. This methodology provides comprehensive information for national level assessment but is complex for regular application at district and health facility level.

2.2.6 STAR-E Lot Quality Assessment Sampling Project

The STAR-E Lot Quality Assessment Sampling (LQAS) Project has supported 35 districts since 2010 to conduct facility assessments. By 2014, up to 450 health facilities at the level of Health Centre III (HC III), Health Centre IV (HC IV) and general hospitals had conducted at least one assessment. They utilise observations and interviews to broadly examine the availability of HIV/AIDS, TB, Malaria and reproductive health services; health workers qualified to provide these services; opportunities for mentorship for the health workers; basic amenities; IEC materials; essential medicines, logistics and other supplies. It also assesses the availability of key registers and the completeness of the data recorded therein, health worker practices during consultations as well as clients' knowledge of medications prescribed during consultations. The main objectives of the assessment are

to build the capacity of the districts in using a simplified methodology that generates data on the quality of services delivered at health facilities in accordance to nationally recommended standards. The districts are supported to use the data for evidence-based planning and decision making at district, HSD, facility and sub-county levels for performance improvement.

2.2.7 Health Facility Quality of Care Assessment Programme

The Health Facility Quality of Care Assessment Programme (HFQAP) has been developed to be implemented as one of the QI interventions in the health sector. The HFQAP is expected to have a catalytic effect by building capacity of health workers in self-assessment and CQI(KAIZEN) in individual health facilities; incorporating the improvement goals into national strategic and district operational plans; and nurturing the culture of performance rating and CQI(KAIZEN) in Uganda.

The facility assessments consist of the following four groups of questions:

1) To what extent do support systems for maintaining or improving the existing services exist, and how well are they functioning?
2) To what extent are facilities prepared to provide priority services? Do facilities have the necessary infrastructure and resources? For example, what proportions of facilities have reliable power supply? What proportions have tracer medicines, equipment and diagnostics?
3) To what extent does the service delivery process follow the national standards of care? Does the process followed in service delivery meet standards of acceptable quality and content?
4) To what extent are the facilities prepared to provide client-centred care and ensure patient safety? Are clients satisfied with the service delivery environment?

The facilities are rated from 0 Star to 5 Stars using the Star system adapted from the WHO Stepwise Laboratory Improvement Process Towards Accreditation in the Africa Region (SLIPTA) approach used by the Strengthening of Laboratory Management towards Accreditation (SLMTA) project.

2.2.8 Quality Improvement Interventions

Currently there are many partners supporting the programmes of MOH and Local Governments to operationalise the QIF & SP as well as general health system strengthening using various interventions for QI, e.g. health care waste management, reach every district / reach every child, result-oriented management, patient safety, maternal perinatal death reviews, clinical audits, client-centred care, performance- based financing and data quality assessment, etc. Most of the districts and health facilities in Uganda are implementing QI initiatives using the 5S and CQI(KAIZEN) at all levels.

2.3 5S-CQI(KAIZEN)-TQM as New Impetus for Quality of Health Services in Uganda

5S-CQI(KAIZEN)-TQM is a series of approaches to ensuring quality of goods and services and are mainly utilised in the Japanese industrial sector. 5S is a set of practices for improvement of the work environment. CQI(KAIZEN) is a continuous approach to improvement of the business operation processes at each unit or section through repetition of the cycle of Plan-Do-Check(Study)-Act. TQM is a management approach to long-term success through customer and provider satisfaction with participation of all members in improvement of process, products and services[10].

Based on the successful implementation of 5S-CQI(KAIZEN)-TQM at a hospital in Sri Lanka, JICA commenced a programme on "Total Quality Management for Better Hospital Services" in 2007 as a sub-programme of Asia-Africa Knowledge Co-creation Programme (AAKCP) to respond to the challenges faced by African countries such as the chronic shortage of financial, logistic and human resources. A total of 15 African countries including Uganda participated in the programme.

In Uganda, 5S-CQI(KAIZEN)-TQM was launched at Tororo General Hospital in 2007. Through the opportunities of training and allocation of volunteers, JICA technically supported extension of 5S activities to the neighbouring health facilities. Today MOH recommends health facilities to start 5S as a fundamental background to CQI(KAIZEN) and other QI interventions in QIF&SP.

MOH with support of JICA implemented the Project on Improvement of Health Service through Health Infrastructure Management (the Project) in 2011-14. The Project specifically focused on seven RRH, two General Hospitals (GH) and one HC IV to implement 5S-CQI(KAIZEN)-TQM as a component of QI. It also conducted an assessment to explore the impact of 5S practice on quality of health services and concluded that 5S brought some impact on staff's motivation and waiting time in RRHs and on patients' satisfaction in GHs. Currently MOH is implementing the Project on Improvement of Health Services through Health Infrastructure Management II (the Project II) to extend 5S-CQI(KAIZEN)-TQM approach to all RRHs and establish a mechanism to make it sustainable at all levels.

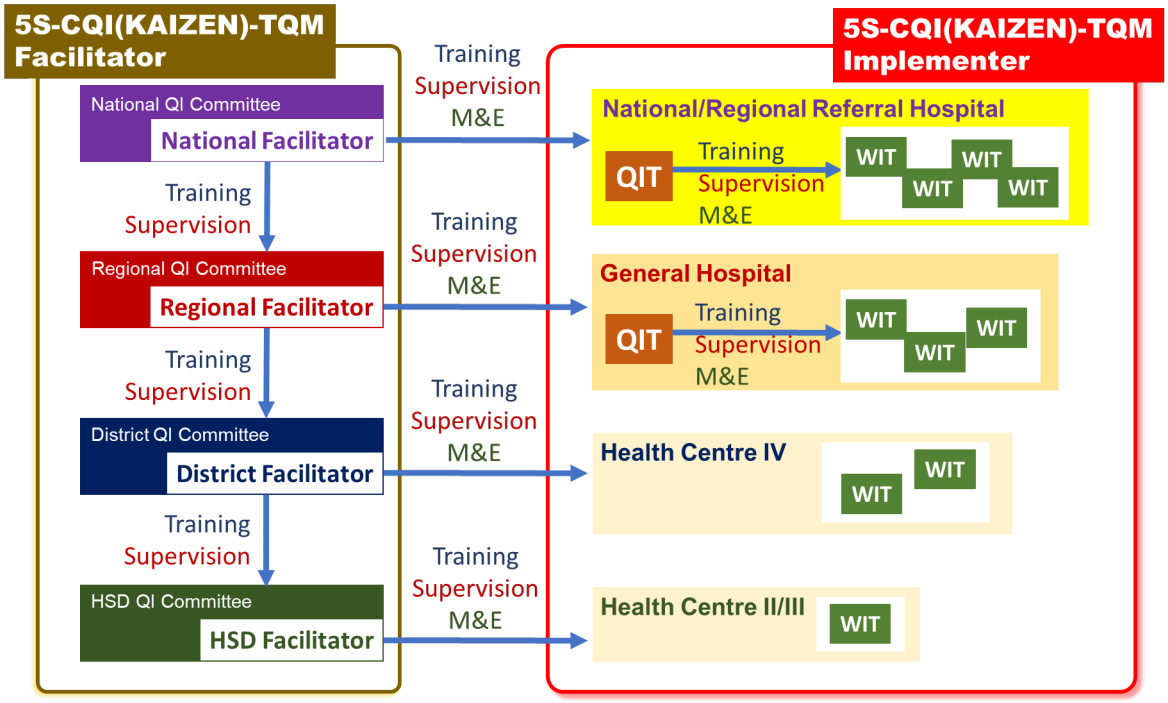
[10] The following book was referred on definition of CQI (KAIZEN) and TQM: Kiran, D.R. (2017) *Total Quality Management: Key Concepts and Case Studies*, BSP Books/Elsevier

CHAPTER 3 INSTITUTIONALISATION OF 5S-CQI(KAIZEN)-TQM

3.1 Rollout Model of 5S-CQI(KAIZEN)-TQM in Uganda

MOH is spearheading the rollout of 5S-CQI(KAIZEN)-TQM practice at all levels of service delivery. Based on the national QI coordination structure [11], the cascade of 5S-CQI(KAIZEN)-TQM will be illustrated in Figure-1. There are four actions to roll out 5S-CQI(KAIZEN)-TQM: training, implementation, supervision and M&E. As described in the next two sections in this chapter, there are two categories of actors in the context of 5S-CQI(KAIZEN)-TQM practice at all levels of Ugandan health sector, i.e. 5S-CQI(KAIZEN)-TQM facilitator and 5S-CQI(KAIZEN)-TQM implementer.

Figure-1: Rollout Model of 5S-CQI(KAIZEN)-TQM



Similar steps can be applied to rollout of 5S-CQI(KAIZEN)-TQM in the Private-Not-for-Profit (PNFP) organisations. Secretariats of Uganda Catholic Medical Bureau (UCMB), Uganda Protestant Medical Bureau (UPMB) and Uganda Muslim Medical Bureau (UMMB) play a role of National Facilitator supervising hospitals, while Diocesan Health Coordinators (UCMB and UPMB), Field Health Coordinators (UPMB) and Regional Coordinators (UMMB) will perform as regional ones for Lower Level Units (LLU). The roles and responsibilities of 5S-CQI(KAIZEN)-TQM facilitators, their required capacity and skills will be described in the section 3-2.

[11] MOH (2016) *Health Sector Quality Improvement Framework and Strategic Plan 2015/16-2019/20*, p32.

3.2 5S-CQI(KAIZEN)-TQM Facilitator

3.2.1 Who Is a Facilitator?

The 5S-CQI(KAIZEN)-TQM facilitator is a person who can technically support 5S-CQI(KAIZEN)-TQM practice in accordance with the QIF&SP. The facilitator shall be certified at the national, regional and district levels respectively.

3.2.2 National 5S-CQI(KAIZEN)-TQM Facilitator

(1) Required Capacity

National 5S-CQI(KAIZEN)-TQM facilitator needs to have:

- Proper knowledge of 5S-CQI(KAIZEN)-TQM principles, tools and implementation structure.
- Proper knowledge of leadership and the seven elements of management: productivity, cost, quality, delivery of services, safety, moral and morale.
- Skills to instruct 5S-CQI(KAIZEN)-TQM principles, how to support the implementation structure and how to use tools.
- Skills of co-active coaching to seek countermeasures to identified problems together: e.g. listening, intuition, curiosity, deepen/forward and self-management[12].

(2) Required Skills and Competencies

National 5S-CQI(KAIZEN)-TQM facilitator needs to meet the following conditions:

- Completion of national 5S-CQI(KAIZEN)-TQM facilitators training authorised by MOH.
- Experiences of regional 5S-CQI(KAIZEN)-TQM facilitator or at least three-year experiences of 5S-CQI(KAIZEN)-TQM coordinator or manager.
- Evaluation as a good performer on 5S-CQI(KAIZEN)-TQM facilitation or as a good 5S-CQI(KAIZEN)-TQM coordinator or manager by the managers of health facilities where he/she is working (e.g. Directors of RRH and Medical Superintendents of GH).
- Recommendation as excellent facilitator at the national level.

(3) Role and Responsibility

National 5S-CQI(KAIZEN)-TQM facilitator is expected to undertake the following. He or she can also work concurrently as regional or district 5S-CQI(KAIZEN)-TQM facilitator.

- Training, supervision and mentoring of 5S-CQI(KAIZEN)-TQM at National Referral Hospital (NRH), RRH and Regional Quality Improvement Committee (RQIC) under the direction of National Quality Improvement Committee (NQIC).
- M&E of performance of 5S-CQI(KAIZEN)-TQM at NRH and RRH.
- Submission of the supervision report to NQIC.

[12] The following book was referred on co-active coaching: Kimsey-House, Henry et al. (2018) *Co-Active Coaching: Changing Business, Transforming Lives*, Nicholas Brealey Publishing

3.2.3 Regional 5S-CQI(KAIZEN)-TQM Facilitator

(1) Required Capacity

Regional 5S-CQI(KAIZEN)-TQM facilitator needs to have:

- Proper knowledge of 5S-CQI(KAIZEN)-TQM principles, tools and implementation structure.
- Proper knowledge of leadership and the seven elements of management.
- Skills to instruct 5S-CQI(KAIZEN)-TQM principles, how to support the implementation structure and how to use tools.
- Skills of co-active coaching to seek countermeasures to identified problems together.

(2) Required Skills and Competencies

Regional 5S-CQI(KAIZEN)-TQM facilitator needs to meet the following conditions:

- Certificate of completion of 5S-CQI(KAIZEN)-TQM facilitators training issued by MOH.
- Experiences of district 5S-CQI(KAIZEN)-TQM facilitator or 1-3 years of experience of 5S-CQI(KAIZEN)-TQM coordinator or manager.
- Evaluation as a competent 5S-CQI(KAIZEN)-TQM facilitator or manager.

(3) Role and Responsibility

Regional 5S-CQI(KAIZEN)-TQM facilitator is expected to undertake the following. He or she can also work concurrently as district 5S-CQI(KAIZEN)-TQM facilitator.

- Training, supervision and mentoring of 5S-CQI(KAIZEN)-TQM at GH and District Quality Improvement Committee (DQIC) under the direction of RQIC, no matter where he/she is working.
- M&E of performance of 5S-CQI(KAIZEN)-TQM at GH.
- Submission of the supervision report to RQIC.

3.2.4 District 5S-CQI(KAIZEN)-TQM Facilitator[13]

(1) Required Capacity

District 5S-CQI(KAIZEN)-TQM facilitator needs to have:

- Proper knowledge of 5S-CQI(KAIZEN)-TQM principles, tools and implementation structure
- Proper knowledge of leadership and the seven elements of management.
- Skills to train the 5S-CQI(KAIZEN)-TQM principles, how to support the implementation structure and how to use tools.
- Skills of co-active coaching to seek countermeasures to identified problems together.

(2) Required Skills and Competencies

District 5S-CQI(KAIZEN)-TQM facilitator needs to meet the following conditions:

[13] He/she is also named District 5S-CQI(KAIZEN)-TQM Supervisor, depending on districts.

- Certificate of completion of 5S-CQI(KAIZEN)-TQM training designated by MOH.
- At least one-year experience as a 5S-CQI(KAIZEN)-TQM coordinator or manager.
- Evaluation as a competent 5S-CQI(KAIZEN)-TQM implementer by the managers where he/she is working.

(3) Role and Responsibility

District 5S-CQI(KAIZEN)-TQM facilitator is expected to undertake the following:

- Training, supervision and mentoring of 5S-CQI(KAIZEN)-TQM at lower health facilities within the HSD under the direction of DQIC.
- M&E of performance of 5S-CQI(KAIZEN)-TQM at lower level facilities.
- Submission of the supervision report to DQIC.

3.2.5 HSD 5S-CQI(KAIZEN)-TQM Facilitator

(1) Required Capacity

HSD 5S-CQI(KAIZEN)-TQM facilitator needs to have:

- Proper knowledge of 5S-CQI(KAIZEN)-TQM principles, tools and implementation structure
- Proper knowledge of leadership and the seven elements of management.
- Skills to train the 5S-CQI(KAIZEN)-TQM principles, how to support the implementation structure and how to use tools.
- Skills of co-active coaching to seek countermeasures to identified problems together.

(2) Required Skills and Competencies

HSD 5S-CQI(KAIZEN)-TQM facilitator needs to meet the following conditions:

- Certificate of completion of 5S-CQI(KAIZEN)-TQM training designated by MOH.
- Evaluation as a competent 5S-CQI(KAIZEN)-TQM implementer by the managers where he/she is working

(3) Role and Responsibility

District 5S-CQI(KAIZEN)-TQM facilitator is expected to undertake the following:

- Training, supervision and mentoring of 5S-CQI(KAIZEN)-TQM at Health Centre II (HC II) and III under the direction of DQIC.
- M&E of performance of 5S-CQI(KAIZEN)-TQM at HC II and III.
- Submission of the supervision report to DQIC.

3.3 5S-CQI(KAIZEN)-TQM Implementer

3.3.1 Who Is an Implementer?

A 5S-CQI(KAIZEN)-TQM implementer is one who carries out 5S-CQI(KAIZEN)-TQM activities at various levels in a health facility.

(1) Quality Improvement Team/Committee (QIT/QIC)

QIT or QIC is a composition of health service providers spearheading the implementation of QI activities at an institution. It is responsible for the planning and coordination of various QI interventions including organising meetings regularly and coordinating activities like training, supervision and M&E of 5S-CQI(KAIZEN)-TQM. It is headed by head of institution, but a staff member assigned as quality improvement focal person (QI focal person), 5S-CQI(KAIZEN)-TQM coordinator or 5S-CQI(KAIZEN)-TQM manager shall lead the implementation of 5S-CQI(KAIZEN)-TQM in the health facility. Details of the composition and responsibilities of QIT/QIC are outlined in QIF&SP 2015/15-2019/20[14].

(2) Work Improvement Team (WIT)

WIT is a team composed of service providers that implement 5S-CQI(KAIZEN)-TQM at the unit level. Implementation is led by a WIT Leader who should be the head of the unit.

3.3.2 QI Focal Person, 5S-CQI(KAIZEN)-TQM Coordinator or Manager

QI focal person or 5S-CQI(KAIZEN)-TQM coordinator/manager is a person appointed by the head of the institution to spearhead implementation of 5S-CQI(KAIZEN)-TQM and QI activities in the health facility.

(1) Required Capacity

- Proper knowledge of QI including 5S-CQI(KAIZEN)-TQM principles, tools and implementation structure
- Proper knowledge of seven elements of management
- Skills to train QI including 5S-CQI(KAIZEN)-TQM principles, how to use tools and how to establish the implementation structure
- Commitment and passion for 5S-CQI(KAIZEN)-TQM

(2) Required Skills and Competencies

- Certificate of completion of 5S-CQI(KAIZEN)-TQM training issued by MOH

(3) Role and Responsibility

- Mediate between 5S-CQI(KAIZEN)-TQM and other QI interventions
- Lead implementation of 5S-CQI(KAIZEN)-TQM at ground level
- Bridge between WIT and the top management for 5S-CQI(KAIZEN)-TQM implementation
- Call and chair QI meetings

[14] MOH (2016) *Health Sector Quality Improvement Framework and Strategic Plan 2015/16-2019/20*, p22. It is recommended to assign five to eight members of the QIT to organise a sub-committee to spearhead 5S-CQI(KAIZEN)-TQM in a health facility. It is also preferable to assign a full-time coordinator for 5S-CQI(KAIZEN)-TQM.

3.3.3 WIT Leader

WIT leader is the head of the work improvement team at the unit level who is tasked to spearhead implementation of 5S-CQI(KAIZEN)-TQM and QI activities.

(1) Required Capacity

- Proper knowledge of 5S-CQI(KAIZEN)-TQM principles, tools and implementation structure
- Proper knowledge of seven elements of management
- Skill to instruct 5S-CQI(KAIZEN)-TQM within the department, section, unit or ward

(2) Required Skills and Competencies

- Completion of 5S-CQI(KAIZEN)-TQM training

(3) Role and Responsibility

- Lead implementation of 5S-CQI(KAIZEN)-TQM at department, section, unit or ward level
- Communicate with 5S-CQI(KAIZEN)-TQM Managers for effective and efficient implementation

3.3.4 Staff Member of Health Facility as Implementer of 5S-CQI(KAIZEN)-TQM

All unit staff members should actively participate in implementation of QI activities, as 5S-CQI(KAIZEN)-TQM takes participatory process.

(1) Required Capacity

- Willingness to implement 5S-CQI(KAIZEN)-TQM practice
- Proper knowledge of 5S-CQI(KAIZEN)-TQM principles and tools

(2) Required Skills and Competencies

- Completion of 5S-CQI(KAIZEN)-TQM orientation, mentorship or training

(3) Role and Responsibility

- Practice 5S-CQI(KAIZEN)-TQM

3.4 Establishment of “National Showcase” Health Facilities

3.4.1 What Is “National Showcase”?

It is recommended that health facilities that perform 5S-CQI(KAIZEN)-TQM activities excellently at national level are designated as **“National Showcase Facilities”** on 5S-CQI(KAIZEN)-TQM. They should be the visible models that enable other health facilities to learn 5S-CQI(KAIZEN)-TQM and to roll it out effectively and efficiently.

3.4.2 Requirements of National Showcase of Health Facilities

Health facilities that can meet the following requirements are recognised as National Showcase at each level:

(1) National Showcase of 5S

- Top performing health facilities that attain 75 percent or more in terms of aggregate scores of 5S M&E Sheets for management/QIT (Annex-4) and WIT (Annex-5) in a row.

(2) National Showcase of CQI (KAIZEN)

- Health facilities recognised as National Showcase of 5S that continue achieving the targets of small CQI (KAIZEN) activities in a year.

3.4.3 Procedure to Certify National Showcase Health Facilities

National 5S-CQI(KAIZEN)-TQM facilitators evaluate 5S-CQI(KAIZEN)-TQM at NRH and RRH, while Regional and district 5S-CQI(KAIZEN)-TQM facilitators are in charge of GH and health centres respectively. Based on the results of evaluation by the facilitators at each level, MOH certifies the facilities that meet the requirements described in the previous section as “National Showcase”.

Please refer to Chapter 8 for details of M&E of 5S-CQI(KAIZEN)-TQM.

CHAPTER 4 BASIC CONCEPT OF 5S-CQI(KAIZEN)-TQM

4.1 Quality and Safety in Health

4.1.1 Quality

Quality is the degree to which the social service meets or exceeds established professional standards and client expectations. This is in concurrence with Edwards Deming's definition of quality as: "doing the right thing, in the right way, at the right time"[15].

While health facilities are performing a valuable service to the public, some stakeholders are unsatisfied and complain about the quality of service. According to the latest client satisfaction survey, only 25.6% of the clients were satisfied with health services[16].

4.1.2 Safety

Safety is a harm-free healthcare and the degree to which patients are protected from risks of harm which may be produced by clinical practice or other aspects of healthcare, and the activities carried out to prevent and reduce risks[17].

According to a systematic review, the hospital-wide prevalence of Hospital Acquired Infection (HAI) varied from 2.5% to 14.8% in Africa[18]. In Uganda, a study in 2011 revealed that overall prevalence of HAI in a hospital was 28%, more in surgery (47%)[19].

The hospital industry is hazardous. However, while it has many employees in various categories, involved in risky procedures to save patients and with many conflicts, other hazardous industries tend to have fewer employees in fewer categories involved in risky procedures to make a product or provide a service and usually with less conflicts. Hospitals appear to be far behind other high-risk industries in ensuring basic safety.

4.1.3 Highly Reliable Organisations

Highly Reliable Organisations (HRO) are those in which errors can have catastrophic consequences but which are consistently avoiding them. To accomplish this, they need to conduct relatively error-free operations for a long time and consistently make good decisions resulting in high quality and reliability. Examples of such organizations include airlines, air traffic control and nuclear power plants. If health facilities in Uganda are to achieve HRO status, they need to have the proper organisation with the good working environment.

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[15] MOH (2015) *The Quality Improvement Methods: A Manual for Health Workers in Uganda*, p4

[16] Team Initiatives Limited (2019) *Client Satisfaction with Services in Uganda's Health Sector: Use of the SERVQUAL Model (Draft Report)* , Ministry of Health, Republic of Uganda, p12

[17] MOH (2016) *Health Sector Quality Improvement Framework and Strategic Plan 2015/16-2019/20*, p1

[18] Nejad, S. B. et al. (2011) "Health-Care-Associated Infection in Africa: s Systematic Review" *Bull World Health Organ* 89: 757-765

[19] Greco, D. and I. Magombe (2011) "Hospital Acquired Infections in a Large North Ugandan Hospital" *J Prev Hyg* 52 (2): 55-58

The following points are considered as important characteristics of HRO:

i. HRO frequently audits processes and procedures to make sure that they are correct, efficient, effective and pertinent.
ii. HRO constantly does risk management by assessing the risk involved in all their undertakings and take preventive and effective measures.
iii. HRO avoids quality degradation by continuous quality improvement including the adoption of new inventions.
iv. HRO has a good system of command and control by having a system that assures good leadership and good decision-making processes, as well as effective M&E processes.
v. Employees of HRO are well motivated by a good reward system.
vi. Migrating decision making is made possible by clearly known protocols coupled with an effective communication system in the organisation.
vii. A backup system is always in place and known to all pertinent employees in the organisation.
viii. Formal rules and procedures are in place and are observed. There is a hierarchy, but this should be differentiated from a bureaucracy with negative implications.

For an organisation to materialise these characteristics, quality services should be provided. Where the quality of service is poor, it is impossible to deliver services with safety. To achieve quality and safety in health services, systems used for the provision should be improved constantly. Quality deteriorates when the systems fail. Therefore, it is important to note:

1) The first step for problem solving is to remove the immediate obstacles for patient care. But unless the root cause of the problems is addressed, there is a chance of recurrence.
2) The second step for problem solving is system reorganisation to prevent the problems from recurring.

4.2 5S-CQI(KAIZEN)-TQM and Strategic Management

4.2.1 Strategic Management

Strategic management is the management of an organisation's resources to achieve its goals and objectives. It seeks the most effective and efficient way to start, change or stop whatever we want to do. It can be also defined as a joint operation of intellectual activities of planning and implementation of work environment improvement and subsequent provision of quality services and improvement of the productivity.

4.2.2 Necessity to Manage Our Work

We manage our work to make it easier, followed by more efficiency to obtain effectiveness of the work and ultimately higher possibility to enjoy our lives.

Improvement of work environment is a requisite of strategic management and can be done by 5S practice. Strategic planning is another aspect of management, which involves strategic analysis, choice and control.

The most important aspect to achieve the goals and objectives through strategic management is the attitude to always improve what already exists. A series of these actions are called CQI or KAIZEN. The strategic management for CQI (KAIZEN) based on the improved work environment through 5S will lead to the framework of TQM for high productivity of quality services.

4.3 Work Environment

The betterment of the work environment is the first challenge in CQI(KAIZEN) and TQM. Without well-organized workplaces, service providers cannot deliver well-prepared, standardised and timely services and proper communication with clients.

The work environment is not an entity with only physical environment, such as buildings, equipment and instruments. It also includes functional aspects of the workplaces like teams, meetings, recording/reporting system, time arrangement for work and communication systems among staff and external counterparts.

Environment often affects the behaviour of the people. If the physical structure and other in-house facilities are comfortable for them, their muscular and mental stress are greatly reduced, and they can fulfil their work easily and efficiently. On the contrary, under unfavourable and inconvenient work environment, where they are forced to use extra energy to overcome, people's willingness to work naturally deteriorates.

The responsibility of a manager includes the arrangement of the best work environment for the team members. One approach that we can employ is CQI(KAIZEN), while the instrument for the initiation of this approach is 5S[20].

4.4 What Is 5S?

4.4.1 Definition

5S is a set of management activities, which originated from the Japanese manufacturing sector. It is used as a basic, fundamental and systematic approach for improvement of productivity, quality and safety in all types of organisations. As described in Table-1, 5S is literally five initials of Japanese words i.e. **Seiri** ("**Sort"** in English), **Seiton** ("**Set"**), **Seiso** ("**Shine"**), **Seiketsu** ("**Standardise"**) and **Shitsuke** ("**Sustain"**).

5S is a sequence of activities to improve the work environment to be as convenient and comfortable as possible and thereby also improve service contents with respect to preparedness, standardisation and timeliness.

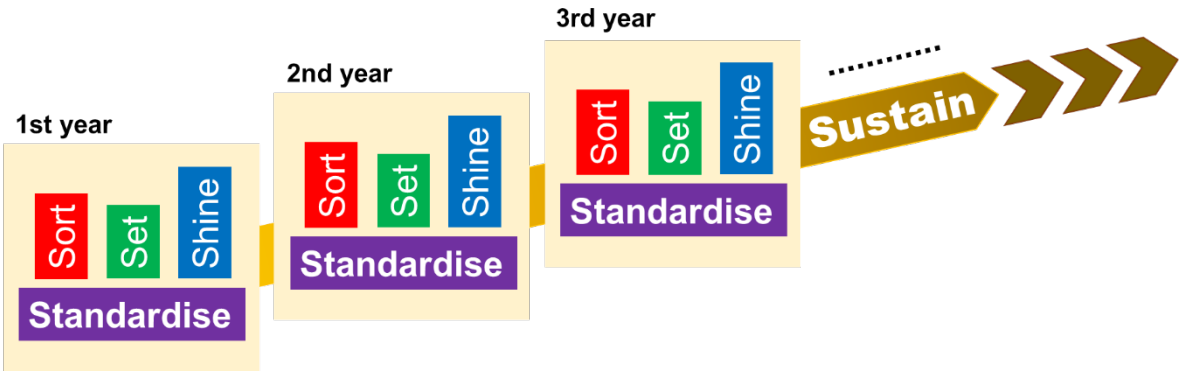
[20] Handa Y and M. Sinkkala (2005) "Strategic Management and Continuous Quality Improvement (CQI) Using 5S Principles"

Table-1: What Is 5S?

1	**Sort**	To remove clutter and unnecessary items for your work process in the workplace
2	**Set**	To organise everything needed in proper order for smooth operation in the workplace
3	**Shine**	To keep cleanness in the workplace
4	**Standardise**	To set up mechanisms to maintain the level of "Sort, "Set" and "Shine"
5	**Sustain**	To maintain the "Sort", "Set" and "Shine" with mechanisms functioned to "Standardise", as a result of keeping discipline

The conceptual framework of the sequence of 5S activities is illustrated in Figure-2. Firstly "Sort", "Set" and "Shine" are practiced, followed by implementing "Standardise" to set up mechanisms to keep their level high. "Sustain" is the state that practice of "Sort", "Set" and "Shine" becomes routine with use of mechanism to "Standardise". Regular training, supervision, monitoring, evaluation and awarding are requisites to ensure self-discipline.

Figure-2: Sequence of 5S Activities



There are two aspects in the standard of 5S activities in the service sector particularly the health services: one is for physical environment, others are software matters like job sequences and contents, time management, communication and standardisation of patient care procedures. If management of the health facility is strategically carried out, it will be able to reach the standard on 5S practices in software matters, and to tackle with technical aspect of the health services.

4.4.2 Target of 5S Principle

The 5S principles are not only a set of concepts but also actions, which should be conducted systematically with the full participation of the staff serving the workplace. Introduction of 5S can bring a team culture, increase morale and motivation and improve job satisfaction. They are simple but effective methods to take positive attitude in the workforce. The targets of 5S principles are enumerated as "**8 Zeros**" (Table-2).

Table-2: Targets of 5S Principles - "8 Zeros"

- **Zero changeovers** leading to product/service diversification
- **Zero defects** leading to higher quality
- **Zero waste** leading to lower costs
- **Zero delays** leading to on time delivery
- **Zero injuries** from promotion of safety
- **Zero breakdowns** bringing better maintenance
- **Zero customer complaints** i.e. customer satisfaction
- **Zero red ink** i.e. betterment of organisation's image

4.4.3 Applicability of 5S in the Health Facilities

As listed in Table-3, 5S can be applied to all departments and units including backyard services and bring various outcomes.

Table-3: Examples of Departments/Sections and Expected Outcomes

Units/Departments	Expected Outcomes of Routine Work
OPD	Outpatients are nicely treated with minimum waiting time.
Laboratory	Standardised and quick laboratory tests are available.
Pharmacy	Drugs are well managed and delivered to the clients precisely.
Patient Ward	Inpatients receive treatment under comfortable environment.
Delivery Room	Normal deliveries are conducted in a safe, clean and efficient system.
Operation Theatre	Surgical care is given under a safe, clean and efficient system.
Central Sterilisation Supply Department	Supply and sterilisation system support the safety and cleanliness.
Director's Office	Office works as the centre for decision-making and management.
Administration	Office functions as the management centre.
Nurse's Office	Office works as the management centre for nursing.
Room for Staff	The utility provides staff relaxation and readiness to work.
Maintenance Technician's Office	Technician can be ready for repair with organised works place and tools.
Security Office	Guard can work by standardised way and keep discipline.
Kitchen	Food supplied to patients is safe.

4.5 What Is CQI(KAIZEN)?

4.5.1 CQI(KAIZEN) and Health Services

CQI or KAIZEN, a Japanese word meaning "change for the better", is an approach originally developed in the manufacturing sector in Japan to improve the productivity. For example, in the car manufacturing factory there are more than 2,500 parts in the assembly process that involve many workers and should be perfectly in order. Quality of the final products depends on the functionality of mechanism by all production units that seek higher quality of work throughout the on-going production process.

CQI(KAIZEN) can be applied to health services, which involve a complicated process for the production like the car manufacturing. They are handled by many staff members and their quality is up to the functionality of mechanism of the production. Top and middle management should spearhead strengthening of the mechanism and give specific targets for CQI(KAIZEN) to all departments and units in the health institution. They should seek the possibility to make jobs more effective and efficient under the given circumstances.

4.5.2 "Small CQI (Small KAIZEN)" and "CQI Process (KAIZEN Process)"

There are two levels of CQI(KAIZEN): "small CQI (small KAIZEN)"[21] and standard "CQI process (KAIZEN process)"[22]. Small CQI (Small KAIZEN) can be implemented to make things better quickly without a lot of financial inputs. It will take time to carry out a CQI (KAIZEN) process with a certain amount of financial inputs.

CQI(KAIZEN) is to accumulate change or improvement of situations encountered little by little in a certain period. It is not appropriate to seek dramatic changes at once, and better to start from small CQI (small KAIZEN). It involves an accumulation of small scale and feasible improvement. It will be a step before moving forward to a full-scale CQI process (KAIZEN process), which will involve some skills to use CQI(KAIZEN) tools described in Chapter 7 to analyse the problems and come up with appropriate countermeasures.

4.5.3 Preconditions to Move Forward from 5S to CQI(KAIZEN)

There is a need to lay a foundation for starting CQI(KAIZEN) activities. 5S principles, especially the activities of "Standardise" and "Sustain", need to be practiced well at WIT level. Well-implemented 5S activities make it easy to identify problems and seek solutions at the workplace. They also create a culture of eliminating any wastes. When problems occur, the health facility can implement countermeasures easily to mitigate them.

Thus, health managers and workers will be able to understand better what is really happening and needs to be tackled within their workplace.

[21] It is also called "quick CQI (quick KAIZEN)".

[22] It is also called "Quality Control story (QC story)".

4.5.4 Successful Factors of CQI(KAIZEN)

Before starting CQI(KAIZEN) activities, it is better to understand some factors that lead to their successful implementation at health facilities. They are listed in Table-4.

Table-4: Success Factors of CQI(KAIZEN)

- **Receptiveness**: Creating a receptive environment for ideas is one of the important keys to successful CQI(KAIZEN). Every health worker is encouraged to come up with an idea for making the situation better, accepting changes and suggestions.
- **Implementation/practice**: Taking immediate actions for improvement is one of the important keys to successful CQI(KAIZEN). The health workforces are encouraged to implement their ideas for small improvement.
- **Recognition**: Small CQI (Small KAIZEN) helps to eliminate or reduce waste, promote personal growth of employees and the organisation, provide guidance for employees, and serve as a barometer of leadership.
- **Cumulative Impact**: Each CQI(KAIZEN) may be small, but the cumulative impact is tremendous. Therefore, continuation of CQI(KAIZEN) activities is an important key.

4.5.5 Towards Reduction of "Muri", "Muda" and "Mura"

As listed in Table-5, CQI(KAIZEN) is a process to minimise the following three categories of unwanted conditions for production of goods and services expressed by Japanese words: **"Muri" (irrational burden), "Muda" (waste of time and resources) and "Mura" (irregularities)**. "Muri", "Mura" and "Muda" are usually observed simultaneously. When a work process is imbalanced (Mura), it causes overburden on equipment and staff (Muri). Then these activities will not add value (Muda).

Table-5: Muri, Muda and Mura

Japanese	English	Definition
Muri	Irrational burden or overburden	Any activities imposing irrational, unreasonable and unnecessary stress of efforts from personnel, material or equipment. Muri leads to huge mental or physical burden.
Muda	Waste of time and other resources	"Seven wastes": overproduction, inventory (overstock or redundancy), transportation (unnecessary movement), motion (Unnecessary time to look for staff and goods, rework (due to avoidable errors), over-processing (due to misallocation of resources) and waiting (for items and tools to produce and deliver goods and services) Muda does not add values for clients.
Mura	Irregularities or inconsistency	Any variations leading to unbalanced situation. When workflow is out of balance and workload is inconsistent and does not comply with the standards, Mura emerges.

4.6 What Is TQM?

TQM is a comprehensive and participatory approach to ensure quality of goods and services through enhancement of productivity, cost control, improvement of delivery effectiveness, safety promotion and moral establishment at both personal and organisational levels. TQM is also characterised as team approach involving various levels of management and staff and enables an organisation to vitalise itself.

In the health service delivery, TQM aims at embedding awareness of quality in all processes of the health facility. It involves consideration of improvement of the work environment through 5S practice to enable health workers to be competent towards quality of services, followed by pursuit of improvement of work processes through CQI(KAIZEN), management of resources like financial and human resources, medical supplies and equipment and of safety issues.

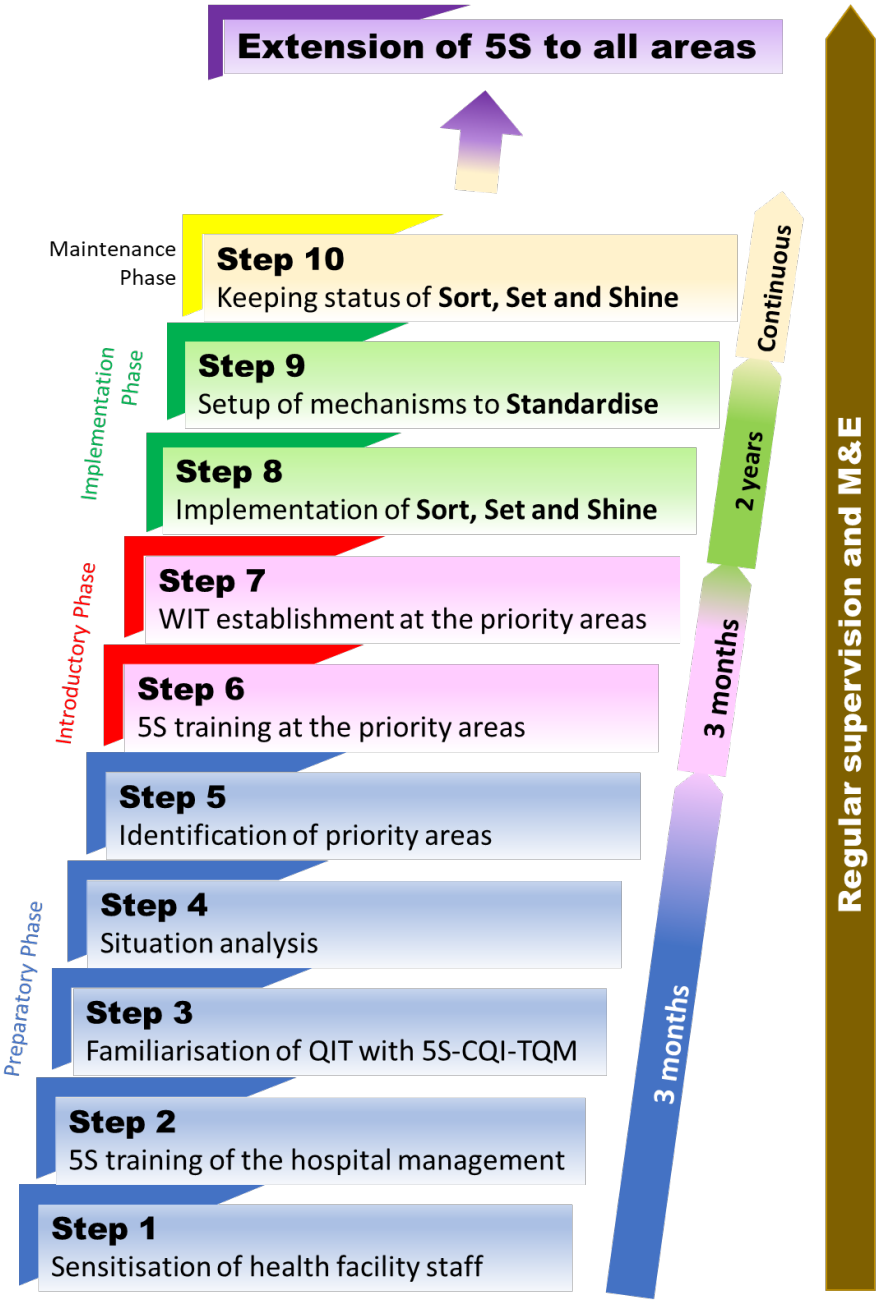
CHAPTER 5 IMPLEMENTATION OF 5S-CQI(KAIZEN)-TQM

Implementation of 5S is done through 10 steps under four phases. This needs involvement of all stakeholders in the health facility i.e. the top management, service providers and various QI teams in the facility. The steps should be systematically followed without ignoring any of them.

5.1 4 Phases of 5S Implementation

As illustrated in Figure-3, 10 steps are taken to implement 5S activities and divided into the four phases.

Figure-3: 10 Steps under 4 Phases for Implementation of 5S Activities



5.1.1 Phase 1: Preparatory Phase

This phase is a buy-in stage for the implementation of 5S-CQI(KAIZEN)-TQM. It takes three months.

Step 1: Sensitisation of Health Facility Staff on 5S-CQI(KAIZEN)-TQM Concepts

5S starts with "education", targeting the entire staff in a health facility. The following points should be emphasised:

- 5S aims at improving the working environment for the smooth implementation of QI activities. It forms a foundation for all QI programmes.
- Note that 5S is not in conflict with any other QI approaches that have already been introduced in Ugandan Health Sector.
- 5S is not a one-time event. It should be practiced on continuous basis and make it a culture of the health facility. Periodic training is necessary for both the management and service providers for sustainability.

Step 2: 5S Training of the Hospital Management

Strong leadership and commitment are vital for successful 5S implementation, therefore training of the management level in 5S is critical.

The concepts of 5S-CQI(KAIZEN)-TQM must be well understood and adopted by managers, then the steps should be explained logically. Focus on the following contents:

- 5S-CQI(KAIZEN)-TQM concepts
- Methodology for situation analysis of health facilities
- How to establish the QIT, its roles and responsibilities
- Formulation of the action plan for 5S-CQI(KAIZEN)-TQM
- How to establish a WIT, its roles, and responsibilities, and how the WIT relates with QIT.
- Monitoring and evaluation of 5S activities
- Training methods
- Development of teaching materials for staffs

It is important to develop 5S-CQI(KAIZEN)-TQM action plan at the end of the training with a template of 5S action plan (Figure-4, also Annex-1 as a sample). Activities may include situation analysis, selection of priority areas, 5S training, supervision, M&E, recognition and awarding, etc. Identify the responsible person for each activity (**ACTIVITY** and **RESPONSIBILITY**), **TARGET** and how to measure the level of achievement (**MEANS OF VERIFICATION**), inputs (**INPUTS/RESOURCES**) and when the activities are to be implemented (**TIME FRAME**).

Figure-4: A Template of 5S Action Plan (Annex-1)

5S ACTION PLAN

NAME OF HEALTH FACILITY	
DEPT/SECTION/UNIT/WARD	
5S MANAGER/WIT LEADER	
DATE	

	ACTIVITY	RESPONSIBLE PERSON	TARGET	MEANS OF VERIFICATION	INPUTS/RESOURCES	TIME FRAME
1						
2						
3						
4						
5						
6						
7						

Step 3: Familiarisation of QIT with 5S-CQI(KAIZEN)-TQM

After 5S training, the management will be responsible for orientating the QIT to enable the members to get familiar with 5S-CQI(KAIZEN)-TQM for smooth commencement of the activities. QIT is mandated to manage all QI interventions including 5S-CQI(KAIZEN)-TQM in a health facility.[23]

Step 4: Situation Analysis

The QIT needs to be aware of the status of the current work environment in the health facility; this will be the baseline of QI interventions. It is necessary to take photos of the work environment in all departments and units including backyard services like store, laundry and kitchen. The health facility entrance, parking, waste dumping site and patient waiting areas should as well be targeted for the situation analysis.

These photos can be used as the baseline "before 5S" implementation. Photography should capture the following:

- Equipment and furniture arrangement.
- Tools and supplies storage in the store, inside cabinets, drawers, etc.
- Sluice rooms and storage of cleaning tools.
- Trolleys.
- Waste bins.

[23] MOH (2016) *QIF&SP 2015/16-2019/20*, p22

Observation and interview with the frontline staff are also methods of the situation analysis. Findings should be reflected in the 5S action plan and shared with departments and units. This will help them to know what their work environment is like.

Step 5: Identification of Priority Areas

The findings of the situation analysis are used for identification of priority areas, i.e. the departments or units that will commence 5S activities first. High performance of 5S at these areas can make them "showcases", where the others will learn from.

In selecting the priority areas, **DO NOT** pick departments or units with lots of problems, as it will take a long time to implement 5S activities smoothly. Meanwhile, the number of priority areas is dependent on the capacity of QIT and availability of resources.

Criteria for identifying the priority areas are:

- The area has staff who show commitment to implement QI activities.
- Situation of the department or unit needs to be improved for better customer care with priority.

Once 5S is successfully commenced to the priority areas and a mechanism to sustain the activities is in place, 5S can be extended to the other areas.

5.1.2 Phase 2: Introductory Phase

Step 6: 5S Training at the Priority Areas

One of the keys to successful implementation of 5S practice is that everyone can do it appropriately and everybody should be involved. Therefore, training should be provided to all staff at the priority areas. The following topics should be of focus:

- 5S-CQI(KAIZEN)-TQM concepts.
- Methodology of situation analysis.
- 5S tools.
- Roles and responsibilities of QIT/WIT.
- Formulation of the 5S action plan.
- Supervision and M&E of 5S.

It is also important to visit departments and units in a health facility to carry out the exercise on situation analysis and the process of "Sort", "Set" and "Shine" (practicum).

Step 7: Establishment of WIT at the Priority Areas

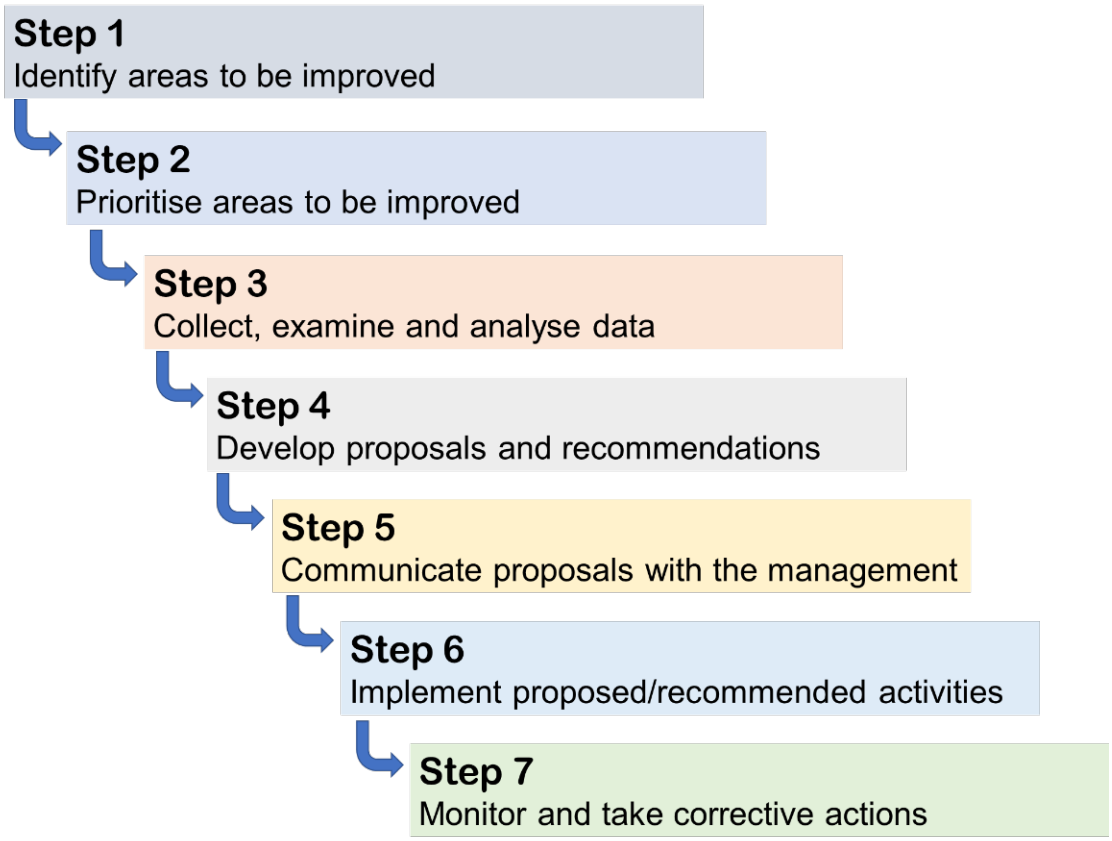
A team is a group of people working together to achieve a common goal for which they share responsibility. In a high performing task group, members are interdependent and share common performance intent. One of the benefits of working as a team is that the members can enjoy the opportunities to share the knowledge, skills and experiences. This also leads to synergies for confidence building and collective decision making among the

members to overcome problems. Therefore, teamwork should be at the centre to improve quality of services.

As described in QIF&SP 2015/16-2019/20[24], WIT is a set of frontline implementers of QI activities including 5S. It is established to provide staff with opportunities for meaningful involvement and contribution to problem-solving. As illustrated in Figure-4, WIT will compile proposals or recommendations based on its problem analysis by use of collected data and information on identified priority areas to be improved (Step 1-4). Following communication with the management (Step 5), WIT will implement the proposed or recommended activities (Step 6), monitor their progress and take corrective actions (Step 7).

WITs should hold the meetings regularly to identify and analyse problems, seek solutions and subsequently improve outputs and quality in their work units. Minutes of the meetings including the attendance record of the participants should be kept properly and appraised regularly. The tips of an effective team meeting are; meeting agenda prepared on time and distributed to the members, time management and maintaining focused discussions, encourage and support participation of all members, etc.

Figure-5: Steps of WIT Activities



[24] MOH (2016) *QIF&SP 2015/16-2019/20*, p23

The formation of WIT normally goes through several steps that need to be observed i.e. forming, storming, performing and closing. The norms of the team generally consist of:

- Development of close relationship among members.
- Demonstration of cohesiveness.
- Team group rules and boundaries agreed.
- Cooperation among members.
- Camaraderie among members.
- Commitment to settling differences and giving constructive feedback.

The areas from which WIT will seek qualitative improvement include services to the customers/public, workflow, efficient use of resources, work environment and safety. The WIT leaders and members are obliged to take their roles described in Chapter 3.

5.1.3 Phase 3: Implementation Phase

This phase is a stage of actual implementation of "Sort", "Set and "Shine" and setup of the mechanism to maintain the smooth implementation.

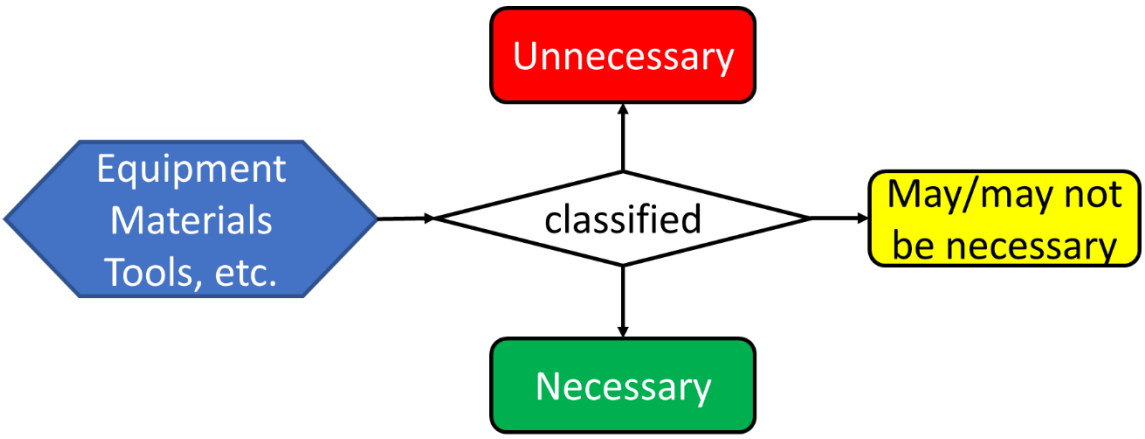
Step 8: Implementation of "Sort", "Set" and "Shine"

(1) Sort

"Sort" means the removal of all items from the workplace that are not needed for current clinical or administrative processes and activities. The practice of "Sort" starts from the identification of unwanted items in the workplace. It should be initiated by disposing everything that is no longer needed. Red tags are used for identification of the items that you might need at a later stage (See Chapter 6).

All items (equipment, materials, tools, etc.) can be classified into three categories: Unnecessary, May/May not be necessary, and Necessary (Figure-6).

Figure-6: Practice of "Sort"



Unnecessary items should be discarded if they are not repairable. If it is repairable, store and repair for other departments/units or other hospitals that might need it.

May/may not be necessary items are those not frequently used or functioning but not utilised for the current workflow. They should be kept in the store of the department or unit which owns them or needs them.

Necessary items should be organized properly according to the current workflow. This will be described as an activity of "Set".

Remaining items should be arranged and stored based on frequency of use. All areas including floors, cupboards and tables should be cleaned and organised. These changes can result in more efficient service delivery.

A central store may be allocated to keep unwanted items temporarily and rules set for regular disposal. When unwanted items are collected from various departments and units, the following information must be recorded and filed for smooth discarding procedures.

- Name of the item.
- Inventory number of the item.
- Name of departments and units where the item was.
- Place of the item stored.

In case the size of the unwanted item is large and not repairable, space should be secured in the hospital compound with safe storing measures.

(2) Set

The Practice of "Set" is to ensure proper orderliness of necessary items in the workplace. Signboards are set at the entrance for easy access of the locations of the organisation, and all locations are named or numbered. Every item should be labelled with an inventory number and assigned a location. Visual controls including colour coding should be practiced, files and cupboards should be indexed, and X-axis-Y-axis alignment should be done for positioning of items (see Chapter 6). This is done to facilitate easy access and optimise workflow.

(3) Shine

The practice of "Shine" is the cleaning stage. All the items including the floors, walls, windows and equipment should be cleaned using appropriate cleaning tools, methods and materials. Waste bins are made available at required places. Waste bins colour coding must follow the standard in the policy in Uganda.

Since 5S tasks appear minor, staff may not concentrate on "Sort", "Set" and "Shine" after the initial implementation. Regular supervision and M&E of all work units by QIT are essential to keep track of 5S practice.

Step 9: Setup of Mechanisms to Standardise the Activities of "Sort", "Set" and "Shine"

"Standardise" is a set of mechanisms and measures to continue the practice of "Sort", "Set" and "Shine" to ensure sustainability of tidiness, orderliness and cleanliness.

Possession of relevant documents to implement 5S-CQI(KAIZEN)-TQM activities like guidelines, handbook, facilitators' guidebook, etc. is a minimal requirement to "Standardise", and enables QIT to orient and train in 5S-CQI(KAIZEN)-TQM effectively.

"Standardise" requires Standard Operational Procedures (SOP) on use of red tags to remove unnecessary items, set instructions for removal of old posters and notices, instructions to use colour coding and photos, waste bin strategy, etc.

5S tools should be always available for the smooth implementation, while a checklist should be utilised for implementation of supervision within a health facility to keep performance high.

It is necessary to prepare a system to recognise and award good performers of 5S-CQI(KAIZEN)-TQM, e.g. "5S-CQI(KAIZEN)-TQM competition" and "5S-CQI(KAIZEN)-TQM day".

5.1.4 Phase 4: Maintenance Phase

Step 10: Keeping Status of "Sort", "Set" and "Shine"

Maintenance phase is for continuity of excellent performance of "Sort", "Set" and "Shine" under the mechanism of "Standardise". It should be expected that all the necessary structures and systems are in place. All health workers will be shaped to follow workplace rules. "Sort", "Set" and "Shine" should be the culture of the entire staff and the management with use of the mechanism for "Standardise".

"Sustain" requires self-discipline to maintain the consistent practice of 5S like "Standardise": periodic training programmes and the system of recognition and awarding.

To keep track of 5S practice, discipline, competition, continuous supervision and evaluation are essential.

The following activities are expected to be conducted in this phase:

- Periodic training of staff.
- Periodic monitoring by both supervision team from management and departmental monitoring team.
- Quality competitions and rewarding good practices.
- 5S Poster development and display.
- Establishment of 5S corner within department/section.
- Display charts/tables/graphs to show the progress of 5S.

5.1.5 "5S in Mind" and "5S in Brain"

5S is usually used for "things". However, doing 5S of mind and brain is very important to change your attitude in positive way and to accelerate 5S implementation appropriately (Table-6).

Table-6: "5S in Mind" and "5S in Brain"

"5S in Mind"
● **Sort** your mind to concentrate on your work. ● **Set** your mind to organise your work. ● **Shine** and **standardise** your mind to enjoy your work and maintain your way of working. ● **Sustain** your mind to carry out your work actively and maintain your work quality.
"5S in Brain"
● **Sort** your brain to clarify your work on what, for whom, why or for what, how, by who and by when. ● **Set** your brain to prioritise your work. ● **Shine** your brain to manage your work step by step. ● **Standardise** your brain to remove barriers of managing your work. ● **Sustain** your brain to solve problems and execute your work continuously.

5.1.6 Extension to All Areas at a Health Facility

Once the priority areas have successfully implemented 5S activities, the management and QIT need to extend the practice to the next target areas as a step-by-step process.

5.2 From 5S to CQI(KAIZEN)

While all staff members continue to spearhead "Sort", "Set" and "Shine" in the health facility with use of the mechanism for "Standardise" at Step 9 and 10 of the 5S activities, they need to prepare to move forward to CQI(KAIZEN).

CQI(KAIZEN) is an approach to solutions of problems identified within a certain period like six months based on the improved work environment through 5S. It brings individual skills to work effectively in small groups, solve problems, collect and analyse data and self-management within a peer group. CQI(KAIZEN) activities must deal not only with improvement of results, but also more importantly with improvement of capacity to produce better results in the future.

The WIT is the main actor of CQI(KAIZEN) activities. It is established in a department or a unit to implement countermeasures to the problems identified.

CQI(KAIZEN) focuses on:

- Quick actions from planning to implementation.
- Seeking solutions through taking actions rather than waiting to find the perfect solution.
- Involvement of all staff members in WIT and their teamwork.
- Addressing the root causes of problems.
- Process improvement from the systems perspective.

WIT members may raise many issues/problems to be improved. They must be recorded but **it is not necessary to take actions against all the issues/problems**. Choose those that are most common or most frequent among WIT members and implement countermeasures.

5.3 Start from Small CQI(KAIZEN)

CQI(KAIZEN) is to change things little by little or change what you can do in a short period (e.g. 2-3 months) with available resources, and to continue these small changes. It is better not to think of changing things all at once, but rather to think of changing whatever you can. It means that put small and feasible CQI(KAIZEN) measure into practice. As it goes, little things make a big difference. Continuation of small CQI(KAIZEN) activities will be able to make a big change.

It can be effective to visualise progress of small CQI(KAIZEN) with use of "KAIZEN Board", which consists of the following five types of information (Figure-7).

1) **Problems:** The problem that WIT members identified to solve through small CQI(KAIZEN) changes
2) **Objectives:** The ideal situation after solving the problem through small CQI(KAIZEN)
3) **Countermeasures:** The countermeasures to solve the problem
4) **Timeframe:** The period of implementation of the countermeasures
5) **Outcome:** State the outcome of implementation of the countermeasures

Figure-7: A Sample of KAIZEN Board

It is also recommended to record these CQI(KAIZEN) activities in a simple template like Annex-2 (Figure-8).

Figure-8: A Template to Record Small CQI(KAIZEN)

<table>
<tr><td>Small CQI(KAIZEN)
Good practice sheet</td><td colspan="2">Unit/Ward/Dept: .....
Date of Implementation: .....
Head of WIT: .....
Member of WIT: .....</td></tr>
<tr><th>Before CQI(KAIZEN)</th><th colspan="2">After CQI(KAIZEN)</th></tr>
<tr><td>Photo (before)</td><td colspan="2">Photo (after)</td></tr>
<tr><td>Description (before)</td><td colspan="2">Description (after)</td></tr>
<tr><th colspan="3">Benefits from this Small CQI(KAIZEN)</th></tr>
<tr><td colspan="2">☐ Improved movement/transportation
☐ Reduced staff's work burden
☐ Improved workers' safety</td><td>☐ Improved productivity
☐ Improved patients' safety
☐ Others: ( )</td></tr>
</table>

5.4 PDCA (PDSA) Cycle and CQI(KAIZEN)

Plan-Do-Check-Act (PDCA) or Plan-Do-Study-Act (PDSA) is a repetitive cycle for CQI(KAIZEN) to test planned changes. In improving situations or solving problems with the CQI process (KAIZEN process), everyone's participation is a requisite.

PDCA/PDSA cycle is divided into the following four stages (Figure-9):

Plan: Identify the problem to be addressed, collect relevant data, analyse root cause of the problem, formulate a plan to implement countermeasures with consideration of who will do what at when and where and how to do them.

Do: Implement the plan, monitor the progress, document the process of implementation.

Check or Study: Assess the results, verify the effectiveness of the countermeasures including analysis of facilitating and impeding factors, unforeseen problems, etc.

Act: Document the results, modify the plan for further refinement (or abandon the plan), standardise the effective countermeasures.

Figure-9: PDCA/PDSA Cycle and Seven Steps of CQI Process (KAIZEN Process)

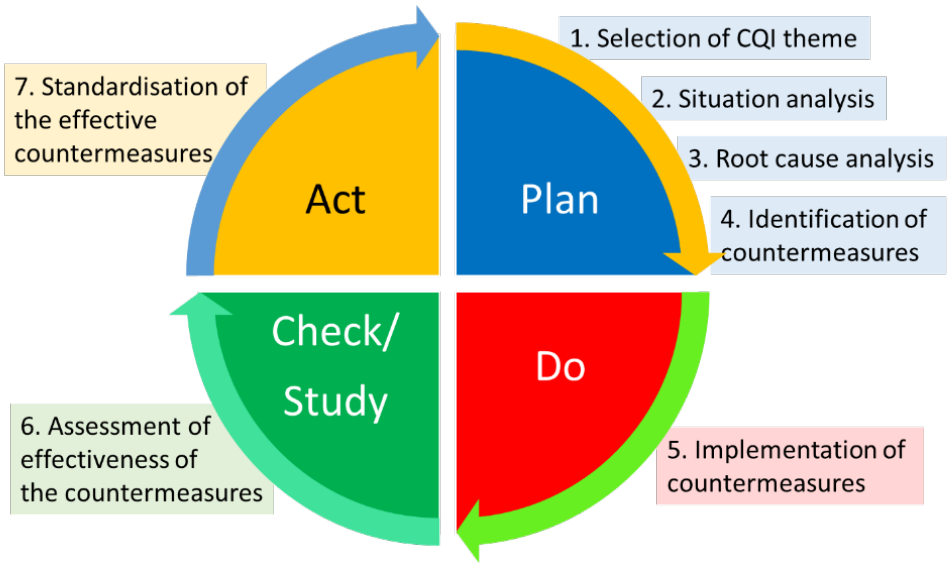
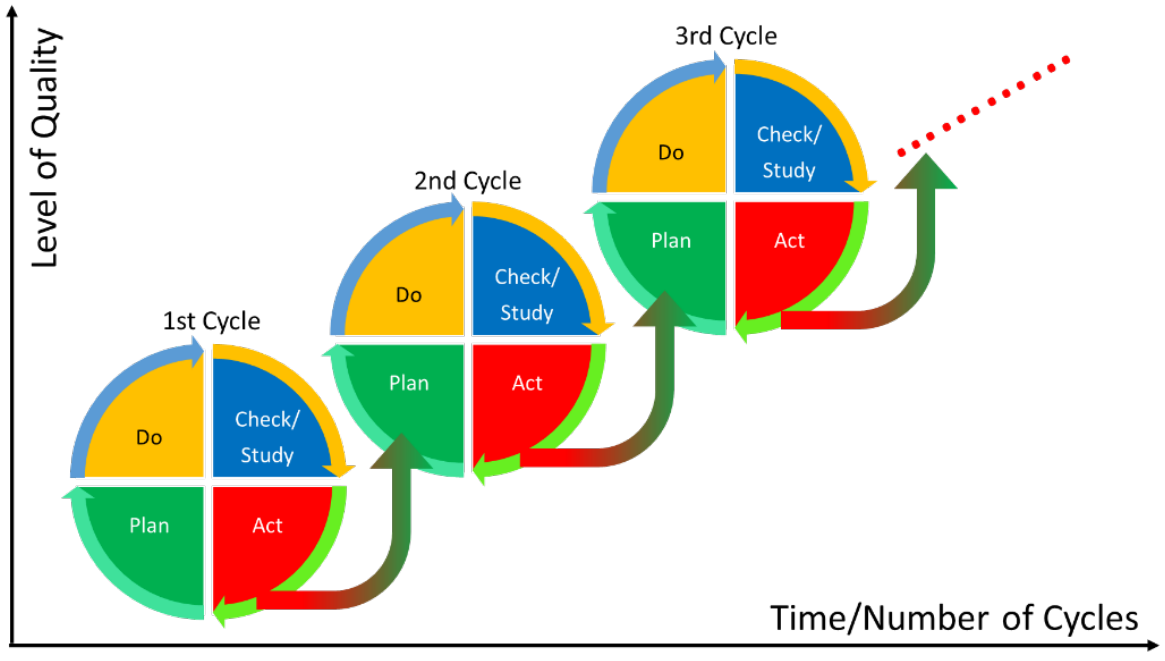


Figure-9 illustrates the position of seven steps of CQI ("KAIZEN")process, which will be described in the next section. It can be said that PDCA/PDSA cycle for CQI(KAIZEN) is illustrated as a continuum of quality improvement (Figure-10). CQI(KAIZEN) aims at raising the standards of the workplace, productivity, quality and safety in a continuous upward spiral through rotating the cycle, reflecting the achievement of CQI(KAIZEN) and taking actions to improve the way for the next theme.

Figure-10: PDCA/PDSA Cycle as Continuum of CQI(KAIZEN)



5.5 7 Steps of CQI Process (KAIZEN Process)

Figure-11 show the following 7 steps to implement CQI process (KAIZEN process):

Step 1: Selection of CQI(KAIZEN) theme

Step 2: Situation analysis

Step 3: Root cause analysis

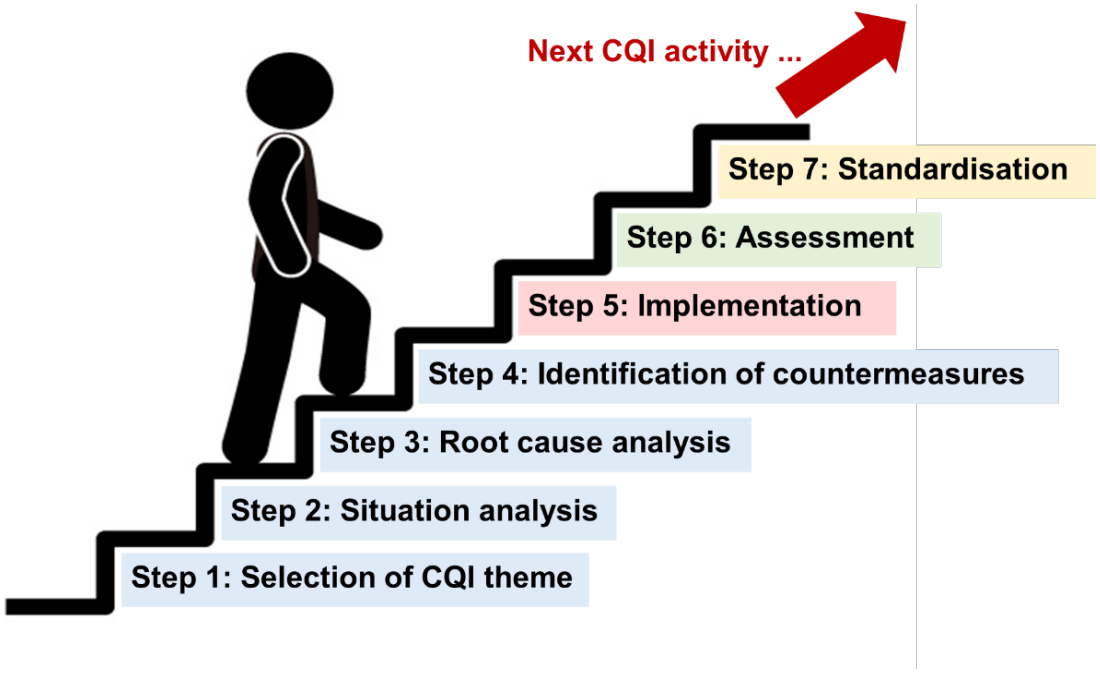
Step 4: Identification of countermeasures

Step 5: Implementation of countermeasures

Step 6: Assessment of effectiveness of the countermeasures

Step 7: Standardisation of the effective countermeasures

Figure-11: 7 Steps of CQI Process (KAIZEN Process)



A problem solved by implementation of the countermeasures may have other gaps affecting the CQI(KAIZEN) theme. Therefore, it is necessary to identify unsolved problems and plan the next CQI (KAIZEN) activity.

Step 1: Selection of CQI(KAIZEN) Theme (Problem Identification)

Example of Useful Tools: Brainstorming, Work Process Analysis, Matrix Diagram

The first step is to select an issue to be tackled as a CQI(KAIZEN) theme. It starts from discussion of difficulties that staff and clients are facing in their workplace, followed by selection of a theme that can be improved within a given period with existing resources.

The following sequence of actions will be taken to select a CQI(KAIZEN) theme:

1) **Enumerate potential CQI(KAIZEN) themes**
2) **Categorise the potential CQI(KAIZEN) themes**
3) **Select a CQI(KAIZEN) theme through feasibility check**
4) **Describe the selected CQI(KAIZEN) theme as "problem statement"**

1) Enumerate potential CQI(KAIZEN) themes

The staff will **brainstorm** and enumerate potential CQI(KAIZEN) themes called CQI(KAIZEN) suggestions. These are based on:

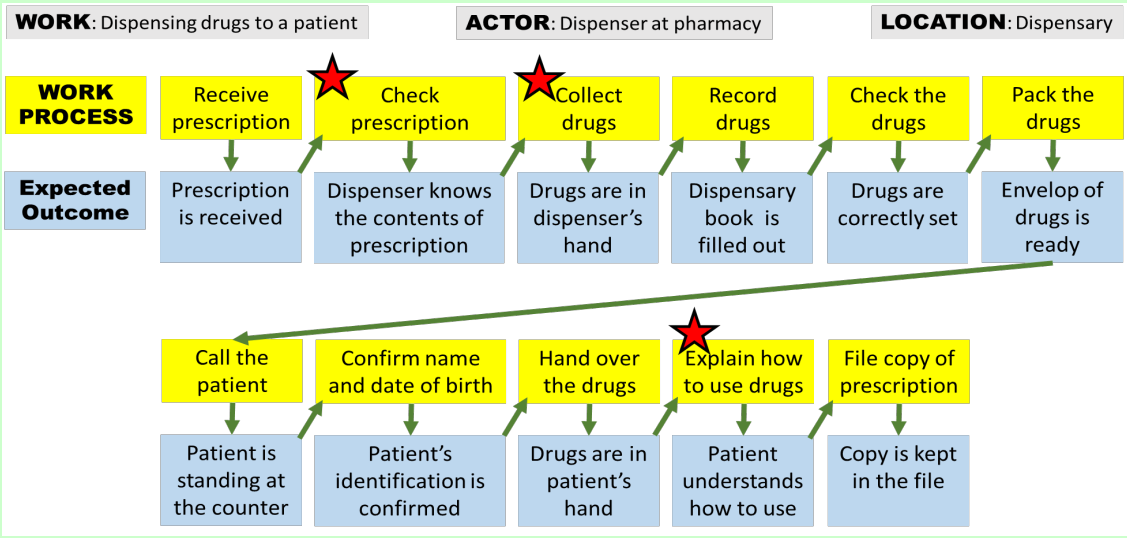
- Complaints and suggestions from patients and clients.
- Accidents and incidents frequently occurred.
- Work processes that take time and are hard to deal with.
- Logistics that are affecting the smooth practice of work in the health facility.

Work process analysis, which visualises flow of the tasks and their expected outcomes, is another useful method to list the potential CQI(KAIZEN) themes (See Example 1). Following description of what the work is **(WORK)**, who does the work **(ACTOR)** and where the work is done **(LOCATION)**, the first segment of the work and its expected outcome will be posted on the same column. A segment of the work and its expected outcome are based on those at the left column. You can pick up the potential CQI(KAIZEN) themes from the sequence of segments of the work and expected outcomes.

[Example 1: Work Process Analysis to Identify Potential CQI(KAIZEN) Themes]

In case of the role of a dispenser is to dispense prescribed drugs to a patient. It is divided into segments from "reception of the prescription" to "filing the copy". Based on the observation of the sequence of work and consideration of actual situation, the staff can select several segments as potential CQI(KAIZEN) themes. In the example of Figure-12, "check prescription", "collect drugs" and "explain how to use drugs" were identified as potential CQI(KAIZEN) themes.

Figure-12: Identification of Potential CQI(KAIZEN) Themes through Work Process Analysis



Note that "issues beyond your control" such as salary, working hours and human resources should not be in the list of potential CQI(KAIZEN) themes as they cannot be solved by your capacity**.**

2) Categorise the potential CQI(KAIZEN) themes

The enumerated potential CQI(KAIZEN) themes will be categorised into the following two groups:

- Themes solvable by small CQI(KAIZEN),
- Themes to be solved by CQI process (KAIZEN process).

3) Select a CQI(KAIZEN) theme through feasibility check

Feasibility of the potential CQI(KAIZEN) themes in the group "to be solved by CQI process (KAIZEN process)" will be checked by using the following four criteria in **a matrix diagram** (See Example 2):

- **Impact**: The extent of impact when the problem is solved.
- **Urgency**: The extent of how fast the problem must be dealt with.
- **Possibility**: The extent of possibility to complete activities to solve the problem within six months.
- **Availability of resources**: The extent of possibility to implement with existing resources.

Each criterion will be given a score to calculate the feasibility of the potential CQI(KAIZEN) themes. The themes that get the highest score of feasibility will be selected as the CQI(KAIZEN) theme.

All processes for selection of CQI(KAIZEN) themes must be recorded to unveil the process of the selection. The CQI(KAIZEN) theme should be described in "ideal situation". As "Administering wrong medicine to patients" was the problem that they were facing, ideal situation will be "Wrong administration of medicines is reduced". It is very important to clarify what you look for at the department.

Also note that the activities to deal with the CQI(KAIZEN) theme should be completed within a period like six months.

[Example 2: Use of a Matrix Diagram to Select a CQI(KAIZEN) Theme]

A department had a problem of high frequency of wrong administering of medicines to patients. When it held a meeting to select a CQI(KAIZEN) theme, "Wrong medicine administration", "small working space", "sampling mistakes of laboratory tests" and "high volume of wastage of medicines" were enumerated as potential CQI(KAIZEN) themes.

The department utilised a matrix diagram to select a CQI(KAIZEN) theme with criteria of impact, urgency, possibility and availability of resources. Each criterion was given a score ranged from 1 (lowest) to 3 (highest).

As indicated in Table-7, "Wrong administration of medicines is reduced" marked the highest score and was selected as the CQI(KAIZEN) theme in the department.

Table-7: Selection of CQI(KAIZEN) Theme with Use of Matrix Diagram

Potential CQI(KAIZEN) Themes	Criteria (Score ranged 1-3)				Feasibility score
	Impact	Urgency	Possibility	Resources	
Working space is expanded.	2	1	2	1	**6**
Wrong medicine administration is reduced.	3	3	3	2	**11**
Sampling mistakes of laboratory tests are reduced.	2	2	3	3	**10**
Volume of medicine wastage is reduced.	3	2	2	2	**9**

4) Describe the selected CQI(KAIZEN) theme as "problem statement"

Problem statement is a statement that describes what the problem is, why you need to solve and how it affects the quality of health services and management (Example 3). It is also necessary to state whose problem it is and when and where the problem occurs as clearly as possible.

[Example 3: Problem Statement]

CQI(KAIZEN) Theme	Problem Statement
Waste management at female ward is improved.	Improper waste management at female ward is frequently observed such as mixed wastes disposed in inappropriate dustbins, use of inappropriate colour-coded bin liners, overflow of the sharp-box, improper positioning of dust bins etc. This situation results in increase of risks of cross infections, injuries of health care workers and persons who collect the wastes, increased cost of waste disposal, etc. Therefore, the staff of female ward will solve this problem to improve safety for both internal and external clients and cost in healthcare service provision.

Step 2: Situation Analysis

Example of Useful Tools: Pareto Chart

Situation and circumstances around the selected CQI(KAIZEN) theme should be analysed thoroughly. Quality of information and data is key to successful situation analysis. When it is not available, it is necessary to collect them in a certain period.

In the example of CQI(KAIZEN) theme "Wrong administration of medicines is reduced", it is necessary to know what factors mainly contribute to wrong administering of medicines.

Pareto Chart is a useful tool for target setting to solve the problem when various contributing factors exist (See Chapter 7). Factors frequently occurring mean that they can affect the work process tremendously. To draw a Pareto Chart correctly, it is necessary to count the number of incidents that occur (frequency) and to calculate cumulative frequency and percentage.

The following sequence of actions will be taken to develop a Pareto Chart (Example 4):

1) **Identify contributing factors to the CQI(KAIZEN) theme**
2) **Collect data on frequency of the contributing factors**
3) **Calculate frequency and cumulative frequency and percentage of each factor**
4) **Draw the Pareto Chart and use it for target setting**

1) Identify contributing factors to the CQI(KAIZEN) theme

Contributing factor is a factor that influences the selected CQI(KAIZEN) theme. The staff will brainstorm and enumerate incidents as factors that contribute to the theme.

2) Collect data on frequency of the contributing factors

Once the staff identified the contributing factors, data will be collected on the incidents to know how often they occur. It is necessary to describe the source of data and the period and methodology of data collection.

3) Calculate frequency and cumulative frequency and percentage of each factor

Based on the collected data, frequency of the incidents will be tallied, and cumulative frequency and percentage will be calculated on a data table (Table-8).

Table-8: Data Table to Draw a Pareto Chart

Incidents	Frequency	Cumulative Frequency	Cumulative Percentage
Incident A	a	a	[a/(a+b+c)]*100
Incident B	b	a+b	[(a+b)/(a+b+c)]*100
Incident C	c	a+b+c	[(a+b+c)/(a+b+c)]*100
Total	a+b+c		

4) Draw the Pareto Chart and use it for target setting

The Pareto Chart is sketched using the cumulative frequency and percentage of the incidents. The incidents should be enumerated in accordance with the frequency descending from left to right on the horizontal axis. Left vertical axis will be used for the cumulative frequency, while the right horizontal axis will be for cumulative percentage.

In terms of quality improvement, the Pareto Chart shows majority of problems (80%) comes from a few key factors (20%). Therefore, it can be said that the top 20% factors can be targeted to solve 80% of the problems. This is called **the Pareto Rule**.

[Example 4: Development of a Pareto Chart]

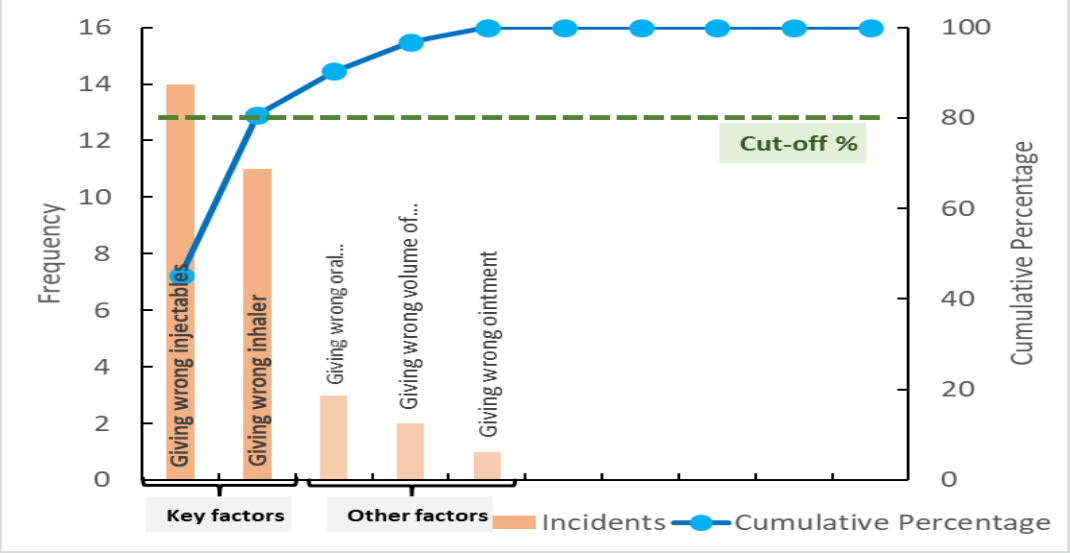
As a result of brainstorming among the staff, "giving wrong injectables", "giving wrong inhaler", "giving wrong oral medicines", "giving wrong volume of insulin" and "giving wrong ointment" were identified as incidents contributing to the CQI(KAIZEN) theme "wrong medicine administration". Subsequently, the staff collected the data from their records and tallied frequency of each incident, followed by calculation go cumulative frequency and percentage (Table-9).

Table-9: Data Table to Draw a Pareto Chart for "Wrong Administration of Medicines"

Incidents	Frequency	Cumulative Frequency	Cumulative Percentage
Giving wrong injectables	14	14	45 (=(14/31)*100)
Giving wrong inhaler	11	25 (=14+11)	81 (=(25/31)*100)
Giving wrong oral medicines	3	28 (=25+3)	90 (=(28/31)*100)
Giving wrong volume of insulin	2	30 (=28+2)	97 (=(30/31)*100)
Giving wrong ointment	1	31 (=30+1)	100 (=(31/31)*100)
Total	31		

Based on these data, the Pareto Chart is sketched in Figure-13.

Figure-13: Pareto Chart of "Wrong Administration of Medicines"



In this case, only two contributing factors, "Giving wrong injectables" and "Giving wrong inhaler" account for 80.6% of the problem. According to the Pareto Rule, targeting these two contributing factors can prevent majority of the problem.

Step 3: Root Cause Analysis

Example of Useful Tools: Fishbone Diagram, Tree Diagram

The next step is to analyse root causes of a problem handled as a CQI(KAIZEN) theme. **Fishbone Diagram** or **Tree Diagram** can be used for the analysis as they enable us to

establish a cause-effect relationship on the selected CQI(KAIZEN) theme (See Example 5-6 and Chapter 7). In case of the example of CQI(KAIZEN) theme "Wrong administering medicines is reduced", root causes of the contributing factors, "Giving wrong injectables" and "Giving wrong inhale medicines", should be identified.

The direct causes to the contributing factors should be analysed, and subsequently analysing causes of each direct cause. Therefore, it is necessary to repeat scrutinising strata of cause-effect relationship. Root causes will be at the lowest stratum.

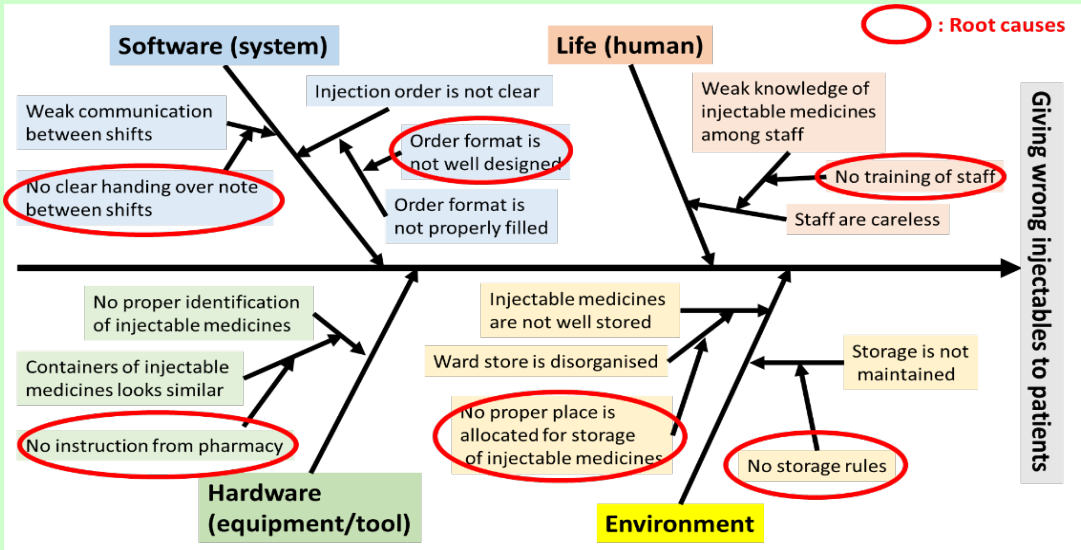
[Example 5: Fishbone Diagram for Root Cause Analysis]

When using the Fishbone Diagram, issues causing the contributing factors are initially divided into groups by the following methods.

- **MSHEL grouping** into 5: **M** (Management), **S** (Software), **H** (Hardware), **E** (Environment) and **L** (Life, or Human)
- **4M grouping** into 4: **M**an, **M**achine, **M**aterial and **M**ethod

In case of "Giving wrong injectables to patients", a total of 16 problems were brainstormed and classified into four groups i.e. software (system), hardware (equipment and tool), environment and life (human). Secondly, causality among the problems was investigated to clarify cause-effect relationship in each group. In the group of software (system), "No clear handing over of note between shifts" and "Order format is not well designed" were identified as root causes of a contributing factor of "Administering wrong medicines to patients". From the aspects of hardware (equipment and tool), environment and life (human), "No training of staff", "No instruction from pharmacy", "No proper place is allocated for storage of injectables" and "No storage rules" were regarded as root causes (Figure-14).

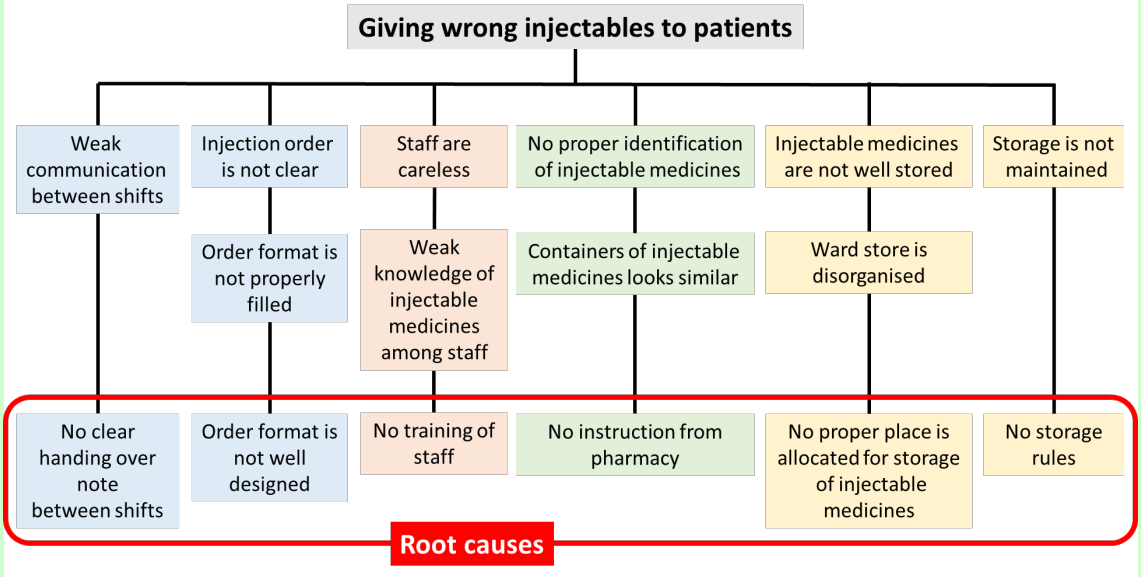
Figure-14: Fishbone Diagram for Root Cause Analysis of "Giving Wrong Injectables



[Example 6: Tree Diagram for Root Cause Analysis]

In case of "Giving wrong injectables to patients", six direct causes were identified at first, followed by clarifying causes of the direct causes. As a result, Figure-15 was illustrated to show causality among the problems around a contributing factor of "Administering wrong medicines to patients" and to identify the root causes: "No clear handing over note between shifts", "Order format is not well designed", "No training of staff", "No instruction from pharmacy", "No proper place is allocated for storage of injectables" and "No storage rules".

Figure-15: Tree Diagram for Root Cause Analysis of "Giving Wrong Injectables



Step 4: Identification of Countermeasures

Example of Useful Tools: Tree Diagram, Matrix Diagram

After identification of root causes of contributing factors to CQI(KAIZEN) theme, it should be designed to overcome them as countermeasures. Two tools are useful: **Tree Diagram** and **Matrix Diagram**.

[Tree Diagram]

Tree Diagram is used to identify candidates of countermeasures.

Firstly, list the root causes identified in the previous step on the left column, followed by brainstorming of countermeasures. When the countermeasures are identified, connect them with each root cause. They are called "first line countermeasures".

Secondly, it is necessary to come up with another set of countermeasures to realise the first line countermeasures and branch them from the first line ones. They are called "second line countermeasures".

It should be noted that two or more countermeasures can correspond to a root cause.

[Matrix Diagram]

Matrix Diagram is useful for evaluating feasibility of countermeasures from such criteria as 1) importance, 2) Urgency, 3) Difficulty, 4) Time consumption and 5) Resource availability.

It is necessary to agree on what scale should be used for evaluation of the feasibility from these criteria and how to set the cut-off line to select feasible countermeasures.

[Example 7: Tree Diagram and Matrix Diagram for Identification of Countermeasures]

As illustrated in Figure-16, a WIT identified six countermeasures and 10 activities, followed by investigation of connection of them with root causes. Some root causes correspond to two activities or more.

In evaluating feasibility of these activities, the criteria and scale for evaluation and cut-off line for selection of feasible countermeasures should be agreed. In case of this example, the WIT concluded that the criteria for evaluation were 1) importance, 2) Urgency, 3) Difficulty, 4) Time consumption and 5) Resource availability, with a score ranged from 1 (low priority or not easy to implement), through 2 (moderate) to 3 (high priority or easy to implement), and that the cut-off line was 70% of total score of feasibility (aggregated score of the above-noted five criteria). Therefore, the countermeasures with 11 points out of 15 are evaluated as feasible.

Based on the total scores, six activities, i.e. “Proper labelling and colour coding on store shelf”, “Development of Store rules”, “Dissemination of Store rules”, “Development of instruction and check sheet”, “OJT” and “Development of checklist and handing over note” would be feasible.

Figure-16: Tree Diagram and Matrix Diagram

Cut-off Line: 70% (11 points)
Score: 3 high priority
2 moderate
1 low priority

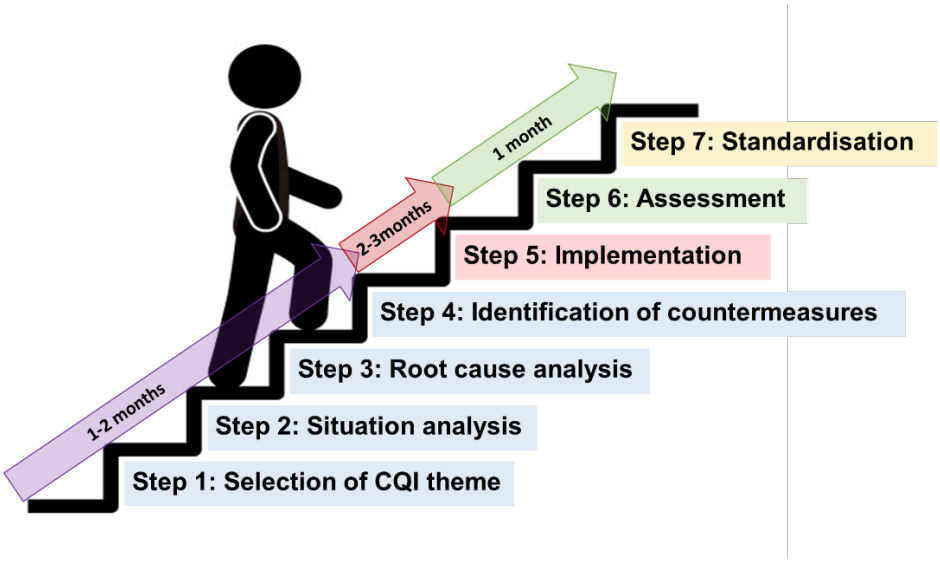
Root causes	Countermeasures	Activities	Importance	Urgency	Difficulty	Time Consumption	Resource Availability	Overall Feasibility
No training in handling medicines	Conduct training in handling medicines	Develop training materials	3	3	1	1	1	9
		Conduct TOT	3	2	1	2	1	9
No proper place for storage of injectables	Sort and set the store	Proper labelling/colour coding	3	2	3	2	2	12
No rules for storage of injectables	Develop rules for storage of injectables	Develop monitoring tools	3	2	2	2	1	10
		Develop storage rules	3	3	2	1	2	11
		Disseminate storage rules	3	3	1	2	2	11
No instruction from pharmacy	Provide instruction from pharmacy	Develop instruction/check sheet	3	3	3	2	2	13
		Disseminate and conduct OJT	3	3	2	2	2	12
No clear handover note	Develop handover mechanism	Develop checklist/handover note	3	3	3	2	2	13
Order format is not well designed	Develop new order format	Redesign of format	3	2	2	1	1	9

Step 5: Implementation of the Countermeasures

Example of Useful Tools: Form of Countermeasure Planning (Annex-3)

When the countermeasures are evaluated as feasible in the previous step, WIT will move forward to implementation. As indicated in Figure-17, WIT will implement the feasible countermeasures for two to three months. If it takes longer to prepare and implement them, they will NOT be feasible.

Figure-17: Timeframe of CQI Process (KAIZEN Process)



WIT is required to formulate an action plan to implement the countermeasures effectively. The useful action plan should be comprised of the following information that will let all team members know their roles and responsibilities towards the implementation of the countermeasures and how to carry them out.

- **What** activities will be carried out as countermeasures? What will be the targets of the activities?
- **Why** will WIT do the activities?
- **Who** will be responsible for the activities?
- **When** will the activities be implemented, how often will they be implemented and when will they be completed?
- **Where** will the activities be done?
- **How** will WIT do the activities?

A **Template of Countermeasure Planning** can be used to compile the information to manage the progress of countermeasures (Annex-3). Figure-18 shows where the above-mentioned information should be filled.

Once an action plan is formulated, it should be posted on the notice board for staff at unit and department level. It is important to share the information among WIT members to remind them of implementation and monitoring of the activities.

Results of monitoring of the countermeasures should be shared regularly among staff in the department as well as WIT members.

Figure-18: A Template of Countermeasure Planning (Annex-3)

Date:

CQI topic: Why		
Implementer(s): Who	Place: Where	Overall Period: When

No.	Action	Outputs	Period			Responsible person(s)	Resources	Risks
			1st Month	2nd Month	3rd Month			
1								
2								
3								
4	What							
5				When		Who		
6	How							
7								
8								
9								
10								

[Example 8: Countermeasure Filled in the Template]

Date: 15th June 2019

CQI(KAIZEN) theme: Correct injectables are given to patients.		
Implementer(s): Nursing Officers	Place: Male Ward	Overall Period: from 1st July 2019 to 30th September 2019

No.	Action	Outputs	Period			Responsible person(s)	Resources	Risks
			1st Month	2nd Month	3rd Month			
1	Develop instruction and check sheet on injectables.	· Instruction on injectables · Check sheet	→			Pharmacy	PC	
2	Disseminate check sheet on injectables and conduct OJT.	· Nursing officers familiarised with check sheet		→		In-charge	Refreshment Printer and paper	
3	Develop checklist and handover note.	· Checklist and handover note are available.	→			In-charge	PC	
4	Develop storage rule.	· Storage rule is developed.	→			In-charge	PC	
5	Disseminate storage rule.	· Storage rule is disseminated.		→		In-charge	Refreshment Printer and paper	
6	Implement labelling and colour coding properly.	· Store of injectables are labelled and colour-coded properly.			→	In-charge Nursing Officer xx	PC Printer and paper	
7	Monitor the implementation of countermeasures	· Results of monitoring are shared among the ward.			→	In-charge	PC Printer and paper	

To verify effectiveness of the countermeasures, following should be done:

- Collect baseline data for each countermeasure
- Develop and use checklists for monitoring of the countermeasures during the implementation

Step 6: Assessment of Effectiveness of the Countermeasures

Example of Useful Tools: Table for Pareto Chart

Effectiveness of the countermeasures should be assessed at each implementation period. Generally, assessment or evaluation is an act of comparison e.g. between before and after an intervention, among persons and institutions. Indicators and their targets should be set, while putting in mind that the baseline is the first step to assess or evaluate. As there are many methods of assessment or evaluation, it is necessary to choose appropriate ones based on the type of countermeasures, targets and indicators.

[Use of Table for Pareto Chart to Assess the Countermeasures]

The Pareto Chart can be used for measuring effectiveness of countermeasures. Procedures to draw it are almost the same as in the step of situation analysis. A table on frequency of each incidence before and after the CQI(KAIZEN) activities is formed to assess the changes (Table-10). If the target is reached, it can be said that the countermeasures implemented are effective.

Table-10: Comparison of the Difference between before and after CQI(KAIZEN) Activities

Incidents	Before CQI			After CQI			Difference	Reduction Rate (%)
	Frequency	Cumulative Frequency	Cumulative %	Frequency	Cumulative Frequency	Cumulative %		
Incidents A	a1	a1	$\frac{a1}{a1+b1+c1}$ *100	a2	a2	$\frac{a2}{a2+b2+c2}$ *100	a1-a2	$\frac{a1-a2}{a1}$ *100
Incidents B	b1	a1+b1	$\frac{a1+b1}{a1+b1+c1}$ *100	b2	a2+b2	$\frac{a2+b2}{a2+b2+c2}$ *100	b1-b2	$\frac{b1-b2}{b1}$ *100
Incidents C	c1	a1+b1+c1	$\frac{a1+b1+c1}{a1+b1+c1}$ *100	c2	a2+b2+c2	$\frac{a2+b2+c2}{a2+b2+c2}$ *100	c1-c2	$\frac{c1-c2}{c1}$ *100
Total	d1 (=a1+b1+c1)			d2 (=a2+b2+c2)			d1-d2	$\frac{d1-d2}{d1}$ *100

[Example 9: Comparison of the Difference between before and after CQI(KAIZEN)]

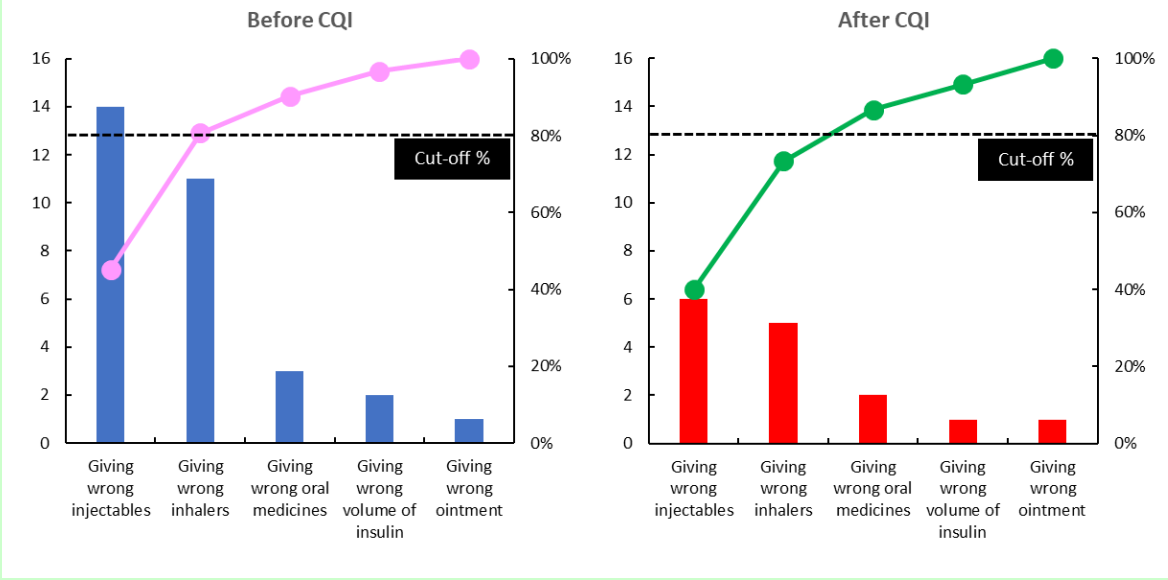
In the example of "Wrong administering of medicines to patients", the target set was "Frequency of administering wrong medicines is reduced by 50% from the current situation". Table-11 shows that the average reduction rate is 52%, therefore, these CQI(KAIZEN) activities can achieve the target.

Table-11: Comparison of the Difference between before and after CQI(KAIZEN)

Incidents	Before CQI			After CQI			Difference	Reduction Rate (%)
	Frequency	Cumulative Frequency	Cumulative %	Frequency	Cumulative Frequency	Cumulative %		
Giving wrong injectables	14	14	45%	6	6	40%	8	57%
Giving wrong inhalers	11	25	81%	5	11	73%	6	55%
Giving wrong oral medicines	3	28	90%	2	13	87%	1	33%
Giving wrong volume of insulin	2	30	97%	1	14	93%	1	50%
Giving wrong ointment	1	31	100%	1	15	100%	0	0%
Total	31			15			16	52%

The Pareto Chart can be also used for the comparison between before and after CQI(KAIZEN) activities (Figure-19).

Figure-19: Comparison of the Pareto Charts between before and after CQI(KAIZEN)



Step 7: Standardisation of the Effective Countermeasures

The countermeasures that prove to be effective should be standardised to prevent recurrence of problems and sustain the improved situation. Once they are standardised, they should be followed by all staff in the department and are expected to be rolled out to the other departments. Also, discipline is key to successful standardisation of the countermeasures. Standardisation will enable you to:

- Prevent recurrence of the problems
- Stabilise processing time, costs and workloads.
- Provide quality of works and services.

[Planning of Standardisation]

As done in Step 5, it is necessary to formulate a plan of standardisation to clarify procedures with use of information on 5W1H (**W**hy, **W**ho, **W**hen, **W**here, **W**hat and **H**ow). A checklist should be also developed to monitor the progress of standardised countermeasures. Table-12 shows a format of planning of standardisation and what information should be filled in each column.

Table-12: Sample Format of Planning of Standardised Procedures

WHY	WHO	WHEN	WHERE	WHAT	HOW
Countermeasures that proved effectiveness of CQI	Person in charge of the countermeasures	Period and frequency of implementation of the countermeasures	Place to do the countermeasures	Outputs or tools used for the countermeasures	Methodology to implement the countermeasures

[Example 10: Planning of Standardised Procedures]

WHY	WHO	WHEN	WHERE	WHAT	HOW
To strengthen the management of medicine storage	In-charge of stock management	Daily	Ward	Inventory and checklist	Practice continuously
To reduce miscommunication among staff for reduction wrong medication	All staff working at the ward	Before takeover to the next shift	Ward	Handover note and checklist	Check the note and checklist before the next shift starts

[Monitoring of Standardisation]

Once the standard procedures are set, all staff in the department should practice continuously. It is crucial to regularly monitor and supervise the actual practice. Period of monitoring should be agreed within the WIT and shared with all staff in the department. Table-13 is a sample of checklist of standardised procedures.

Table-13: Sample of Checklist of Standardised Procedures

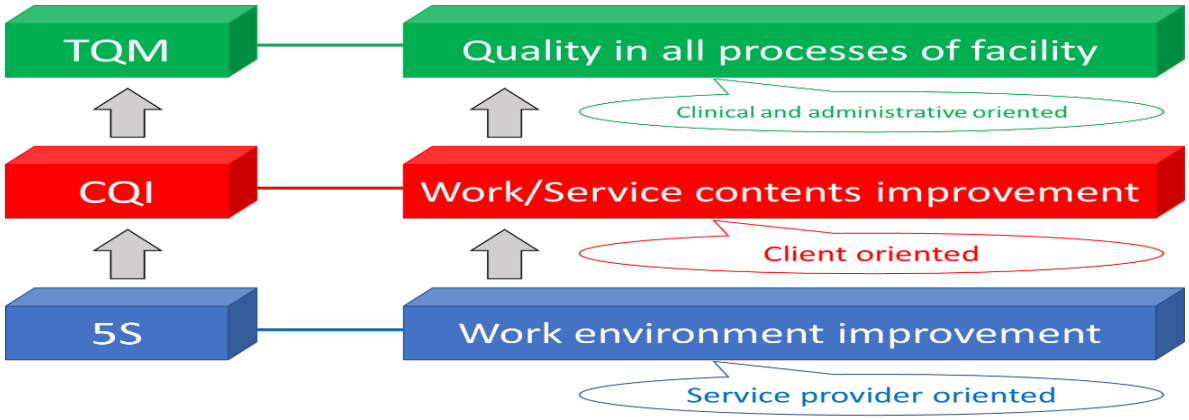
Date	Check by	Standardised Measures	Implementation Status		Findings
			☐ Sustained ☐ Not sustained	☐ Following standard ☐ Not following standard	

5.6 From CQI(KAIZEN) to TQM

TQM is a method by which management and employees become involved in the continuous improvement of the services. TQM is a health service management strategy aimed at embedding awareness of quality in all organisational processes.

Figure-20 describes what the health facility management team should consider. At the beginning, consider creating good working environment to enable health workers to be competent in providing high quality of services. Consider clients satisfaction to improve clinical and non-clinical (responsiveness) issues with CQI(KAIZEN) activities. Other related issues such as financial, human resource management should be considered. Considering service quality in all departments and sections is called TQM.

Figure-20: From 5S to TQM



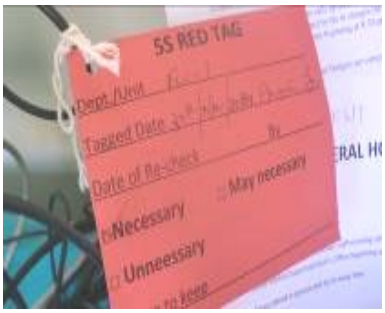
CHAPTER 6 TOOLS FOR 5S IMPLEMENTATION

5S tools are developed to help in practice of 5S activities. They are measures for "Standardise" specifically to enhance effectiveness and sustainability of "Sort", "Set" and "Shine". The tools can be combined and require a set of rules agreed among all staff in the health facility.

6.1 Tools for 5S Implementation

6.1.1 Red Tag

When it is difficult to decide whether an item is necessary or not during the practice of **"Sort"**, a Red Tag is put on it with necessary information and observed for a month. If the item is not used for a month, it will not be necessary.



6.1.2 Zoning and Alignment

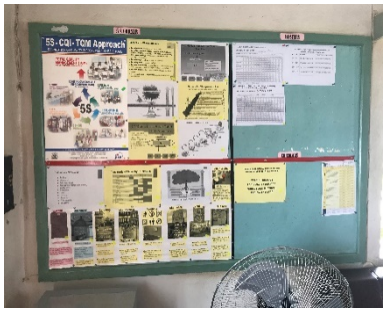
Zoning and alignment are used to organise files, equipment and materials to identify proper location or storage of the items. They accelerate improvement of orderliness and enable staff to easily identify where they are and where they should be.

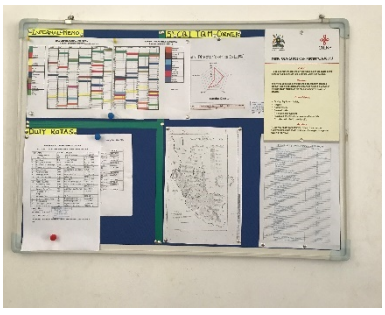
Zoning and alignment are for the activities of **"Set"**.

6.1.3 X-Y Axis

X-Y axis is specifically used for notice boards to categorise different types of information. It is important to keep the notice boards tidy with current and categorised information.

X-Y axis is for **"Sort"** and **"Set"**.





6.1.4 Numbering/Alphabetical Coding

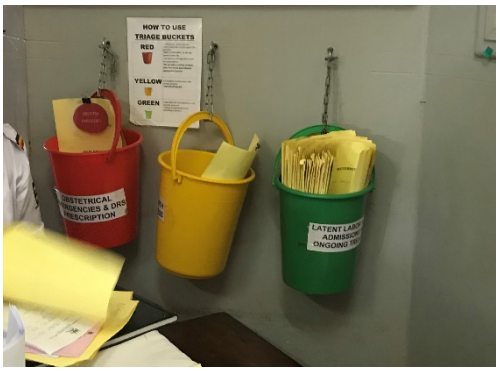
Numbering and alphabetical coding is to organise files and other items numerically or alphabetically. It helps users to easily identify necessary items or information. It is vital in the practice of the "easy to see, easy to take out and easy to return" principle.

Numbering and alphabetical coding is for **"Set"**.

6.1.5 Colour Coding

Colour coding helps facility users understand the meaning of specific colours: e.g. waste segregation, categorisation of areas or zones for specific items. Some national policies and guidelines describe the accepted national colour coding by type of waste.

Colour coding is a tool for **"Set"** and **"Shine"**.



6.1.6 Labelling

Labelling is used for visual communication. Items and documents are marked for easy identification, filling and storage. Labelling is a tool for **"Set"**.

6.1.7 Safety Signs

Safety signs are used to bring to the attention of staff and visitors to hazardous environments or items. Some signs are internationally recognised and can be commonly applied in health facilities. In the absence of internationally recognized safety signs, the facilities can design their own. Safety signs are tools for **"Set"**.

6.1.8 Symbols

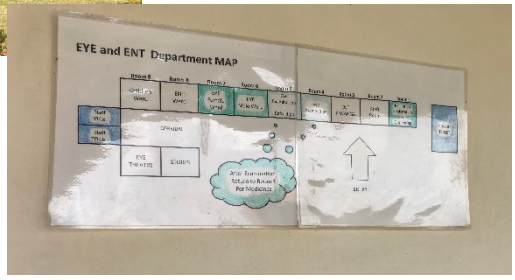
Symbols are used for visual communication to make everyone understand the meaning of items without or with minimum explanation.

Symbols are tools for **"Set"**.

6.1.9 Signboard and Map

Signboard and map are used for identifying the location of places and guiding patients, caretakers and visitors to the place where they want to visit. It is recommended to use languages commonly used among all, e.g. Luganda, English and Kiswahili.

Signboard and map are tools for **"Set"**.



6.1.10 5S Corner

The 5S Corner provides information on 5S updates or progress targeting the visitors and staff members.

Table-14 shows the types of information displayed at the 5S corner.

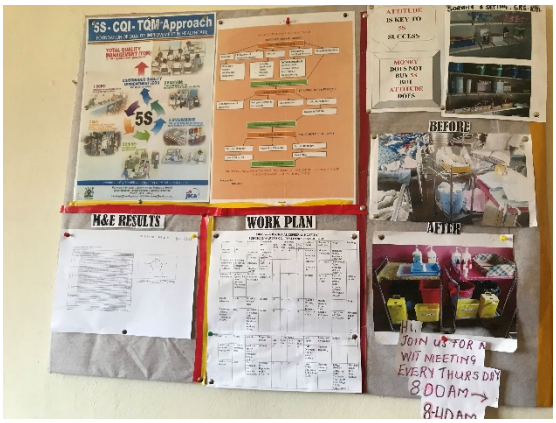


Table-14: Information by Type of 5S Corner

Information	Type of 5S Corner		
	Waiting/Corridor	Administration	Dept./Ward
5S poster	Y	Y	Y
Photos to show 5S progress	Y	Y	Y
Chart/table to show 5S progress	NA	Y	Y
M&E	NA	Y	Y
Training	NA	Y	Y
QIT/WIT meeting	NA	Y	Y
Mission statement on quality improvement	Y	Y	Y
Waste bin colour coding and type of waste	Y	Y	Y

NB: Y denotes “necessary to show”, while NA is “not applicable”.

6.2 Enhancement of Visual Control with Use of 5S Tools

6.2.1 What Is Visual Control?

Visual control refers to means, devices or mechanisms that are designed to manage or control operations (processes) to make the problems or deviations from standards visible to everyone.

Table-15 shows an example of the usage of 5S tools that will help to enhance visual control within a health facility. **All tools require an agreed set of rules.** Often colour coding and symbols have international rules or regulations that are well known by people. In that case, it is better to use rules that are adopted by majority of people.

The entire staff in the health facility must be informed of all rules and everyone must follow the rules. Displaying the rules at the 5S corner or notice a board is helpful for everyone to remind them of the meaning of colours or symbols.

Table-15: Example of Usage of 5S Tools for Visual Control

Analog Items	5S Tools	Example of Usage	Actual Items
Colours	Colour coding	1) Waste bin for infectious and general waste 2) Disinfectant containers (IPC regulation) 3) Linen system 4) Oxygen tank storage: Full: blue, Empty: red	Distinguish items from each other
Shapes	Zoning	1) Marking of stretcher and wheelchair parking 2) Car parking 3) Position of waste bin	Designate a location
Symbols	Symbols	1) Indication of stretcher and wheelchair parking 2) Toilet 3) No smoking area 4) Dangerous areas such as high voltage, incinerator, etc.	Distinguish items from each other
Characters	Alphabetical coding	1) Open registry files keeping	Designate a location
	Labelling	1) Store and stock management for medical supplies	
	Signboard	1) Direction to facilities in hospital 2) Identification of facilities in hospital	
Numbers	Numbering	1) Medical record keeping 2) Administration file keeping	Designate a location
Graphs/Tables	Checklist	1) Progress report, evaluation results	Specify forms or documents or indicate quantity
	X-Y axis	1) Notice, poster on notice boards of 5S corner	

Visual control enables corrective actions to be taken immediately such as:

- Displaying the operating or progress status in an easy to see format.
- Provision of instruction.
- Conveying information.
- Provision of immediate feedback to people.

6.2.2 Potential Benefits of Visual Control

Implementing visual control in the hospital would help health workers to expose abnormalities, problems, deviations, waste, unevenness, and unreasonableness to facility users, thus corrective actions can be taken immediately to:

- Correct the problems
- Reduce operational costs
- Reduce possible waste
- Shorten services lead-time and thus keep the delivery of services on time
- Reduce inventory
- Ensure a safe and comfortable work environment

6.2.3 Practice of Visual Control

Principally, visual control is to organise working areas such that facility users can tell whether things are going on well or otherwise, without any help of experts. It can be implemented using either the actual or analogue items.

[Actual Items]

- Designate a Location (position) for each item.
- Indicate Quantity (or maximum level of inventory).
- Distinguish among items.
- Specify status of the items.

[Analogue Items]

- Colours
- Shapes (Contour)
- Symbols
- Characters (Verbal)
- Numbers
- Graphs/Table

CHAPTER 7 TOOLS FOR CQI(KAIZEN) IMPLEMENTATION

This chapter describes selected tools that are frequently used for implementation of CQI(KAIZEN).

7.1 Tools for Problem Identification and Analysis

7.1.1 Brainstorming

Brainstorming is a way of generating as many ideas as possible by a group about a given subject in a limited 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 case of unstructured brainstorming, there is no order and participants contribute randomly.

There are rules for brainstorming:

- A chairperson and a secretary are selected
- The group agrees on the subject and 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 categorises priorities, and selects the best ideas by voting or consensus.

7.1.2 Value Stream Map

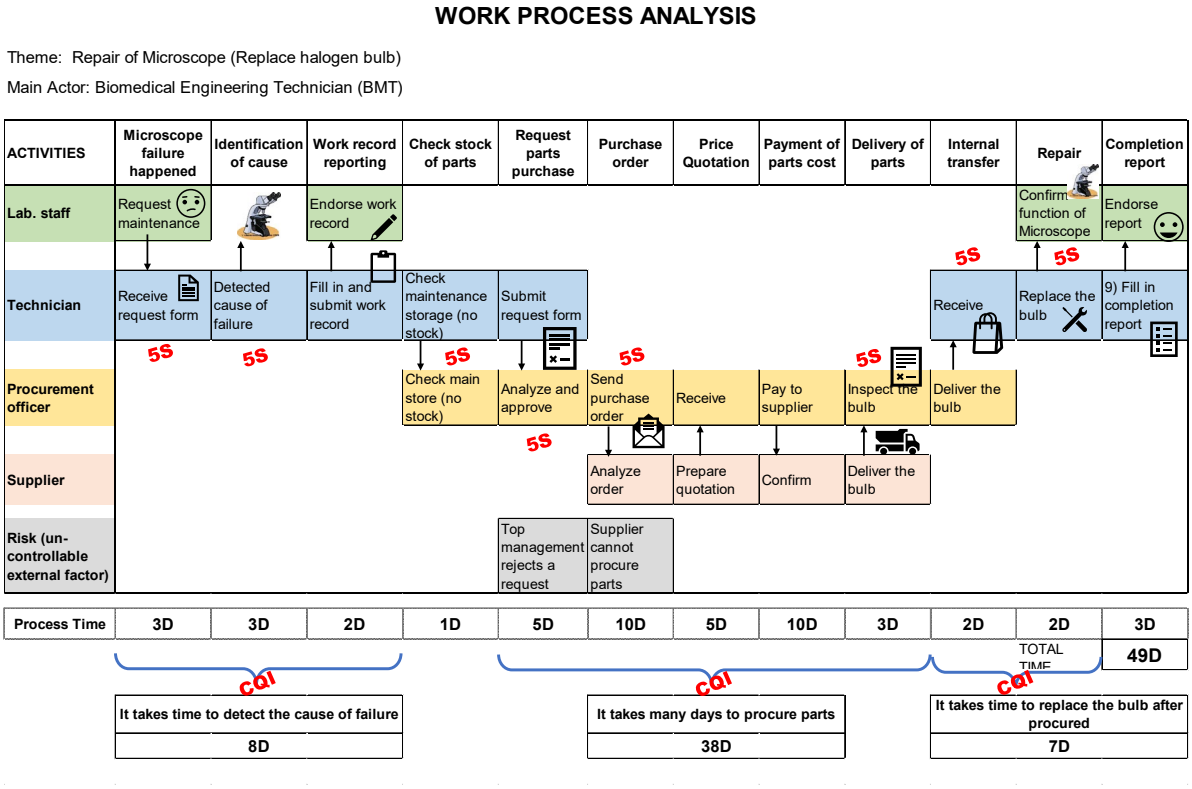
A method of work process analysis described in the Section 5.5 “7 Steps of CQI Process (KAIZEN Process)” of Chapter 5 is a variation of the Value Stream Map. The Map illustrates the current state of a stream of actions in the production process of goods and services. The stream consists of players involved in the work process and sequence of actions taken by the players. The action time is the time spent for each action, and lead time (or process time) is the time between the initiation and completion of a series of actions by a player. Based on this current state map, opportunities for improvement are identified and the stream of actions are redesigned in the future state map.

[How to Develop a Value Stream Map (Figure-21)]

- Prepare an empty sheet and start description of the value stream from the top left: which player is the first to do what?
- Specify a theme to analyse the work process and its main actor
- Indicate the players involved in the value stream in the left column

- Place sequence of actions taken by each player in the row behind the players
- Use arrows for the handovers from a player to the others
- Record action time and lead time (or process time) in each row
- Identify the opportunities for improvement with consideration of what actions can be improved by 5S and what can be a theme of CQI(KAIZEN)

Figure-21: Work Process Analysis with Use of Value Stream Map



7.1.3 Affinity Diagram

Affinity Diagram is a tool that collects large amount of verbal data like ideas, opinions and issues and classifies them into groups based on their natural relationships (Figure-22).

The affinity process is formalised in an affinity diagram and is useful when you want to:

- Sift large volumes of data. For example, a community health worker who identifies community needs might compile a very large list of unsorted data. In this case, making an affinity diagram might help classify the data into groups.
- Encourage new pattern of thinking. Since brainstorming is the first step in making an affinity diagram, the team considers all ideas from all members without criticism.

[Procedure]

Materials used are sticky notes or cards, marking pens, large work surface (wall, table or floor).

i. **Generate ideas**: Record each idea with a marking pen on a separate sticky note or card. During a brainstorming session, write directly onto sticky notes or cards.

ii. **Display the ideas**: Randomly spread notes on a large work surface (notice board, wall or table) in a random manner so all notes are visible to everyone. The entire team gathers around the notes and participates in the next steps.

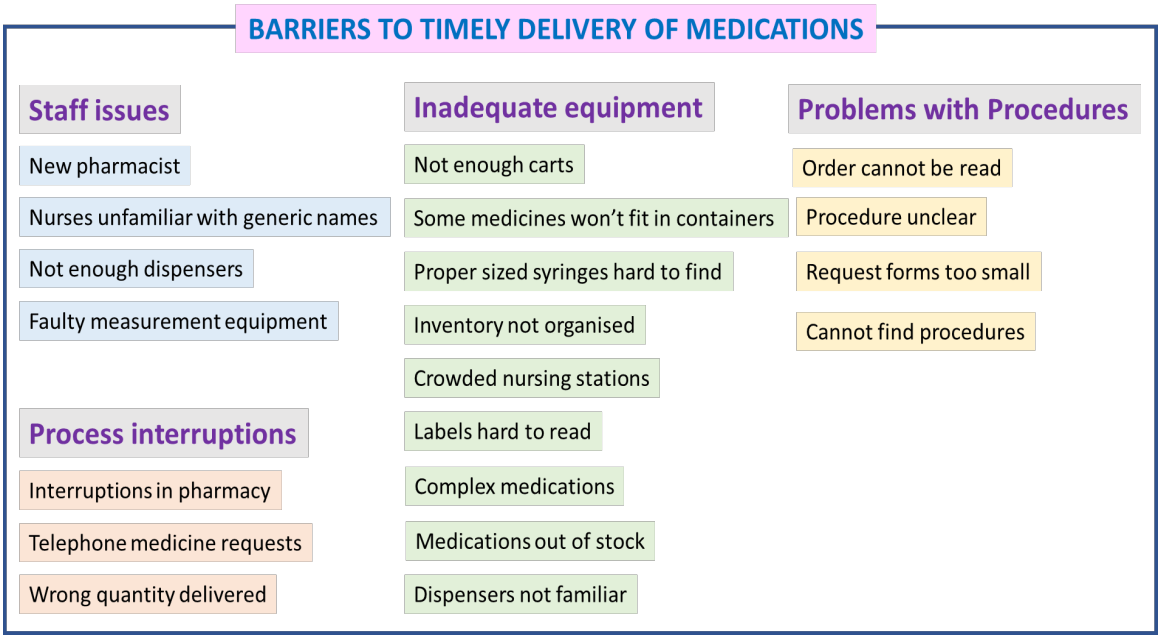
iii. **Sort the ideas into related groups**: The team members physically sort the cards into groupings without talking, using the following process:
   - Start by looking for two ideas that seem related in some way. Place them together in a column off to one side.
   - Look for ideas that are related to those you've already set aside and add them to that group.
   - Look for other ideas that are related to each other and establish new groups
   - The process is repeated until the team has placed all ideas in groups.

   NOTE: Ideally, all ideas can be sorted into related groups. But even if there are "loners" that do not fit any of the groups, do not force them into groupings where they do not actually belong. Let them stand alone under their own headers.

iv. **Make header cards for the groups**: A header is an idea that captures the essential links among the ideas contained in a group of cards. This idea is written on a single card of post-it and must consist of a phrase or sentence that clearly conveys the meaning, even to people who are not on the team.

v. **Draw the Affinity Diagram**:
   - Write a problem statement at the top of the diagram
   - Place header and super header cards above the groups of ideas
   - Review and clarify the ideas and groupings
   - Document the finished affinity diagram

Figure-22: Affinity Diagram



While an affinity diagram may present interesting and useful ideas, the exercise should lead to further analysis. The team can now use a cause-and-effect (fishbone) diagram to get to root causes for the problem stated.

7.1.4 Cause-Effect/Fishbone Diagram

The cause-effect relationship is illustrated in a fishbone diagram to explore all potential causes that lead to an effect. The causes are arranged according to their level of significance, resulting in a depiction of relationships and hierarchy of events. This can help you search for root causes, identify areas where there may be problems and compare the relative significance of different causes.

Causes in the fishbone diagram are frequently arranged into major categories. Manpower, methods, materials and machinery are used in the manufacturing sector, while social or service sector frequently utilises equipment, process, people, materials, environment and management as categories.

[Steps to Construct a Fishbone Diagram]

Step 1: Define the problem to be solved (Figure-23).

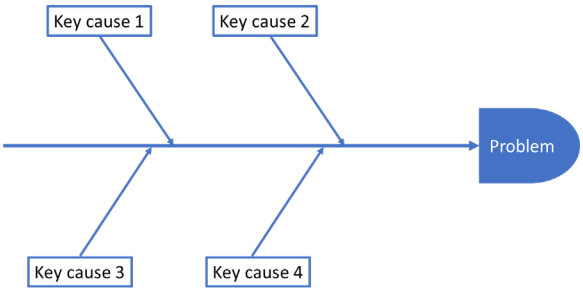
While defining the problem or event, the problem statement may contain information on the location and time of the event. On the diagram, the problem is visually represented by drawing a horizontal line with a box enclosing the description of the problem on the tip to the arrow. The problem should be articulated to produce the most relevant hypotheses about the cause. If it is ill-defined, you will have difficulty focusing on the effect, and the diagram will be complex.

Figure-23: Fishbone Diagram (Step 1)

Step 2: Identify the key causes of the problem (Figure-24).

In Step 2, the primary causes of the problem are drilled down by brainstorming techniques. These causes are often categorised under MSHEL grouping or 4M grouping. You can add or drop categories as needed.

Figure-24: Fishbone Diagram (Step 2)

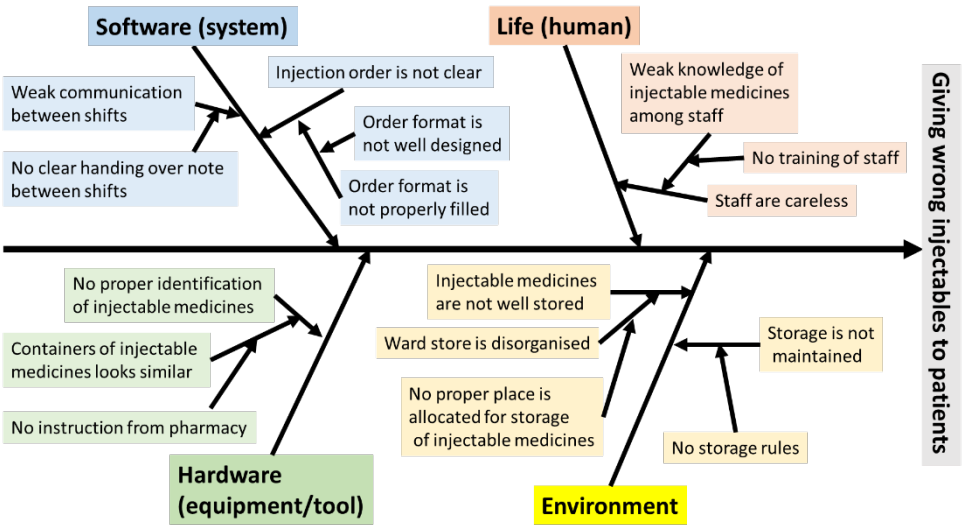


Step 3: Identify the reasons behind the key issues (Figure-25).

Brainstorm the causes for each key cause. Tools like "5 Whys" can help you to drill down to these sub-causes. Keep asking why for each cause until a potential root cause has been identified. Each major branch should include three to four causes. If a branch has too few causes, find some way to explain this lack or ask others to help.

Be sure that the causes have a direct, logical relationship to the problem at the head of the fishbone diagram.

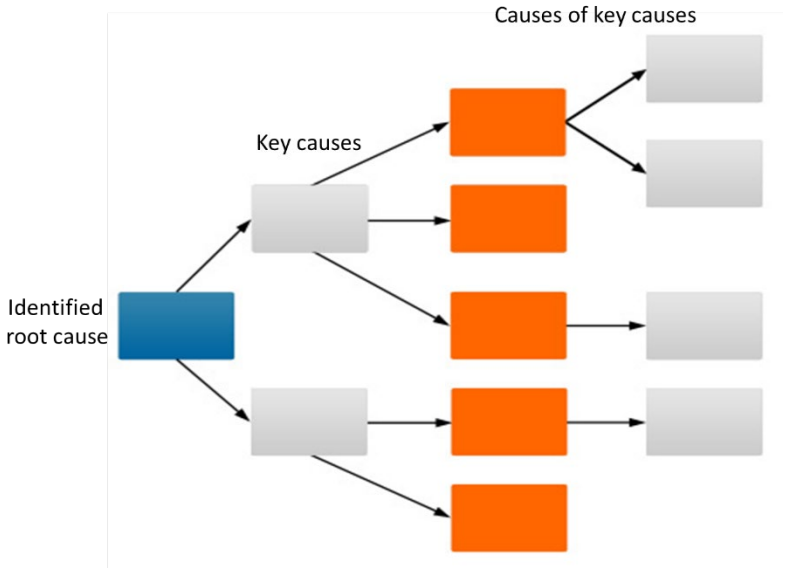
Figure-25: Fishbone Diagram (Step 3)



7.1.5 Tree Diagram (Figure-26)

Tree diagram is another tool to draw cause-effect relationship through "why-because analysis" and to segregate the contents in the issues. It is used to identify the actual countermeasures to selected problems through "if-then analysis".

Figure-26: Tree Diagram

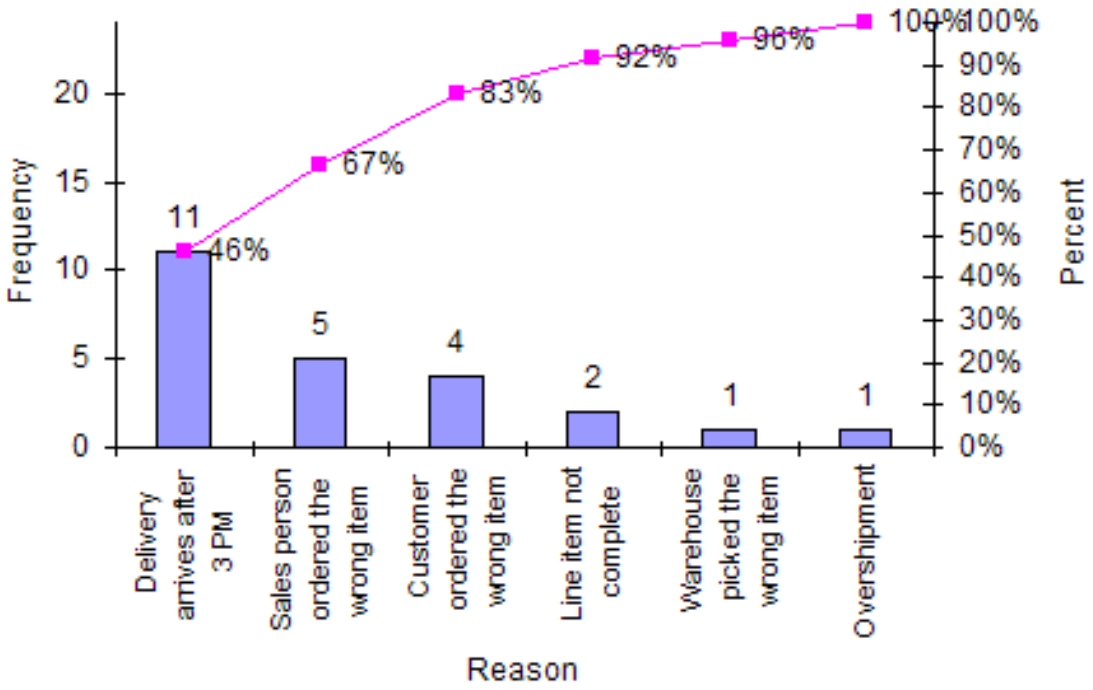


7.1.6 Pareto Chart (Figure-27)

Pareto chart contains both bars and a line graphs. Individual values are represented in descending order by bars, while the line represents the cumulative total. The left vertical axis is the frequency of occurrence and the right one is the cumulative percentage of the total number of occurrences.

Pareto chart is to highlight the most important among a set of factors.

Figure-27: Pareto Chart



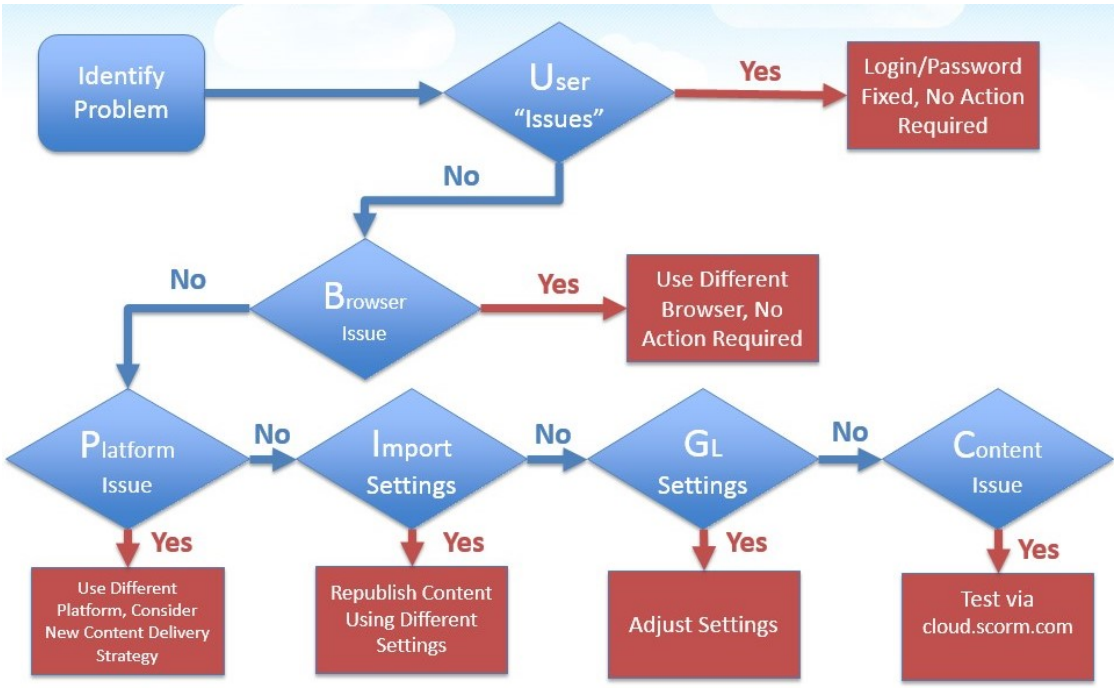
7.1.7 Flowchart (Figure-28)

Flowchart outlines all the different steps in a process of delivery of a service. It is a graphic representation of how a process works, showing the sequence of steps. It also helps QIT identify problems that can be fixed.

After a process has been identified for improvement and given high priority, it should be broken down into specific steps and displayed in a flowchart. By writing down each step in a process currently taking place, a flowchart helps to clarify how things are currently working. If QIT cannot agree on what the problems occur, data should be collected to support the argument.

The flowchart is particularly useful in the early stage of a project to enable QIT to understand how the process currently works. The “as-is” flowchart may be compared to how the process is intended to work. At the end of the project, QIT may want re-plot the modified process to show how the redefined process should occur.

Figure-28: Flowchart



Once you complete your flowchart, ask the following questions:

- Where are the bottlenecks? How can we address them?
- Are there inconsistencies in how things are done? What can be standardised?
- Can things be done differently? In parallel? By different person with at least the same quality and at least the same cost?
- Can steps be located closer to each other to reduce travel?
- Does each step add value? If not, can it be eliminated?

QIT should start with a high-level flowchart with five to twelve steps. They may choose to go into greater detail on any set of process where the problems are believed to be the greatest and generate a more process specific flowchart.

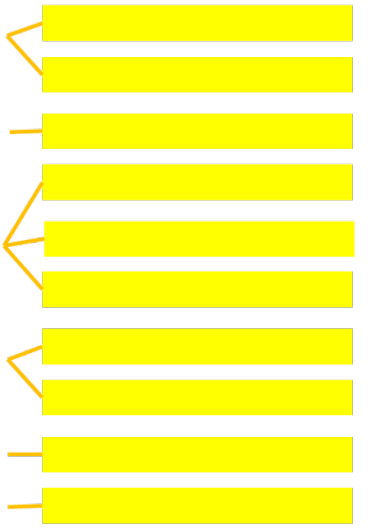
Basic steps to the construction of a flowchart

i. Agree on purpose and format
ii. Determine and agree on end points of the process: inputs and outputs
iii. Identify and list the elements of the flowchart
iv. Review the first draft for sequence and clarity of steps
v. Review the flowchart with group to ensure it reflects what each does

7.1.8 Matrix Diagram (Figure-29)

Matrix diagram is used to analyse the problem in the target by two additional factors, arranged in two-dimensional matrix. At each intersectional relationship is either absent or present. It gives information on the relationship such as its strength, roles played by various individuals or measurements.

Figure-29: Matrix Diagram



Cut-off: 70% (11 points)
Score: 3 high priority
2 moderate
1 low priority

Importance	Urgency	Difficulty	Time Consumption	Resource Availability	Overall Feasibility
3	3	1	1	1	9
3	2	1	2	1	9
3	2	3	2	2	12
3	2	2	2	1	10
3	3	2	1	2	11
3	3	1	2	2	11
3	3	3	2	2	13
3	3	2	2	2	12
3	3	3	2	2	13
3	2	2	1	1	9

7.2 Tools for Data Use

7.2.1 Check Sheet/Tally Sheet (Figure-30)

The check sheet or tally sheet is a simple document that is used for collecting data in real-time and at the location where the data are generated. The document is typically a blank form that is designed for 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. Health Management Information System (HMIS) provides tally sheet for various routine data like immunisation, OPD attendance, etc.

Figure-30: Tally Sheet

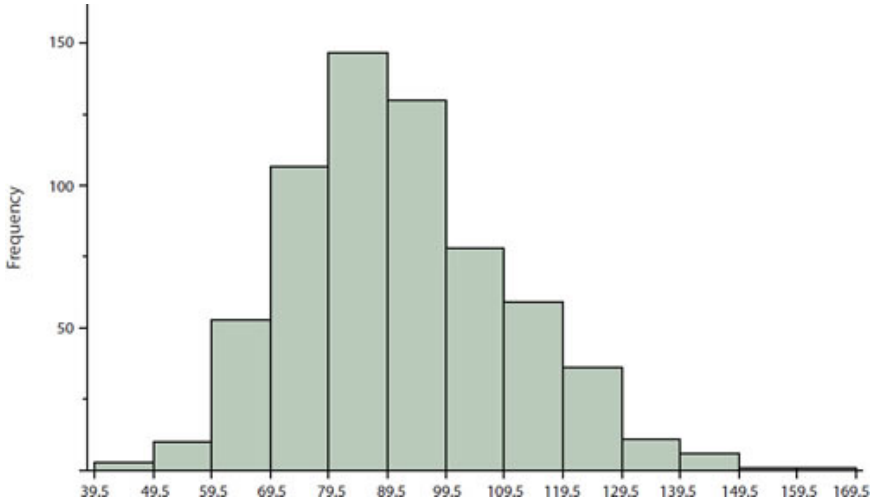
	Mon	Tue	Wed	Thu	Fri	Total
BCG	𝍸 𝍸 𝍸	𝍸 𝍸 |	𝍸	𝍸 |	||||	41
Measles	𝍸	||	||||	𝍸	|||	19
DPT	𝍸 𝍸	𝍸 ||	𝍸 𝍸 ||||	𝍸 ||||	||	42

7.2.2 Histogram (Figure-31)

Histogram is a graph to show tabular frequencies and density of the data. Each bar is erected over an interval, with an area equal to the frequency of the interval. The height of a bar is equal to the frequency density of the interval, and the total area of the histogram is equal to the number of data.

Histogram visualises the trend of the data such as average, median, mode and outliers.

Figure-31: Histogram

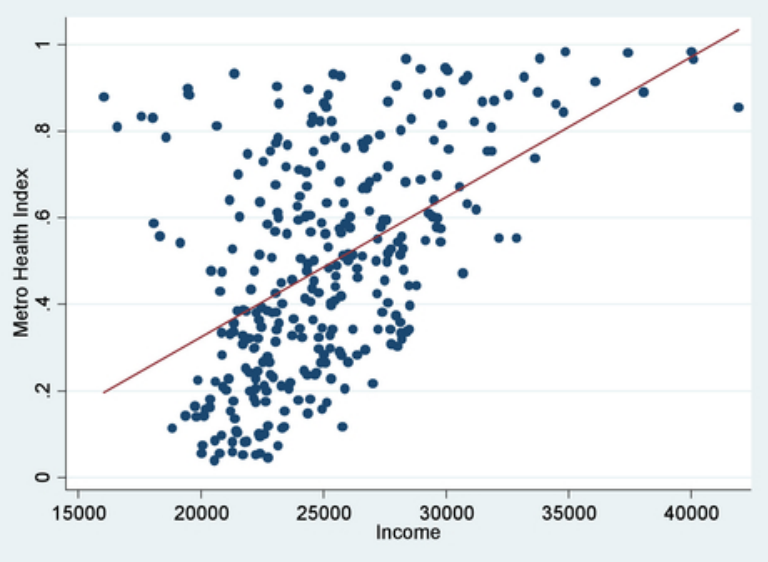


7.2.3 Scatter Chart (Figure-32)

Scatter chart is a type of mathematical diagram to show values for two variables for a set of data, which 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.

Based on the chart, a regression curve shall be induced.

Figure-32: Scatter Chart

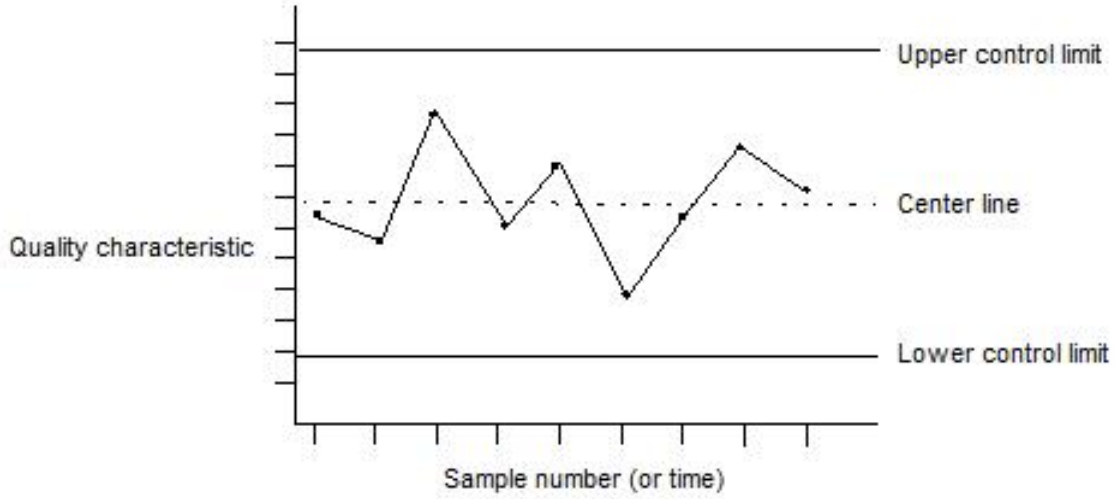


7.2.4 Control Chart (Figure-33)

Control chart, also known as Shewhart chart, in statistical process control is a tool used to plotting data on timeline and to visualise whether the plotted data is in between upper and lower control lines and how the plotted date is similar to the standard line.

Control chart makes it easy to monitor the CQI(KAIZEN) activities by deciding the capability of the process and identifying the special issues.

Figure-33: Control Chart



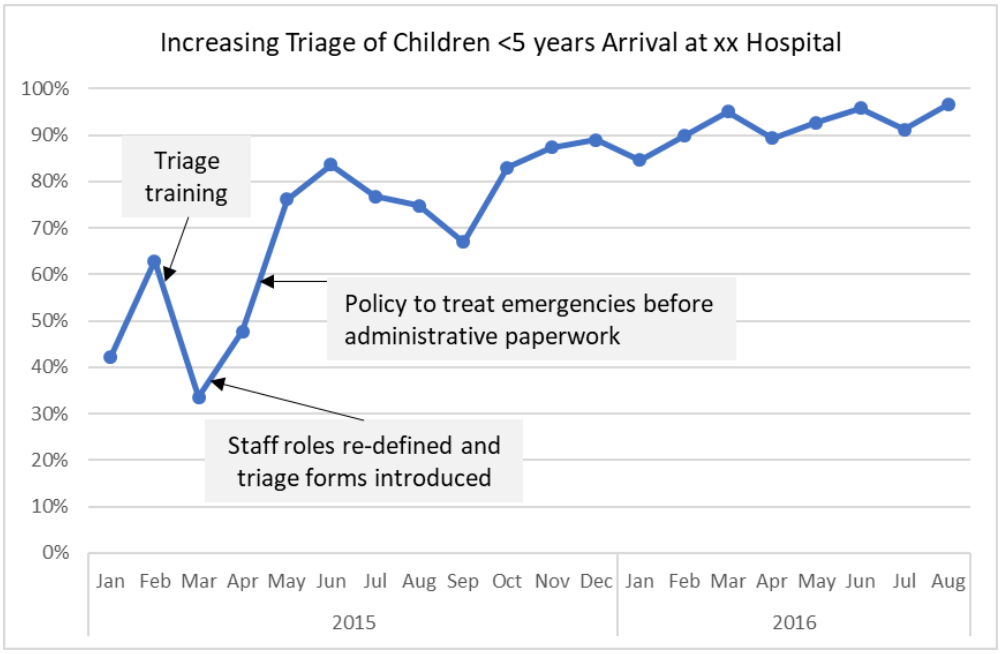
7.2.5 Run Chart (Figure-34)

Run chart is a line graph of data plotted over time. It gives a picture of a variation in some process over time and helps detect special (external) causes of that variation.

Run charts graphically display shifts, trends, cycles or other non-random patterns over time. They can be used to identify problems by showing a trend away from the desired results and to monitor progress when solutions are carried out.

The primary advantage of using a run chart is that it preserves the time order of the data, unlike statistical tests of significance that generally compare two or more aggregated sets of data. It is easy to construct and simple to interpret.

Figure-34: Run Chart



[Features of a Run Chart]

i. The horizontal axis is most often a time scale like days, weeks, months and quarters but could also include sequential patients, visits or procedures.
ii. The vertical axis represents the quality indicator being studied, e.g. infection rate, number of patients, readmission rate, etc.
iii. Goal lines and annotations of changes and other events can also be added to the run chart.

The median is usually used as the chart's centreline. Use baseline data to create median. It provides the point at which half the observations are expected to be above and below the centreline and the median is not influenced by outliers in the data.

An important concept to keep in mind as you interpret data is the idea that there is variation in every measurement. Some variation is normal and other variation can signal that there is an improvement in or worsening of the current situation. The several types of variation are known as common cause and special variation.

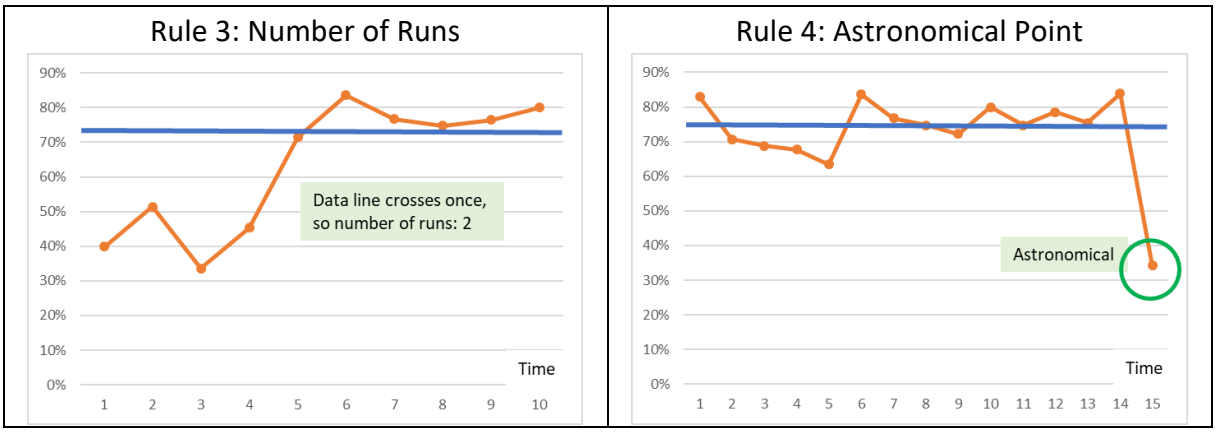
To determine objectively whether these data signal a process improvement, we use the median and run chart rules.

As a rule of thumb, there would be (Figure-35):

i. **A shift**: If you see six or more consecutive points on one side of the centreline, that indicates a special cause has influenced the process. Points on the centre line do not count.
ii. **A trend**: At least six consecutive jumps in the same direction indicate that a special cause is acting on the process to cause a trend. Flat line segments do not count.
iii. **A run**: It should be either too few or too many. Number of runs is crosses +1.
iv. **An astronomical point**: Showing non-randomness.
v. **Pattern**: If you see a pattern that recurs eight or more times in a row, it is necessary to look for a special cause.

These rules help us see early signals of improvement or degradation, but we cannot know if the process is stable.

Figure-35: Rules of Run Chart



7.2.6 Benchmarking

Benchmarking best practices is a systematic approach for gathering information on process or product performance and then analysing why and how performance differs between organisations or units. It is a technique for learning from others' success in an area where the team is trying to make improvements. It also means using someone else's successful process as a measure of desired achievements for the activity at hand.

[How to Use Benchmarking]

i. Identify other groups, organisations or health facilities that serve a similar purpose and appear to work well

ii. Visit these sites and talk to the managers and workers, asking them what they are doing, if they have similar problems, what they have done about it, and what level of performance they have achieved. Ask as well what obstacles they have run into and how they have dealt with them.

iii. Review how the situation and constraints for the process in question are similar to or different from theirs and determine if changes are needed in carrying out their plan.

CHAPTER 8 SUPERVISION AND M&E OF 5S-CQI(KAIZEN)-TQM

8.1 Mechanism of Support Supervision and M&E of 5S-CQI(KAIZEN)-TQM

For health facilities to practice 5S routinely and move forward to CQI(KAIZEN) and TQM, it is critical for experienced facilitators to conduct support supervision and M&E regularly.

Support supervision is defined as technical support from outside to enable health facilities to implement 5S-CQI(KAIZEN)-TQM correctly. It includes instruction, mentoring and coaching. M&E is to compare actual progress of 5S-CQI(KAIZEN)-TQM activities with the plan and to measure the level of performance.

There are two types of support supervision in the context of 5S-CQI(KAIZEN)-TQM in the health sector of Uganda: (1) Support supervision by 5S-CQI(KAIZEN)-TQM facilitators, and (2) Internal supervision by QIT. Results of M&E can be used for the supervision.

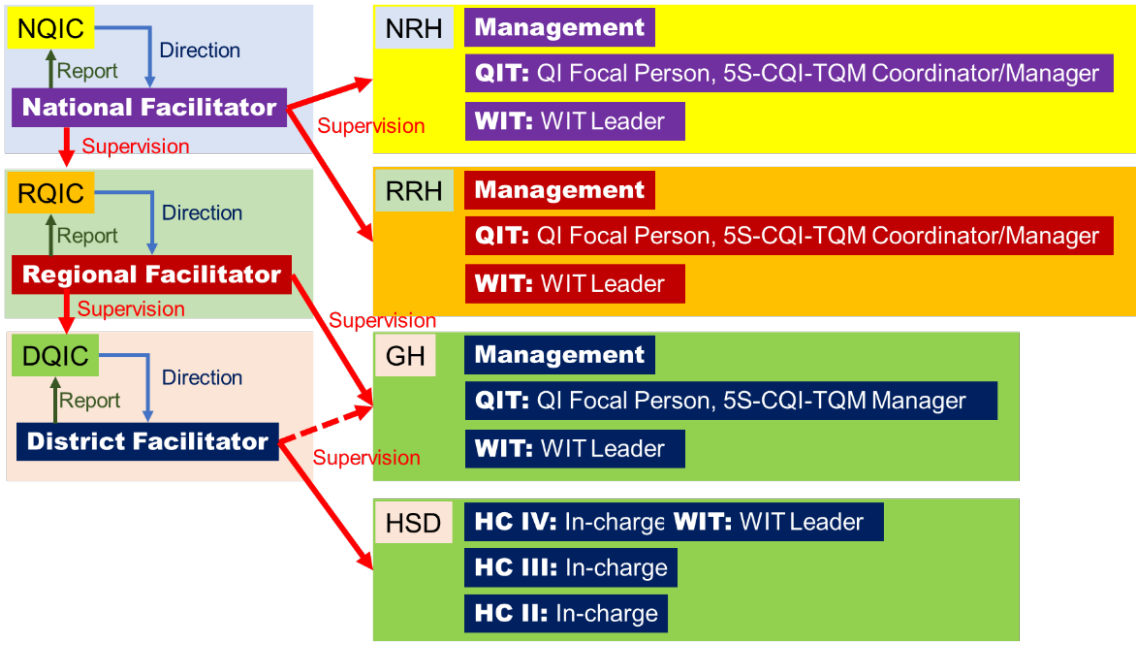
8.1.1 Support Supervision and M&E by 5S-CQI(KAIZEN)-TQM Facilitators

(1) Structure of Support Supervision and M&E

Given the national QI coordination structure in QIF&SP 2015/16-2019/20[25], support supervision of 5S-CQI(KAIZEN)-TQM is illustrated in Figure-36. National 5S-CQI(KAIZEN)-TQM facilitators supervise NRH and RRH under the direction of NQIC, while regional and district facilitators support GH and health centres respectively in accordance with QIC at each level.

It is also possible for 5S-CQI(KAIZEN)-TQM facilitators to supervise PNFP facilities collaboratively with health coordinators of each bureau.

Figure-35: Structure of 5S-CQI(KAIZEN)-TQM Support Supervision and M&E



[25] MOH (2016) *QIF&SP 2015/16-2019/20*, p18

(2) Composition of Supervision Team and M&E

At least four national facilitators will organise a team for support supervision and M&E of 5S-CQI(KAIZEN)-TQM at NRH and RRH; two regional facilitators at GH and HV IVs; and one district facilitator for lower level facilities.

Once a facilitator identifies a specific facility for the supervision and M&E, it is preferable that he/she will take charge for the next four to five years to ensure coherence of the instruction and advice, unless he/she performs poorly.

(3) Frequency, Scope and Duration of Support Supervision and M&E

The support supervision will be conducted at least once every three months (quarterly). Depending on the status of 5S-CQI(KAIZEN)-TQM performance, supervision can be conducted more frequently within the quarter. M&E of 5S performance will be done monthly within the facilities and at least annually for evaluative purposes.

The facilitators will initially conduct a baseline assessment to know the status of 5S-CQI(KAIZEN)-TQM performance. This will take 2-3 working days at a referral hospital and 1-2 working days at GH and health centres. At hospital level, 5S-CQI(KAIZEN)-TQM facilitators will be expected to visit as many departments as possible, including maternity, operating theatre, laboratory, store, record and maintenance workshop (if available). For health centres, the facilitators will visit all units and departments.

Based on the gaps identified at baseline, 5S-CQI(KAIZEN)-TQM facilitators will immediately conduct support supervision. They will interview health workers, observe the situation of work environment (Sort, Set and Shine) and relevant documents such as the 5S-CQI(KAIZEN)-TQM action plan, minutes of meeting, training record and checklist and provide the feedback to the management, QIT and WIT. They will also mentor health workers to formulate detailed actions. Where necessary, the facilitators can provide Continuous Medical Education (CME) on 5S-CQI(KAIZEN)-TQM concept.

(4) Information Management on Support Supervision and M&E

Within health facilities, WITs will file the information collected during the support supervision and share it with 5S-CQI(KAIZEN)-TQM facilitators for the next supervision.

8.1.2 Internal Supervision and M&E by QIT

QIT is responsible for supervision and M&E of 5S-CQI(KAIZEN)-TQM internally in the health facility. It should visit all units and departments to monitor, mentor and coach WIT, as well as evaluate the performance periodically.

8.2 Tools for M&E of 5S Performance

The facilitators and QIT members will evaluate the status of 5S-CQI(KAIZEN)-TQM performance, record the findings and propose suggestions address the challenges.

The following three tools will be used for M&E of 5S activities:

- 5S M&E Sheet for Hospital Management and QIT (Annex-4) and WIT (Annex-5)
- Calculator for Scoring 5S at Management/QIT (Annex-6) and WIT (Annex-7)
- 5S Scorecard (Annex-8)

8.2.1 5S M&E Sheet for Hospital Management and QIT (Annex-4)

(1) Composition

The 5S M&E Sheet for QIT is used to assess the extent to which top management and QIT effectively lead 5S activities in the health facility.

In total 18 questions are prepared for M&E of three components:

- Leadership of the management
- QIT
- 5S activities led by the management.

1) Leadership of the Management

Management is responsible for PDCA/PDSA of 5S-CQI(KAIZEN)-TQM in the hospital. They should express dedication to 5S and continuous quality improvement of health services. The top management should have proper knowledge on 5S, provide staff with opportunities for training, ensure availability of action plans and budgets for 5S implementation.

2) QIT

The QIT is responsible for coordination of QI interventions including 5S-CQI(KAIZEN)-TQM. It is supposed to hold regular meetings , closely communicate with and supervise WITs.

3) 5S Activities Led by the Management

There are several 5S activities conducted by the management and QIT. They include arrangement of the store for unwanted items, direction board/map and dumping sites in the hospital, provision of colour coded bins and ensuring waste segregation, and promoting competition of 5S-CQI(KAIZEN)-TQM performance within the hospital. These activities are presumed to accelerate staff motivation and build a culture of continuous improvement.

(2) Scoring of 5S Performance of the Management and QIT

5S-CQI-TQM facilitators will interview the top management of the hospital and QIT with use of the questions listed in the M&E Sheet and subsequently score them on the scale of 0 (poor), 1 (moderate) and 2 (good).

The evaluation scores will be entered into a sheet named "**Calculator_ALL**" of an Excel file "**Calculator**" to determine the total score for the hospital (Annex-6). The overall score is 36, and the actual score can be converted to a percentage on this Excel file.

8.2.2 5S M&E Sheet for WIT (Annex-5)

The "5S M&E Sheet" is used for monitoring and evaluation of 5S performance at the WIT level (unit, department, etc).

(1) Composition

The following six components form the core elements of the 5S M&E score sheet for WIT.

1) Leadership

The "Leadership" section evaluates the degree of functionality of WIT on 5S. There are four questions to assess: (1) the planning, (2) frequency of meetings (at least once a month), (3) staff knowledge and training within the unit/department; and (4), availability of 5S guidelines and handbook.

2) Sort

The "Sort" section is to assess unnecessary items or clutter in the workplace such as old posters, and notices on the walls and notice boards. Proper waste segregation is also evaluated in this item.

3) Set

The "Set" section is to ensure orderliness of necessary items in the health facility using the following principles: (1) "easy-to-see, easy-to-takeout and easy-to-return"; (2) alignment with X-Y axis; (3) zoning; (4) colour coding, alphabetical coding, numbering, labelling, symbols; and (5) signboards and maps.

4) Shine

The "Shine" section is to explore the level of cleanliness in the health facility, e.g. condition of floors, walls, roofs, windows, toilets, change rooms etc. Availability of cleaning tools and the way they are stored is also scored.

5) Standardise

The "Standardise" section is to evaluate if the health facility can establish the mechanism to sustain the status of "Sort", "Set" and "Shine". Use of checklist and availability of SOPs or procedure manuals for "Sort", "Set" and "Shine" and photos as evidence of 5S activities are the points to be evaluated.

6) Sustain

From the aspect of M&E of 5S performance, "Sustain" is defined as **the state that a health facility can keep excellent performance of "Sort", "Set" and "Shine" as a result of utilising the mechanism for "Standardise".**

Therefore, **if a WIT reaches a certain level of score (70 percent) in "Leadership", "Sort", "Set", "Shine" and "Standardise" at least twice in a row,** the WIT can be eligible for **"Sustain"**.

(2) Scoring of 5S Performance at WIT Level

5S-CQI(KAIZEN)-TQM facilitators and/or QIT members will interview the staff and observe the units and departments in the health facility with use of the questions listed in the M&E Sheet. Subsequently they will score them by item on the scale ranged from 0 (poor) to 3 (good) based on the scoring criteria on the Sheet.

The evaluation scores will be entered into a sheet named "**Calculator_5S**" of an Excel file "**Calculator**" to determine the total score in each unit/department (Annex-7). The overall score is 54, and the total scores of "Leadership", "Sort", "Set", "Shine" and "Standardise" can be converted to percentage score.

8.2.3 Calculation of 5S Score in the Health Facility as a Whole

5S score in a health facility is a simple average of scores of the management/QIT, "Leadership", "Sort", "Set", "Shine" and "Standardise" that are converted into percentage. The score of "Leadership" in a health facility is a simple average of those from each unit/department, and the same definition can be also applied to the score of each item of "Sort", "Set", "Shine" and "Standardise".

5S-CQI-TQM facilitators and/or QIT members will fill the 5S score in a box named "5S Score Total" and later transferred to the sheet "5S Scorecard" (Annex-8). These items of information will be used for feedback at M&E.

If a health facility reaches a minimum of 70% in three items of the M&E sheet for "Hospital Management and QIT" and in those of "Leadership", "Sort", "Set", "Shine" and "Standardise" at WIT at least twice in a row, the facility can be eligible for "Sustain".

8.3 HFQAP Tools for Evaluation of 5S

The MOH's HFQAP can be used to indirectly evaluate the performance of 5S activities. The following items in Module 1 (Leadership and Governance) can be referred to evaluation of the management/QIT and "Leadership", and Module 6 (Health Infrastructure) can indirectly provide the status of "Sort" and "Shine" (Table-16).

It should be noted that performance of 5S through the M&E Sheets complements the score of HFQAP from the aspect of 5S.

Table-16: HFQAP Questions for Evaluation of 5S with Supplement from 5S M&E Sheet

HFQAP		5S M&E Sheet
Module	**Questions Used for Evaluation of 5S Indirectly**	**Questions Used for Supplement**
Module 1: Leadership and Governanace	**1.1** Does the facility have posters with the organizational (health sector) vision, mission statement and core values in the common languages displayed?	**Hospital Management/QIT 1 (1)**: Does the management express commitment to 5S-CQI-TQM in the banner, signboard and notice board?
	1.3 Did the facility hold monthly general, departmental and technical staff meetings with indication of progress on the action points of the previous meetings in the last quarter?	**Hospital Management/QIT 2 (7)**: How often does QIT have a meeting?
		Hospital Management/QIT 2 (8): How often does QIT have a meeting with WIT?
		WIT 1. Leadership (2): WIT hold meetings regularly.
	1.6 Did the facility compile and communicate (Annual and quarterly) comprehensive work plans and budget to relevant stakeholders?	**Hospital Management/QIT 1 (2)**: Does the health facility have the action plan of 5S-CQI-TQM approved by the top management?
		Hospital Management/QIT 1 (4): Does the health facility ensure the budget for 5S-CQI-TQM related activities according to the plan?
		WIT 1. Leadership (1): WIT has its own work plan of 5S-CQI-TQM.
	1.7 Does the health facility keep record of the support supervision findings and action plans and have evidence of actions against the improvement plan?	**Hospital Management/QIT 1 (3)**: Is the health facility following their action plan of 5S-CQI-TQM?
		Hospital Management/QIT 2 (9): Are the minutes of QIT meetings kept properly?
		Hospital Management/QIT 2 (11): Are the record of M&E taken and kept properly?
		WIT 1. Leadership (2): WIT hold meetings regularly.
Module 6: Health Infrastructure	**6.1** Does the facility have signage (Directions) to ensure easy accessibility to services?	**Hospital Management/QIT 3 (14)**: Direction board/map is displayed at/around the facility entrance.
		WIT 3. Set (5): Signboards/door plates/maps are displayed for the convenience of visitors to reach specific areas of the facility.
	6.3 Are the health facility external environment and service delivery areas clean and protected?	**Hospital Management/QIT 3 (13)**: Unwanted item store is used for S1 (Sort).
		Hospital Management/QIT 3 (15): Wastes are segregated at dumping sites.
		WIT 2. Sort (1): Clutters and unnecessary items are removed from the workplace.
		WIT 2. Sort (2): Old posters and notices are removed from the walls and notice boards.
		WIT 2. Sort (3): Waste segregation is properly implemented.
		WIT 4. Shine (1): Floor, walls, toilets and changing rooms are clean.
		WIT 4. Shine (2): Appropriate cleaning tools are available and stored properly.
		WIT 4. Shine (3): Cleaning checklist is used to make sure the workplace is properly cleaned.

8.4 Tool for M&E of CQI (KAIZEN)

When a health facility implements the 7 steps of CQI(KAIZEN) process, "CQI(KAIZEN) Progress Check Sheet" can be used for M&E (Annex-9). A clear category is set to score the status of progress ranged from 0 to 2 for items of evaluation at all steps.

8.5 Tool for Supervision of 5S-CQI(KAIZEN)-TQM

5S-CQI(KAIZEN)-TQM facilitators will supervise health facilities with use of the 5S-CQI(KAIZEN)-TQM Supervision Tool (Annex-10). The tool is divided into two sheets; one for QIT and another for WIT.

8.5.1 Items in the Tool

The sheet for QIT have five items for supervision: “leadership of the management”, “QIT”, “5S led by the management”, “support WIT to implement CQI(KAIZEN) on a small scale” and “others raised from questionnaire”. As QIT is responsible for implementation of CQI(KAIZEN) at WIT level, the facilitators need to supervise QIT. The facilitators will also update the information on membership of QIT i.e. number and composition by cadre and position and number of areas implementing 5S and CQI(KAIZEN), and problems impeding implementation of 5S-CQI(KAIZEN)-TQM before the visit. It is necessary to deal with the problems at the time of supervision. Management can be guided to deal with problems identified under sections of leadership, QIT, 5S by the management and support CQI/KAIZEN) while the facilitators may deal with problems identified in the section “others raised from questionnaire”.

The sheet for WIT has four items: “functionality of WIT”, “sort, set and shine”, “implementation of (small) CQI(KAIZEN)” and “others raised from questionnaire”.

8.5.2 Composition of the Tool

(1) Header and Footer of the Sheet

5S-CQI(KAIZEN)-TQM facilitators and QIT members will fill date of supervision, name of supervisor and facility at the header. As a footer, date of next supervision will be filled.

(2) Item

Five items of supervision (leadership of the management, QIT, 5S led by the management, support WIT to implement (small) CQI(KAIZEN) and others raised from questionnaire) are indicated in the sheet for QIT, while four items are for WIT: functionality of WIT, situation of sort, set and shine, implementation of (small) CQI(KAIZEN) and others raised from questionnaire.

(3) Topics/Challenges Identified

Topics and challenges for supervision, which were identified at the most recent supervision and M&E, were described.

(4) Overcome the Challenges? (Yes or No)

If 5S-CQI(KAIZEN)-TQM facilitators evaluate that the topics and challenges summarised in the left box are solved, they will tick “Yes”; otherwise, tick “No”.

If 5S-CQI(KAIZEN)-TQM facilitator ticks yes, he/she will discuss with the health facility and fill the information on how they overcame the challenges. Subsequently, he/she will support to identify the next step and new challenges for further improvement and actions to be taken.

If 5S-CQI(KAIZEN)-TQM facilitator ticks no, he/she will discuss with the health facility and fill the information on what the problems are and what their root causes are. Then he/she will mentor the facility to formulate countermeasures and remedial actions.

8.6 Documentation Journal

The Documentation Journal is a four-page format to summarise information on the progress of QI activities (Annex-11). It systematically reviews improvement as a result of interventions, and is divided into the following four parts:

- **Part 1: Planning Worksheet (Page 1).** This worksheet outlines the problem being addressed in relation to the improvement objective. It describes the indicator to measure performance and the list of team members on the QI activities.
- **Part 2: Changes Worksheet (Page 2)**. This worksheet summarises the key changes tested to address the problem, including those that were effective and those that failed. It includes the time when the change was started and when it ended, any potential reasons why the change was not effective, and the observed change in the indicator value.
- **Part 3: Graph Template (Page 3)**. The graph documents the result of tested changes in the form of run chart, demonstrating progress in the indicator.
- **Part 4: Notes (Page 4).** This page is used for writing down comments on the performance of the indicators and effects (positive or negative) observed.

ANNEX

5S ACTION PLAN

NAME OF HEALTH FACILITY	
DEPT/SECTION/UNIT/WARD	
5S MANAGER/WIT LEADER	
DATE	

	ACTIVITY	RESPONSIBILITY	TARGET	MEANS OF VERIFICATION	INPUTS/RESOURCES	TIME FRAME
1						
2						
3						
4						
5						
6						
7						

Small CQI(KAIZEN) **Good practice sheet**	Unit/Ward/Dept: ..... Date of Implementation: ..... Head of WIT: ..... Member of WIT: .....

Before CQI(KAIZEN)	**After CQI(KAIZEN)**
Photo (before)	Photo (after)
Description (before)	Description (after)

Benefits from this Small CQI(KAIZEN)	
☐ Improved movement/transportation	☐ Improved productivity
☐ Reduced staff's work burden	☐ Improved patients' safety
☐ Improved workers' safety	☐ Others: ( )

Date:

CQI topic:		
Implementer(s):	Place:	Overall Period:

No.	Action	Outputs	Period			Responsible person(s)	Resources	Risks
			1st Month	2nd Month	3rd Month			
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								

Monitoring and Evaluation Sheet of Hospital management and QIT

		Poor 0	Moderate 1	Good 2	Points to be asked/observed
1. Leadership of the Management					
(1)	Does the management express commitment to 5S-CQI-TQM through the banner, signboard and notice board?	No message on 5S and QI seen	Some messages displayed but in limited areas	Strong messages widely displayed	
(2)	Does the health facility have an action plan of 5S-CQI-TQM approved by the top management?	No plan developed for the current FY	Plan developed but not approved	Developed and approved	
(3)	Is the health facility going by their action plan of 5S-CQI-TQM?	No action taken	Delayed	Followed as planned	
(4)	Does the health facility ensure availability of the budget for 5S-CQI-TQM related activities according to the plan?	No budget allocated	Partially allocated	Fully allocated	
(5)	Was the management trained on 5S?	Not yet	Some were trained but not all	All the management staff were trained	
(6)	What proportion of staff including new employees and subcontractors (e.g. cleaners) were trained on 5S? (roughly)	Less than 30%	Less than 80%	80% and more	Any evidence? (training program, schedule, record) When was the last training conducted?
2. QIT					
(7)	How often does QIT hold meetings?	No meeting for the last 3 months	Less than 1/month	1/month or more	When was the last meeting held?
(8)	Are the minutes of QIT meetings kept properly?	No minutes seen	Minutes taken but not kept properly	Kept properly and accessible	Ask them to show you the minutes.
(9)	How often does QIT and WIT hold meetings together* ?	No meetings held together for the last 3 months	Less than 1/month	1/month or more	*Either QIT meeting with WIT leaders/members or WIT meeting with invited QIT members can be considered. The point is a smooth and open communication between QIT and WIT.
(10)	How often does QIT carry out supervision?	No supervision for the last 3months	Less than 1/month	1/month or more	When was the last supervision carried out?
(11)	How often is internal M&E conducted with use of proper M&E tool?	No M&E for the last 1 year	Biannually	Quarterly	
(12)	Are the records of M&E taken and kept properly?	No record seen	Record taken but not kept properly	Record taken and kept properly	
3. 5S activities led by the management					
(13)	Unwanted item store is used for S1.	Unwanted item store is not available	Store is used but the items not arranged	Store is used with proper arrangement	Need to observe if the store is available. There is no problem if part of store is used for that purpose. Outside is not regarded as store.
(14)	Direction board/map is displayed at/around the facility entrance.	Not displayed	Displayed but not easily understood by clients	Displayed and easily understood by clients	
(15)	Are there color coded bins with matching bin liners in place in the entire hospital?	No (Not completely)		Yes (Perfectlly)	Observe bins and bin liners during M&E and mark this question after completing all the units. If they adopt alternative/temporary way to supplement insufficient bins/bin liners e.g. using color tapes and stickers, it can be considered as okay.
(16)	Wastes are segregated according to National IPC guidelines at final dumping sites.	Infectious and non-infectious are mixed	Almost segregarted	Completely segregated	
(17)	Safety for staff/clients is secured around the waste dumping sites.	Safety is not secured	Safety is secured to some extent	Safety is completely secured	
(18)	Competitions regarding 5S-CQI-TQM are held in the health facility.	No competition has not been held yet for the last 1 yr	Annually	More than 1/year	Ask the details of the competition. Competition includes; Big events e.g. 5S day/5S festival and awardings e.g. Best WIT award
	TOTAL (full mark:36)				
	Acquired marks (TOTAL/36) * 100 =				

Name of Health Facility:_____

Name of Department/ Unit: _____

Date: _____

Name of supervisors: _____

1. Leadership: Dedication of In charge/ WIT to 5S-CQI-TQM

(1) WIT has its own work plan of 5S-CQI-TQM.

Ask WIT members to show you the work plan they have developed and make sure their objective is stated in the work plan. Note that 5S activity itself is not the objective but the means.

WIT has not developed a work plan for the current fiscal year.	0
WIT has developed a work plan for the current fiscal year, but no action has been taken.	1
WIT has developed a work plan for the current fiscal year, but the activities are behind schedule.	2
WIT has developed a work plan for the current fiscal year and the activities are going on as scheduled.	3

(2) WIT holds meetings regularly.

There are no minutes seen.	0
WIT meetings have been held once a month or less and the minutes are kept.	1
WIT meetings have been held every two weeks and the minutes are kept.	2
WIT meetings have been held weekly and the minutes are kept.	3

(3) Orientation and training on 5S-CQI have been conducted in the dept./unit.

WIT has not conducted orientation/training on 5S.	0
WIT has disseminated the 5S concept.	1
WIT has disseminated the 5S concept and has been conducting on job training (OJT) on 5S.	2
All the staff in the dept./unit have been trained on 5S by WIT.	3

(4) 5S-CQI-TQM guidelines, 5S handbook and other relevant materials (e.g. hand-outs of 5S training) are available in the dept./unit.

No documents are seen.	0
The documents are available but access is limited (kept by some staff only).	1
The documents are available for all staff.	2
The documents are available for all staff and manuals/training materials on 5S-CQI-TQM have been developed on their own.	3

Findings/Way forward

2. Sort: Status of unnecessary items in the health facility

(1) Unnecessary items are removed from the workplace.

A lot of unnecessary items are found.	0
Unnecessary items are found to some extent.	1
Unnecessary items exist but hardly found/hidden.	2
No unnecessary items are found at all.	3

(2) Old posters and notices are removed from the walls and notice boards.

Many old posters and notices placed on the walls and notice boards.	0
Some old posters and notices are placed on the walls and notice boards.	1
No old posters and notices are placed on the walls and notice boards.	2
Old posters and notices are all removed in accordance with instructions shown on the notice boards.	3

(3) Waste segregation is properly implemented.

*Observe the inside of waste bins (infectious, non-infectious and highly infectious) and check whether there is a mixture of waste or not. **Colors of bins and bin liners are not assessed.***

Waste is not completely segregated according to National IPC guidelines..	0
Waste is **perfectly** segregated according to National IPC guidelines.	3

Findings/Way forward

3. Set: Status of orderliness of necessary items in the health facility

(1) "Easy to see, easy to takeout and easy to return" principle is applied to arrangement of all items (orderliness).

Observe how the items (equipment, files, tools etc.) are arranged (e.g. top of desks, inside drawers/cupboards, top of trolleys etc.). You can ask staff "Can you tell us how you use these items?" "Which one do you use most frequently?" to see the workflow.

Items remain untidy without orderliness.	0
Items are arranged tidily but the workflow is not considered.	1
Items are arranged tidily and the workflow is considered.	2
Items are arranged according to "easy to see, easy to take out and easy to return" principle and the workflow is well considered.	3

(2) Items are aligned with respect to X- and Y- axes and/or parallelly.

Observe and check the arrangement of items e.g. tools and equipment on working bench, furniture and papers & posters on notice boards are aligned with respect to X- and Y- axes and/or parallelly.

No alignment is observed.	0
Items are aligned only in limited areas.	1
All the items are aligned.	2
All the items are aligned with use of 5S tools e.g. line setting and zoning.	3

(3) Zoning is used to fix appropriate home positions of items.

Zoning is not applied at all.	0
Zoning is applied for limited items.	1
Zoning is made good use of, but functions of items are not well considered in relation to the designated locations.	2
Zoning is made good use of, and functions of items are well considered in relation to the designated locations.	3

(4) Colour coding, alphabetical coding, numbering, labelling and symbols are used for differentiation, categorization and grouping.

No Labelling and other 5S tools mentioned above applied anywhere.	0
Labelling and other 5S tools mentioned above applied in limited areas.	1
Labelling and other 5S tools mentioned above applied in all areas, but not standardized. OR Labelling and other 5S tools mentioned above applied at limited areas, but standardized.	2
Labelling and other 5S tools mentioned above applied in all areas in standardized manner.	3

(5) Signboards/door plates/maps are displayed for the convenience of visitors to reach specific area of the facility.

No Signboards/door plates/maps are seen anywhere.	0
Signboards/door plates/maps are displayed to some extent/in some areas.	1
Signboards/door plates/maps are displayed to indicate all the necessary information, but not standardized.	2
Signboards/door plates/maps are displayed to indicate all the necessary information in a standardized manner.	3

Findings/Way forward

4. Shine: Status of cleanliness in the health facility

(1) Floors, walls, windows, toilets and changing rooms are clean.

Dirt, rubbish, medical waste (incl. used cotton, plaster etc.), water and bloodstains are frequently seen at multiple spots.	0
Only a little or NO dirt, rubbish, medical waste, water and bloodstains are seen, BUT the room/toilet smells bad.	1
Only a little of dirt, rubbish, medical waste, water and bloodstains are found, and the room/toilet doesn't smell bad at all.	2
Dirt, rubbish, medical waste, water and bloodstains are NOT seen at all, and the room/toilet doesn't smell bad at all.	3

(2) Appropriate cleaning tools are available and stored properly.

Appropriate cleaning tools are not available.	0
Appropriate cleaning tools are available but not stored in order.	1
Appropriate cleaning tools are available and stored on hangers OR with labels.	2
Appropriate cleaning tools are available and stored on hangers with labels.	3

(3) Cleaning checklist is used to make sure the work place is properly cleaned.

Ask whether the cleaning checklist is used or not and observe how it is used. Checklists should be checked by cleaning staff and supervised by responsible person e.g. In charge.

Cleaning checklist is not used at all.	0
Cleaning checklist is used occasionally.	1
Cleaning checklist is used on daily basis.	2
Cleaning checklist is used on daily basis and supervised by In charge.	3

Findings/Way forward

5. Standardise: Establishment of norms and mechanisms to maintain the status of Sort, Set and Shine in the health facility

(1) Checklist is used for maintaining the status of S1-3 (sort, set and shine).

Ask WIT members whether the checklist for S1-3 is used and observe how it is used. The checklist should be checked by WIT members and supervised by In charge or QIT

Checklist for S1-3 is not used at all.	0
Checklist for S1-3 is used but not regularly.	1
Checklist for S1-3 is used regularly as scheduled.	2
Checklist for S1-3 is used regularly as scheduled and supervised by In charge/QIT.	3

(2) SOPs* (Standard Operating Procedures) for S1-3 are available. **Clinical processes are not considered.*

Ask/observe whether SOPs related to S1-S3 are available or not, and where they are kept.

SOPs are not available at all.	0
SOPs for a few operations are available but the access is limited (kept by limited staff only) OR kept apart from equipment.	1
SOPs for a few operations are available for all whenever necessary.	2
SOPs for all the necessary operations regarding S1-3 are available for all whenever necessary.	3

(3) Photos are used as evidence of 5S activities.

No photos have been taken.	0
Photos have been taken but not displayed (kept in PC/camera or printed ones are kept in the file).	1
Photos have been taken occasionally and displayed but are not up-to-date.	2
Photos have been taken periodically and displayed to show the progress.	3

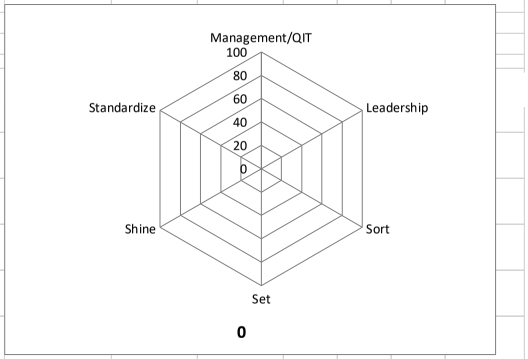
Findings/Way forward

Monitoring and Evaluation Sheet of Hospital management and QIT

Please enter the data into cells highlighted in yellow.

Name of Health Facility:
Date: / /
Name of Evaluator:

		0	1	2	Result
1. Leadership of the Management					
(1)	Does the management express commitment to 5S-CQI-TQM through the banner, signboard and notice board?	No message on 5S and QI seen	Some messages displayed but in limited areas	Strong messages widely displayed	
(2)	Does the health facility have an action plan of 5S-CQI-TQM approved by the top management?	No plan developed for the current FY	Plan developed but not approved	Developed and approved	
(3)	Is the health facility going by their action plan of 5S-CQI-TQM?	No action taken	Delayed	Followed as planned	
(4)	Does the health facility ensure availability of the budget for 5S-CQI-TQM related activities according to the plan?	No budget allocated	Partially allocated	Fully allocated	
(5)	Was the management trained on 5S?	Not yet	Some were trained but not all	All the management staff were trained	
(6)	What proportion of staff including new employees and subcontractors (e.g. cleaners) were trained on 5S? (roughly)	Less than 30%	Less than 80%	80% and more	
2. QIT					
(7)	How often does QIT hold meetings?	No meeting for the last 3 months	Less than 1/month	1/month or more	
(8)	Are the minutes of QIT meetings kept properly?	No minutes seen	Minutes taken but not kept properly	Kept properly and accessible	
(9)	How often does QIT and WIT hold meetings together?	No meetings held together for the last 3 months	Less than 1/month	1/month or more	
(10)	How often does QIT carry out supervision?	No supervision for the last 3months	Less than 1/month	1/month or more	
(11)	How often is internal M&E conducted with use of proper M&E tool?	No M&E for the last 1 year	Biannually	Quarterly	
(12)	Are the records of M&E taken and kept properly?	No record seen	Record taken but not kept properly	Record taken and kept properly	
3. 5S activities led by the management					
(13)	Unwanted item store is used for S1.	Unwanted item store is not available	Store is used but the items not arranged	Store is used with proper arrangement	
(14)	Direction board/map is displayed at/around the facility entrance.	Not displayed	Displayed but not easily understood by clients	Displayed and easily understood by clients	
(15)	Are there color coded bins with matching bin liners in place in the entire hospital?	No (Not completely)		Yes (Perfectlly)	
(16)	Wastes are segregated according to National IPC guidelines at final dumping sites.	Infectious and non-infectious are mixed	Almost segregarted	Completely segregated	
(17)	Safety for staff/clients is secured around the waste dumping sites.	Safety is not secured	Safety is secured to some extent	Safety is completely secured	
(18)	Competitions regarding 5S-CQI-TQM are held in the health facility.	No competition has not been held yet for the last 1 yr	Annually	More than 1/year	
				TOTAL (full mark:36)	0
				Acquired marks (TOTAL/36) * 100 =	0



Name of Health facility	***Management/QIT***	***Leadership***	***Sort***	***Set***	***Shine***	***Standardize***
0	0					

Monitoring and Evaluation Sheet of 5S Activities

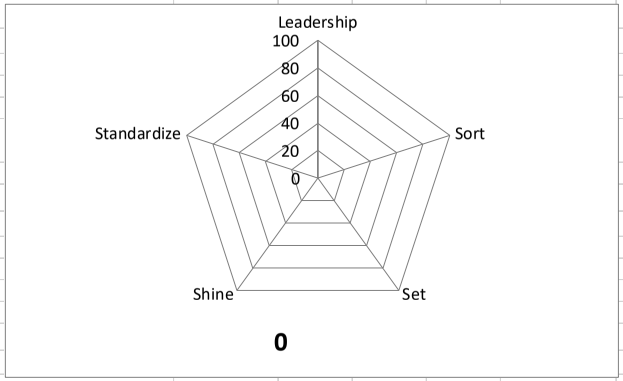
Name of Health Facility:

Department/Unit:

Date: / /

Name of Evaluator:

		DESCRIPTION	Poor <<<< Good				Result
1	Leadership	**Dedication of In charge/WIT to 5S-CQI-TQM**					
		(1) WIT has its own work plan of 5S-CQI-TQM.	0	1	2	3	
		(2) WIT holds meetings regularly.	0	1	2	3	
		(3) Orientation and training on 5S-CQI have been conducted in the dept./unit.	0	1	2	3	
		(4) 5S-CQI-TQM guidelines, 5S handbook and other relevant materials (e.g. hand-outs of 5S training) are available in the dept./unit.	0	1	2	3	
		Sub-total 1 (Leadership, full mark is 12): (1)+(2)+(3)+(4)					0
		Acquired marks [((1)+(2)+(3)+(4))/12] *100 =					0
2	Sort	**Status of existence of unnecessary items in the health facility**					
		(1) Unnecessary items are removed from the workplace.	0	1	2	3	
		(2) Old posters and notices are removed from the walls and notice boards.	0	1	2	3	
		(3) Waste segregation is properly implemented.	0			3	
		Sub-total 2 (Sort, full mark is 9): (1)+(2)+(3)					0
		Acquired marks [((1)+(2))/9] *100 =					0
3	Set	**Status of orderliness of necessary items in the health facility**					
		(1) "Easy to see, easy to takeout and easy to return" principle is applied to arrange all items.	0	1	2	3	
		(2) Items are alinged with respect to X- and Y- axes and parallelly.	0	1	2	3	
		(3) Zoning is used to fix appropriate home positions of items.	0	1	2	3	
		(4) Colour coding, alphabetical coding, numbering, labelling and symbols are used.	0	1	2	3	
		(5) Signboards, door plates and maps are displayed.	0	1	2	3	
		Sub-total 3 (Set, full mark is 15): (1)+(2)+(3)+(4)+(5)					0
		Acquired marks [((1)+(2)+(3)+(4)+(5))/15] *100 =					0
4	Shine	**Status of cleanliness in the health facility**					
		(1) Floors, walls, windows, toilets and change rooms are clean.	0	1	2	3	
		(2) Appropriate cleaning tools are available and stored properly.	0	1	2	3	
		(3) Cleaning checklist is used to make sure the work place is properly cleaned.	0	1	2	3	
		Sub-total 4 (Shine, full mark is 9): (1)+(2)+(3)					0
		Acquired marks [((1)+(2)+(3))/9] *100 =					0
5	Standardise	**Establishment of norms and mechanisms to maintain the status of sort, set and shine in the health facility**					
		(1) Checklist is used for maintaining the status of S1-3 (sort, set and shine).	0	1	2	3	
		(2) SOPs for S1-3 are available.	0	1	2	3	
		(3) Photos are used as evidence of 5S activities.	0	1	2	3	
		Sub-total 5 (Standardise, full mark is 9): (1)+(2)+(3)					0
		Acquired marks [((1)+(2)+(3))/9] *100 =					0
		GRAND TOTAL (full mark is 54): Sum of Sub-total 1-5					0
		Acquired marks (GRAND TOTAL/54) * 100 =					**0**



Dept./Unit	*Leadership*	*Sort*	*Set*	*Shine*	*Standardize*
0	0	0	0	0	0

5S Scorecard

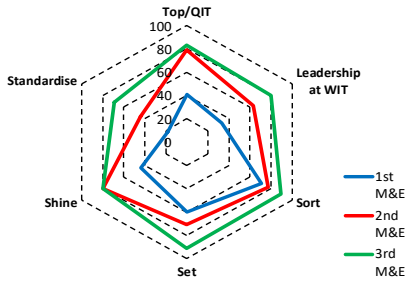
Date:

Name of Hospital		Number of units implementing 5S	
Name of Evaluator		Date M&E	

5S Score at Top 5 Departments

Item	1st M&E	2nd M&E	3rd M&E	4th M&E
Top/QIT	41	79	83	
Leadership at WIT	33	63	80	
Sort	71	77	89	
Set	60	71	91	
Shine	44	80	80	
Standardise	18	44	69	
TOTAL	**45**	**69**	**83**	
Sustain (Yes or No)	-	No	Yes	
Top5	Dept A (59%)	Dept A (83%)	Dept C (94%)	
	Dept B (46%)	Dept C (78%)	Dept J (87%)	
	Dept C (44%)	Dept F (67%)	Dept B (85%)	
	Dept D (41%)	Dept G (52%)	Dept G (74%)	
	Dept E (41%)	Dept H (52%)	Dept K (67%)	
No of units scored>60%	0	3	7	
No of units evaluated	25	25	25	

Progress of 5S at Top5 Performers

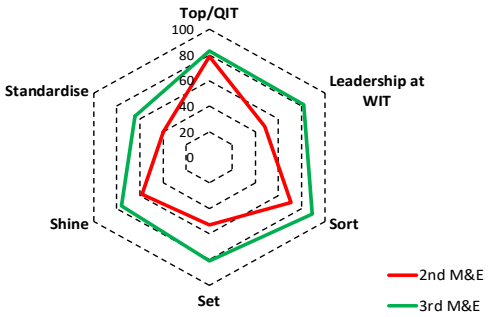


5S Score at 5 Designated Departments

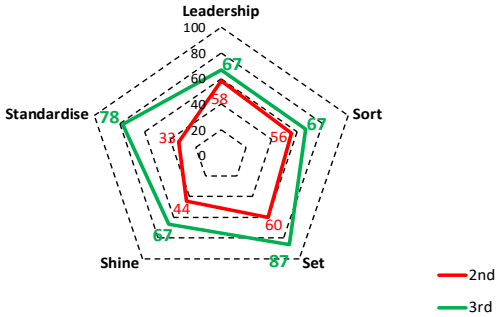
Item	2nd M&E	3rd M&E	4th M&E
Top/QIT	79	83	
Leadership at WIT	48	82	
Sort	71	89	
Set	53	81	
Shine	58	76	
Standardise	40	64	
TOTAL	**58**	**80**	
Sustain (Yes or No)	-	No	

Comments

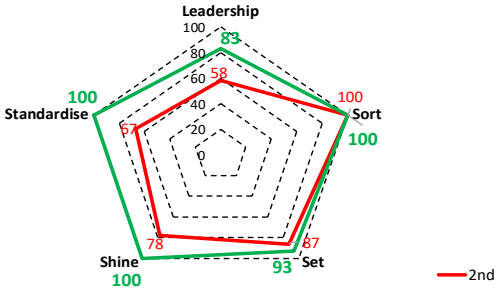
5S Score at 5 Designated Departments



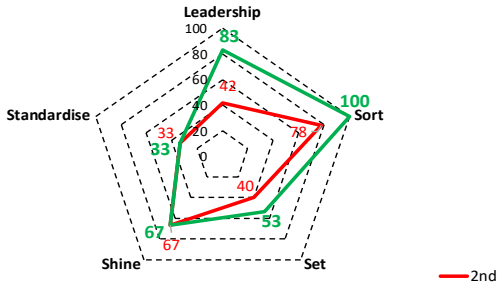
5S Score at Maternity



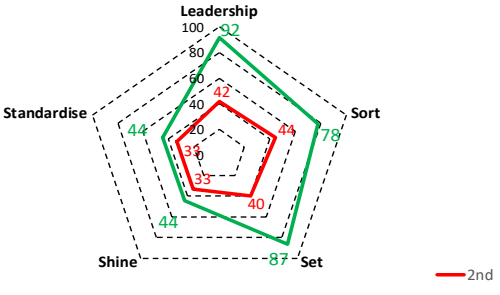
5S Score at Main Theatre



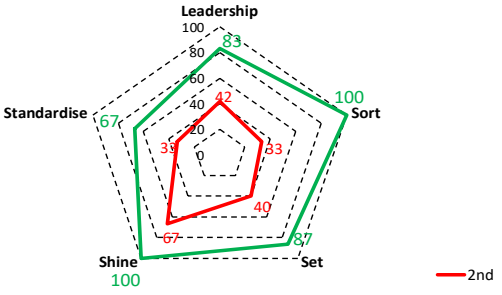
5S Score at Laboratory



5S Score at Medical Record Office



5S Score at Main Store



KAIZEN Progress Check Sheet

Ver. September 2017

Date of monitoring		**Last date of the consultation by QIT**	
Section		**Number of WIT members**	

Step 1: Selection of KAIZEN Theme		**Month/Year of starting Step 1**	/ 20	Score
1.1 Problem statement	0: Not described	1: Described partially	2: Described perfectry	
1.2 Matrix diagram	0: Not developed	1: Developed wrongly	2: Developed correctly	
1.3 Statement of KAIZEN theme	0: Not stated	1: Stated wrongly	2: Stated clearly	
Selected KAIZEN Theme:				
Problem statement:	*Ask what is the problem and why do they need to solve this situation*			

Step 2: Situation Analysis		**Month/Year of starting Step 2**	/ 20	Score
2.1 Information collection	0: Not collected	1: Collected wrong information	2: Collected right information	
2.2 Description of data collection methods (Period of data collection, dara source, Methods of data collection etc.)	0: Not described	1: Described partially	2: Described perfectly	
2.3 Development of data table	0: Not developed	1: Developed wrongly	2: Developed correctly	
2.4 Development of Pareto chart	0: Not developed	1: Developed wrongly	2: Developed correctly	
2.5 Pareto chart scale	0: Scale not written	1: Scale written wrongly	2: Scale written correctly	
2.6 Varifiable indicator (*)	0: Not defined	1: Defined but not measured	2: Measured and recorded	
2.7 Target setting	0: Not set target	1: Set target wrongly	2: Set target properly	
	Target		***(%)***	

* **Valifiable indicator**; countable/measurable indicators or data that can measure degree of improvement, related to the KAIZEN theme (e.g. time for waiting, time for procedure, expenditure, revenue amount, work-burden, satisfaction, service quality etc.

Step 3: Root cause analysis		**Month/Year of starting Step 3**	/ 20	Score
3.1 Fishbone diagram development	0: Not developed	1: Developed wrongly and root causes not well identified	2: Developed correctly and root causes identified	
3.2 Discription/Sentence completeness	0: Sentences of all causes not completed	1: Sentences of some causes not completed	2: Sentences of all causes completed	
3.3 Depth of Why-Because analysis	0: WHY-BECAUSE is not asked	1: WHY-BECAUSE asked not enough	2: WHY-BECAUSE is asked enough	

Step 4: Identification of Countermeasure		**Month/Year of starting Step 4**	/ 20	Score
4.1 Tree diagram	0: Not developed	1: Developed wrongly	2: Developed correctly	
4.2 Matrix diagram	0: Not developed	1: Developed wrongly	2: Developed correctly	
4.3 Feasibility check	0: Not done	1: Done wrongly	2: Done correctly	

Step 5: Implementation of counter measure		**Month/Year of starting Step 5**	/ 20	Score
5.1 Development of action plan by using 5W1H	0: Ation plan not developed	1: Action plan developed wrongly	2: Action plan developed properly	
5.2 Countermeasure implementation	0: Not implemented	1: Partially implemented	2: Fully implemented	
5.3 Monitoring checklist	0: Not developed	1: Developed but not used	2: Developed and used properly	

Step 6: Effectiveness check		**Month/Year of starting Step 6**	/ 20	Score
6.1 Development of comparison table	0: Not developed	1: Developed but wrongly	2: Developed correctly	
6.2 Development of comparison Pareto chart	0: Not developed	1: Developed wrongly	2: Developed correctly	
6.3 Scale of Pareto hart	0: Scale not written	1: Scale written wrongly	2: Scale written correctly	
6.4 Varifiable indicator (*)	0: Not defined	1: Defined but not measured	2: Measured and recorded	
6.5 Target acheivement	0: Not achieved	1: Achieved partially	2: Achieved fully	
	Target achievement:		***(%) is reduced after KAIZEN***	

Step 7: Standardization		**Month/Year of starting Step 7**	/ 20	Score
7.1 Identification of effective	0: Not identified	1: Identified wrongly	2: Identified correctly	
7.2 Practice of standardized	0: Not implemented	1: Implemented partially	2: Implemented continuously	
7.3 Development of 5W1H standardization plan	0: Not developed	1: Developed wrongly	2: Developed correctly	
7.4 Monitoring of implementation of effective	0: Monitoring checklist not developed	1: Monitoring checklist developed but not used	2: Monitoring checklist used	

Suggestion from the CV team
-
-
-
-
-
-
-

TOOL FOR MANAGEMENT/QIT

Date of Supervision:
Name of Facilitator:
Name of Health Facility:

Item	Topics/Challenges identified	Overcome the challenges? (Yes or No)	If yes, how did you do? If no, problems and root causes	If yes, next step or new challenges If no, suggestions on remedial actions
1. Leadership of the Management		Yes/No		
2. QIT		Yes/No		
3. 5S led by the Management		Yes/No		
4. Support WIT to implement (small) CQI		Yes/No		
5. Others raised from questionnaire		Yes/No		

Date of next supervision:

TOOL FOR WIT

Date of Supervision:
Name of Facilitator:
Name of Health Facility:
Name of Unit/Department (WIT):

Item	Topics/Challenges identified	Overcome the challenges? (Yes or No)	Yes: How did you do? No: Problems and root causes	Yes: Next step or new challenges No: Suggestions on remedial actions
1. Functionality of WIT		Yes/No		
2. Sort, set and shine		Yes/No		
3. Implementation of (small) CQI		Yes/No		
4. Others raised from questionnaire		Yes/No		

Date of next supervision:

IMPROVEMENT OBJECTIVE

Documentation Journal for QI activities

Name of the Facility _____ District: _____ Region: _____

Team Leader: _____Team Members: _____

_____

Start Date for Improvement Project: _____ End date: _____

Improvement Objective: 1. _____ _____ _____	Indicator for the Objective:
Description of Problem: Briefly describe the problem being addressed and gaps between the current situation and your improvement objectives. State the differences between the MoH standard of care and the current practices. Also describe some of the challenges with the current situation.	

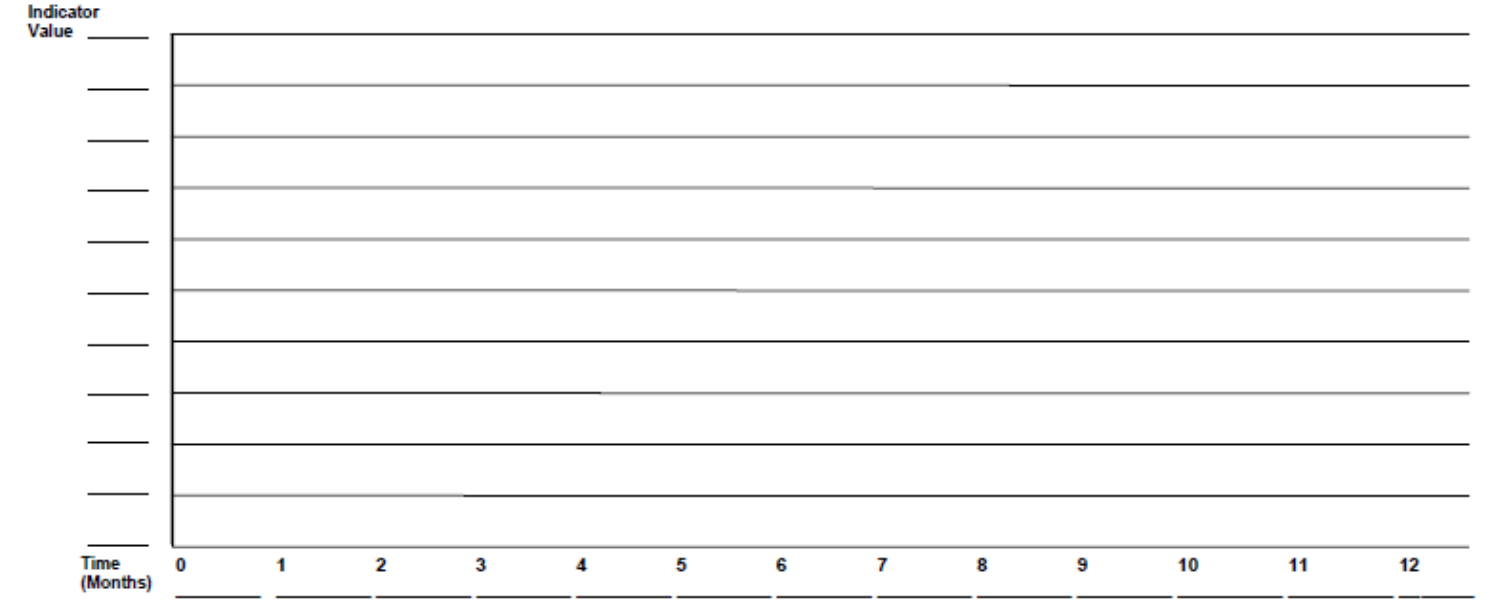
Part 2: ***Changes Worksheet*** **– QI Team Activities:** Please list below the changes that the team has tried out in order to achieve the improvement objective. Write all changes, whether effective or not. Also note when it was started and when it ended (where applicable) to enable you annotate the results.

Planned and Tested Changes: In the space below, list all of the changes that you are implementing to address the improvement objective. Use 1-2 sentences to briefly describe the tested change.	**Start Date:** DD/MM/YY	**End Date** (If applicable) DD/MM/YY	Was there any **improvement registered?** (Yes/No)	**Comments:** Note here any potential reasons why the change did or did not yield improvement; also indicate any change in indicator value observed related to this change.
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				

Part 3: *Graph Template* – **Annotated Results:**

- Use the graph below to document your progress. Indicate the value of the numerator and denominator.

TITTLE: _____



Numerator													
Denominator													
%													

Numerator													
Denominator													
%													

***Notes on the Indicator*:** Write down any additional comments you may have on the performance of indicators. Write anything derived from the changes worksheet and the graph template that might explain the performance trends of the improvement objective.

***Notes on Other Observed Effects (lessons learnt)*:** Please write here any effects (positive or negative) you are *currently* observing as a result of the quality improvement effort such as comments from patients, changes in your performance or motivation, improved efficiency or the survival story of a sick patient. You may use your notes to tell the complete story at the next learning session(s).

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