



**MINISTRY OF HEALTH  
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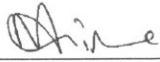


**National Operational Guideline  
of 5S-KAIZEN-TQM Approach  
for Improvement of  
Quality and Patient Safety  
in Healthcare Services,  
Zimbabwe**

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**2nd Edition**

**May 2024  
Directorate of Quality Assurance  
and Patient Safety**



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01	May 2023	We have added the followings: - Definitions - Abbreviations - Organizational structure - PDCA - Forms - Good practices photos	ZIM-QIPS





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## List of abbreviations

CH	Central Hospital
DH	District Hospital
CQI	Continuous Quality Improvement
CSS	Customer Satisfaction Survey
DHE	District Health Executive
DMO	District Medical Officer
DNO	District Nursing Officer
HMT	Hospital Management Team
IPC	Infection Prevention and Control
JICA	Japan International Cooperation Agency
M&E	Monitoring and Evaluation
MOHCC	Ministry of Health and Child Care
MSHEL	Management, Soft, Hard, Environment, and Life
OPD	Outpatient Department
PDCA	Plan, Do, Check, and Act
PMCHO	Provincial Maternal and Child Health Officer
PH	Provincial Hospital
PHE	Provincial Health Executive
PMD	Provincial Medical Director
PNO	Provincial Nursing Officer
PQIT	Provincial Quality Improvement Team
QA	Quality Assurance
QAD	Quality Assurance Department
QAPS	Quality Assurance and Patient Safety (Directorate)
QC	Quality Control
QI	Quality Improvement
QIT	Quality Improvement Team
QM	Quality Management
QSS	Quality Supportive Supervision
RHO	Reproductive Health Officer
SOPs	Standard Operating Procedures
TQM	Total Quality Management
WHO	World Health Organization
WIT	Work Improvement Team
ZIM-QIPS	Zimbabwe Quality Improvement and Patient Safety



# Introduction

## 0-1. How to use this guideline

The purpose of this guideline; “Operational Guideline of 5S-KAIZEN-TQM Approach for Improvement of Quality and Safety in Healthcare Services, Zimbabwe” (the guideline), is to provide key information and guidance on effective implementation of 5S-KAIZEN-TQM to all health care workers practicing Quality Improvement (QI) activities at any level of the health delivery system in Zimbabwe.

The guideline will be utilized as a tool and a national reference for QI activities for effective training and implementation of the 5S-KAIZEN-TQM approach and is applicable in the following areas:

- Training on QI at the national level
- Across all the ministry functions and programs
- In-house capacity building sessions on QI at the health facility level, such as Manager’s training, Continuous Professional Education, Orientation for newly posted staff, Refresher training, etc.

It is recommended for the healthcare facility managers to ensure availability and use of this guideline throughout the facility.

## Section 1: Organizational Structure for Quality Management

For appropriate coordination and implementation of Quality Management (QM) activities within an organization, it is required to establish a robust, efficient, and functioning implementation structure for QM activities. Therefore, this section describes “organizational structure for QM within a healthcare facility” and “terms of reference for the stakeholders for QM”.

### 1-1. Organizational Structure for QM within a healthcare facility

It is mandatory that a healthcare facility establishes a department/team under the organizational management team which can execute cross-departmental coordination of quality-related activities within the facility and a team which can facilitate and promote implementation of quality-related activities at the department/section/unit level. In Zimbabwe’s context, these teams will be called differently depending on the healthcare facility levels as Table 1-1 below:

Table 1-1: Required organizational structures for QM across the healthcare facility levels

Facility level	Team name	Brief description
<b>Provincial Medical Director’s Office (PMD Office)</b>		
Organization level 1	Provincial Health Executive (PHE)	<p><b>Expected Function:</b> PHE takes the responsibility to decide Provincial Quality Policy and managerial direction regarding QI and to deploy the policy. Other function will be:</p> <ul style="list-style-type: none"> <li>- To conduct Quality Supportive Supervision (QSS) within the province</li> <li>- To allocate resources</li> <li>- To communicate with QAPS Directorate about QI, etc.</li> </ul> <p><b>Expected members:</b> PHE members</p>
Organization level 2	Provincial Quality Improvement Team (PQIT)	<p><b>Expected function:</b> PQIT takes lead implementation of QI activities at PMD Office and within the province, and report a progress of the activities to the PHE. Other function will be:</p> <ul style="list-style-type: none"> <li>- To train District Hospitals (DHs) on QI</li> <li>- To provide Quality Mentoring and Coaching</li> <li>- To review of a report on QI submitted from the Provincial and District Hospitals, etc.</li> </ul> <p><b>Expected members:</b> PHE officers with multidisciplinary background such as Laboratory technician, PMCHO, PNO, Procurement officers, RHO, Pharmacist, etc.</p>
<b>District Medical Director’s Office (DMO)</b>		
Organization Level 1	District Health Executive (DHE)	<p><b>Expected function:</b> DHE takes responsibilities to decide District Quality Policy and managerial direction regarding QI and to deploy the policy. Other function will be:</p> <ul style="list-style-type: none"> <li>- To conduct Supportive Supervision in the district (e.g., Clinics)</li> <li>- To be a district decision making body</li> <li>- To communicate with PQIT in relation to QI, etc.</li> </ul> <p><b>Expected members:</b> DHE members</p>
Organization level 2	District Quality Improvement Team	<p><b>Expected function:</b> Take lead on the implementation of quality activities within the district i.e., clinics, the hospital and report to the DHE. Other function will be:</p> <ul style="list-style-type: none"> <li>- To train clinics on QI</li> </ul>

Facility level	Team name	Brief description
	(DQIT)	<ul style="list-style-type: none"> <li>- To conduct QSS at rural clinics</li> <li>- To provide Quality Mentoring and Coaching</li> <li>- To review of reports on QI submitted from the rural clinics, etc.</li> </ul> <p><b>Expected members:</b> DHE officers with multidisciplinary background such as Laboratory technician, Medical Doctors, Nurse, Procurement officer, Pharmacist, etc.</p>
<b>Central Hospital (CH)</b>		
Organization level 1	Hospital Management Team (HMT)	<p><b>Expected function:</b> HMT needs to take the responsibilities to decide the organizational policy and managerial direction regarding QI and deploy the policy.</p> <p><b>Expected members:</b> HMT members</p>
Organization level 2	Quality Improvement Team and Quality Assurance Department (QIT/QAD)	<p><b>Expected function:</b> QIT takes lead to implement QI activities at the hospital level and execute cross-departmental coordination of QM.</p> <p><b>Expected members:</b> Different professions within a hospital such as Medical Doctors, Nurses, Procurement officers, Pharmacist, Kitchen staff, etc.</p>
Department/section level	Work Improvement Team (WIT)	<p><b>Expected function:</b> WIT takes lead to implement QI activities at the department/ section level by coordination of QM activities, engagement of the staff into QI activities, and communication with QAD, etc.</p> <p><b>Expected members:</b> multi-disciplined peoples working together at the same department/section</p>
<b>Provincial and District Hospital (PH, DH)</b>		
Organization level 1	Hospital Management Team (HMT)	<p><b>Expected function:</b> HMT takes responsibilities to decide the organizational policy and managerial direction regarding QI and deploy the policy.</p> <p><b>Expected members:</b> HMT members</p>
Organization level 2	Quality Improvement Team (QIT)	<p><b>Expected function:</b> QIT takes lead to implement QI activities at the hospital level and execute cross-departmental coordination of QM.</p> <p><b>Expected members:</b> Different professions within a hospital such as Medical Doctors, Nurses, Procurement officers, Pharmacist, Kitchen staff, etc.</p>
Department/section level	Work Improvement Team (WIT)	<p><b>Expected function:</b> WIT takes lead to implement QI activities at the department/ section level by coordination of QM activities, engagement of the staff into QI activities, communication with QIT</p> <p><b>Expected members:</b> multi-disciplined peoples working together at the same department/section</p>

For sustaining QI activities, it is compulsory that all actors within an organization recognize and respect their roles given for QM. Also, actors in each layer need to cooperate with each other. For example, HMT needs to demonstrate delegation of authority and support QIT / QAD as a part of showing own commitment to QI activities in a hospital. QIT / QAD needs to indicate the similar matters to WIT. On the other hand, WIT and QIT / QAD need to conduct regular reporting on a progress and achievements of QI activities to the superiors and show that they will meet the superior's

expectations. For this purpose, in particular, the hospital executives / HMT needs to recognize that delegation of authority to a certain extent to QIT / QAD and WIT is essential in QM within a hospital. The major necessary function of each Hospital Executives/HMT, QIT/QAD, and WIT is illustrated in Figure 1-1 below:

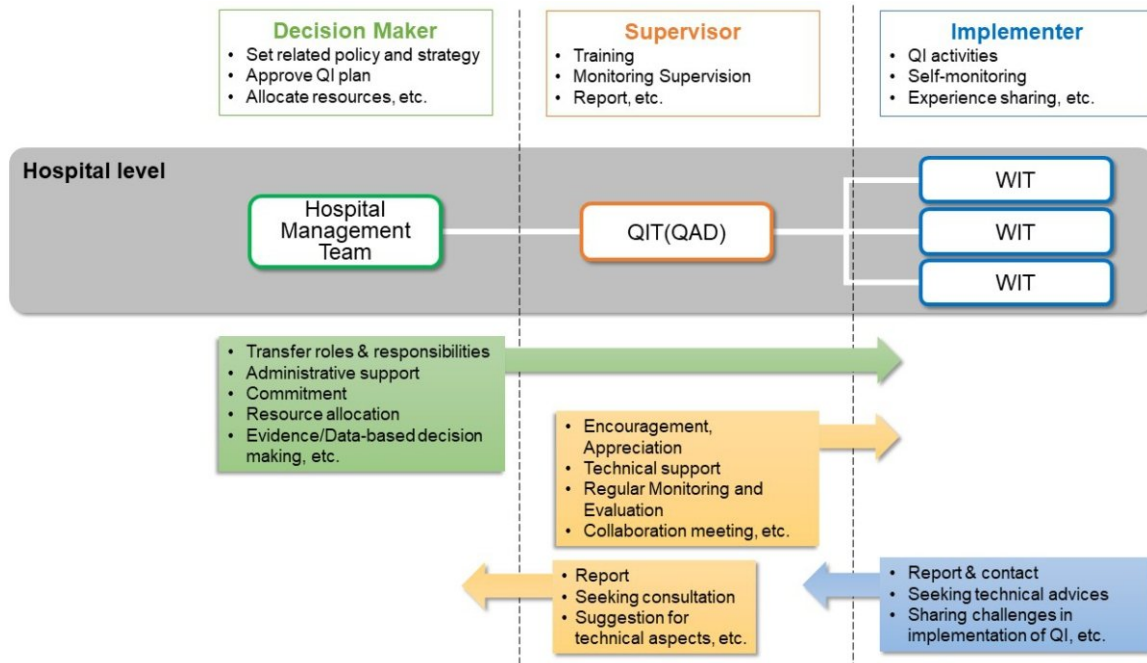


Figure 1-1: Major function of each layer in the implementation structure for QM and its relations

## 1-2. Terms of Reference (TOR) for the stakeholders

### 1-2-1. TOR of PHE

- Appoint the members of PQIT
- Authorize provincial QI policy and Strategy
- Authorize annual action plan for QI
- Allocate resources for QI initiatives within the province
- Conduct a training on QI for health facilities
- Coordinate all the QI programs in the province
- Provide support and guidance to health facilities regarding QI activities
- Conduct monitoring and evaluation of QI activities (including 5S-KAIZEN-TQM Approach) for health facilities
- Collect good practices of 5S-KAIZEN activities
- Share the good practices of 5S-KAIZEN activities with other health facilities in the province and submit to QAPS Directorate
- Authorize quarterly and annual QI report and submit to QAPS Directorate

### 1-2-2. TOR of the PQIT

- Draft provincial QI policy and Strategy
- Draft annual action plan for QI
- Take lead an implementation of QI activities at PHE office and within the province and report to the PHE

- Assist the districts in developing QI plan
- Provide/Facilitate a training on QI for provincial and district staff
- Conduct regular PQIT meeting (e.g., monthly)
- Conduct QSS for the health facilities within the province
- Provide Quality Mentoring and Coaching for the health facilities within the province
- Report progress, achievements, and challenges in implementation of QI activities including 5S activities at PHE office
- Analyze the Quality report from the PH and DHs and submit to PHE
- Give feedback to the annual QI report that is submitted by health facilities
- Provide a platform for the province to share their experiences on QI
- Develop quarterly and annual QI report and submit to QAPS Directorate

### **1-2-3. TOR of the DHE**

- Communicate with the PQIT on QI activities
- Provide support, guidance to health facilities within a district
- Allocate resources for QI activities to the health facilities

### **1-2-4. TOR of District QIT**

- Assist districts in developing QI plan
- Take lead an implementation of QI activities within the district and report to PHE
- Provide/Facilitate a training on QI for the staff from DH and clinics
- Provide QSS within the district
- Provide Quality Mentoring and Coaching
- Analyze the QI reports submitted from DHs and submit it to PHE
- Provide a platform for the district to share their experiences on QI

### **1-2-5. TOR of Hospital Executive and HMT**

- Approve hospital quality policy
- Approve QI plan
- Allocate resources for QI plan
- Set up and approve members of the QM cadres
- Provide administrative support for the supervisors and implementers of QI initiatives

### **1-2-6. TOR of QIT (CH, PH, DH)**

- Be the implementation arm of HMT for quality initiatives
- Draft hospital QI policy and strategy
- Draft annual action plan for QI, and finalize it after review of HMT
- Conduct in-house capacity building training, orientation, induction, refresher course, etc.) for hospital staff on QI activities including 5S-KAIZEN-TQM Approach
- Coordinate all the QI activities in a hospital
- Conduct regular QIT meeting (e.g., monthly)
- Conduct regular reporting meeting to HMT (e.g., monthly)
- Conduct collaborative meeting with all WITs (e.g., quarterly)
- Implement QI activities for solving any cross-cutting issue within a hospital
- Guide development of SOPs from various departments and disseminate to all the departments
- Execute a quality information and data management of all QI activities
- Collect good practices of 5S/Quick KAIZEN activities from departments in a hospital
- Share the good practices with other departments and submit to QAPS Directorate

- Conduct monitoring to check progress of QI activities and identify challenges that departments are facing at least monthly and provide technical assistance for WITs
- Conduct internal evaluation to measure effectiveness of QI activities at least quarterly and provide technical assistance for WITs
- Compile quarterly and annual report on QI initiative including 5S-KAIZEN-TQM Approach and submit it to HMT and QAPS Directorate

#### **1-2-9. TOR of WIT (CH, PH, DH)**

- Have a regular communication with QIT/QAD
- Orient newly posted staff on QI activities
- Implement all the QI activities at the department/ section level
- Share and contribute ideas, effort, and time to help improvement of the team's effectiveness with the department or section level
- Conduct self-monitoring of day-to-day QI practices at the department or section level
- Document and share the result of self-monitoring with staff in the department or section

## Section 2: PDCA cycle for QI Initiatives and Action Plan Development

### 2-1. PDCA cycle for QI initiatives

Before implementing QI activities at a health facility, all staff should get a training on PDCA cycle for QI initiatives to equip them for problem-solving process within their work place. HMT, QIT/QAD, and WITs should use PDCA cycle to realize required TOR for QI initiatives.

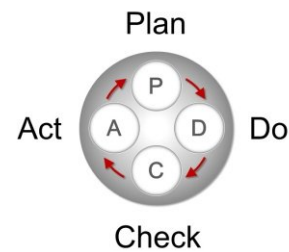


Figure 2-1: PDCA cycle

#### 2-1-1. “Plan” stage

Main activity of “Plan” stage is to develop an action plan for QI activities. The action plan needs to be part of a hospital-wide annual plan. Quality-related activities in a hospital-wide annual plan needs to be drafted by QAD (at CH) and QIT (at PH and DH), and approved by QIT (at CH) and HMT (at PH and DH). Then, QAD (at CH) and QIT (at PH and DH) are responsible to execute the activities in the QI action plan.

- (1) Minimum contents of an action plan for QI (Sample format of the action plan: Annex 1)
  - Current status including issues related to the quality of healthcare service delivery in a hospital
  - Goal, objectives, and targets (Key Performance Indicators: KPIs) of QI initiative
  - Target area(s) / group(s)
  - Specific activities and its timeline, output(s)<sup>1</sup>, responsible person(s), required resources, etc.
  - Name of member of QIT/QAD who developed the plan
  - Name of authorizer
- (2) Development procedures of the action plan
  - (i) Reviewing achievements in the action plan of last year by checking any indicator(s) in the hospital-wide plan, which is related to quality as well as any lessons learnt
  - (ii) Checking the hospital policy/ strategy/ any guideline related to QI to align the contents of the action plan
  - (iii) Analyzing the current situation
  - (iv) Setting and/or prioritizing objectives and targets (QI indicators)
  - (v) Identifying necessary activities to achieve the objectives
  - (vi) Getting authorization of “HMT and/or QIT(CH)” and “HMT (PH)”
  - (vii) Disseminate to all staff in a hospital

#### 2-1-2. “Do” stage

In “Do” stage, QIT/QAD and WIT will execute the planned activities.

- QIT/QAD level:
  - Provide an orientation and a training on QI activities for the top- and middle-class managers and WITs
  - Assist a department(s)/section(s) to develop Standard Operating Procedures (SOPs) and rule for QI initiatives if necessary

<sup>1</sup> “output(s) is sometimes called “verifiable indicator(s)”, “evaluation indicator(s)”, etc., which will enable a hospital to measure effectiveness and/or achievements of each specific activity

- Supervise QI activities that has been practiced by WIT and the frontline staff
- WIT level:
  - (WIT leader) Have responsibilities to request QIT/QAD to provide necessary and minimum tools for implementation of QI activities, such as stationary, cleaning materials, etc.
  - Implement QI activities at their work place by involving other staff at the same department/section
  - Conduct periodical self-monitoring to ensure sustainability of QI activities and maintaining good level of outcomes by QI activities  
Note that “Self-monitoring by WIT” is described on Section 6.
  - Report a status of QI activities including progress of QI activities, results of self-monitoring, achievements, and so on., to QIT/QAD on monthly basis

### 2-1-3. “Check” stage

In “Check” stage, QIT/QAD conducts in-house evaluation to make sure that QI action plan is being implemented as planned, identify and analyze any problem in implementation of QI initiatives, consider countermeasures to the problem, and review the plan if necessary. Results of the internal M&E should be reported to PMD office (CHs, PHs)/DMO office (DHs) and send it to QAPS Directorate of MOHCC periodically.

PHs and DHs need to understand and reflect recommendations for further improvements, which are made by PMD office and DMO office during their annual external M&E. Additionally, PHs and DHs are also required to support WITs to take any improvement actions accordingly.

In this stage, it is also necessary for QIT/QAD to encourage WITs to record their good practices of Quick KAIZEN and collect these cases from all the departments/sections. This good practice will be useful for all hospital staff to maintain motivation and commitment by recognizing their visualized efforts for improvement. Also, sharing a good practice with other departments/sections will facilitate mutual learning and competitive atmosphere for further improvement.

The following procedures will be useful for QIT/QAD and WIT regarding recording, collection, and utilization of the good practices:

- i. QIT/QAD introduces the standardized form called “**Good Practice Sheet of Quick KAIZEN**” (Annex 5) and teach WITs and hospital staff on its purpose and how to use it.
- ii. QIT/QAD encourages WITs and the frontline staff to submit the form to QIT/QAD on monthly basis in collaboration with the head of department/section: perhaps, better to set the deadline for submission (e.g., “25<sup>th</sup> of every month”).
- iii. QIT/QAD will conduct a seminar to share good practices within the hospital, praise and award the departments/sections.

### 2-1-4. “Act” stage

In “Act” stage, QIT/QAD defined things to be improved based on the performance of the current plan and any lessons learnt, to formulate an action plan for next year. The improvement points identified from the current plan will be discussed by utilizing the current status of hospital QI indicators, the results of different M&E activities such as self-monitoring by WIT, internal M&E by QIT/QAD, and external M&E by PMD/DMO office and/or MOHCC.



## Section 3: 5S Activities

### 3.1. What is 5S?

**5S is a methodology for organizing, cleaning, developing and sustaining a productive and safe work environment.** 5S activities can assist hospital staff to improve productivity/efficiency, quality, and safety in healthcare service provision through work environment improvement.

Originally, 5S was introduced to the Japanese manufacturing sector to improve physical working environments. 5S is derived from five actions; SEIRI, SEITON, SEISO, SEIKETSU, and SHITSUKE in Japanese, and translated into English, French, and other languages.

Table 3-1: Brief explanation of each “S”

5S	Japanese	English	Explanation
S1	SEIRI	Sort	Removing unnecessary items that are not needed for the current work flow and working environment
S2	SEITON	Set	Arranging necessary items considering efficiency and effectiveness of work and movement, safety, ergonomics, cost-optimization, and so on.
S3	SEISO	Shine	Cleaning up one's workplace daily considering IPC, beautification and ensuring that all the tools, machines, and equipment in work place are ready for use.
S4	SEIKETSU	Standardize	Establishing the same/uniform way of implementation of S1-S3 activities to maintain appropriate level of working environment and flow
S5	SHITSUKE	Sustain	Maintaining the highest level of S1-S4 as well as motivation and commitment to the practice of 5S activities among staff

### 3.2. Aims of the 5S activities

The targets of 5S principles are:

- **Zero variance** : leading to product and service reliability
- **Zero defects**: leading to higher quality
- **Zero waste**: leading to lower cost
- **Zero delays**: leading to on-time delivery
- **Zero injuries**: leading safety for internal and external clients
- **Zero breakdowns**: bringing better maintenance
- **Zero customer complaints**: that is good client satisfaction
- **Zero financial loss (red ink)** : that is betterment of the organisations image

Furthermore, the introduction of 5S is expected to instill teamwork in workplace, increase morale, pride, ethics, and improve job satisfaction. 5S activity is simple and effective method to organise the workplace<sup>2</sup>. Eventually, implementing these principles creates positive attitude among the staff.

### 3.3. How 5S activities are implemented

- First, continuously practice the cycle of **S1, S2, and S3**
- Next, practice **S4** to promote uniformity and prevent regression
- Finally, practice **S5** to maintain good momentum in the implementation of **S1 to S4**

<sup>2</sup> Hirano and Talbot, 1995

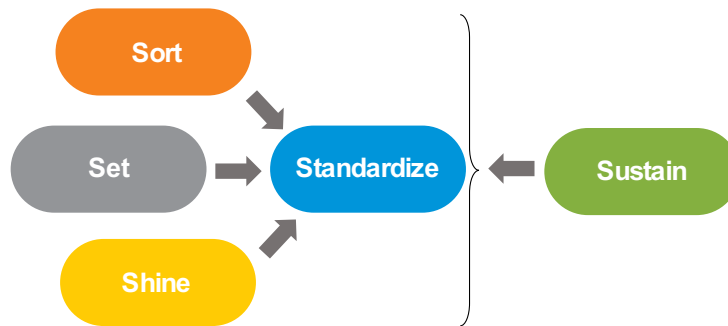


Figure 3-1: Conceptual framework of 5S activity

### 3.3.1. S1: Sort

Sort begins with classifying all the items in workplace, such as medical equipment, furniture, medicines, medical consumables, files, stationeries, etc., into three (3) categories as follows:

- **Unnecessary items**: Not used at all in the current work process/work environment
- **May not be necessary**: cannot be judged whether necessary or not during the implementation of S1 activities
- **Necessary items**: Always used in the current work process/environment

Then, unnecessary items should be removed from the workplace. Unnecessary items are further divided into three (3) categories as follows:

- **“Working item useful for elsewhere”** will be sent to appropriate place as per transfer procedures.
- **“Item that is repairable”** should be sent immediately to a workshop for repair.
- **“Items to discard”** should be sent to the identified space/storage for keeping unnecessary item to proceed a disposal process. Therefore, it is necessary to make an inventory of “items to discard” with name of items, number of items, and from where the items are found.

Hospitals are recommended to secure storage area(s) where all unnecessary items that were taken out from departments/sections will be kept until proper disposal as per regulations of the facility/ministry.

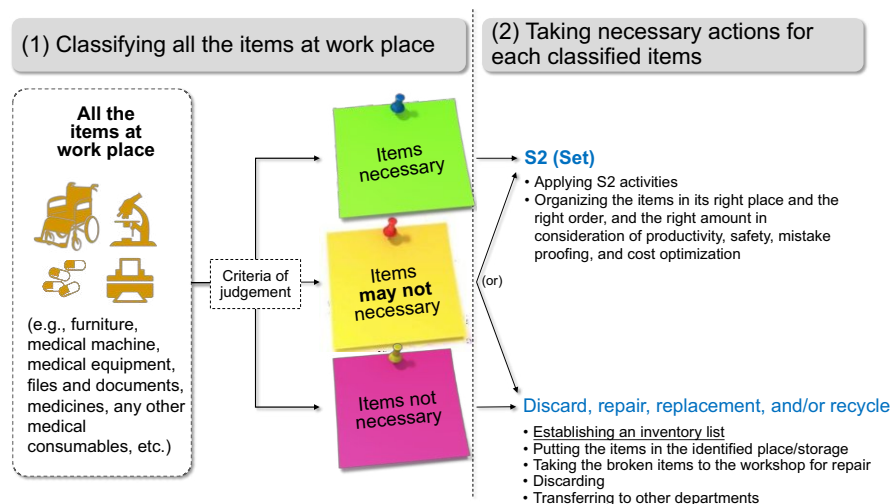


Figure 3-2: Flow of S1 (Sort) and S2 (Set)

### 3.3.2. S2: Set

S2 (Set) is not just arranging necessary items beautifully: it is arranging the items needed for the current work process to prevent any mistake and accident, and improve productivity of work. While practicing S2, the following points need to be considered:

- **Workflow** including staff flow and patient flow
- **Accessibility of the necessary items** by applying “Can see, Can take out, and Can return philosophy”.
- **Consensus on the location, arrangement, and amount/number of the necessary items among the staff:** so that all the staff will follow the arrangement
- **Storage rule** by applying 3 F; Fixed item, Fixed location, and Fixed number
- **Ergonomics** for lifting physical burden and safety improvement

Time-spent searching for items causes delay and unnecessary effort by the staff. In other words, it leads to a decrease in efficiency and productivity. In the case of medical facilities, everyone knows that provision of healthcare service is a battle against time to save human lives. If the staff just focused on “beautification” in the arrangement rather than efficiency and safety improvement, 5S activities would seem pointless.

In most cases the discontinuation of 5S activities in a department is due to misunderstanding of the concept and purpose of the philosophy.



Figure 3-3: Examples of implementation of S2

### 3.3.3. S3: Shine

There are two activities in S3 (Shine) as follows:

- Maintaining appropriate level of hygiene in a work environment, items, equipment, etc: this contributes to strengthen IPC activities and prevention of hospital acquired infections. Therefore, this will include appropriate storage of cleaning materials, regular cleaning and hygiene, etc.
- Maintaining a condition of all the furniture, equipment, and machines in workplace, so that all items are always ready to use for no delay of works and timely service provision. This includes routine check, Planned Preventive Maintenance, and repairing

For appropriate S3 activities, storing cleaning tools and maintenance tools will be also well arranged in consideration of IPC and efficiency. Additionally, waste management including preparation and appropriate arrangement of waste bins, and segregation of medical wastes are also a part of practicing S3 activities. Cleaning and maintenance will be further enhanced and sustained by a cleaning and maintenance schedule and checklist.

There is a case in which the outsourcing of in-hospital cleaning work is entrusted to outside contractors. In this case, the hospital needs to consider providing an orientation on the concept of 5S and IPC to the contractors.



Figure 3-4: Examples of S3 activities

### 3.3.4. S4: Standardize

When healthcare personnel discuss standardization, it is recommended to refer a certain criterion of practicing S1 to S3 activities. In other word, standardizing the way of practicing S1 to S3 activities aims at thoroughly continuing and maintaining the activities of S1 to S3 that is sort, arrange, keep the cleanliness, and maintenance of equipment. When the implementation of 5S activities is standardized, it is necessary to notify and orient all the staff on its meanings and operational rules such as SOPs.



Figure 3-5: Examples of S4 activities

### 3.3.5. S5: Sustain

S5 (Sustain) aiming to acquire a good habit of staff will keep their decisions properly<sup>3,4</sup>. To put it another way, a discipline follows the process of “proficiency, habituation, and behaviour change” in its order. As a mechanism to acquire good habits, it is necessary to try to ensure that 5S activities become a culture in the workplace through various activities such as intriguing the staff about improvements by 5S and sharing the benefits by 5S activities. Hence, a habit of peoples and culture in a workplace will be gradually changing. Recommended activities will be internal M&E, in-house recognition and awarding ceremony, experience sharing session, refresher trainings, etc., as shown on Figure 3-6 below.

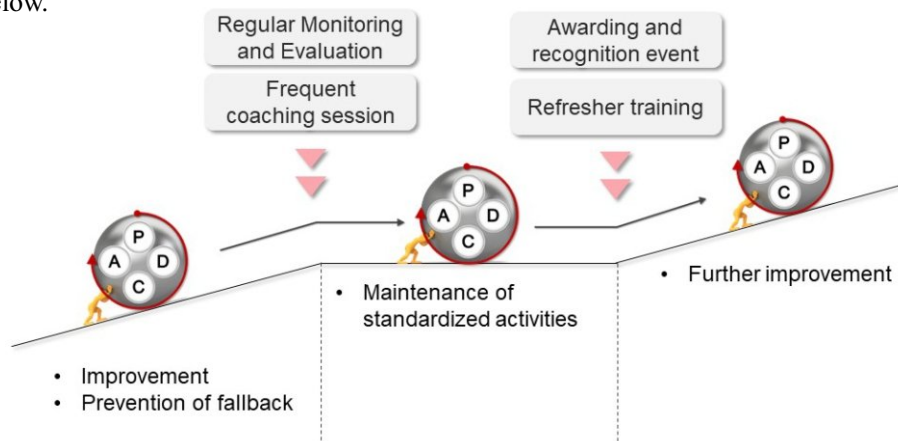


Figure 3-6: S5 activities

<sup>3</sup> <http://leansixsigmadefinition.com/glossary/5s/>

<sup>4</sup> <https://world-class-manufacturing.com/5S/Shitsuke.html>

However, peoples sometimes resist to changes and often say “Why do we have to change? We have been doing this for many years”. It is also important to know that not everyone wants to change even if that change will bring positive effects. When the front-line staff and hospital administrators show a rejection reaction, HMT and QIT/QAD should insist that growth necessitates change and just because something has been done for a long time does not mean it is correct: **by showing evidences**.

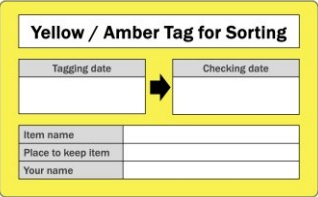



Table 3-2: Explanation of S5 activities





Activities for S5	Description
<p data-bbox="293 611 655 640"><b>Establishment of “5S corner”</b></p> 	<p data-bbox="735 611 1361 898">“5S corner” is a place to share information related to 5S-KAIZEN-TQM Approach and other QI activities that has been conducting in a hospital. Normally, it is installed where all hospital staff can see it, with information such as the progress and achievements of 5S, good practice sheet of Quick KAIZEN, slogan of 5S-KAIZEN, awarded departments/sections, hospital monitoring/evaluation results, training information, etc.</p>
<p data-bbox="300 999 659 1077"><b>Implementation of periodical monitoring and evaluation, and reporting activities<sup>5</sup></b></p> 	<p data-bbox="735 999 1361 1216">For sustaining 5S-KAIZEN activities in the field, internal M&amp;E activities which will be done by either QIT/QAD or WITs, is necessary and this is one of S5 (Sustain) activities. During internal M&amp;E, monitoring progress, evaluating achievements, identifying good (successful) practices, and providing technical advices will be practiced, etc.</p>
<p data-bbox="387 1447 528 1476"><b>Awarding</b></p> 	<p data-bbox="735 1447 1361 1753">A system to recognise the efforts of implementers and to motivate implementers willingness to implement 5S-KAIZEN activities. However, care should be taken to avoid creating wasteful competition among departments in the hospital. Additionally, HMT and QIT/QAD will also consider not to motivate peoples by monetary incentives which cannot be sustained in most of time due to budget availability as well as endless human desires to money.</p>

<sup>5</sup> Introduction of internal M&E will be described on Section 6 “Monitoring and Evaluation for 5S-KAIZEN-TQM Approach”





### 3.4. 5S Tools

Utilizing the following tools (5S tools) will assist an implementer of 5S activities to realize the purposes of 5S activities. However, it has been frequently observed that 5S tools are applied without clear objectives. In other word, using 5S tools has been become an objective of 5S implementation: this is wrong. Therefore, before its application, it is recommended for each staff to clarify “what purposes of 5S activities we need to achieve in our workplace”. Afterwards, necessary 5S tools that must be used will naturally lead the way.

<p><b>Tagging</b></p>  <p>(Example of Yellow / Amber tag)</p> 	<p><b>[Description]</b></p> <ul style="list-style-type: none"> <li>• It is useful for S1 activity</li> <li>• It facilitates identification of categorized items for the next action/steps</li> </ul> <p><b>[Instruction for use]</b></p> <ol style="list-style-type: none"> <li>Use standardized tagging system in an institution as follows; <ul style="list-style-type: none"> <li>• Green for “necessary items”</li> <li>• Yellow/amber for “may not be necessary items”</li> <li>• Red for “unnecessary items”</li> </ul> </li> <li>Peel out “Yellow/Amber tag” from the item when you use the item</li> <li>Judge the item with “Yellow/Amber tag” for one month <ul style="list-style-type: none"> <li>• If the tag still remains on the item, the item will be judged “unnecessary item”</li> </ul> </li> </ol>
<p><b>Alignment</b></p> 	<p><b>[Description]</b></p> <ul style="list-style-type: none"> <li>• It is useful for S2 activity to improve productivity and safety</li> <li>• It is the improvement of orderliness by arranging equipment, furniture, items etc. to create space and clarify workflow</li> </ul> <p><b>[Instruction for use]</b></p> <ol style="list-style-type: none"> <li>Confirm workflow, space, and arrangement of items</li> <li>Decide that right position for each item</li> <li>Use markings to indicate the alignment</li> </ol>
<p><b>Labelling</b></p> 	<p><b>[Description]</b></p> <ul style="list-style-type: none"> <li>• It is useful for S2 activity to improve productivity</li> <li>• It helps to follow “Can see, Can take, and Can return” to attain “EASY TO WORK”</li> </ul> <p><b>[Instruction for use]</b></p> <ol style="list-style-type: none"> <li>Need to fix proper place for keeping proper items</li> <li>Arrange the items accordingly</li> <li>Put the prepared labels</li> </ol>

<p><b>Taping</b></p> 	<p><b>[Description]</b></p> <ul style="list-style-type: none"> <li>• It is for S2 activity to improve productivity &amp; mistake proofing</li> <li>• It is useful for identification of missing files and prevents return of the items to the wrong place</li> </ul> <p><b>[Instruction for use]</b></p> <ol style="list-style-type: none"> <li>Arrange files/items etc. according to the current flow and procedure</li> <li>Draw a connected diagonal line on the items etc., by using marker pens, ribbons, strings, etc.</li> </ol>
<p><b>Numbering</b></p> 	<p><b>[Description]</b></p> <ul style="list-style-type: none"> <li>• It is useful for S2 activity to improve productivity and mistake proofing</li> <li>• It is useful for identification of items by numbers</li> </ul> <p><b>[Instruction for use]</b></p> <ol style="list-style-type: none"> <li>Give identification numbers to the files or items</li> <li>Arrange files or items in proper order according to the given numbers</li> <li>Additionally, a key can be used to improve navigation</li> </ol>
<p><b>Alphabetical coding</b></p> 	<p><b>[Description]</b></p> <ul style="list-style-type: none"> <li>• It is useful for S2 activity to improve productivity and mistake proofing</li> </ul> <p><b>[Instruction for use]</b></p> <ol style="list-style-type: none"> <li>Give identification alphabets to the files or items</li> <li>Arrange files or items in proper order according to the given alphabets</li> <li>Additionally, a key can be used to improve navigation</li> </ol>
<p><b>Symbols</b></p> 	<p><b>[Description]</b></p> <ul style="list-style-type: none"> <li>• It is useful for S2 activity to improve communication and productivity</li> </ul> <p><b>[Instruction for use]</b></p> <ol style="list-style-type: none"> <li>Design or import available marks or symbols for different items or meanings and standardize them for your organization</li> <li>Display the symbols on visible places</li> </ol>



<p><b>X-Y axis on a notice board</b></p> 	<p><b>[Description]</b></p> <ul style="list-style-type: none"> <li>It is useful for S2 and S4 activity to improve communication and information management especially on a notice board by arrangement and orderliness of papers and posters</li> </ul> <p><b>[Instruction for use]</b></p> <ol style="list-style-type: none"> <li>Identify the category of information to display on the board</li> <li>Use tapes to create space for each information category with the application of X-Y axis</li> <li>Display necessary information on appropriate spaces by category of information</li> <li>Display removal instructions on the board</li> </ol>
<p><b>Safety sign</b></p> 	<p><b>[Description]</b></p> <ul style="list-style-type: none"> <li>It is useful for S2 and S4 activities to improve safety of staff, patients, and visitors by attracting attention of the peoples to dangerous and hazardous conditions and items</li> </ul> <p><b>[Instruction for use]</b></p> <ol style="list-style-type: none"> <li>Design or import available safety signs for different situations and places</li> <li>Apply safety signs at visible and appropriate places</li> <li>Monitor effectiveness of safety signs</li> </ol>
<p><b>Sign board</b></p> 	<p><b>[Description]</b></p> <ul style="list-style-type: none"> <li>It is useful for S2 and S4 activity to improve communication with minimum explanation by guiding visitors and staff to get proper directions to the places where they need to go</li> </ul> <p><b>[Instruction for use]</b></p> <ol style="list-style-type: none"> <li>Develop proper signboards with common/understandable languages</li> <li>Identify right (visible and no confusion) places to put signboards</li> </ol>
<p><b>Color coding</b></p> 	<p><b>[Description]</b></p> <ul style="list-style-type: none"> <li>It is useful for S3 activity to improve safety especially infection prevention and control by segregating medical wastes and storing cleaning tools by its purpose</li> </ul> <p><b>[Instruction for use]</b></p> <ol style="list-style-type: none"> <li>Give purposes/meanings to colors which you use of follow the international standards</li> <li>Apply the colors accordingly</li> </ol>

**[Tools for sustainability]**

**5S corner**



**[Description]**

- It is used for displaying progress of 5S-KAIZEN activities, posters and other relevant information for sharing necessary information with staff and other stakeholders
- It is important for updating and reminding staff to sustain 5S-KAIZEN activities at workplace

**[Instruction for use]**

- i. Develop 5S-KAIZEN corner
- ii. Choose appropriate information for the corner (related to the Quality improvement journey or project)
- iii. Put/display necessary information on the corner applying the X-Y axis
- iv. Update the information on the corner periodically

## Section 4: KAIZEN Approach

### 4-1. Definition of KAIZEN

“KAIZEN” is a problem-solving process that leads to continuous improvement of work processes and management, aiming at optimizing departmental operations and ultimately achieve a Total Quality Managed Organization. The implementation of KAIZEN focuses on eliminating “*Muri* (overburden)”, “*Mura* (unevenness)”, and “*Muda* (wastefulness)” from work processes, while consistently creating value for both external and internal customers. Therefore, KAIZEN is a fundamental component of QI in organizational management.

### 4-2. Types of problems

“Problem” is a discrepancy between an ideal situation such as a goal or a standard and the current situation. This definition helps in identifying a problem and formulating a solution with clear objectives. It is important to recognize that a problem may consist of various factors, which allows for the systematic development of countermeasures. If a problem involves numerous factors, it becomes complex and difficult to solve, often referred to as a “large problem.” Conversely, if there are only a few factors, the problem can be more easily managed, known as a “small problem.” Addressing a large problem requires in-depth analysis and takes time, while a small problem can be handled more efficiently.

Therefore, before initiating a problem-solving activity, it is necessary to thoroughly understand the nature of the problem, whether it is a “Large” or “Small” problem.

“**Large problem**” is composed of several “composing factors”



“**Small problem**” is simple in its composition



Figure 4-1: Component of composing factors of a problem

The tendency is for most people to spend time discussing large problems, which are challenging, require energy expenditure, and demand significant resources for their resolution. However, these “large problems” only make up approximately 10% of the total, while “small problems” account for approximately 60% (see Figure 4-2 below).

Attempting to solve “large problems” can often lead to failure due to their complexity and resource requirements. In light of this, for practical and sustainable QI activities through the KAIZEN approach, it is recommended to prioritize addressing the “small problems” that are more manageable and attainable.

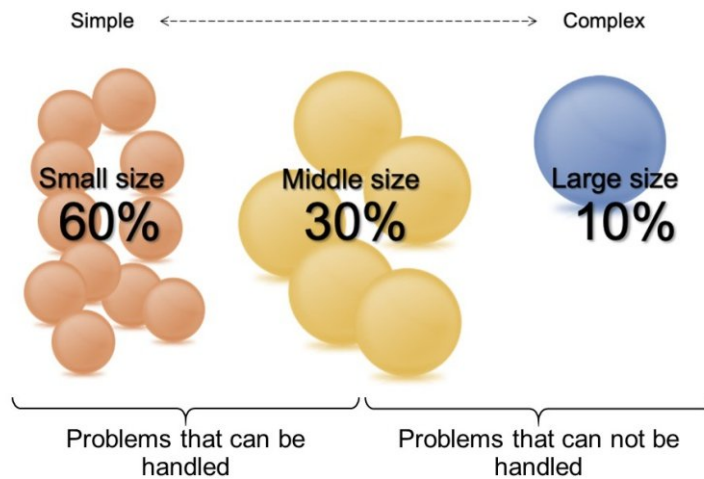


Figure 4-2: Times of problems by the level of the problem

### 4-3. Types of KAIZEN activities

There are two types of KAIZEN methodologies: Quick KAIZEN and KAIZEN with QC Story. Quick KAIZEN is usually applied to simple problems which are not composed of numerous factors, while KAIZEN with QC Story is for more complex problems.

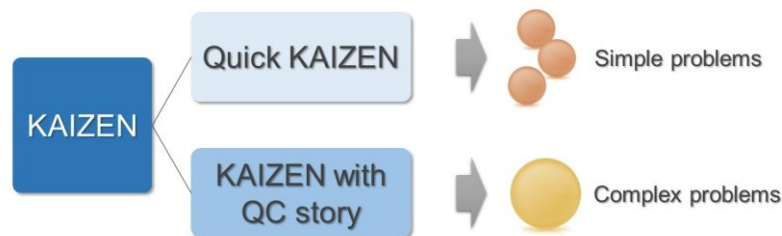


Figure 4-3: Two types of KAIZEN activities

### 4-4. Quick KAIZEN activities

As mentioned above, Quick KAIZEN is applied to simple problems which are easy to solve. There are numerous simple problems found in the working environment, including the following examples:

- The current position of pieces of furniture has been hindering hospital staff to perform daily activities in an efficient and effective way.
- The notice board has been filled with expired notices, and this has hindered smooth communication among staff.
- Inappropriate stock management of medicines at the ward has resulted in expired medicines.
- Because medical equipment does not have a fixed place where it is kept, staff are always looking for it before procedures.

It is important to realize that if staff have been working in the same department for a long time, they get used to the problems in their workplace. Because of this, many problems are not recognized and are overlooked.

The QIT as well as WIT needs to encourage staff to actively identify problems in their work place, especially small problems, and try to solve them quickly. This will lead to an improvement in their work environment in a short time as well as capacitating them in problem-identification and solving. This quick KAIZEN requires “no” or “few” resource investments.

The benefits of Quick KAIZEN are:

- It can rapidly improve the work environment and healthcare services.
- It can grow confidence among healthcare workers through small and continuous successful experiences in problem-solving.
- It can cultivate a positive mindset among staff.
- It can strengthen record-keeping habits among staff by encouraging the recording of their Quick KAIZEN activities whenever it is practiced.

Quick KAIZEN should be recorded whenever it has been practiced. There is a standardized format to record, called “Good Practice Sheet of Quick KAIZEN” (See Annex 5).

### Good Practice Sheet of Quick KAIZEN Activity



Profile	
Name of hospital	XYZ Central Hospital
Name of department	Cardiac Care Unit
Date of implementation	1 / 5 / 2023
Theme of the Activity	
Reducing medication errors by sorting and setting drugs in the shelf	
Before Quick KAIZEN	After Quick KAIZEN
Date: 20 / 2 / 2023	Date: 1 / 5 / 2023
	
Description (Please describe challenges/disadvantages before)	Description (Please describe achievements by Quick KAIZEN)
<ul style="list-style-type: none"> <li>— There were medication errors due to many look-alike and sound-alike drugs.</li> <li>— There were many drugs due to storing in the backward line on the shelf.</li> </ul>	<p><b>Implemented activities]</b></p> <ul style="list-style-type: none"> <li>— Sorted the drugs according to the expiry dates and types, and conducted set-in-order activities using labelling and zoning.</li> <li>— Prepared a list of look-alike and sound-alike drugs to differentiate between them.</li> <li>— Prepared a daily checklist to make sure no expired drugs and keeping set in order.</li> </ul> <p><b>[Achievements]</b></p> <ul style="list-style-type: none"> <li>— Reduced unnecessary movement and motion, inventory, and patient waiting time</li> <li>— Improved patient safety</li> <li>— Increased staff satisfaction</li> </ul>
Benefits from the activities	
<input checked="" type="checkbox"/> Productivity / Efficiency of work <input checked="" type="checkbox"/> Cost reduced <input type="checkbox"/> Staff safety <input checked="" type="checkbox"/> Patient safety <input checked="" type="checkbox"/> Staff satisfaction improved <input type="checkbox"/> Patient satisfaction improved	<input type="checkbox"/> Quality of services <input type="checkbox"/> Service delivery improved <input type="checkbox"/> Communication among staff <input type="checkbox"/> Communication with patients <input checked="" type="checkbox"/> Morale of the team <input checked="" type="checkbox"/> Other (Reduced waiting time for patients)
Any specific actions to keep the positive effect, and/or actions to introduce the activity to the other departments/sections	
Sustain what we have achieved by daily follow up using appropriate checklists.	

Figure 4-4: Examples of filled good practice sheet

The expected flow from recording to utilizing the good practice sheet is illustrated on Figure 4-5.

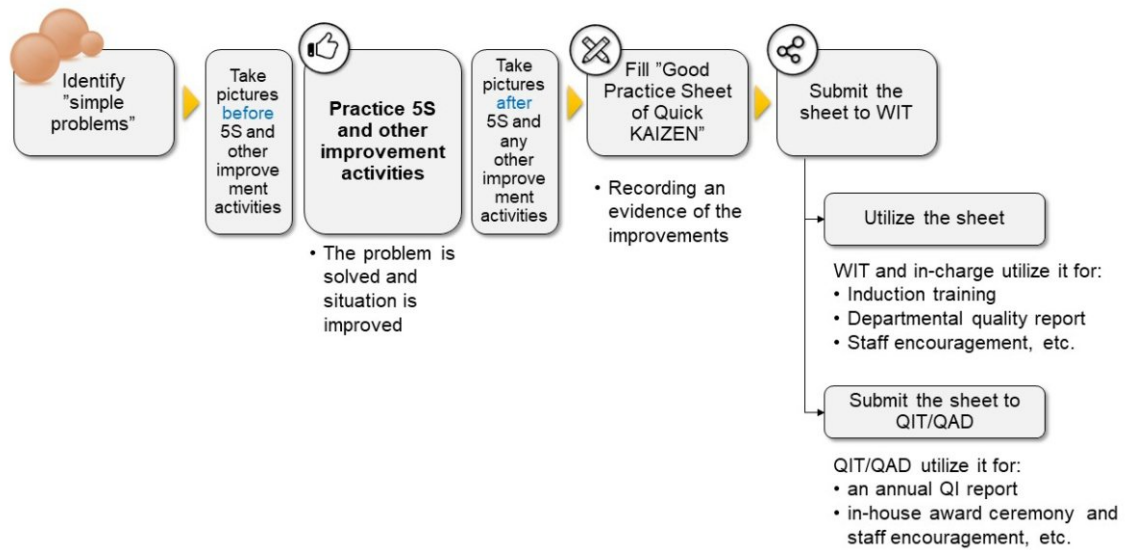


Figure 4-5: Flow of utilizing “Good Practice Sheet of Quick KAIZEN”

#### 4-5. KAIZEN with QC story

With regular practice of Quick KAIZEN, simple and small problems will be gradually addressed. As a result, complex, time-consuming, and costly issues will become apparent. To solve these, “Quality Control (QC) tools” will be useful to conduct data analysis and an evidence-based problem-solving process. This process referred to as “KAIZEN with QC Story”, which solves/reduces complicated problems and prevents their recurrence. KAIZEN with QC Story is a seven-step problem solving process as illustrated in Table 4-1. All the steps are supposed to be completed within six (6) months.

Table 4-1: Steps of KAIZEN with QC story and approximate implementation period

Step	Description	Approximate implementation period	
Step 1	Theme selection	Maximum 2 weeks	(Total maximum 6 months)
Step 2	Situation analysis	1 to 1.5 months	
Step 3	Root cause analysis	1 week to 1 month	
Step 4	Identification of countermeasure	Maximum 2 weeks	
Step 5	Implementation of countermeasure	1 to 1.5 months	
Step 6	Effectiveness check	1 to 1.5 months	
Step 7	Standardization	Maximum 2 weeks	

For effective implementation of KAIZEN with QC story, QC tools are useful to understand the current situation and processes for improvement.

QC tools have two categories: (i) Seven basic QC tools and (ii) seven new QC tools. The tools are as Table 4-2 below:

Table 4-2: Seven basic and new QC tools

Seven Basic QC Tools		New Seven QC Tools		
Mainly used for analysing quantitative information		Mainly used for analysing qualitative information		
1	<b>Pareto chart</b> *	This is a tool used to show the relative importance of different problems identified. The problems are, arranged in order using frequency, and shows the cumulative sum as a percentage.	<b>Affinity diagram</b>	This is used to organize data by grouping them according to similar themes.
2	<b>Cause–effect diagram / fish bone diagram</b> *	This is a diagram that systematically represents the relationship between results and causal systems	<b>Interrelationship diagram</b>	Regarding problems in which generation factors are complicatedly intertwined, these causal relationships are linked with arrows and pursue the main factor.
3	<b>Control chart</b>	This is a diagram which shows how a process changes with time. There is an upper control limit line and lower control limit line, in which consecutive observations or values of certain statistics in groups are plotted.	<b>Tree diagram</b> *	The different levels and sublevels of a problem are explored as appropriate.
4	<b>Check sheet</b> *	A list used for checking the individual elements, to ensure that they are being done	<b>Matrix diagram</b> *	This displays two elements in two dimensions of rows and columns and assists analysis and provides clues to the problem
5	<b>Histogram</b>	A graphical representation of the frequency distribution of measurements obtained.	<b>Arrow diagram</b>	If many tasks are required to solve a complicated problem and are intertwined, the relation and schedule of each work is represented by a network diagram
6	<b>Scatter diagram</b>	This is a graphic representation with two characteristics being plotted on the X and Y axis and the ordinate with observation values were they intersect.	<b>Process Decision Program Chart</b>	This is used to plan for unforeseen circumstances. During the planning phase, a list of alternatives to be taken when an unexpected situation occurs, are defined.
7	<b>Graphs</b> *	A visual representation of data, to compare its amount and to clarify the state of change.	<b>Matrix data analysis</b>	This is used to organise numerical data in the matrix diagram which is a two-dimensional figure and assists in problem solving.

Note that the tools that is indicated with “\*” will be described further in this book.

### 4-5-1. Step 1: Theme Selection

This step prioritizes issues that can be resolved with existing resources. Many problems exist in a workplace, but cannot be solved at once. Therefore, prioritization of problems is important. A brief procedure on implementation of Step 1 is illustrated on Figure 4-6 below:

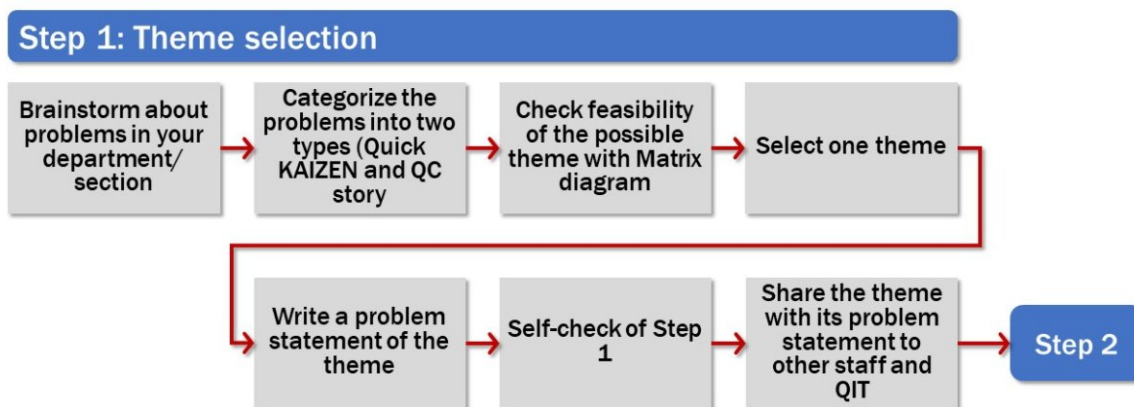


Figure 4-6: Procedures of Step 1

- (1) Step 1 starts with brainstorming on the difficulties/ problems that members of staff are facing in their workplace, e.g., challenges face daily at work, a situation that hinders their safety or that of patients, wastages in cost, complaints from service users (patients and internal client), etc.
- (2) Those issues/problems proposed by staff working in the department/section will be categorized depending on whether the issued can be solved by Quick KAIZEN or KAIZEN with QC story. Note that an issue addressed by “Quick KAIZEN” ideally should be solved within 1-2 days.
- (3) Feasibility of issues which are to be solved by “KAIZEN with QC story” is assessed by using one of the QC tools called a “Matrix Diagram” (See Table 4-3) as described below:
  - i. Change the sentence describing the problem to a sentence that is describing the ideal situation after improvements (e.g., “long waiting time of outpatients” should be changed to “waiting time of outpatients is reduced”)
  - ii. Use evaluation criteria and assign a score to determine the level of ease or difficulty to solve the problem.  
(For example) Impact, Urgency, Realization/Possibility, Burden to service users, and Resource availability, etc. Each will be scored using a scale (See Table 4-3 as an example)
- (4) Circle the highest score: the high scored theme will be judged as the most feasible theme. This will be “KAIZEN theme”.



Table 4-3: Example of Matrix diagram

Date of implementation : 17 May 2023					
Possible KAIZEN Theme	Impact	Urgency	Possibility	Resources availability	Feasibility check score
Documentation of patient's treatment record is improved	3	3	3	2	11
Mistakes of specimen collection is reduced	2	2	3	3	10
Medicine wastage volume is reduced	3	2	2	2	8

[Scale] 3: Large, High, Easy 2: Moderate 1: Small, Low, Difficult

(5) “Problem statement” of the selected theme should be written with the following components:

**(i) Description of the problem**

**(ii) How the problem is affecting service quality**

**(iii) Commitment to solve the problem and the desired status to be achieved**

The following is an example of problem statement for the KAIZEN theme: “Documentation of patient’s treatment record is improved”. As you can see the example below, problem statement is useful when we look for composing factors in Step 2.

*(Example) Problem statement of the KAIZEN theme “Documentation of patient’s treatment record is improved”*

***It was frequently observed that the treatment charts of our patients have been having a lot of missing information, such as vital sign, medication, amount and frequency of excretion, results of any medical examination, etc. This situation was reported not only nurses working in our ward but also medical doctors, and other relevant healthcare providers at the hospital. ((i) Description of the problem)***

***Inappropriate documentation of the patient’s treatment record actually caused miscommunication among the staff, missing medication, missing nursing cares, etc. Moreover, it has high-risk of inappropriate medical judgement, improper treatment and medication plan, etc. ((ii) How the problem is affecting service quality)***

***Therefore, we as staff at the ward would like to improve documentation of the patient’s treatment record as well as patient safety. (Commitment to solve the problem and the desired status to be achieved)***

(6) Use “Monitoring tool for KAIZEN with QC story (Annex 4)” to check the accuracy of application of Step 1.

(7) The selected theme and problem statement should be reported to the head of department/section and shared to the staff at the department/section. The results of Step 1 will be also shared to QIT/QAD; hence, it will be easy to get their technical support in future.

## 4-5-2. Step 2: Situation Analysis

In Step 2, it is critical to understand the selected KAIZEN theme by unpacking the components of the problem. As mentioned above, complicated problems are composed of various-sized composing factors. Step 2 will seek to identify those composing factors and measure them. It will be clarified which factors should be eliminated first according to frequency. Additionally, in this step, outcome indicators that can be used to measure the impact of KAIZEN with QC story will also be identified and measured. Brief procedures of Step 2 are shown on Figure 4-7 below:

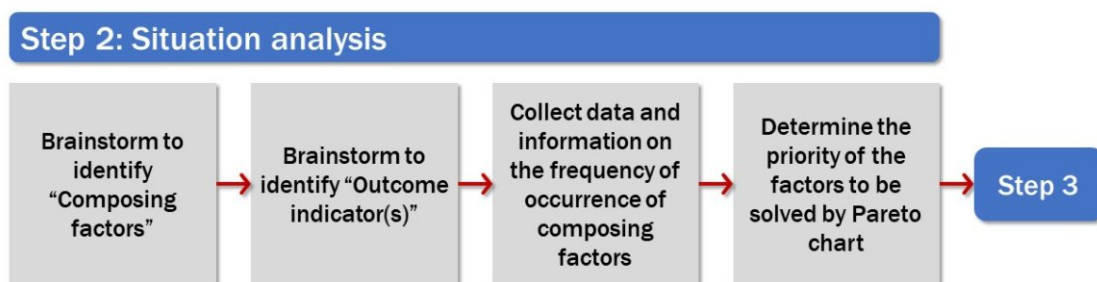


Figure 4-7: Procedures of Step 2

### (1) Brainstorm to identify composing factors

A composing factor is NOT equal to a “Cause”. Composing factors broadly refer to the elements that directly influence the effect by increasing its likelihood, accelerating the effect in time, affecting severity of the consequences, and these factors affect the chain of events. Examples of composing factor of “Broken pen” as Figure 4-8 below.

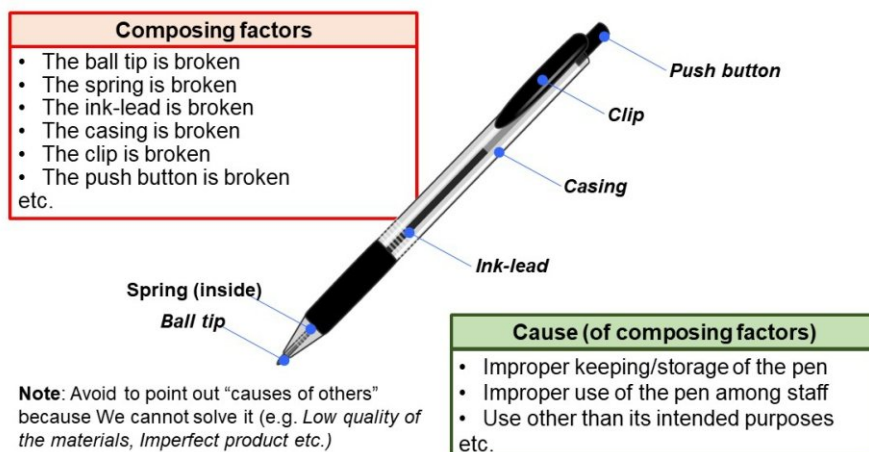


Figure 4-8: Examples of composing factors and cause

In the example of Step 1, there was different phenomenon regarding inappropriate documentation of patient’ treatment chart: these will be composing factors of the theme, such as vital sign, medication, amount and frequency of excretion, results of any medical examination, etc.

### (2) Propose/identify outcome indicator of the constituent factor of the selected KAIZEN theme

The outcome indicator is a value expressing the selected KAIZEN theme. The appropriate scale of the outcome indicator varies depending on the selected KAIZEN theme, such as cost, time, resource input etc. For example, the outcome indicator of “waiting times of outpatients is reduced”

will be “waiting time of outpatients”. The outcome indicator can be defined as an expected outcome by KAIZEN with QC story.

More examples of ‘Outcome indicator’ are as follows;

- KAIZEN theme related with cost/expenditure reduction, improvement of revenue collection;  
 “Amount of revenue collection” (e.g., increased from 1000 USD to 3000 USD per month)  
 “Procurement costs” (e.g., reduced from 4000 USD to 1500 USD per month)
- KAIZEN theme related with time reduction, service provision time;  
 “Patient’s waiting time” (e.g., reduced from 45 min to 25 min)  
 “Service provision time” (e.g., reduced from 30min to 15 min)
- KAIZEN theme related with process improvement, mistake proofing  
 “Failure rate” (e.g., improved from 40% to 20%)  
 “Repetitive rate” (e.g., improved from 30% to 10%)  
 “Hospital acquired infection rate” (e.g., reduced from 30% to 5%)

(3) Collection of data and information on the frequency of occurrence of the problem’s factors

It is important to observe and investigate the current situation or work process. The example of the problem of poor practice of IPC in OPD will be used. The frequency of occurrence of the composing factors should be measured for a certain period. The time required for the data collection varies depending on the frequency with which the composing factors occur.

Note that, if composing factors occur frequently, it is possible to obtain sufficient data within a short time; if they occur less frequently, the data collection period may be extended.

Table 4-4: Example of Data collection with checklist for the situation analysis

Composing factors	Mon	Tue	Wed	Thu	Fri	Total frequency
Improper disinfection of tools and materials	//	/	/	//	//	8
Improper segregation of healthcare wastes	////	////	///	///	////	18
Inappropriate hand hygiene practice	////	////	<del>///</del>	<del>///</del>	///	21
Improper use of PPE	/	/	/	/	/	5

**[Retrospective or Prospective data collection]**

The method of collecting information varies greatly depending on the KAIZEN theme and availability of data. If the required data is NOT available, the prospective method will be applied. Conversely, if the required data is available, the retrospective method or either of the two can be applied to collect the required data.

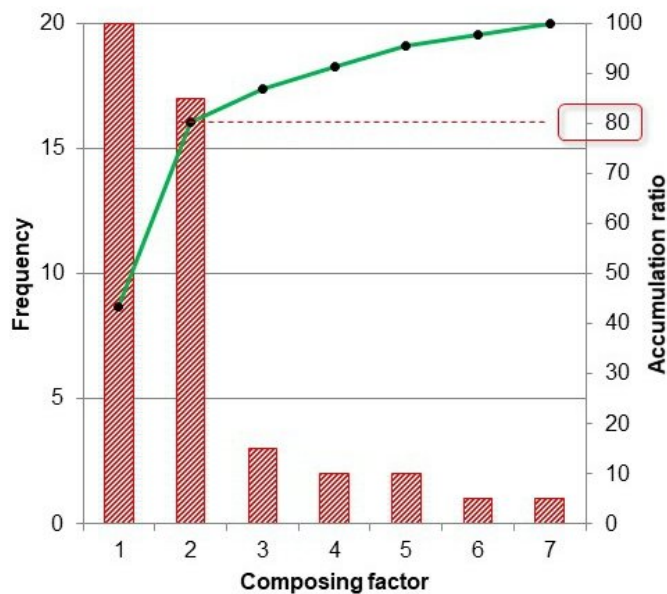
(4) Determine the priority of the factors to be solved by Pareto analysis

The collected composing factors will be summarized on a table (Table 4-5) and a Pareto chart will be created. The vital few of the problems will become easy to identify.

- A data summary table is composed of frequency, cumulative frequency, and cumulative ratio/percentage (Table 4-5).
- Pareto chart is composed of bar-graphs which illustrate the actual frequency and a line-graph which illustrates the cumulative frequency percentage (Figure 4-9).

Table 4-5: Example of calculation table

#	Composing factors	Frequency	Cumulative frequency	Cumulative %
1	Number of cases vital signs are missing	20	20	$20 / 46 * 100 = 43.5 \%$
2	Number of cases information on prescribed medicines is missing	17	37	$37 / 46 * 100 = 80.4 \%$
3	Number of cases information on laboratory tests is missing	3	40	$40 / 46 * 100 = 87.0 \%$
4	Number of cases patient's basic information is missing (Name, Age, Date of birth etc.)	2	42	$42 / 46 * 100 = 91.3 \%$
5	Number of cases information on diagnosis is missing	2	44	$44 / 46 * 100 = 95.7 \%$
6	Number of cases information on radiology investigation is missing	1	45	$45 / 46 * 100 = 97.8 \%$
7	Number of cases investigation code is missing	1	46	$46 / 46 * 100 = 100 \%$
<b>Total</b>		<b>46</b>		



**Note:** The scale of the frequency on the pareto chart must be matched with the highest frequency of occurrence of the composing factors. The left Y-axis is the actual numbers while the right Y-axis on the chart represents the corresponding cumulative percentages.

Figure 4-9: Example of Pareto chart (developed based on Table 4-5)

**“Pareto rule”**

The Pareto chart shows that the majority of problems (80%) are produced by a few key causes (20%). This technique helps in the identification of the top 20% of the causes that need to be addressed to resolve 80% of the problems. In the Pareto chart above, where the dotted line (representing 80%) intersects the line graph (cumulative frequency) is the cut-off point. All those bar graphs on the left side of the cut-off point represent 20% of causes that need to be addressed to solve 80% of the problem (vital few).

### “Vital few” and “Useful many”

Data collected in the situation analysis can clarify the “Vital few” and “Useful many” composing factors of the problem based on the Pareto rule. “Vital few” indicates that the selected KAIZEN theme is occurring from relatively few composing factors and constitute more than 80% of the problem. As mentioned in the “Pareto rule”, it is important to identify the right composing factors, and to clarify the “Vital few” for prioritization of target areas of KAIZEN.

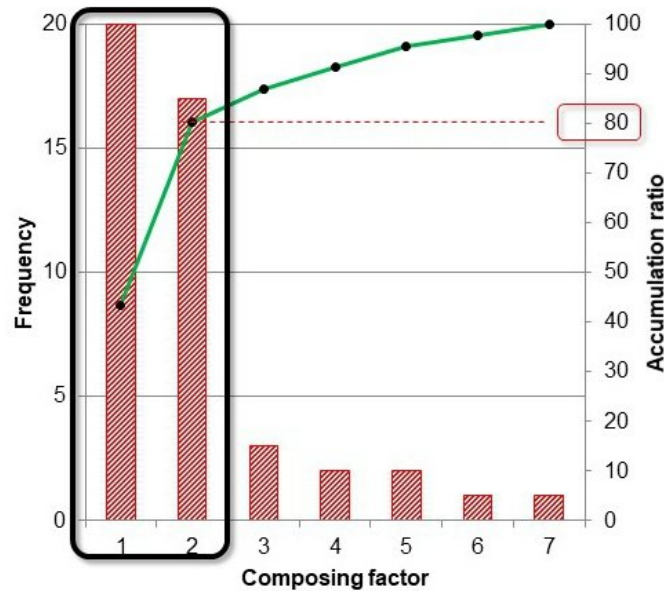


Figure 4-10: Vital few (red oval) on Pareto chart

The high-priority factors are extracted from the left side of the Pareto chart according to the Pareto rule, using the frequency at which the cumulative percentage is greater than or close to 80%.

As an example (see Table 4-5 and Figure 4-9),

- Cumulative ratio of composing factor 1 (Number of cases vital signs are missing) accounted for 43.5%.
- Cumulative ratio of composing factor 2 (Number of cases information on prescribed medicines is missing) is 80.4% which crossed the reference line of 80%. These two (2) composing factors may need to be prioritized before tackling them.

A cause-effect diagram (Fishbone diagram) for each of these to explore the underlying factors is recommended. If there are two (2) composing factors to focus on, two (2) cause-effect diagrams are required. If there are too many prioritized composing factors, there may have been a problem in the process of identifying the composing factors in Step 2. Therefore, it is advised to repeat Step 2 to identify the “Vital few” composing factors.

### 4-5-3. Step 3: Root Cause Analysis

Step 3 will explore the root causes of the vital few which were identified in Step 2 (See Figure 4-11). This process will be done by utilizing one of QC tools called a “Fish bone Diagram”.

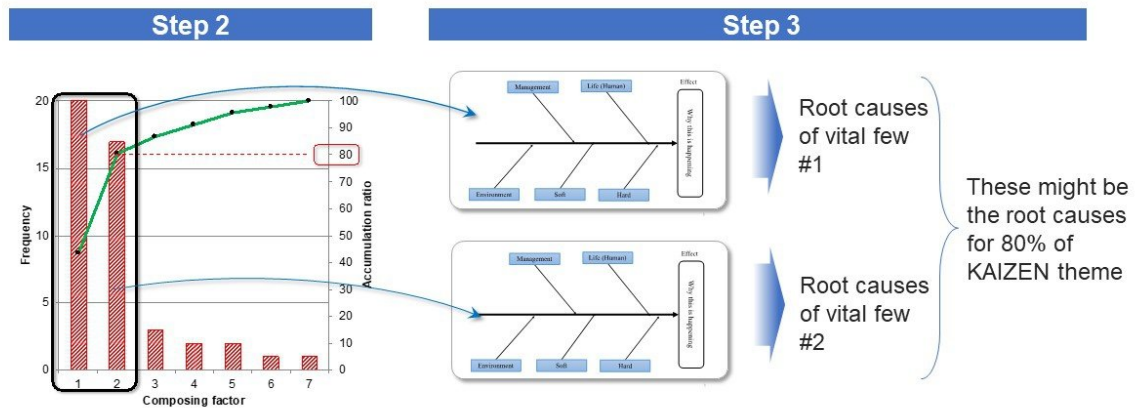


Figure 4-11: Relation between Step 2 and Step 3

After confirming the “vital few” identified in Step 2, the procedure on Figure 4-12 will be followed.

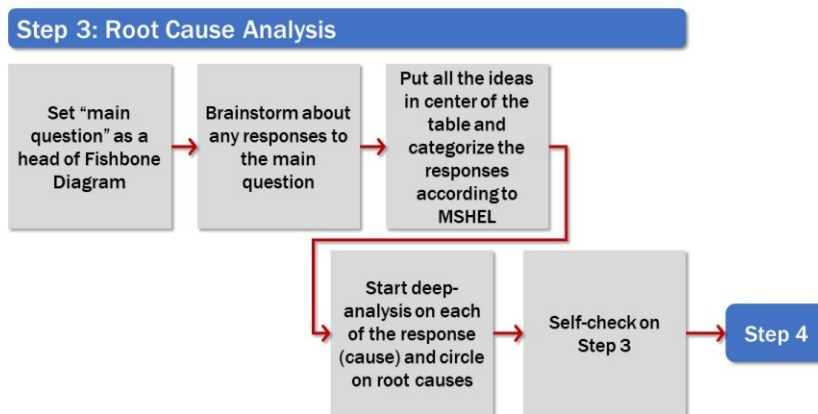


Figure 4-12: Procedures of Step 3

- (1) Set “main question” of each of Fish bone Diagram  
 First of all, a sentence on each of the identified “vital few” will be changed into question format and set as the head of Fish bone Diagram (e.g., if the vital few is “Number of times staff inappropriately practiced hand hygiene”, the head of the Fish bone Diagram will be “Why are the members of staff practicing hand hygiene inappropriately”).  
 Please note that the head of the fish should be the vital few, not the KAIZEN theme.
- (2) Brainstorm about possible responses to the question in the head of fish.  
 Each member will start by “individual” brainstorming in response to the question written as the head of fish bone. Each member will write one idea on a small piece of paper; “One idea on One

paper”. This should NOT be done as a group discussion. This approach will enable individual thoughts to be extracted.

- (3) All the ideas should be shared with all the members in the group and categorized according to MSHEL

After the individual brainstorming, each member will (i) put the small papers at the centre of the table for sharing ideas and (ii) Categorize the ideas according to MSHEL as a group (Table 4-6). Group discussion for further root cause analysis will follow this individual brainstorming exercise.

Table 4-6: Grouping of the causes

MSHEL grouping	Examples
Management	Planning, Strategy, Monitoring, Inventory
Soft	System, Methodology, Mechanism, flow
Hard	Commodities, Medical equipment, Tools, Furniture etc.
Environment	Facility environment (water, electricity supply, smell, ventilation etc.), Working environment (workspace, accessibility etc.)
Life (Human)	Staff knowledge, Skills, Physical and mental health of employees etc.

After the group discussion, insert the categorized items on an appropriate heading in the Fishbone Diagram as shown in Figure 4-13 below.

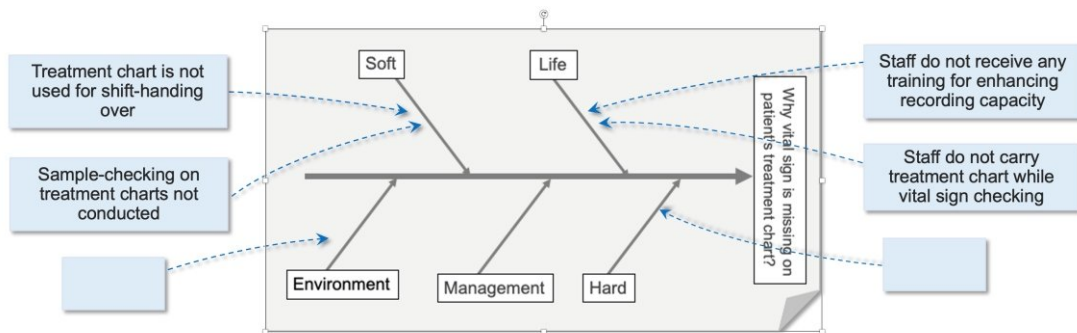


Figure 4-13: Allocation of the identified responses to each of MSHEL groups

- (4) The next step is a deep-analysis of each cause  
The question of “Why is it happening? – Because....” will continue on each of the identified cause until the root cause(s) are found. It is generally recommended that “Why-Because” question should be continued at least five (5) times, so that the real root cause(s) will be found. A red circle will be useful to indicate the root cause(s).

Overall image of the completed Fishbone Diagram will look like as Figure 4-14a below. As Figure 4-14a , some of the effects have two (2) causes or more and all the end causes are identified as root causes by a red-circle.

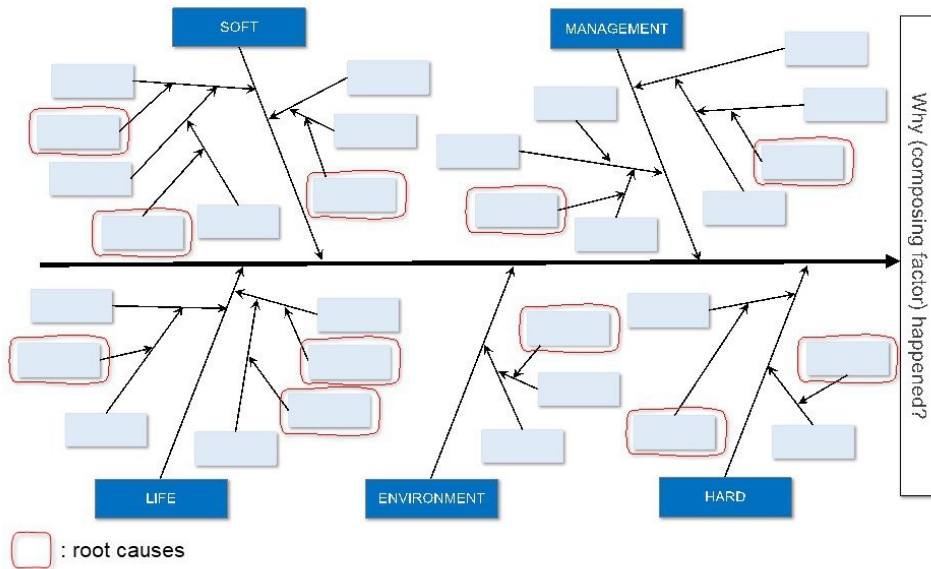


Figure 4-14a : Overall image of the final version of Fishbone Diagram

#### 4-5-4. Step 4: Identification of Countermeasures

Step 4 is used to identify countermeasures to solve the root causes found in Step 3. For this, “Tree Diagram” is one of the recommended QC tools. Additionally, since resources maybe required to implement countermeasures, a feasibility check should be done on all the identified countermeasures. To perform a feasibility check, a “Matrix Diagram” is a useful QC tool. A brief procedure of Step 4 is shown on the Figure 4-14b below:

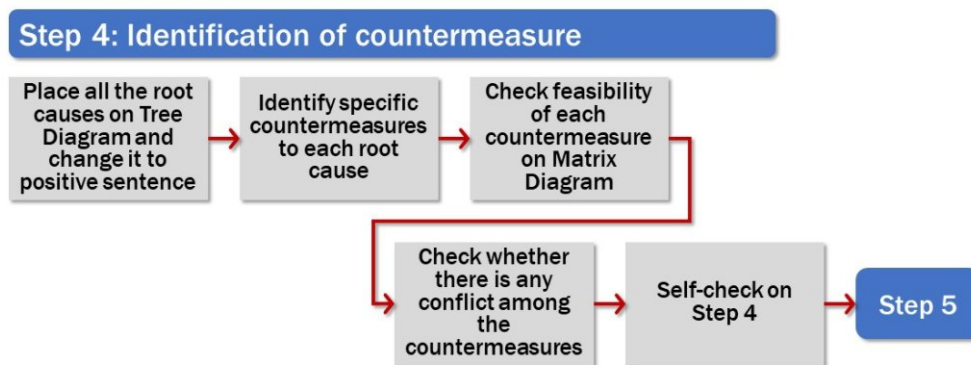


Figure 4-14b : Procedures of Step 4

- (1) Place all the root causes on a Tree diagram and change them into a positive sentence as the primary countermeasure.  
List all the root causes found in Step 3 on the left side of the Tree Diagram. Since the root cause is written with negative words and expressions, the sentence of each root cause is supposed to be changed to a positive sentence as the “Primary countermeasure” (Figure 4-15).



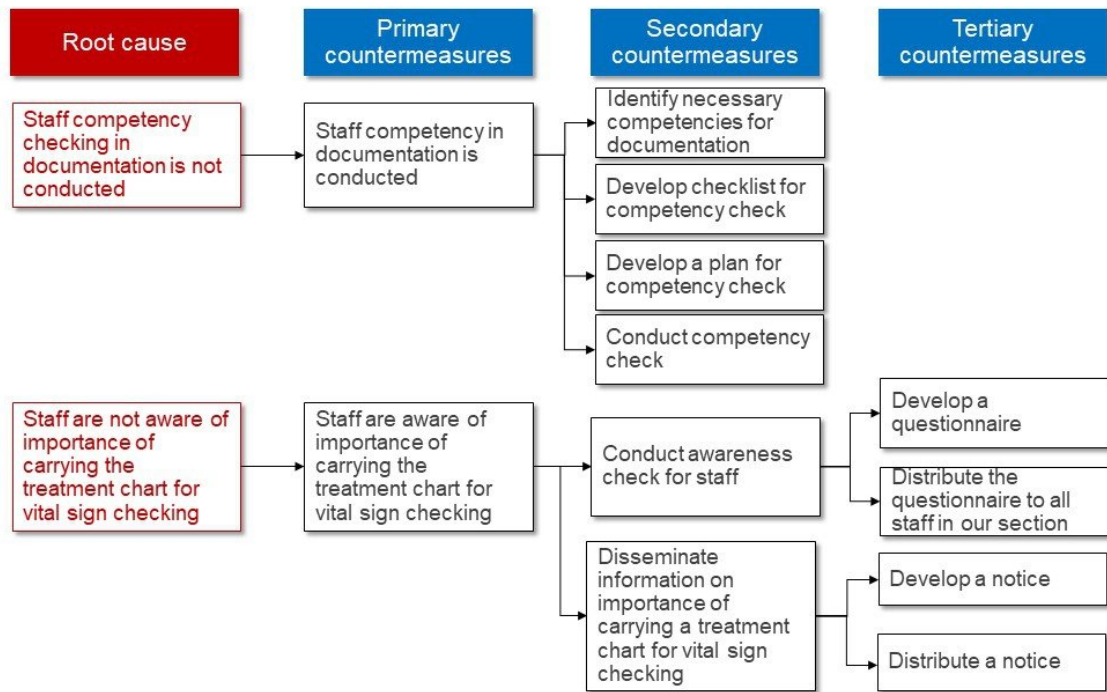


Figure 4-15: Tree diagram

(2) Identifying countermeasures of each root cause

Any activity that is deemed necessary to realize each of the primary countermeasures will be listed as a “Secondary countermeasure”. The identified secondary countermeasures for a primary countermeasure will be a series of activities. For example, if the primary countermeasure is “ward meeting starts on time”, its secondary countermeasures may be as follows:

- “Scheduling regular ward meetings”
- “Informing key personnel about the agenda, time, and venue for the meeting”
- “Sending a reminder to the expected participants of the meeting the day before”, etc.

Furthermore, each of the secondary countermeasures can be digested into smaller activities which become “Tertiary countermeasures” if necessary.

(3) Checking feasibility on each of the last line countermeasures

The identified countermeasures on the last line of Tree Diagram need to be checked for feasibility assessing different aspects such as “importance”, “urgency”, “difficulty of implementation”, “implementation period” and “availability of resources”. This will ensure that, only practical countermeasures under the current situation are identified.

A Matrix Diagram is used to assess feasibility and a scoring scale can be used as exemplified below:

- **3** = High priority, easy to implement
- **2** = Medium priority
- **1** = Low priority, difficult to implement

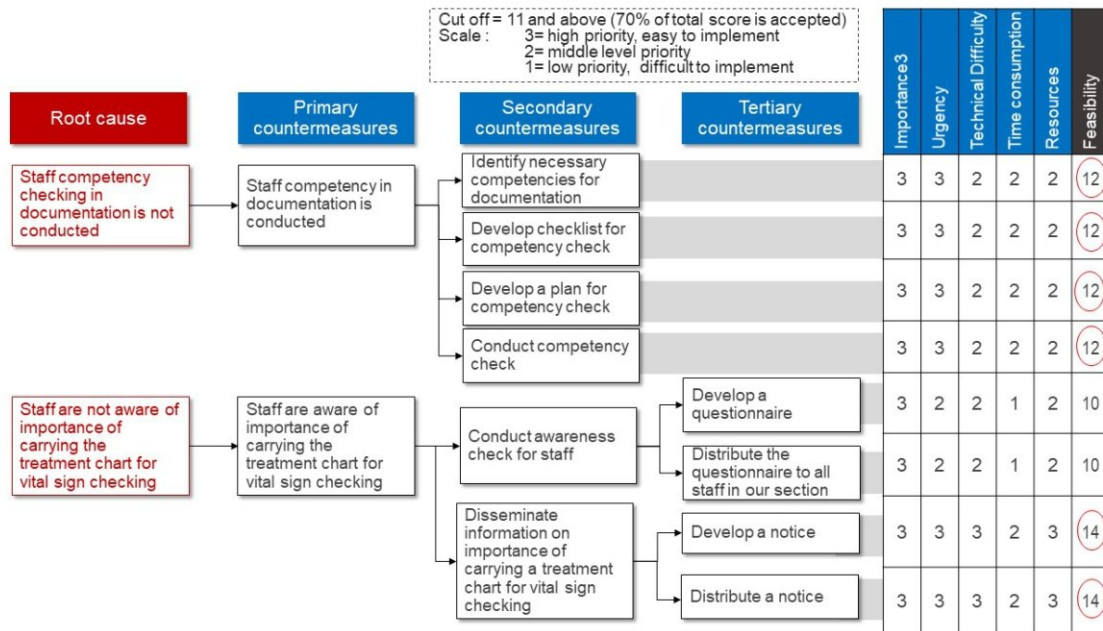


Figure 4-16: Feasibility check by Matrix Diagram

The cut-off value to evaluate feasibility should be set and agreed on with other members. It is reasonable to set the cut-off value to around 70%. If the decision criteria consist of five items, 15 points will be needed for full marks, so, 70% of 15 points equals 10.5. Therefore, the countermeasures with “11 points or above” will be taken as a feasible countermeasure.

#### 4-5-5. Step 5: Implementation of Countermeasure

Step 5 is the process of (i) Developing an action plan of the countermeasures and (ii) Executing the plan accordingly. Therefore, all the countermeasures which are judged as “feasible” in Step 4 are transferred to Step 5 as Figure 4-17 below:

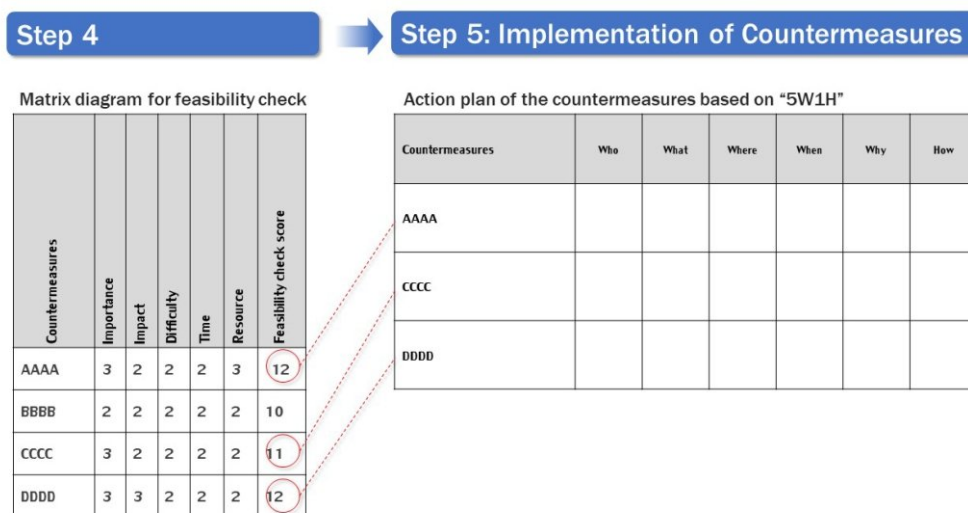


Figure 4-17: Relations between Step 4 and Step 5

(1) Developing an action plan with 5W1H

For smooth and effective development of an action plan without any missing component, it is recommended to consider “5W1H (Who, What, Where, When, Why, and How)”. A description of 5W1H is on Table 4-7 below with an example of how they can be addressed.

Table 4-7: 5W1H for Step 5

5W1H	Clarification	Example
Who	Who is the responsible person(s) to ensure the implementation of the countermeasure?	WIT members
What	What is the objective of the countermeasure?	5S activity
Where	Where is the countermeasure being implemented?	At nurse station
When	When will the countermeasure be implemented? (Timing, period, deadline)	Before starting duty everyday
Why	Why should this countermeasure be done?	For improving working environment
How	How will this countermeasure be done (action, verb)	Practice by everyone's participation

As for the implementation period (When), it is optimum that the implementation period not exceed two months given that the entire period of KAIZEN with QC story should be completed within six months.

Also, an action plan will need monitoring and follow-up to check progress and achievements. Therefore, the part for monitoring activities should be established in the plan as Table 4-8 below:

Table 4 8: Example of an action plan with a monitoring tool

Implementation plan of the feasible countermeasures							Monitoring sheet for the countermeasure implementation		
All feasible countermeasures	WHO	WHAT	WHERE	(by) WHEN	WHY	HOW	When to check	Responsible person for monitoring	Monitoring results
Identify necessary competencies for documentation	Mr. A (WIT member)	Identify necessary competencies for documentation Checklist for competency	At medical ward	By the end of May	For standardizing necessary competencies for documentation	By reviewing literatures and guidelines	May 15, 2023	WIT leader	Delay by other duties
							May 25, 2023	WIT leader	Completed
							May 31, 2023	WIT leader	(no need monitoring)
Develop a checklist for competency check	Ms. B & Mr. C	Develop checklist for competency check	At medical ward	By the 1 <sup>st</sup> week of June	For implementing competency check	By discussion with WIT members	June 5, 2023	WIT leader	Not done because of delay in other countermeasure
							June 10, 2023	WIT leader	Completed
							--	--	
Develop a plan for competency check	WIT leader	Schedule the competency check	At medical ward	By the 1 <sup>st</sup> week of June	For implementing competency check	By considering the departmental schedule	June 5, 2023	Ward in-charge	Completed
							--	--	
							--	--	

(2) Executing the planned activities

After its development, the action plan should be submitted to the head of department/section and shared with all the members of staff in the department/section. Methods of sharing include discussion of the plan during a departmental meeting, posting on notice boards, etc. All members

of staff will be made aware of this QI activity and are more likely to participate in planned activities. It is also recommended to share the monitoring results during department meetings.

#### 4-5-6. Step 6: Check Effectiveness

This step is used to assess whether the problem has been solved and how much the situation has been improved after the countermeasure implementation with the procedures shown in Figure 4-18.

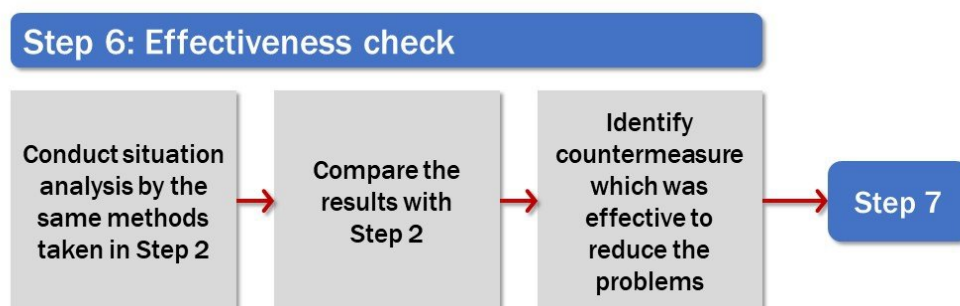


Figure 4-18: Procedure of Step 6

(1) Conduct situation analysis

The same method that was conducted in Step 2 should be followed in the situation analysis in Step 6, regarding the time period, methodology, data source, etc. The items to be collected are for both the composing factors and the outcome indicators.

(2) Compare the results between Step 2 and 6

Based on the results of data collection in Step 6, a data table and Pareto chart will be developed to compare with Step 2. Note that a completely new table and Pareto chart should be developed. Do not extend the table and Pareto chart that were developed in Step 2 to add the results of Step 6. Points to be considered for the development are as follows:

**[Data table]** (Table 4-9)

- By using both data of Step 2 and 6, "Reduced frequency" should be calculated.
- Based on the frequency of Step 2 and 6, "Reduction rate (%)" is calculated.

Table 4-9: Comparison table of Before and After KAIZEN

SQ#	Composing factors	Before KAIZEN (Step 2)			After KAIZEN (Step 6)			Reduction of frequency	Reduction rate (%)
		Frequency	Cumulative frequency	Accumulation ratio	Frequency	1	Accumulation ratio		
1	Number of cases vital signs are missing	20	20	43.5	7	7	26.9	13	65.0
2	Number of cases information on prescribed medicines is missing	17	37	80.4	7	14	53.8	10	58.8
3	Number of cases information on laboratory tests is missing	3	40	87.0	5	19	73.1	-2	-66.7
4	Number of cases patient's basic information is missing (Name, Age, Date of birth etc.)	2	42	91.3	1	20	76.9	1	50.0
5	Number of cases information on diagnosis is missing	2	44	95.7	1	21	80.8	1	50.0
6	Number of cases information on radiology investigation is missing	1	45	97.8	4	25	96.2	-3	-300.0
7	Number of cases investigation code is missing	1	46	100.0	1	26	100.0	0	0.0
<b>Grand Total</b>		<b>46</b>	-	-	<b>26</b>	-	-	<b>20</b>	<b>43.5</b>

**[Pareto chart]** (Figure 4-19)

- The size of the Pareto chart including the scale and maximum number on the axis; the left for frequency and the right for cumulative frequency percentage, should be at the same level. Because of this, any change that occurred will be easily observed visually.

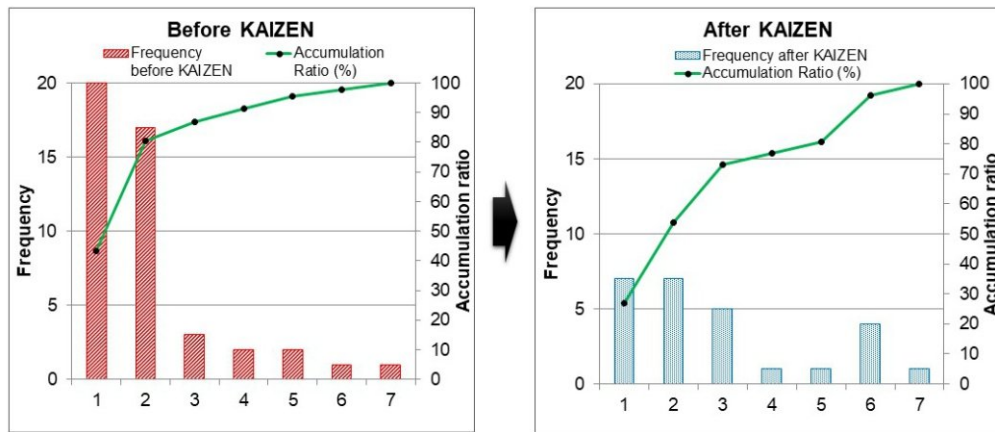


Figure 4-19: Comparison Pareto chart of before and after KAIZEN

(3) Identify effective countermeasures

The effectiveness of each countermeasure needs to be evaluated based on the monitoring of progress during the implementation of the countermeasures in Step 5 and the record of changes or improvement observed in the workplace after the implementation of the countermeasures. As shown in Figure 4-20, all the countermeasures in Step 5 should be categorized in four (4) groups as follows:

- (i) Countermeasure implemented and was effective
- (ii) Countermeasure implemented but was not effective
- (iii) Countermeasure not implemented but the situation was improved
- (iv) Countermeasure not implemented and the situation was not improved

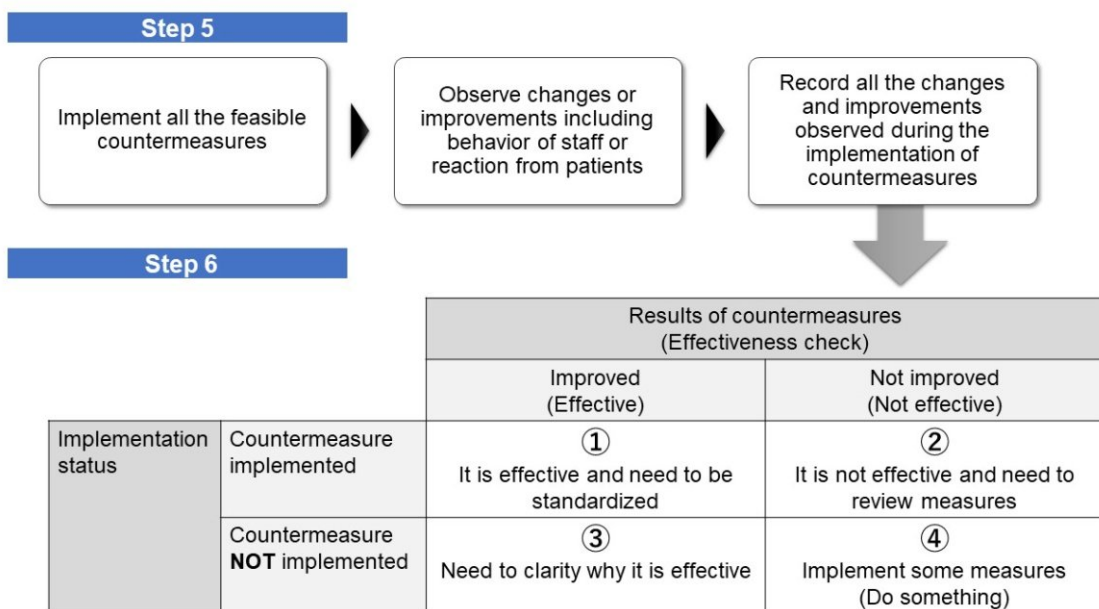


Figure 4-20: Effectiveness check table

Ideally, all countermeasures are supposed to be categorised in the group 1) above. However, in reality, some countermeasures may not be implemented or may not be much effective. Therefore, some of the countermeasures can be categorised into the group 2), 3) or 4). Be sure to perform this verification as it will have a significant impact on Step 7.

### 4-5-7. Step 7 Standardization

This step aims to continue the implementation of effective countermeasures identified in Step 6 to maintain the positive changes as well as to prevent recurrence of the same problem. Therefore, Step 7 standardises the implementation method of the effective countermeasures so that everyone in the department/section will be able to continue to attain the aims mentioned above as a day-to-day activity. Basic concept of Step 7 is shown in Figure 4-21.

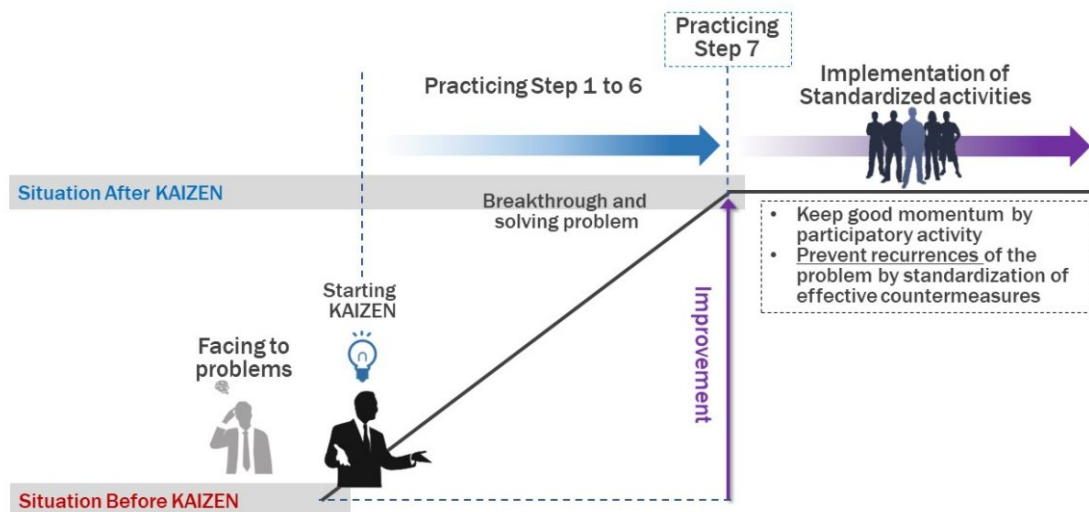


Figure 4-21: Concept of Step 7

There are five procedures for implementation of Step 7 as the Figure 4-22 below:



Figure 4-22: Flow of Step 7

- (1) Prepare the standardization action plan format  
5W1H will also be used for the format in Step 7. However, the meaning of the items in 5W1H will be different. See Table 4-10 below:

Table 4-10: 5W1H for Step 7

5W1H	Clarification	Example
Who	In-charge of implementation of the standardized activities	All staff members
What	Objects and/ or actions for implementation of the standardized activity (What to do)	5S activity
Where	Place at where the implementation of standardized activity is practiced	At nurse station
When	Frequency of implementation of the standardized activities	Before starting duty especially Mondays, Wednesdays, and Fridays
Why	Reasons to standardize the implementation of effective countermeasures	To improve the working environment continuously
How	Methodology to carry out the implementation of standardized activity (verbs)	Participation by all the staff on duty

(2) Transform the effective countermeasures to a continuous activity

For example, activities such as the preparation of training materials for capacity building of staff or conducting staff training might be considered as effective in Step 6. However, those activities are usually once-off. It is better to change and continue measures like utilization of prepared materials and induction training for new staff and list them in the standardisation action plan.

Action plan in Step 5	Standardization plan in Step 7
Develop training materials	Utilize developed training materials
Develop SOPs	Utilize developed SOP to sustain.....
Train facilitators.....	Utilize trained facilitators to ....

(3) Develop a plan of detailed standardized activities with 5W1H

Table 4-11 below is an example of the filled action plan format. Additionally, the action plan for standardized activities needs to be authorized by the head of department/section so that the actions for continuous improvement will be official and mandatory for staff to follow.

Table 4-11: Action Plan for Standardized activities

Action plan for standardized countermeasures							Monitoring sheet for the standardized measures		
Standardized measures	WHO	WHAT	WHERE	WHEN	WHY	HOW	When to check	Responsible person for monitoring	Monitoring results
Conduct competency check on documentation of medical activities	WIT members	Competency regarding documentation of patient medical record	At the medical ward	Annually (Every January)	For enhancing awareness of documentation	By interview and observation by the developed checklist for competency check	January 15, 2024	Ward In-charge	
							January 31, 2024	Ward In-charge	
Remind the staff of carrying a treatment chart for vital sign checking in weekly meeting	WIT members	Reminding the staff of carrying a treatment chart when going for vital sign checking	At the medical ward	At the 1 <sup>st</sup> week of every month	For enhancing awareness of checking vital sign and fill on the document	By putting one of the agenda of 1 <sup>st</sup> weekly meeting of every month	2 <sup>nd</sup> Monday of Sep., 2023	WIT leader	
							2 <sup>nd</sup> Monday of Oct., 2023	WIT leader	
							2 <sup>nd</sup> Monday of Nov., 2023	WIT leader	
							2 <sup>nd</sup> Monday of Dec., 2023	WIT leader	

## Section 5: How to install 5S-KAIZEN

### 5-1. Steps for installing 5S-KAIZEN

The 5S are usually implemented step-by-step often over a one- or two-year time period: starting from establishment of necessary implementation structure. The following implementation phases and its required duration are recommended for the effective and efficient implementation of 5S-KAIZEN activities. There are four (4) phases to implementing 5S activities, namely **(i) preparatory phase, (ii) introductory phase, (iii) implementation phase, and (iv) maintenance phase**. The phases of 5S implementation should be considered carefully especially when a hospital develops own action plan of QI activities including 5S-KAIZEN-TQM Approach.

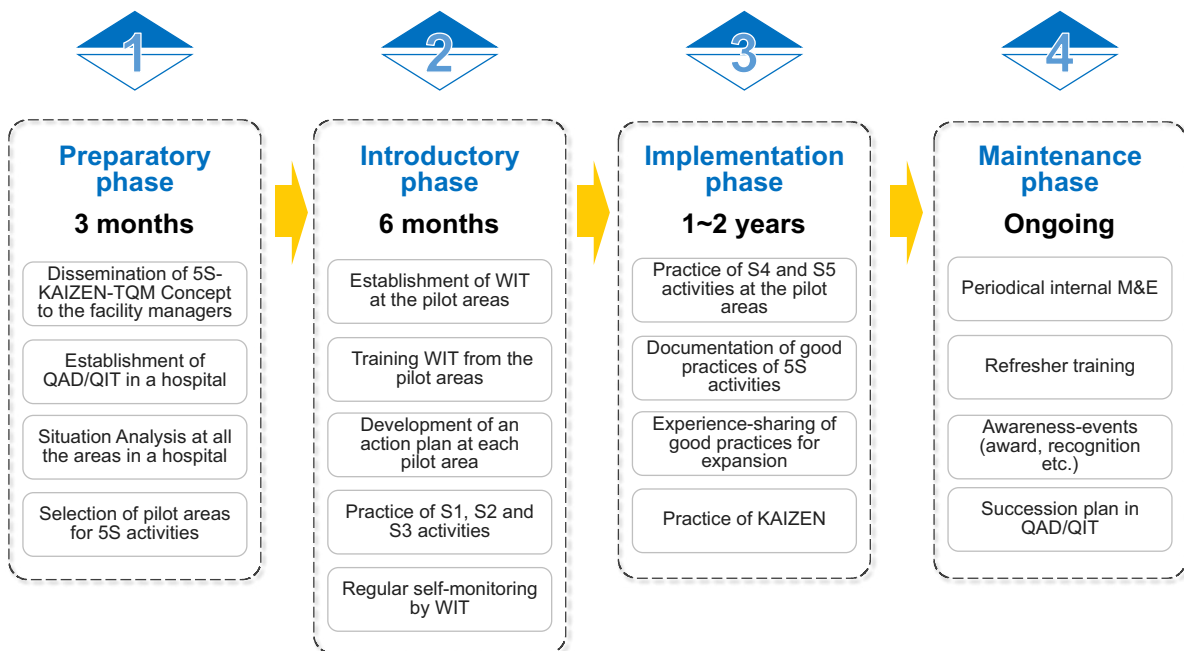


Figure 5-1: Phases of installation of 5S-KAIZEN in an organization

Table 5-1: Brief explanation of 13 steps

#	Steps	Brief explanation
1	Disseminate the concept of 5S-KAIZEN-TQM to the facility managers	Usefulness and benefits of 5S-KAIZEN-TQM approach need to be well understood by the hospital managers and staff in the hospital. Therefore, the dissemination of the concept must be done right after the training given by the MOH
2	Establish QIT/QAD in the organisation	As mentioned in Chapter 1, QIT/QAD is a very important team that oversees QI activities in the hospital. Therefore, the establishment of QIT needs to be done carefully; taking in to consideration the recommended QIT/QAD selection criteria, while recognising the team as a part of the hospital organisation structure.
3	Conduct situation analysis at all the sections in the organisation	In order to understand the current situation of physical working environment and challenges in service provision in terms of Safety, Cost, Productivity, Equity, Patient-centeredness, etc. Target of situation analysis is all the areas in the organization. Recording the observation results including pictorial record should be taken as baseline data before 5S activities. The seven (7) steps of situation analysis as follows: (i) Visiting all sections and units, including backyard services like incinerator, mortuary, workshop (ii) Observing the physical working environment including ventilation, water supply, electricity supply, cleanliness, functionality of necessary



#	Steps	Brief explanation
		<p>facilities (e.g., toilet, fan, AC, shower, handwashing facilities, availability of furniture, tools, equipment, etc.) and record the observation results</p> <p>(iii) Checking the storage of cleaning materials from the aspects of IPC</p> <p>(iv) Checking the storage of commodities from the aspects of stock management, cost, and efficiency</p> <p>(v) Checking work process and staff flow for some of the procedures from its preparation, delivery, and clean-up</p> <p>(vi) Interviewing some of the staff about any problem that the staff are facing for service delivery of quality service</p> <p>(vii) Identifying and analysing the observation results, and giving feedback to the hospital staff (by organizing a feedback session)</p>
4	Select pilot areas based on the situation analysis	<p>Pilot areas should be selected based on the following criteria:</p> <ul style="list-style-type: none"> <li>• Less problems (few organizational problems)</li> <li>• Section in-charge or department head understands the 5S-KAIZEN-TQM approach well and is committed to implementing it</li> <li>• Staff in the section or department agree to introduce the 5S-KAIZEN-TQM approach</li> </ul> <p>Those criteria are important to develop model areas and increase confident in QI among staff. That is, a success story is needed. Better not to create many pilot areas. Two to three pilot areas are better to create a showcase.</p>
5	Establish WIT in those pilot areas	WIT is also important for the day-to-day implementation and management of QI activities at section and department levels. Therefore, a member of WIT also should be selected carefully: taking into consideration the recommended criteria for selection of WIT members
6	Train WIT from pilot areas	QIT / QAD needs to train WIT members on the 5S-KAIZEN-TQM Approach as well as detailed process for implementation of 5S activities. How to develop an action plan will be also instructed during the training.
7	Develop an action plan at the pilot areas	WIT at the pilot areas needs to develop an action plan for 5S-KAIZEN activities based on the results of situation analysis.
8	Conduct S1 to S3 activities at the pilot areas	The pilot areas need to concentrate on repeat the implementation cycle between S1, S2 and S3 activities.
9	Conduct self-monitoring by WIT	WIT is required to conduct self-monitoring for 5S activities. Continuous self-monitoring is one of the keys for successful implementation of 5S. Daily or at least weekly is its frequency as a recommendation. WIT can prepare localized check sheet and is required to report the results to QIT / QAD monthly.
10	Conduct S4 and S5 activities at the pilot areas	After certain period, WIT needs to standardize a way of S1 to S3 activities, such as a rule for sorting items, storage of clearing materials, segregating medical wastes, clearing and environmental hygiene schedule, etc. The established standardized activities should be approved by the head of department and shared with all the staff at the pilot areas.
11	Record good practices of 5S activities	All the activities of 5S should be recorded on any document such as "Good Practice Sheet of Quick KAIZEN". WIT needs to encourage the implementer of the activities to fill the sheet and submit it to WIT. Verbalizing and visualizing the progress and achievements of 5S activities are for capacity building of the staff and sharing experiences with others.
12	Share progress of 5S-KAIZEN activities from the pilot areas to other areas	After good practices are created in the pilot areas, QIT is required to coordinate experience sharing between the pilot areas and other areas. This will create an interest in implementing 5S activities among staff from other sections, and also facilitate learning from each other.
13	Start using "KAIZEN with QC Story" for problem solving at the pilot areas	After 5S activities have been continuously practiced and awareness of problem-identification including any potential risk among the staff is growing up, QIT assist WIT to start using "KAIZEN with QC Story" by training and regular follow-up.

## 5-2. How to take photos properly as good evidence of 5S

During the situation analysis, it is important to keep pictorial records of the situation existing before 5S-KAIZEN activities as evidence of the changes. Therefore, it is important to know how to take photos and store them properly.

Key word of good photo shooting for situation analysis and 5S activities:

***“Different angles and distance to your target”***



The picture on the left shows a waste disposal site in a hospital. The picture was taken by a hospital employee involved in situation analysis. The employee thought the disposal site is very disorganised and dirty, approached closely and took a photo.

At first glance, it seems the picture would capture the problems at the waste dumping area. However, it is difficult to obtain other information to judge why the problem occurred.

In other words, it is difficult for everybody to understand the background including surrounding situation and environment, such as due to their incinerator is broken down, the disposal site has already fully occupied, and so on.



Picture closer to the target



Better angle and distance including the surroundings

Therefore, it is recommended to take the picture from little far from the problem you saw and try to include the information of surroundings, which may be possible to grasp the cause of the problem somewhat from the circumstances. As an example, two different pictures above were taken from different distance to the target, so that it is easy for everybody to understand the situation.

## Section 6: Monitoring and Evaluation for -5S KAIZEN -TQM Approach

### 6-1. What is the Monitoring and Evaluation

Monitoring and Evaluation (M&E) is an integral component of QI in health services. M&E is mainly conducted in supportive and consultative manner. Each of M&E can be defined as follows:

Table 6-1: Monitoring, Evaluation, and Supervision

Terminology	Brief explanation
Monitoring	<ul style="list-style-type: none"> <li>It refers to the progress tracking of the planned tasks and its implementation in a health facility or programme. Data is systematically collected, analysed and used to provide information to health managers for use in planning and management.</li> <li>It aims to provide regular feedback and oversight of the implementation of activities in relation to plans, resources, infrastructure and the use of services by the community served.</li> </ul>
Evaluation	It represents a set of procedures and analytical tools to examine how health interventions or programmes are implemented, their level of performance and whether they have the intended impact. It helps to assess the effectiveness, relevance and impact of a health intervention/programme towards the achievement of the set goals.
Supportive supervision	It is a process of supporting staff to improve their activities continuously, with a respectful and non-authoritarian way. The supportive supervision helps staff to find problems and have ideas of solutions by themselves through provision of technical advice, mentoring, or coaching by the supervisors.

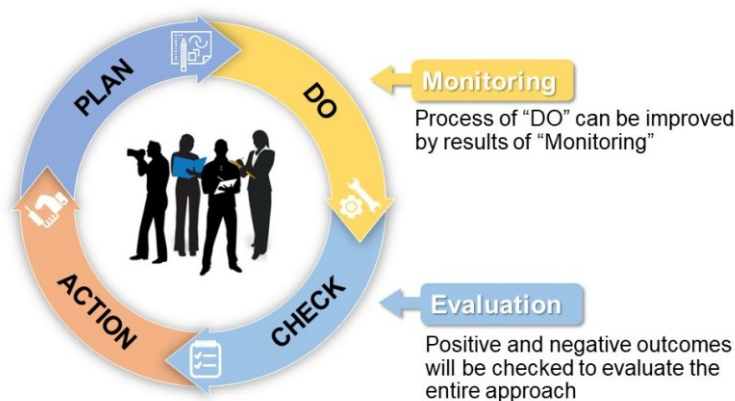


Figure 6-1: PDCA cycle and M&E

M&E is crucial for:

- Assisting PHE, Hospital directors, in-charges, QIT/QAD, staff, and others in the health facilities in performing the day-to-day management of health facilities and program
- Providing information for strategic plan of health interventions and programs
- Assisting in making informed decisions on the prudent use of meagre resources available
- Helping to improve performance by identifying those aspects that are working according to plan, and those aspects, which need an intermediate correction
- Tracking changes in services provided and in the desired outcomes
- Assisting to improve patient and staff safety at working environment and improved health status
- Putting up a system for transparent accountability

## 6-2. Model for measuring quality care “Donabedian’s model”

Donabedian’s three components approach for evaluating the quality of care underpins measurement for improvement. The three components are structure, process and outcomes. Measurement for improvement has an additional component - balancing measures.

Donabedian believed that structure measures have an effect on process measures, which in turn affect outcome measures. Together these form the basis of what is required for an effective suite of measures. The reality is that cause and effect are more complex, particularly within the National Health Strategy with so much variability in individual patients.<sup>6</sup>

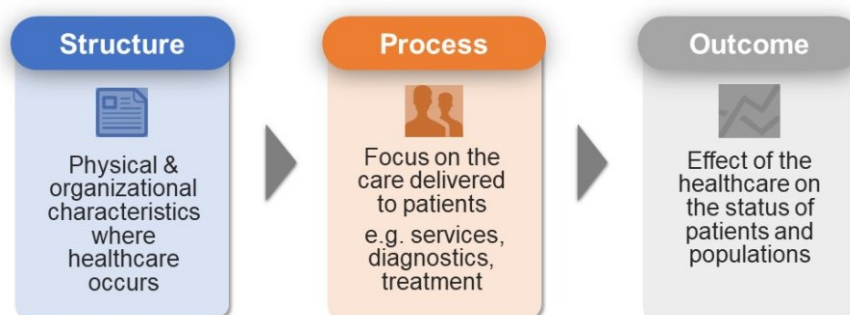


Figure 6-2: Donabedian model for quality of care

Table 6-2: Brief explanation of stages in Donabedian model for quality of care

Evaluation stages	Explanations <sup>7</sup>	Examples of items related to 5S-KAIZEN-TQM Approach
<b>Structure measures</b>	These reflect the attributes of the service/provider such as staff to patient ratios and operating times of the service. These are otherwise known as input measures	Establishment of QIT/QAD & WIT, Official terms of reference of QIT/QAD & WIT, QI Action plan and budget allocation, Availability and accessibility to the guidelines and SOPs, etc.
<b>Process measures</b>	These reflect the way your systems and processes work to deliver the desired outcome	Capacity building (e.g., Orientation, Training, etc.), Relevant meetings, Documentation of QI activities, etc.
<b>Outcome measures</b>	These reflect the impact on the patient and demonstrate the end result of your improvement work and whether it has ultimately achieved the aim(s) set	Patient satisfaction, staff satisfaction, waiting time of the patients, length of hospitalization, incidence of Hospital Acquired Infection, Mortality rate, etc.

## 6-3. Different Types of M&E Activities

There are various types of M&E activities with different objectives, implementers, frequency, etc. “External M&E activities” is conducted by the third parties for the target health facility and “internal M&E activities” is conducted within the facility. In particular, M&E activities focused on technical support of 5S-KAIZEN-TQM Approach are classified into two types as shown in Table 6-3.

<sup>6</sup> Donabedian A: Evaluating the quality of medical care. Milbank Quarterly 83(4):691-729,2005

<sup>7</sup> ACT Academy. Online library of Quality, Service Improvement and Redesign tools: A model for measuring quality care <https://www.med.unc.edu/ihqi/wp-content/uploads/sites/463/2021/01/A-Model-for-Measuring-Quality-Care-NHS-Improvement-brief.pdf>

Table 6-3: Types of M&E activities for 5S-KAIZEN-TQM Approach

M&E activities	Expected frequency	Implementer	Level of target
<b>External M&amp;E of 5S-KAIZEN activities</b>			
(National level)	Biannually or annually	MOHCC	Organizational achievements and performance
(Regional/district level)	Quarterly	PHE, DHE	
<b>Internal M&amp;E for 5S-KAIZEN activities</b>			
Internal monitoring	(At least) Monthly	Facility management, QAD/QIT	Departmental achievements and performance
Internal evaluation	Quarterly	Facility management, QAD/QIT	
Self-monitoring of 5S-KAIZEN	Every day, Monthly	WIT	Sectional achievements and performance

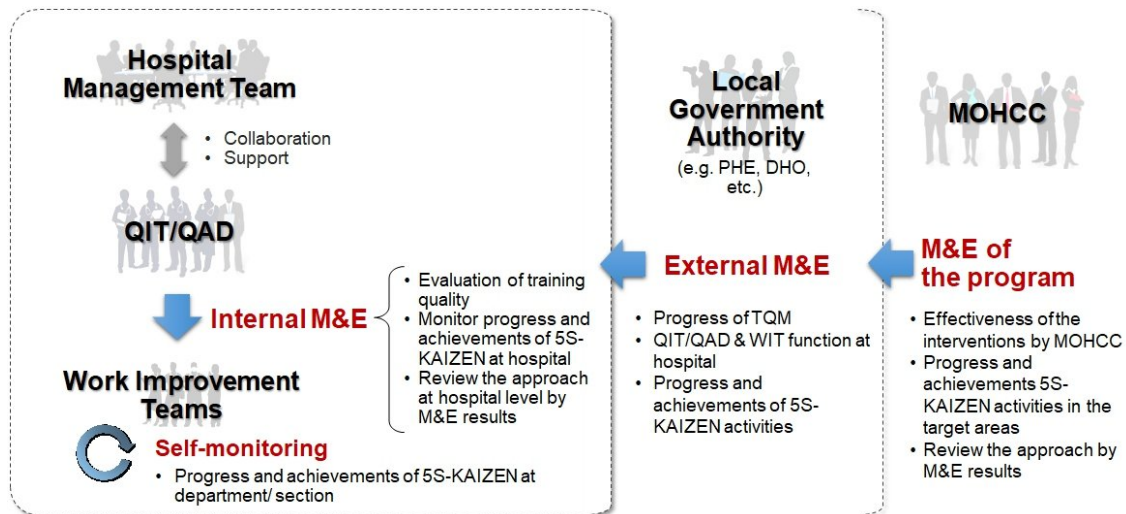


Figure 6-3: Level of M&E activities

Appropriate and effective practice of M&E activities at any level can surely lead to continuous practice of 5S-KAIZEN-TQM Approach. For its effective implementation, the assessor of the M&E should meet at least the following requirements:

- Have at least 2 years-experience in implementing the 5S-KAIZEN activities
- Well trained in M&E activities of the 5S-KAIZEN activities and have at least 2 years-experience in M&E activities by her/himself

### 6-3-1. Internal supportive supervision by QIT/QAD

#### (1) Formulating supervisory team

QIT/QAD members shall formulate supervisory teams. Depending upon number of 5S and implementing areas and capacity of QIT/QAD, necessary number of team will be different.

#### (2) Preliminary session for the supervisors

Before conducting the internal M&E, the supervisors need to conduct a preliminary session to: (i) review the previous results and pictures of external/internal supervision and (ii) confirm how to

use the checklists and how to progress the supervision.

(3) Field observation

The supervision shall be preceded by the interviews at a pilot area.

- To have interview with WIT members in order to collect/know information on current WIT activities such as regular WIT meetings, self-monitoring, actual 5S activities and current challenges and solutions
- To score on the monitoring check sheet
- To provide technical advices
- To take photograph
- To check the progress of KAIZEN activities according to the checklist

(4) Summarization

After the observation, collected information shall be analyzed as follow.

- “Rader Chart” shall be developed based on scores of the monitoring check sheet and field observation.
- “Feedback report/presentation” shall be developed. Its components are 1) Strength, 2) Challenges, 3) Comparison Rader Chart”, 4) Comparison pictures and 5) Recommendations.

(5) Feedback

Feedback of the supervision should be given to WITs, submitted to the hospital managers, and made public to all the hospital staff. Therefore, it is recommended to have a short-time feedback session immediately after the internal M&E. At the session, the supervisory team shall have a presentation on the results composing evaluation score, findings, and recommendations.

(6) Report

Reports of the internal supportive supervision shall be communicated to the respective PHE within two (2) weeks after conducting the supervision.

### 6-3-2. Selfmonitoring by WIT

WIT has a responsibility for conducting monitoring of day-to-day 5S practices and KAIZEN activities that are implemented within their work place. Process and achievements of 5S-KAIZEN activities should be documented and shared within the department/sections.

WIT will be also required to communicate the results to QIT/QAD. During the self-monitoring, the following tools are recommended to use:

- Daily checklist that WIT develops by themselves
- Good Practice Sheet of Quick KAIZEN
- Checklist for KAIZEN with QC story

In addition, it is recommended for QIT/QAD and WITs in a hospital to conduct an exchange meeting at least twice a year. During the exchange meeting, it is expected to share achievements, good practice, and any challenges in implementation of 5S-KAIZEN activities: aiming at facilitating mutual learning among the implementers.

### 6-3-3. External Supervision

The external supportive supervision shall be conducted quarterly by PHE/DHE, while the MOHCC will do it biannually or annually. For smooth and effective implementation of supportive supervision, following methods/means shall be utilized to:

- (i) Scoring “Checklist for Quality Management System” and “M&E checklist for 5S-KAIZEN activities” to understand the current progress and achievements of the activities
- (ii) Checking the progress of the action plan and its achievement
- (iii) Interviewing QIT/QAD to check its functionality
- (iv) Interviewing WIT members in each of the pilot areas
- (v) Exchanging information and opinions with WIT to know their attitude, identify challenges facing, and come up with effective solutions
- (vi) Giving feedback to the facility managers, QIT/QAD, WIT, and hospital staff

Scores of the checklist, general findings (strengths & challenges) and recommendations should be shared with all hospital staff.

### 6-4. Tools for M&E

Standardized tools of M&E for 5S-KAIZEN-TQM Approach have been developed by MOHCC. In principle, the same tools should be used among the parties involved into M&E activities, such as MOHCC, PHE, DHE, QIT, WIT, etc., so that it will be easier to create a common understanding of the current progress and evaluation results among the parties. Table 6-4 shows outline of the five types of the M&E tools which is necessary to strengthen the implementation of 5S-KAIZEN activities.

Table 6-4: List of M&E tools for 5S-KAIZEN-TQM Approach in Zimbabwe

#	M&E tools	Purpose	Parties	Occasion for use
I.	<b>Check Sheet of General information and QI Implementation Structure</b>	To check functionality of the implementation structure for QI activities and identify any deficiency	MOHCC, PHE, DHE	External M&E
			QIT/QAD	Internal M&E
II.	<b>Monitoring and Evaluation Checklist for 5S-KAIZEN-TQM</b>	To evaluate progress and achievements of 5S-KAIZEN activities and identify any deficiency	MOHCC, PHE, DHE	External M&E
			QIT/QAD	Internal M&E
III.	<b>Monitoring tool for KAIZEN with QC Story</b>	To check accuracy of QC story and its achievements	MOHCC, PHE, DHE	External M&E
			QIT/QAD	Internal M&E
			WIT	Self-monitoring
IV.	<b>Good Practice Sheet of Quick KAIZEN activities</b>	To record good practices of Quick KAIZEN and utilize it for horizontal expansion within stakeholders	QIT/QAD	Internal M&E
			WIT	Self-monitoring
V.	<b>Feedback Presentation and Report of Monitoring and Supervision</b>	To compile the results of the tool #I ~ #IV for feedback to the target and report to higher authorities	MOHCC, PHE, DHE, QIT/QAD	Feedback session after any M&E activities

### **[Viewpoints of core aspects in implementation of 5S-KAIZEN activities]**

(1) Function of implementation structure for QM activities

Function of QIT / QAD and WIT is an essential for smooth and effective implementation of QM activities in a facility. It is recommended to understand and analyze the function from the aspects of structure, planning capacity, training and follow up, and information management. This will be evaluated annually by external M&E with the specific checklist (Refer to **Tool I: Checklist of General Information and QI Implementation Structure**)

(2) Implementation of 5S and KAIZEN Activities

Implementation status of 5S-KAIZEN activities will be monitored and evaluated by both QIT / QAD as internal activity at least monthly and the third party as external activity biannually or annually. Not only process of 5S-KAIZEN activities but also outputs by 5S-KAIZEN, such as productivity, efficiency, quality, cost, safety, service delivery, and morale, will be monitored and evaluated. (Refer to **Tool II: Monitoring and Evaluation Checklist for 5S-KAIZEN-TQM**)

(3) QC story

KAIZEN with QC story is effective process to identify current issues, proper countermeasures, check effectiveness of countermeasures, and establish standardized activities to prevent recurrence of the same problem. There is a specific checklist to check the procedures of KAIZEN with QC story (Refer to **Tool III: Monitoring tool for KAIZEN with QC story**). WIT can use the checklist whenever any step in QC story has been proceeded, and QIT / QAD and external Support and Supervision team can use it for coming up with effective technical advices.

(4) Good Practice

Sharing good practices of Quick KAIZEN activities that was practiced by WIT and frontline staff will be effective to maintain KAIZEN mind among the staff. Therefore, for smooth and effective documentation of the good practices and clear communication, it is recommended to use the standardized form (Refer to **Tool IV: Good Practice Sheet of Quick KAIZEN**). And it is better that QIT/QAD can provide an opportunity to praise the best of good practice periodically: this will be an encouragement of the implementers.

(5) Feedback

Internal and external Support and Supervision is required not only for observation but also provision of technical advices. The standard format for feedback activities is provided and assessors needs to fill the summary of their observation, results of checklist and recommendations (**Refer to Format for feedback presentation: Tool V**).





## Section 7: Support at National, Provincial and District Level

### 7-1. Support at the national level

5S-KAIZEN-TQM approach has been approved by Government of Zimbabwe as a philosophy as well as a tool to improve the quality in health care. QAPS Directorate was established as a key department to establish QM system. This would promote the development of quality policies, SOPs, training and supervision of the health facilities in collaboration with PHEs and DHEs. Therefore, the framework at the national level has been established as follows:

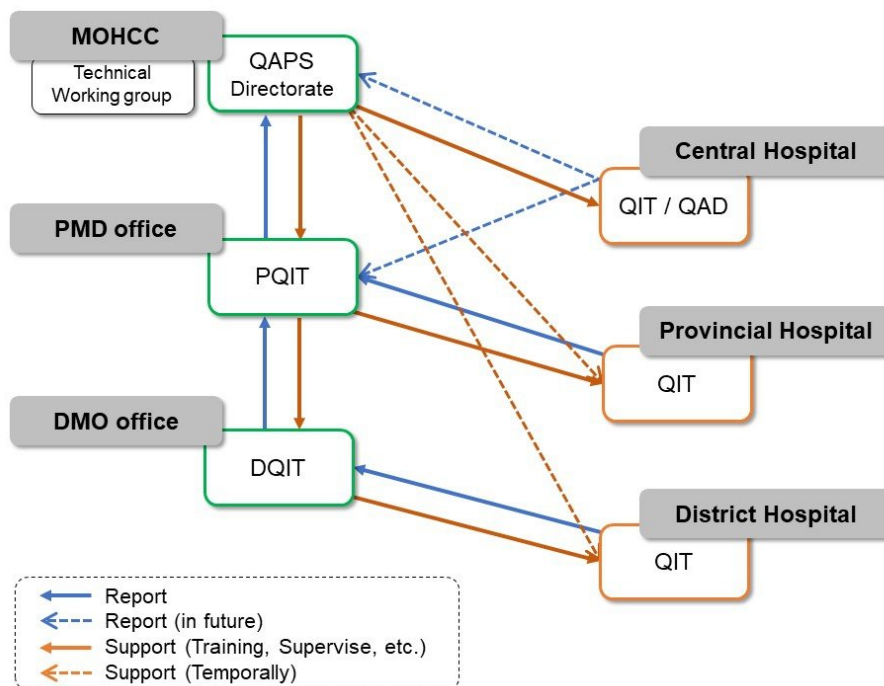


Figure 7-1: QI structure in Zimbabwean health sector

#### National Technical Working Group

Composition of the working group will be representatives from MOHCC, QAPS Directorate, technical and funding partners, and Training institutions, etc. The team will be working in close collaboration with the provincial, district and site level QIT to support QI activities. Roles and responsibilities of the working group are following:

- Provide input into the national QI program, including, but not limited to, performance measurement, quality improvement, quality infrastructure requirements, and targeted consumer and provider initiatives.
- Provide strategic guidance and commitment to the direction and outcomes of the program within the objectives of the MOHCC.
- Support and mentor, in collaboration with provincial, district and site level coordination teams, the appropriate implementation of strategies to improve health services delivery including compliance to the national guidelines and capacity development at all levels.

### **7-2. Support at the provincial level (Provincial QIT: PQIT)**

PQIT will be chaired by PHE or an appointed representative and will work in consultation with the national technical working group to ensure the implementation of QI activities in the province as well as building the provincial capacity in QI. PQIT will incorporate members of PHE and other stakeholders such as consumers, implementing and technical partners. Roles and responsibilities of PQIT are following:

- To take the lead on the implementation of quality activities in the province and report to the PHE
- To facilitate and ensure training of provincial and district and site staff on QI
- To provide QI coaching and mentoring in the province
- To assist the districts in the development of QI plans
- To support the implementation of QI plans and activities in the districts
- To ensure that districts incorporate the consumer within their teams
- To provide a platform for the district QIT to meet and share their experiences on QI
- To perform monitoring and evaluation of the district QI activities
- To analyze QI reports from the provincial hospital and forward to PHE

### **7-3. Support at the district level (District QIT- DQIT )**

DQIT will be constituted by DHE and will function and supported by PHE and PQIT. Roles and responsibilities of DQIT are as follows:

- To develop and implement the district QI plan
- To identify sites to implement QI in the targeted services delivery area
- To oversee the development and implementation of site-level QI plans
- To ensure effective and efficient collaboration of all departments responsible for QI in the identified service delivery areas
- To monitor and measure performance at the district and site level in the QI implementing sites
- To facilitate experience sharing in QI through presentations at district planning and review meetings

## Section 8: Glossary

### Quality

- Quality is the degree to which health services for individuals and populations increase the likelihood of desired health outcomes (WHO)
- Quality is doing the right thing right when no one is looking (Henry ford)
- It's meeting customers need. Quality is fitness for use (Joseph M. Juran)
- Quality is conformance to requirements (Crosby)
- Good quality means a predictable degree of uniformity and dependability with a quality standard suited to the customer (W. Edwards Deming)
- The degree to which health care services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge (Institute of Medicine)

### Quality Assurance (QA)

Setting standards and systematically measuring compliance with those standards to improve performance/A procedure or set of procedures intended to ensure that a product or service under development meets specified requirements

### Quality Improvement (QI)

The process of engaging appropriate quality management approaches, methods, and tools to close the gap between current and desired levels of performance

### Quality Management (QM)

The broad set of activities and strategies applying various tools, methodologies, and techniques designed to improve quality of service-delivery, reflecting customer needs and demands

### Quality Improvement Team (QIT)

It is group of individuals (from different departments) within an organization responsible for driving/ ensuring implementation of 5s-Kaizen improvement activities.

### Quality Assurance Department (QAD)

It is a group or department that performs the quality review functions.

### Work Improvement Team (WIT)

A small team of staff formulated at each work unit. WIT members hold regular meetings to navigate 5S activities and also try to solve the problems recognized at their workplace and work processes.

### 5S (Five S)

The principles of 5S originated from five Japanese words: *Seiri*, *Seiton*, *Seiso*, *Seiketsu* and *Shitsuke* which have been roughly translated into English as Sort, Set, Shine, Standardize, and Sustain. Those principles are a complete set of simple and universal managerial tools for the improvement of the work environment.

### KAIZEN

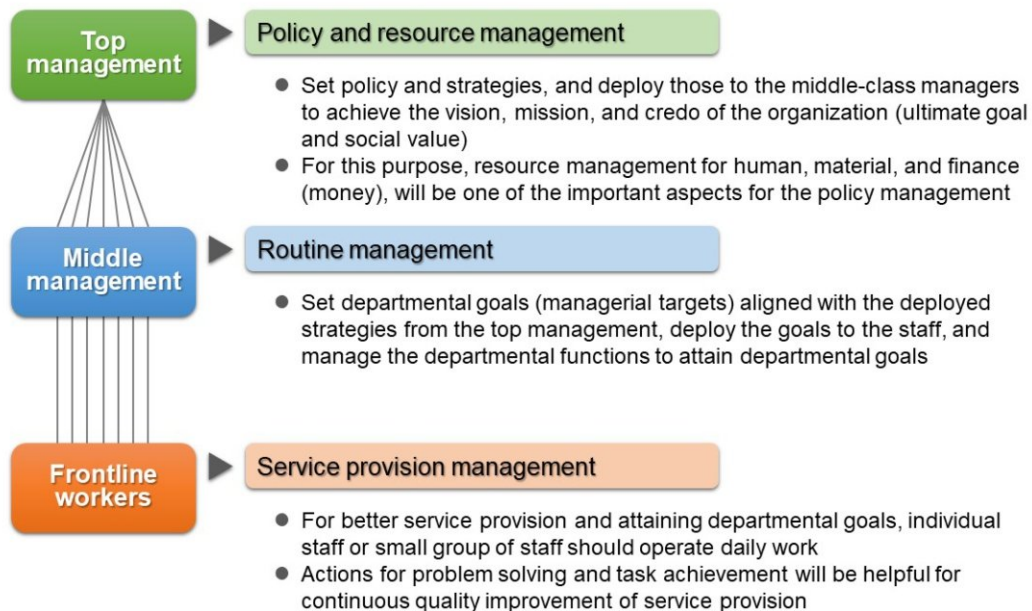
A Japanese term: an approach to creating continuous improvement based on the idea that small,

ongoing positive changes can reap major improvements. It also means change for the better. It is based on teamwork and commitment of staff and stands in contrast to approaches that use radical changes or top-down edicts to achieve transformation.

## TQM

Total Quality is a description of the culture, attitude and organization of a health facility that strives to provide clients with services that satisfy their needs. The culture requires quality in all aspects of the facility's operations, with processes being done right the first time and defects and waste eradicated from operations. TQM is a method by which management and employees can become involved in the continuous improvement of the services. TQM is a health service management strategy aimed at embedding awareness of quality in all organizational processes. It is a comprehensive and fundamental rule or belief for leading and operating an organization, aimed at continuously improving performance over a long term by focusing on customers while addressing the needs of all stakeholders.

To promote TQM, a process in which top management, middle management, and frontline workers of the health facility manage and work toward the same goal is crucial. An organization will not work efficiently and effectively if some of the functions within the health facility stands out. It is also necessary to harmonize functions across the health facility. For this reason, it is necessary to develop a policy, understand it at each department level as well as among each staff, and put it into daily actions. In addition, each staff operates at the work venue, solves problems, and reports them to the respective management (middle management). Based on the report, the middle management will adjust departmental policies if necessary and report the current status and progress of the policy implementation to the top management. The top management coordinates organizational policies based on the reports from each department.



## Quality Management Essential Elements

Facilities to develop their own Quality Manual policy, Safety Manual policy and Quality Objectives. The following documents to be available at the facility. Facilities can refer to the

Ministry of Health and Child Care documents and edit the documents to suit the facility.

- Document control
- Records
- Assessments
- Purchasing and Inventory
- Personnel Training and Competency
- Equipment
- Service agreements
- Handling of customer complaints
- Management Review
- Advisory service
- External services evaluation
- Occurrence management
- Organization structure
- Process improvement
- Facility Safety
- Information Management

## **Annex**

- (1) Sample form of Action Plan**
- (2) Tool I: Checklist of General Information and QI Implementation Structure**
- (3) Tool II: Monitoring and Evaluation Checklist for 5S-KAIZEN-TQM**
- (4) Tool III: Monitoring tool for KAIZEN with QC story**
- (5) Tool IV: Good Practice Sheet of Quick KAIZEN**
- (6) Tool V: Feedback Report Format of Monitoring and Supervision**

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