KAIZEN Handbook

Improvement starts here !

5S-CQI-TQM
HEALTH INFRASTRUCTURE MANAGEMENT

0

Introduction - Why we need KAIZEN

[Lines]

Welcome to the KAIZEN training. KAIZEN is a Japanese term meaning "change for the better" and, in our context, it is an approach for problem-solving through team work. As you are here as participants, it means that 5S activities in your workplace are going well; you have reached S4: Standardize or S5: Sustain, and you are eligible to take the next step, which is KAIZEN. In this training, we're going to learn how to undertake KAIZEN and its 7 steps.

First of all, why do we need to learn KAIZEN? To answer this, we need to review an important framework of hospital management, "the Mountain of Management".

[Tips]

S4 (Standardise) or S5 (Sustain) should be practiced thoroughly before starting KAIZEN. In other words, S4 and S5 are the preconditions of the KAIZEN process. Please keep this point in mind when you select participants or targets for KAIZEN training. For more information, please see the 5S-CQI(KAIZEN)-TQM guidelines ("the Guidelines") on page 22.

KAIZEN Handbook

Improvement starts here !

5S-CQI-TQM
HEALTH INFRASTRUCTURE MANAGEMENT

1

Mountain of Management

[Lines]

In Uganda, you can call it the "Mt. Rwenzori" or "Mt. Elgon" of Management! As you can see, this picture represents the path we should be on. Starting at the foot of the mountain, the working environment needs to be improved; this can be done with 5S. Through 5S activities, teamwork will gradually be strengthened as well. This is the point at which you can begin to solve your problems at work with KAIZEN. Without an organized work environment and good teamwork, we can't tackle our problems. Through KAIZEN, you will be able to reduce 3M. These are again Japanese words: *Muri* means overburden, *Muda*, waste and *Mura*, irregularity. When problems are piling up, we can't make the most of our limited resources in terms of staff, medical equipment, drugs and consumables. But by repeating KAIZEN, you'll be able to optimize these resources for your work, and work processes will be stabilized. However, this is not our ultimate goal. We need to improve quality and ensure safety for patients and staff. These are a part of 7 managerial targets that the top management should be continually working to improve. As the services themselves are improved through the ongoing activities, more patients will come to be satisfied with your services, and staff will be happier at work. Finally, we'll reach the summit of the mountain. Our goal is to make people healthier and happier. Now it's clear, isn't it? If we leave problems as they are, we won't be able to climb the mountain to the summit. That's why we need KAIZEN to pave the way.

[Tips]

Please point out each step while you're explaining it, so that participants understand that they need to climb the mountain step-by-step.
Please see "A Trainer's Guidebook" ("the Guidebook"), pages11-16, for more details about the Mountain of Management.

MOUNTAIN OF MANAGEMENT CONCEPT

7

GOAL
MAKE PEOPLE HEALTHIER AND HAPPIER

6 Social Value Co-creation

Improved Services | Patient Satisfaction | Employee Satisfaction

5 7 Managerial Targets

Productivity ↑ | Quality ↑ | Cost ↓

Delivery system ↑ | Safety ↑ | Morals ↑ | Morale ↑

4 Optimization of Resources and SOPs

Men/Women (Capacity) ↑ | Machine (Maintenance) ↑ | Materials (In-house Logistics) ↑ | Methods (SOPs) ↑

3 Problem Solving = KAIZEN

MURI (Overburden) ↓ | MUDA (Waste) ↓ | MURA (Irregularities) ↓

2 Team Building and Teamwork

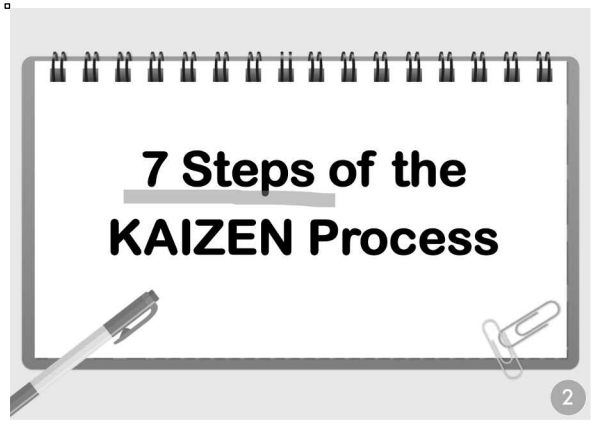
- Mutual Trust
- Shared Goal
- Shared Roles
- Leadership
- Stable Membership
- Smooth Communication
- Shared Outcomes

1 Work Environment Improvement by 5S

Sort | Set | Shine | Standardize | Sustain

1

2



KAIZEN for problem-solving

[Lines]

As I explained, KAIZEN is an approach for problem-solving. (*1)

However -- what exactly is "a problem"? We often say "I have a problem", but what is the definition of a problem?

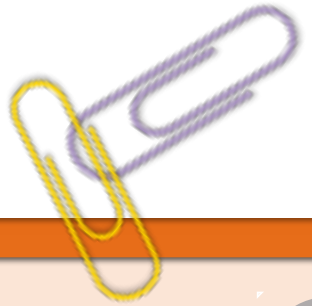
You can interact with the participants and discuss the definition. It will be explained in the next slide.

You can say "I have a problem", but what does this really mean? There are many types of problems. Even within the same type of problem, the scale of the problem can vary. And our responses will vary depending on the problem.

[Tips]

*1: Before discussing the definition of a "problem", you can ask the participants if they have any problems at work or at home. Such interactions will help participants to think about and understand the topic for themselves.

7 Steps of the KAIZEN Process



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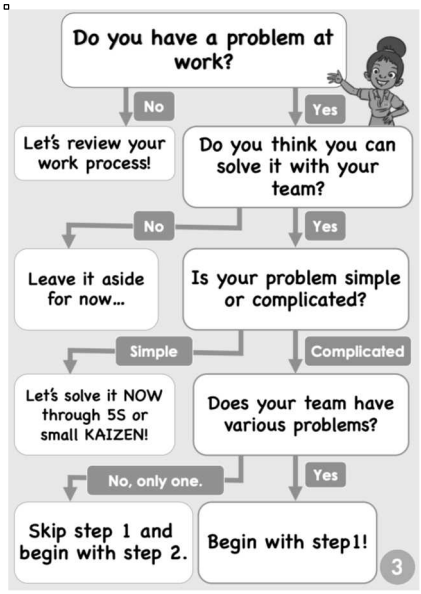


When do we use KAIZEN?

[Lines]

Simply put, a problem can be defined as "an undesirable current situation". Our focus is on the present, not the past or the future.

Let me ask you a question: Do you have any problems at work? If you think that you don't have any problems, listen to this quote from Mr. Ohno, a Japanese engineer who worked for Toyota and is known as the father of KAIZEN. He said, "Having no problems is the biggest problem of all"! If you think you don't have any problems, try reviewing your work process, and you may find something that you have to work on. If the answer is yes, do you think you can solve the problem with your team? If the problem is caused by or deeply involved with other departments and you can't solve it within your department, leave it aside for now and start working with other problems that can be solved by your team. If the answer is yes, do you think the problem is simple or complicated? If it is a simple problem or one that is caused by the physical working environment, what you can do is tackle it right now with 5S or small KAIZEN. I believe you can solve it in a short period of time. If the problem is complicated but you have only one, you can skip Step 1 and start KAIZEN from Step 2. If you have many complicated problems, begin with Step1, theme selection.

[Tips]

Please trace the arrows and speech bubbles one-by-one with your finger while explaining. For small (quick) KAIZEN, you can refer to the Guidelines, pages 34-35, for details.

Do you have a problem at work?

No

Let's review your work process!

Yes

Do you think you can solve it with your team?

No

Leave it aside for now...

Yes

Is your problem simple or complicated?

Simple

Let's solve it NOW through 5S or small KAIZEN!

Complicated

Does your team have various problems?

No, only one.

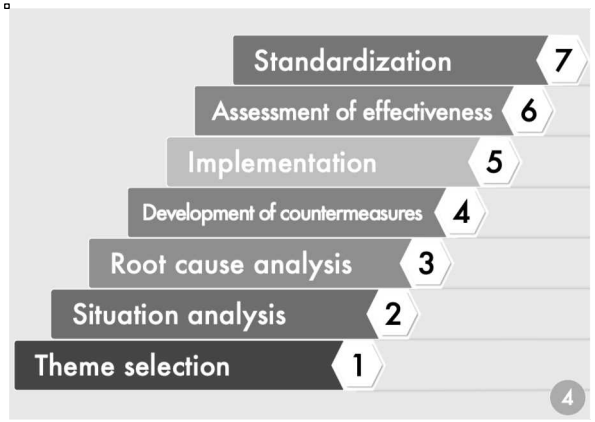
Skip step 1 and begin with step 2.

Yes

Begin with step 1!

4

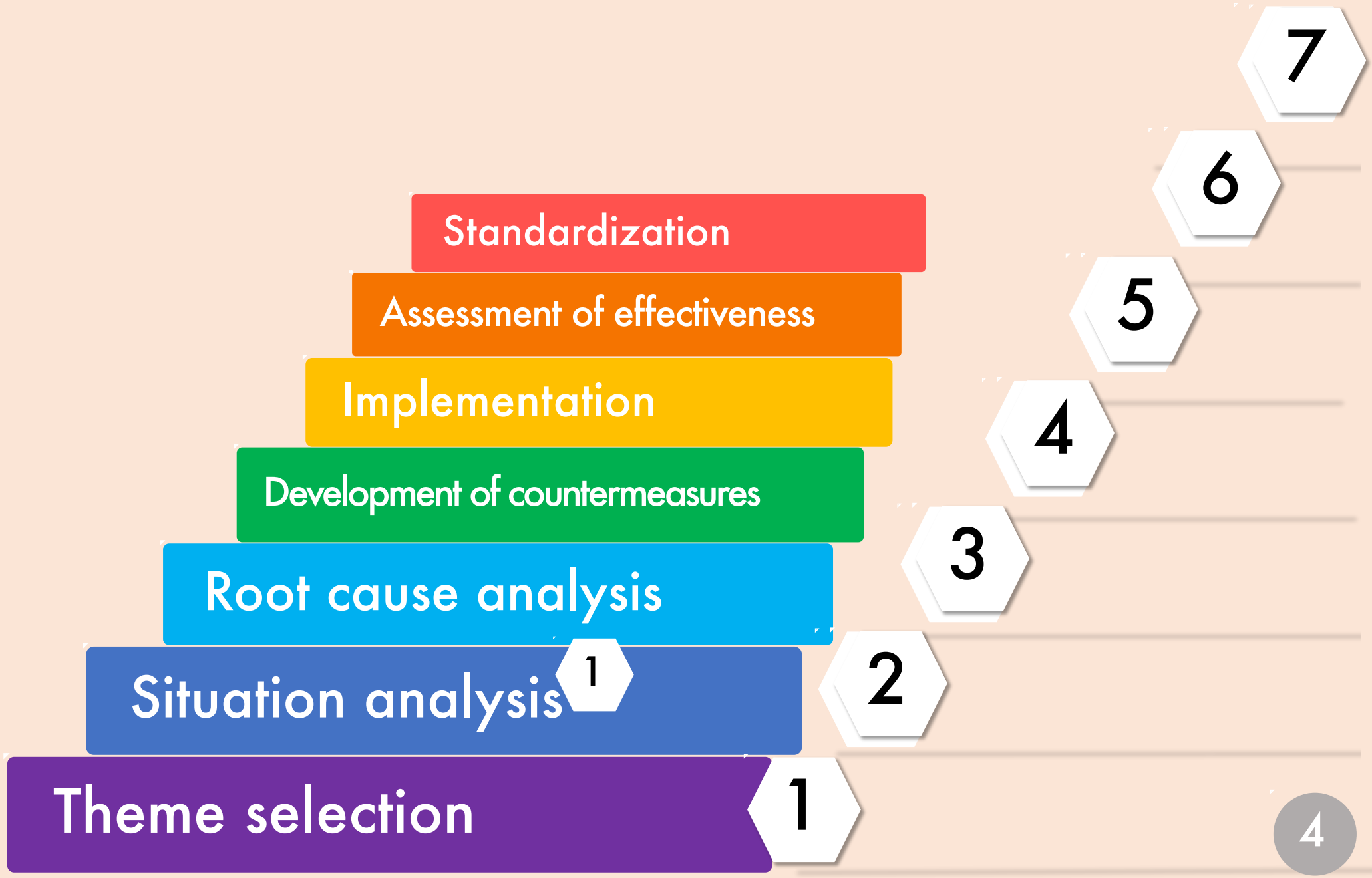
The 7 Steps of the KAIZEN process

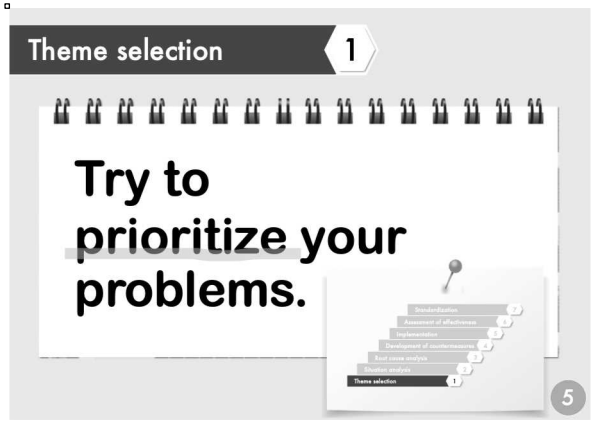


[Lines]

Now let's get into the actual process of KAIZEN. As you can see, there are 7 steps in KAIZEN, and the whole process is called a QC* story. One of the differences between KAIZEN and small KAIZEN is that the full-scale KAIZEN requires data, while small KAIZEN does not. In full-scale KAIZEN, data must be collected and analysed; then countermeasures are developed based on your analysis, to ensure that you improve the situation effectively. Usually all 7 steps of KAIZEN are to be completed within 6 months.

* QC stands for Quality Control


Standardization
Assessment of effectiveness
Implementation
Development of countermeasures
Root cause analysis
Situation analysis
Theme selection
1
2
3
4
5
6
7



Step 1: Theme selection

[Lines]

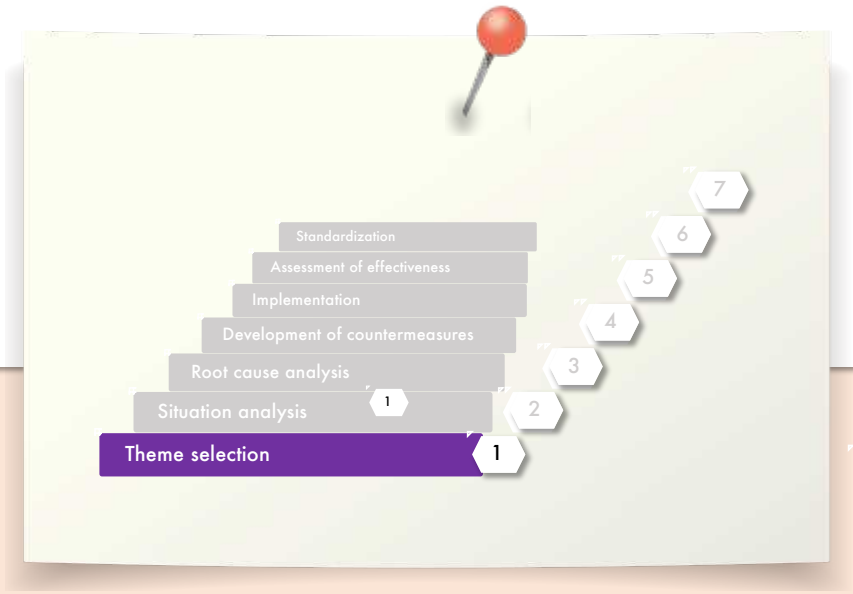
In Step 1, what we are going to do is list the problems, prioritize them and select one as the theme of our KAIZEN project. We have to start with Step 1 when we have multiple problems. As we can't solve them all at once, we need to set our priorities.

[Tips]

As explained in slide #3, they can skip Step 1 when the team has only one important problem, or when the team members are sure that a particular problem should be prioritized. But it should be agreed among the team to take the problem as their theme.

Theme selection 1

Try to prioritize your problems.



6

Our problems at work (Step 1)

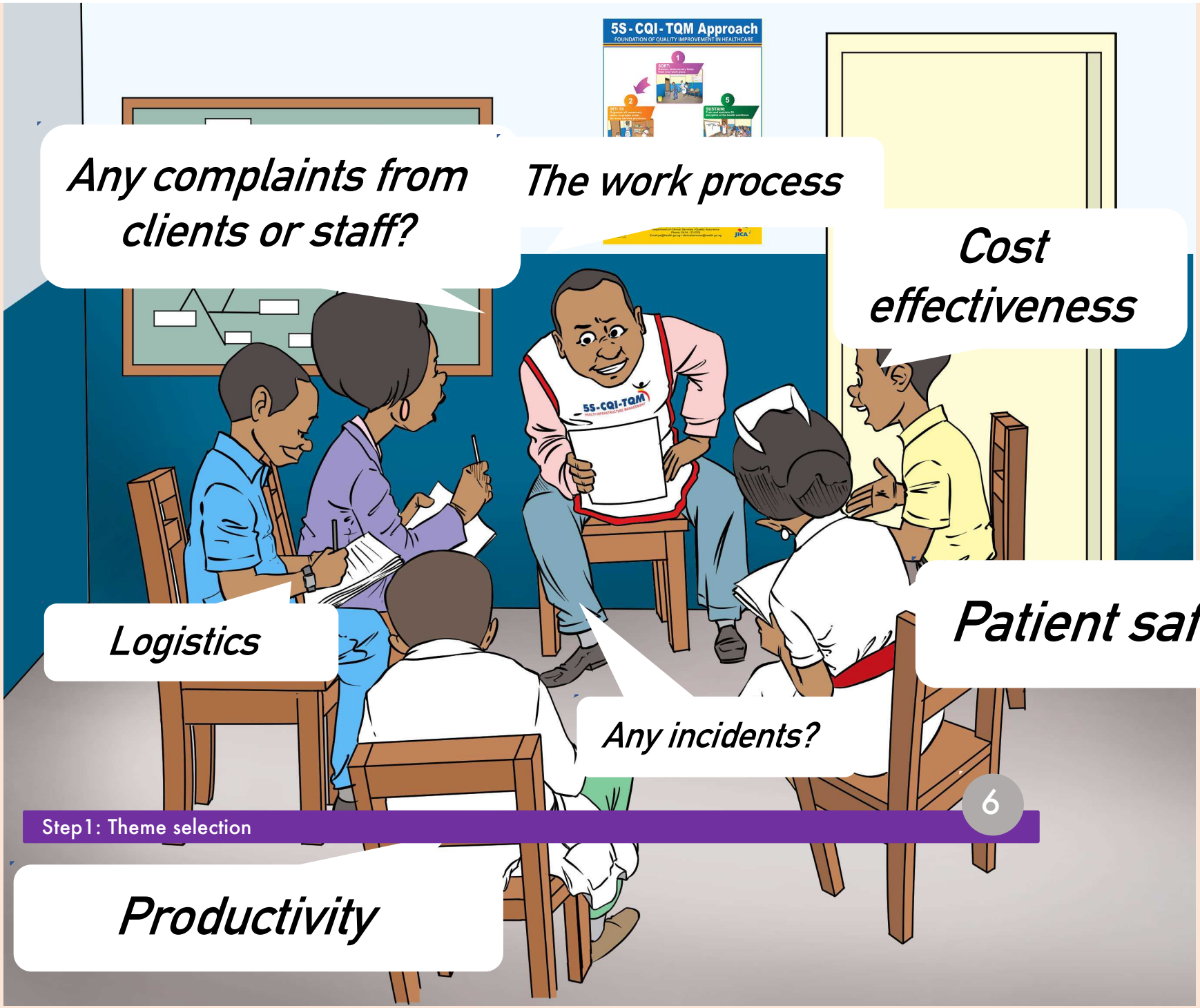
[Lines]

Problems exist in various areas. The most common problem area is the work process. If you are a frontline health worker, you're probably concerned about patient safety. One way to identify problems is to read through incident reports and list up the problems described in them. For management and administration, cost-effectiveness or smooth logistics may be a particular area of interest. Of course, complaints from patients and staff are a rich source of problems. Brainstorming is a good way to come up with a list of problems that the team members are facing at work.

[Tips]

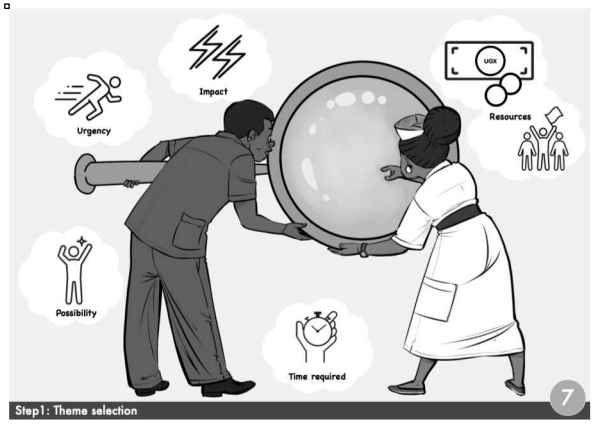
Here are some tips facilitators should keep in mind for productive and successful brainstorming;

1- Write every idea down. If you use cards, first write and then talk. 2 -There are no dumb ideas. Keep the entire team involved and encourage them to speak out. 3 - Don't criticize other people's ideas. This is not a debate or discussion at this stage, so any idea should be welcomed and respected. 4 - Ideas are no one's property. The idea is a product of the team once it is shared.



Step 1: Theme selection

7



Views from several aspects (Step 1)

[Lines]

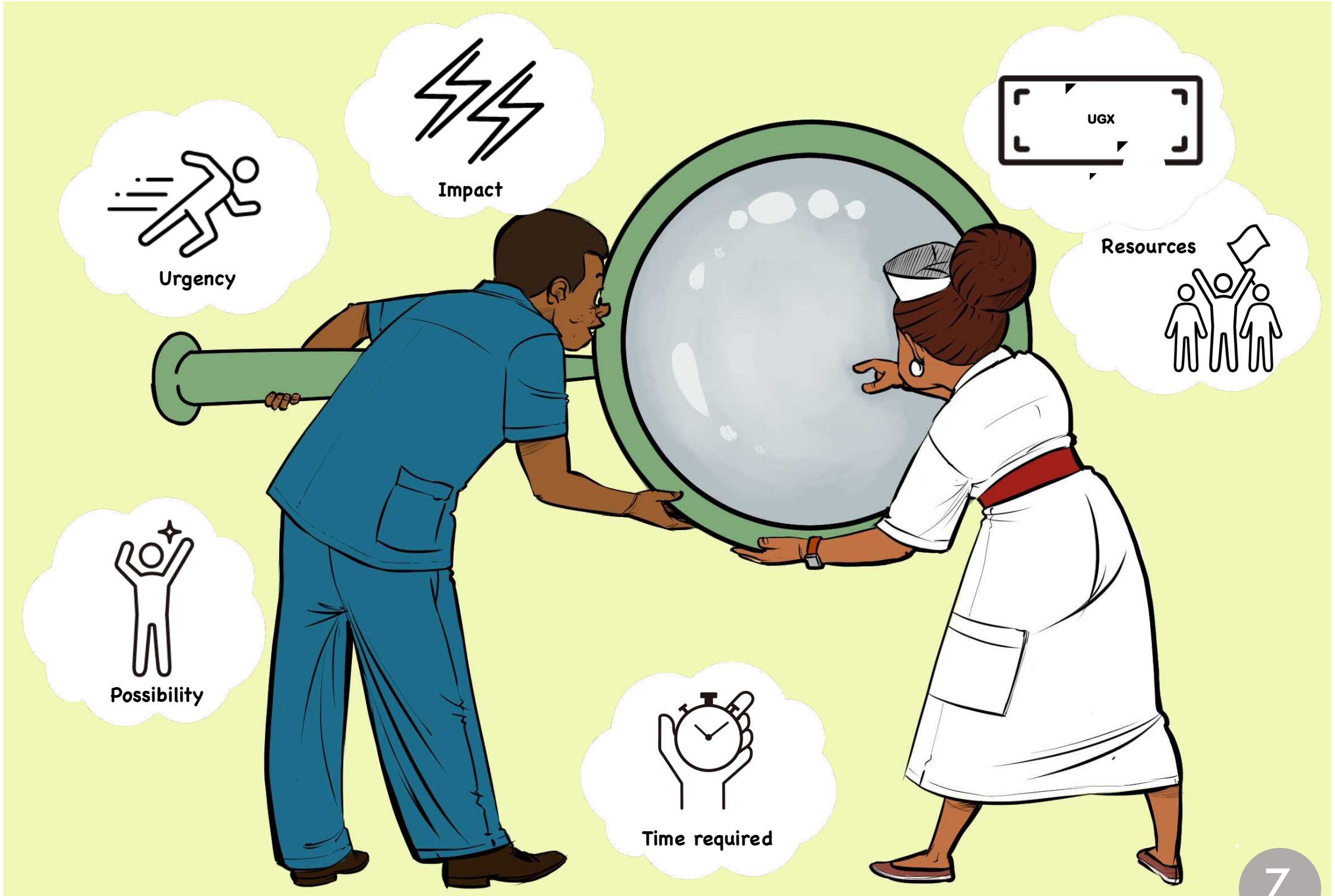
Once a list of problems has been made, you need to consider the feasibility of solving each problem from several aspects: How long will it take to solve the problem? Can we do it within 6 months? What kind of resources do we need and are they available? Is this problem more urgent than others? Practically speaking, can we solve it?

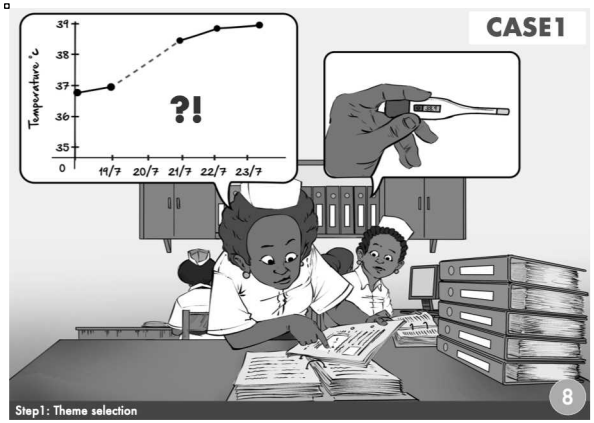
After discussing these issues, the team chooses the highest priority issue as its target and rephrases it in a positive way, so that the KAIZEN theme represents the objective.

[Tips]

A Matrix Diagram

_____ will help you organize the prioritization. For more details, please see Case 3, "Ultrasound machines at a regional workshop", and the Guidelines on pages 39-40.


Urgency
Impact
UGX
Resources
Possibility
Time required



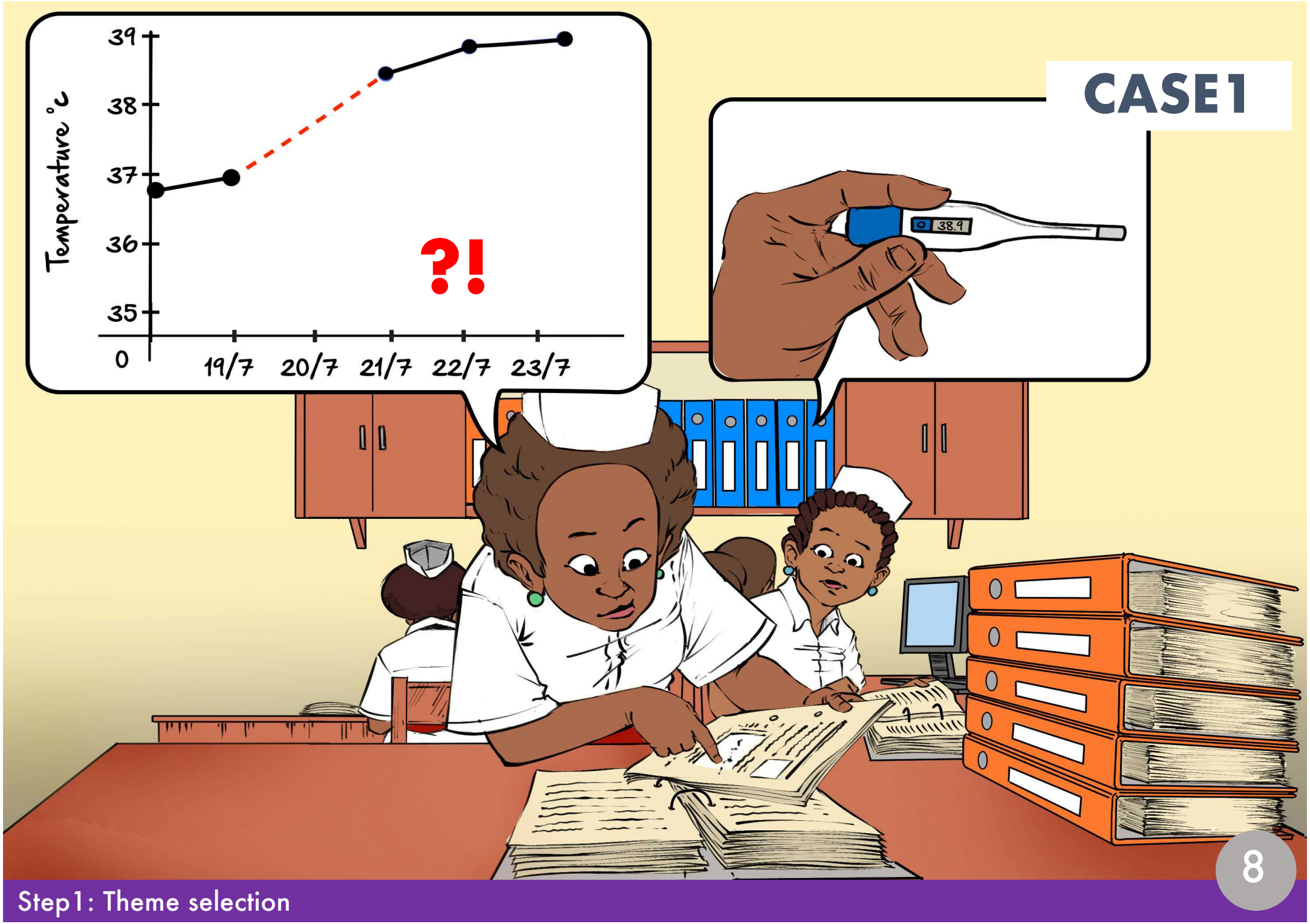
Case 1 (Step 1)

[Lines]

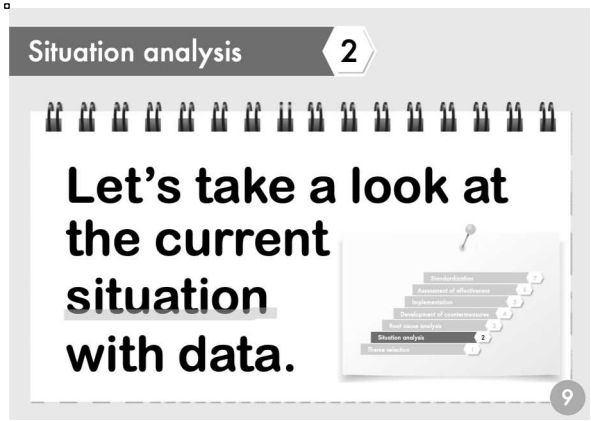
Let me use an example. The woman in the picture is a head nurse in a male ward. One day when she was checking the inpatient records, she found several omissions in filling out the patients' morning temperatures. As it is quite important to check and record inpatients' vital signs, including temperature, regularly, she brought it up as an issue at the weekly meeting in the ward. Some nurses had also felt the omissions were not good and could interfere with appropriate inpatient care. Since this was a serious issue and most of the staff in the ward wanted to improve the situation, they decided to tackle this problem for their KAIZEN project. The KAIZEN theme was decided as **"Ensure that the body temperatures of all inpatients are recorded in the morning."**.

[Tips]

As their problem was that the body temperatures of inpatients, which were supposed to be checked in the morning round, were not properly recorded, they rephrased this into the target statement, which was their KAIZEN theme.


CASE1
Temperature °c
39
38
37
36
35
0
19/7
20/7
21/7
22/7
23/7
?!
38.9

9



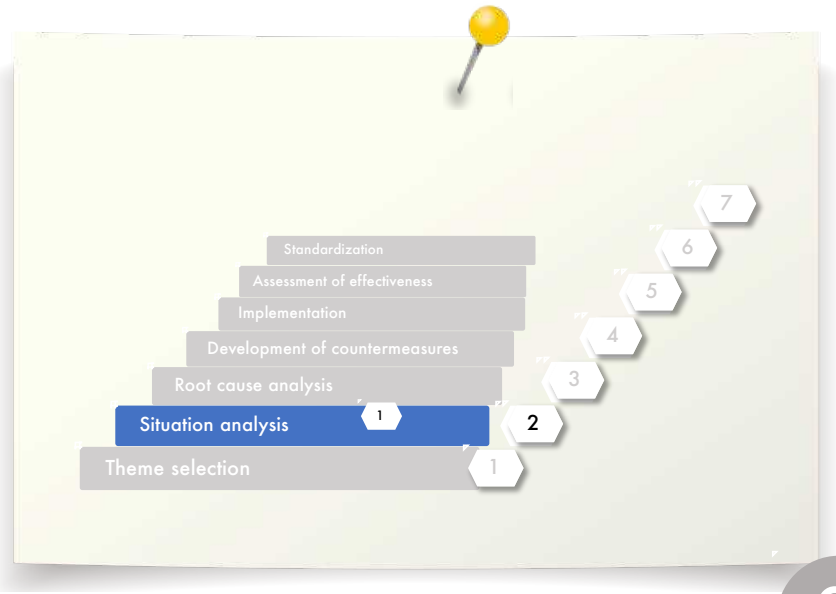
Step 2: Situation analysis

[Lines]

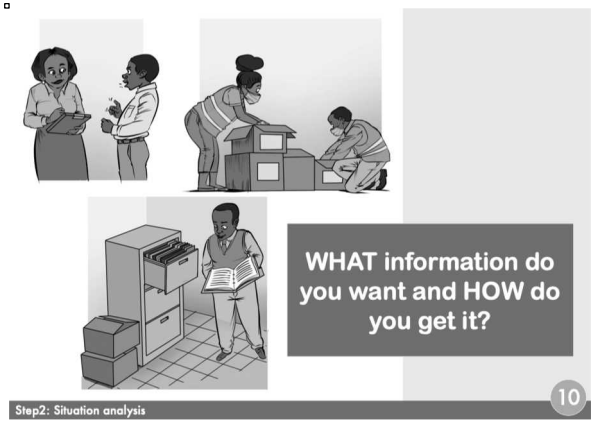
Now we have a theme. The next thing we need to do is fully understand the current situation by analysing data. If the necessary data are not available or insufficient, you need to collect them within a certain period of time. By understanding the state of things, you can set the target well.

Situation analysis 1 2

Let’s take a look at the current situation with data.



10



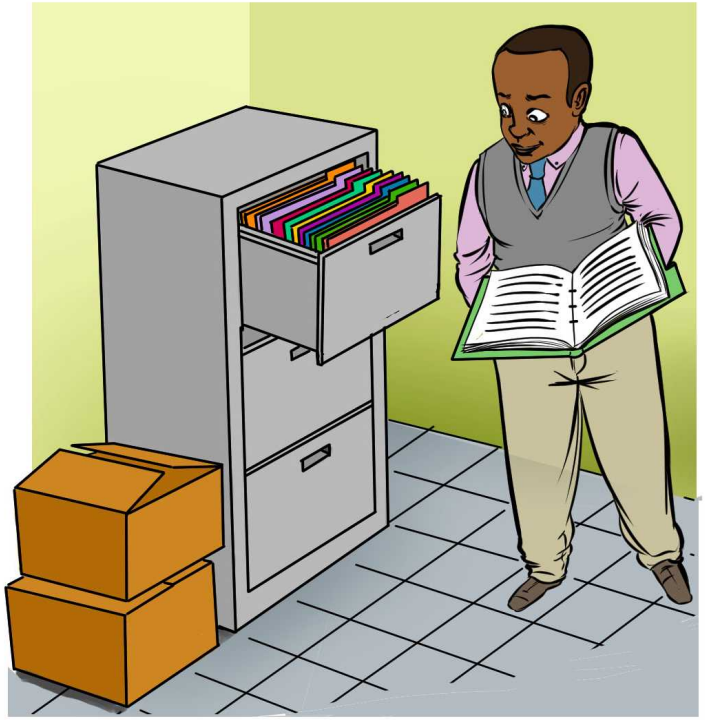
Data collection (Step 2)

[Lines]

You begin Step 2 by once again brainstorming with your team members and listing the information needed to understand the present situation. If the data are available, you can simply bring them up for analysis. If not, you need to plan for data collection and choose the method according to 5W1H (what, why, who, when, where and how). The data can be obtained from interviews, observations, patient records, accounting documents, minutes of meeting, the amount of medical equipment/stock/expired drugs and so on. So the key is to determine what data you need and how to gather it.

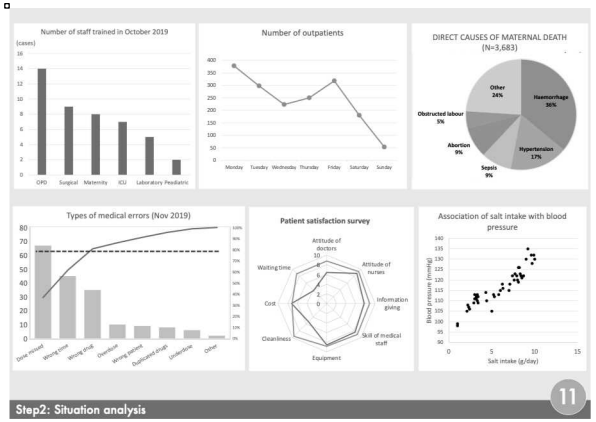
[Tips]

"Data" and "information" are different. Data are simply the facts or figures; once data are processed, organized and structured, it is called information. For example, a patient's body temperature (e.g. 37.0° or 38.9°) is a figure and a kind of "data", but if you compare it with yesterday's temperature and find that the patient's temperature is much higher today, this will become "information".



WHAT information do you want and HOW do you get it?

11



Visualization of data (Step 2)

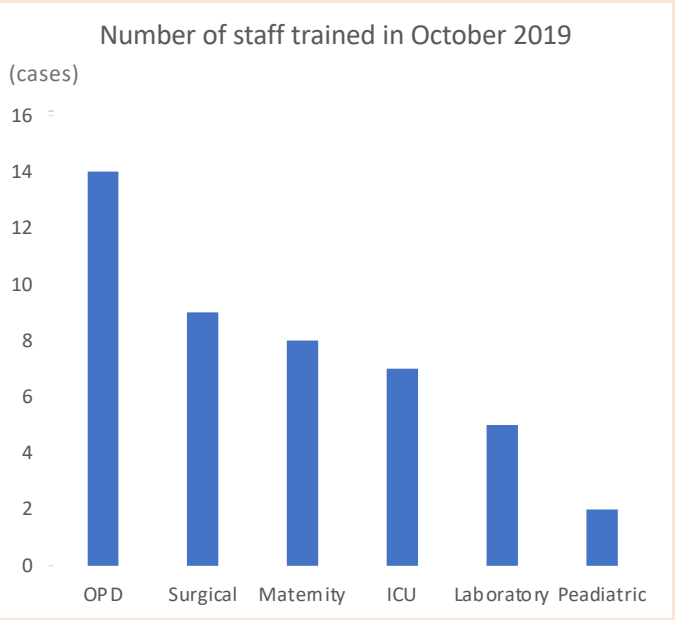
[Lines]

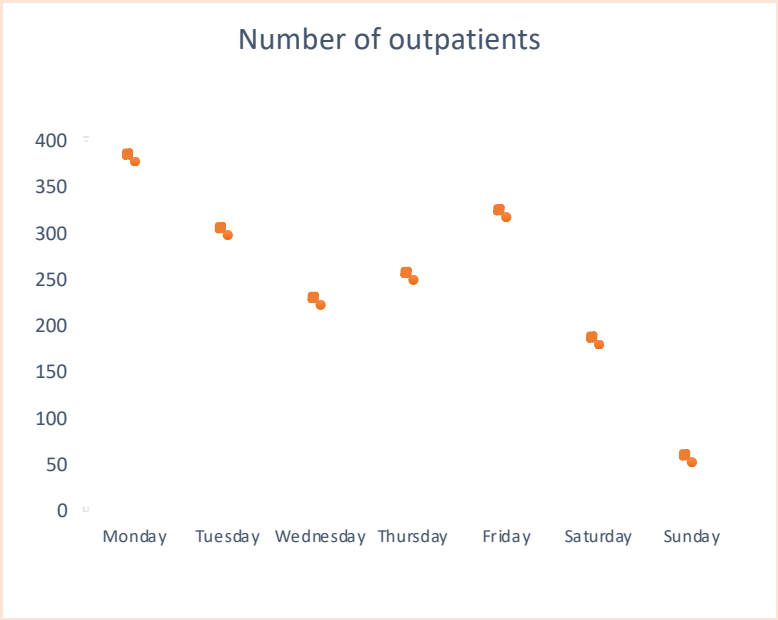
Once the necessary data are collected, you need to organize them for further analysis. By using a graph or chart, you can visualize the data and it helps you understand and interpret the data easily. There are many kinds of graphs and charts, such as bar charts, line graphs, pie charts, Pareto charts, radar charts, scatter charts and others, but which graph you use depends on what kind of data you're dealing with and how you want to view or show the data.

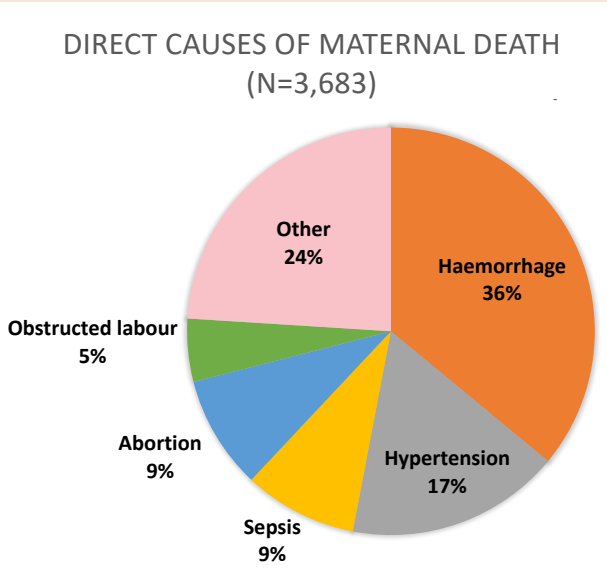
[Tips]

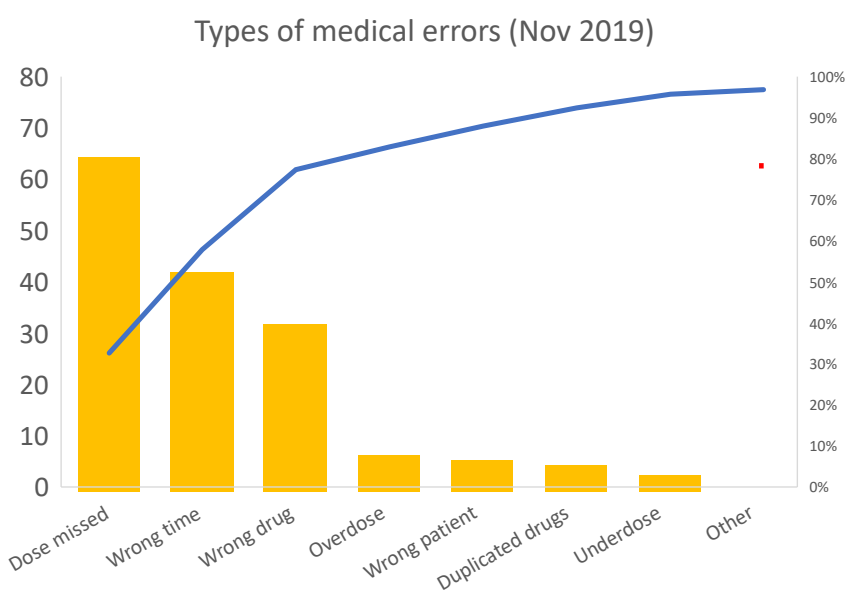
For help in deciding which graph/chart to use, you can also consult **the Appendix**.

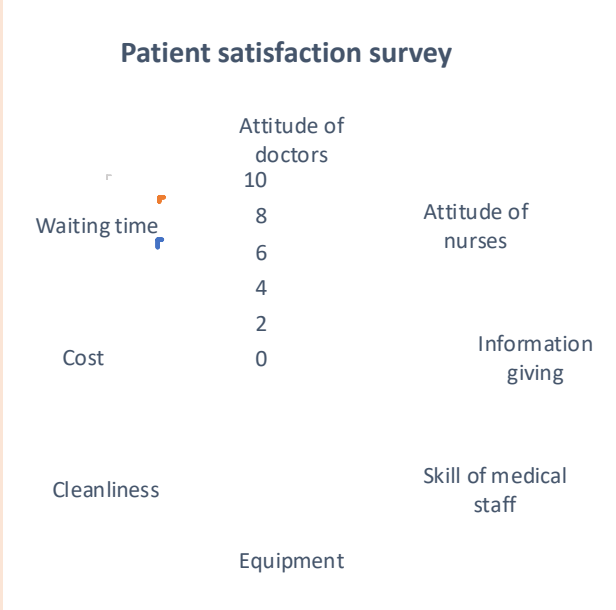
How to make and use a Pareto chart is explained in **the Guidelines on pages 40-42**.

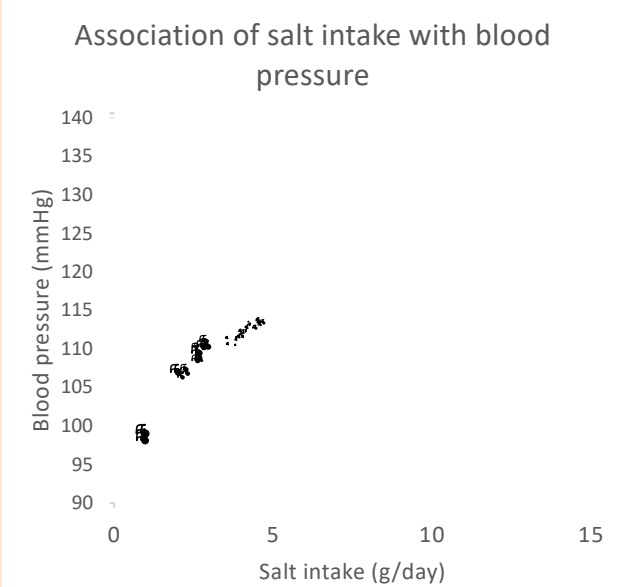

Number of staff trained in October 2019
(cases)
16
14
12
10
8
6
4
2
0
OPD
Surgical
Maternity
ICU
Laboratory
Peadiatric

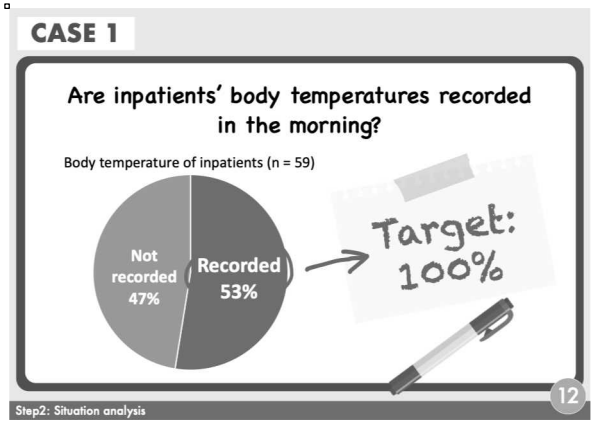

Number of outpatients
400
350
300
250
200
150
100
50
0
Monday
Tuesday
Wednesday
Thursday
Friday
Saturday
Sunday


DIRECT CAUSES OF MATERNAL DEATH
(N=3,683)
Other
24%
Haemorrhage
36%
Obstructed labour
5%
Abortion
9%
Hypertension
17%
Sepsis
9%


Types of medical errors (Nov 2019)
80
70
60
50
40
30
20
10
0
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
Dose missed
Wrong time
Wrong drug
Overdose
Wrong patient
Duplicated drugs
Underdose
Other


Patient satisfaction survey
Attitude of doctors
10
8
6
4
2
0
Waiting time
Attitude of nurses
Cost
Information giving
Cleanliness
Skill of medical staff
Equipment


Association of salt intake with blood pressure
Blood pressure (mmHg)
140
135
130
125
120
115
110
105
100
95
90
0
5
10
15
Salt intake (g/day)



Case 1 (Step 2)

[Lines]

I'll give you an example, the case of inpatients' body temperatures. The team decided to review the inpatient records for the previous 2 weeks and count the omissions. There were a total of 59 patients admitted to the ward during this period. During the morning round, 53% of body temperatures were correctly recorded. However, 47%, nearly half, were either not recorded properly or were missing. The fact that there were so many omissions shocked the team members. Since body temperature and other vial signs are crucial information for appropriate inpatient care, they decided to set a goal of 100% proper recording.

[Tips]

In this case, the data collection method was as follows:

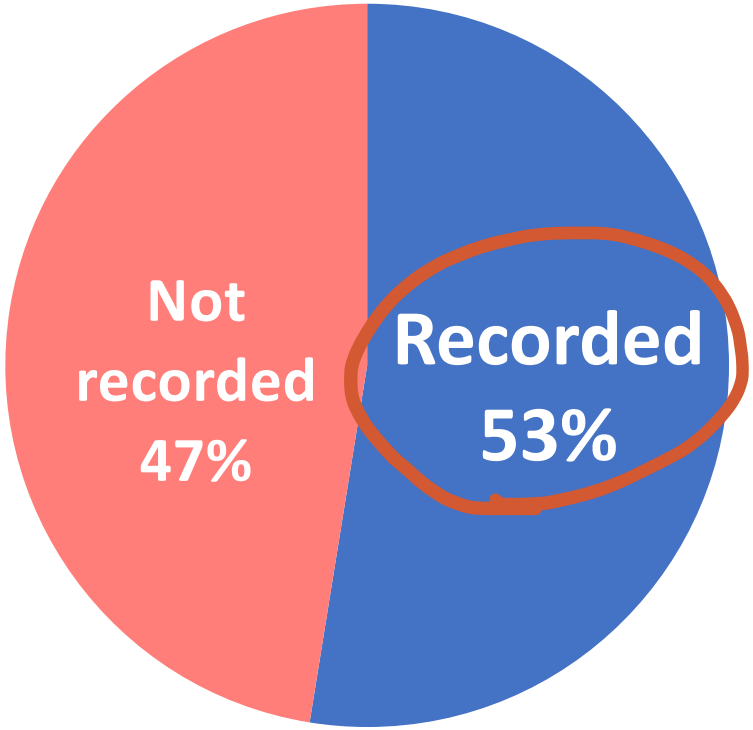
What	Why	How	Where	When	Who*
Patients' body temperature records	To see the omissions	Reviewing the inpatient records	Male ward	Previous 2 weeks	WIT members

* In this case, "who" means who will collect the data, but in other cases it can mean who is the target or whose data is being collected.

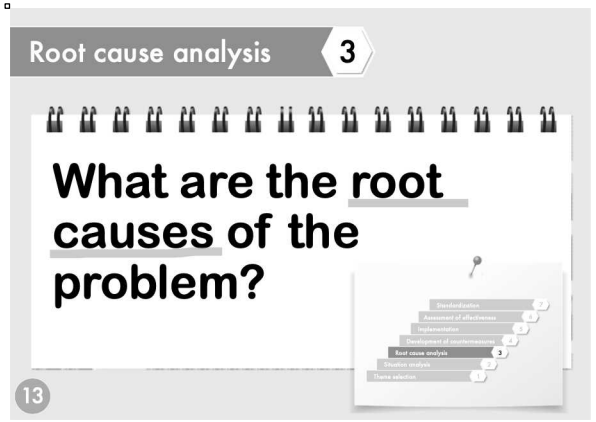
CASE 1

Are inpatients' body temperatures recorded in the morning?

Body temperature of inpatients (n = 59)



13



Step 3: Root cause analysis

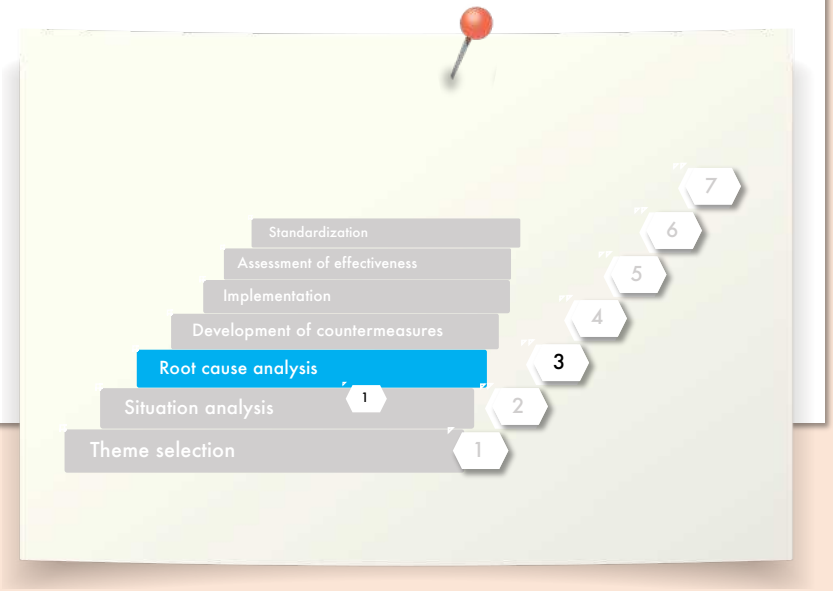
[Lines]

Now we come to Step 3. We understand the situation surrounding the problem, but we still don't know why it's happening. In order to solve a problem, you have to find the root causes and get rid of them. In Step 3, we will utilize certain tools to identify the factors contributing to the problem.

[Tips]

Step 3 takes time. When planning trainings, be careful to allocate a sufficient amount of time.

What are the root causes of the problem?



14

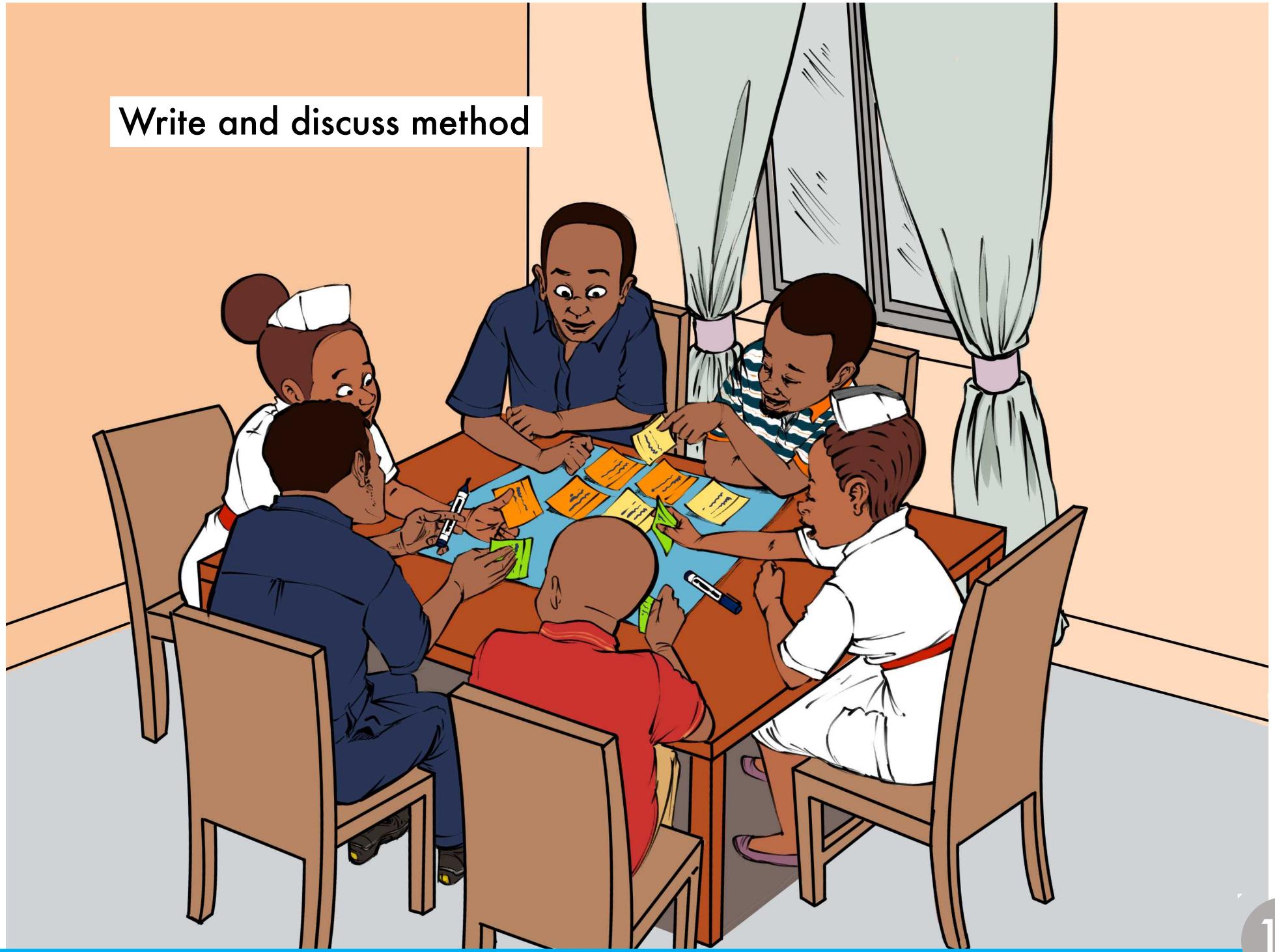
Brainstorming for analysis (Step 3)

[Lines]

We start by brainstorming contributing factors and writing them down on cards. Sticky notes are helpful and handy, but you can cut your own scratch papers or use the backs of printed sheets. The principle is, first write and then discuss. Ask yourselves, "Why has this problem happened?" and start your answer with "Because…". The part that follows "because" is the factor that caused the problem, either directly or indirectly. Write one factor on each card, and try to come up with as many factors as possible. When you are finished, place the cards in the centre of the table and discuss each factor, classifying and arranging the cards as you go.

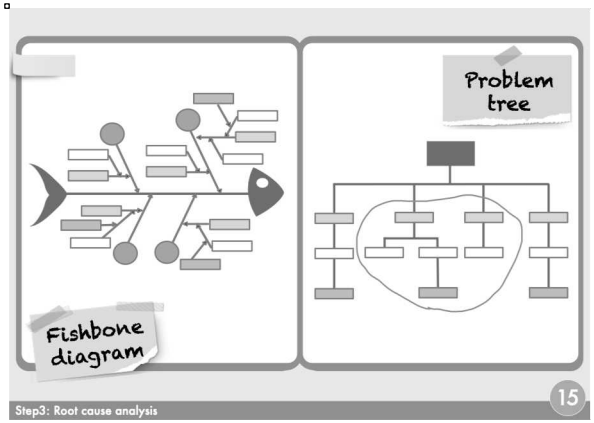
[Tips]

- If some cards have the same or similar ideas, the leader or members can stack them together.
- Again, do NOT blame or criticize others.


Write and discuss method

15

Fishbone diagram and problem tree (Step 3)



[Lines]

Diagrams are helpful in organizing your ideas for classifying and arranging the cards. Fishbone diagrams and problem trees (or tree diagrams) are often used for Step 3.

In the fishbone diagram, the core problem comes at the head of the fish, and the cards, namely, the contributing factors, are categorized into groups by the following methods: MSHEL (M_anagement, Software, Hardware, Environment and Life or Human) or 4M (Man, Machine, Material and Method).

In the problem tree, the core problem comes at the centre of the tree. The cards are arranged by layer and connected vertically by cause-effect relationship.

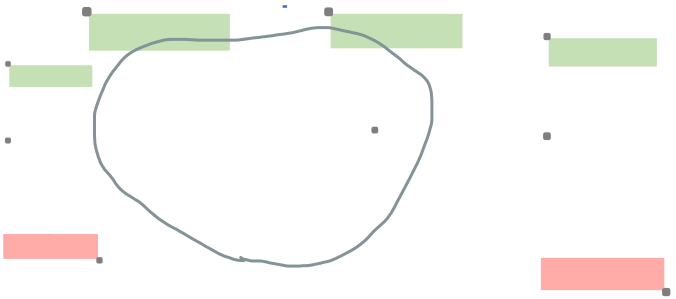
The diagrams are interchangeable. In either method, you repeat "why did it happen?" and "because" 5 times, so that you can find not only the direct causes but also the root causes of the problem.

[Tips]

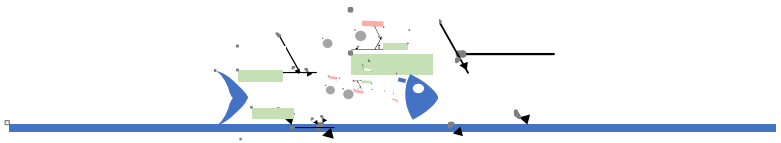
For further details about the diagrams, please see the Guidelines, pages 42-44.

We recommend that beginners use a tree diagram, as it is simple and easy to use. Once you get used to root-cause analysis, the fishbone diagram will help you proceed to the next steps faster, as the contributing factors are already divided into categories. As this process is a little confusing, trainers should sometimes chip in to the discussion and check if the cards are connected logically by cause-effect relationship by asking participants "why?" and "because".

Problem tree

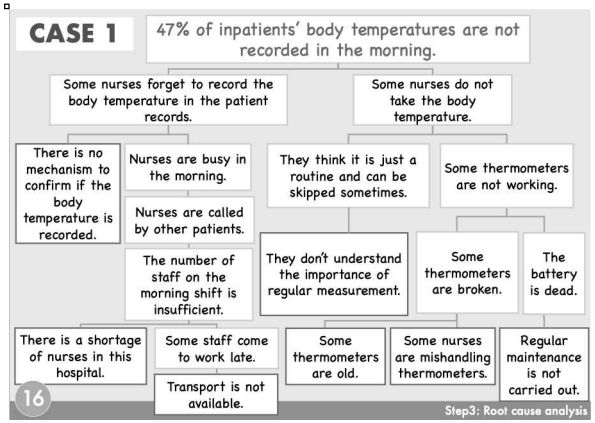


Fishbone diagram



16

Read the cards from top to bottom !



Problem tree in Case 1 (Step 3)

[Lines]

In the example, the case of inpatients' temperatures, participants analyzed the causes in this way, using a problem tree. They identified two direct causes:

The first cause is "Some nurses forget to record the body temperature in the patient records". 47% of inpatients' body temperatures were not recorded in the morning. Why? Because they forgot to record it (though they took it). Why? Because "There is no mechanism to confirm if the body temperature is recorded" and also because "Nurses are busy in the morning". Why are nurses busy in the morning? Because "Nurses are called by other patients" Why? Because "The number of staff on the morning shift is insufficient". Why insufficient? Because "There is a shortage of nurses in this hospital" and because "Some staff come to work late". Why do they come late? Because "Transport is not available". The cards with a red border show the root causes.

You can read the second direct cause "Some nurses do not take the body temperature" and the following causes from top to bottom.

[Tips]

When reading the cards, please point to each card so that the learners understand the cause-effect relationship.

CASE 1

47% of inpatients' body temperatures are not recorded in the morning.

There is no mechanism to confirm if the body temperature is recorded.

Some nurses forget to record the body temperature in the patient records.

Nurses are busy in the morning.

Nurses are called by other patients.

Some nurses do not take the body temperature.

They think it is just a routine and can be skip[illegible]times.

Some thermometers are not working.

The number of [illegible] the shift is insuffic[illegible]

There is a shortage of nurses in this hospital.

Transport is not available.

Some thermometers are broken.

Some thermometers are old.

Some nurses are mishandling thermometers.

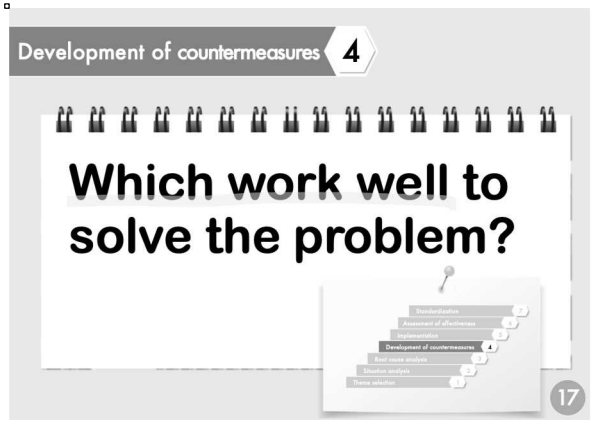
The battery is dead.

[illegible] don't understand the importance of regular measurement

Some staff come to work late.

Regular maintenance is not carried out.

17



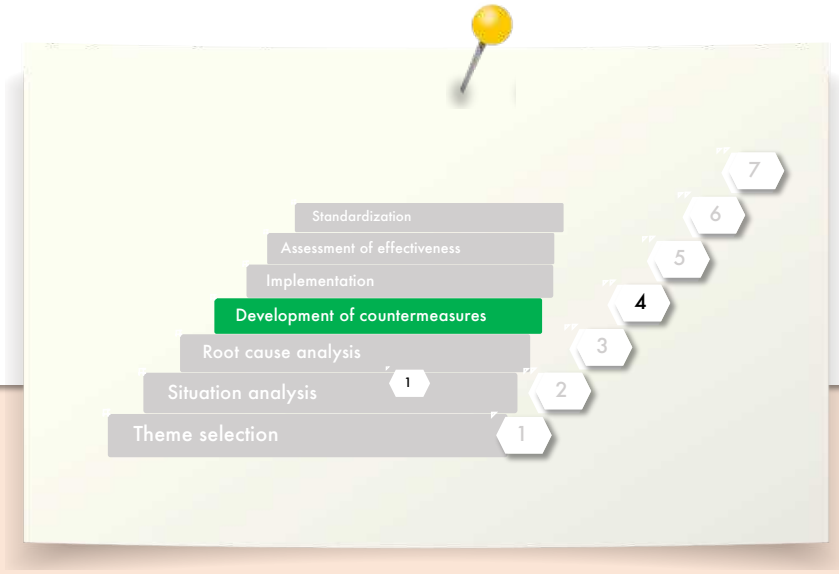
Step 4: Development of countermeasures

[Lines]

Since we now know the causes of the problem, all we have to do is think of a solution and implement it. You may be able to come up with several countermeasures, but we cannot implement them all as our resources are limited. So we need to select only the feasible and most effective ones. In order to do this, we again need to look at the options from different aspects and prioritize them.

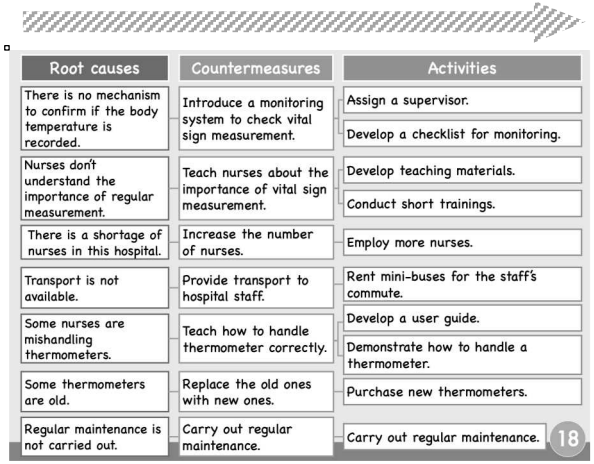
Development of countermeasures 14

Which work well to solve the problem?



18

Read the cards from left to right !



Root causes	Countermeasures	Activities
There is no mechanism to confirm if the body temperature is recorded.	Introduce a monitoring system to check vital sign measurement.	Assign a supervisor.
		Develop a checklist for monitoring.
Nurses don't understand the importance of regular measurement.	Teach nurses about the importance of vital sign measurement.	Develop teaching materials.
		Conduct short trainings.
There is a shortage of nurses in this hospital.	Increase the number of nurses.	Employ more nurses.
Transport is not available.	Provide transport to hospital staff.	Rent mini-buses for the staff's commute.
Some nurses are mishandling thermometers.	Teach how to handle thermometer correctly.	Develop a user guide.
		Demonstrate how to handle a thermometer.
Some thermometers are old.	Replace the old ones with new ones.	Purchase new thermometers.
Regular maintenance is not carried out.	Carry out regular maintenance.	Carry out regular maintenance.

A tree diagram for the countermeasures (Step 4)

[Lines]

To identify candidates for countermeasures, a horizontal tree diagram can be used.

Start by listing the root causes identified in Step 3 in the left column. Then brainstorm countermeasures and write them down on cards. Place the countermeasure cards next to the cards for root causes. For each countermeasure, there will be one or more activities that you have to do. Write the activities on cards and place the cards next to the countermeasure cards.

For example, one of the root causes identified in Case 1 is "There is no mechanism to confirm if the body temperature is recorded". In order to solve this, a monitoring system to check vital sign measurements can be introduced as a countermeasure. To introduce this system, we need two activities: assign a supervisor and develop a checklist for monitoring.

Please read the other root causes and corresponding countermeasures and activities so that the learners will be able to understand how to develop countermeasures.

There is no mechanism to confirm if the body temperature is recorded.

Nurses don't understand the importance of regular measurement.

Introduce a monitoring system to check vital sign measurement.

Assign a supervisor.

Teach nurses about the importance of vital sign measurement.

Develop teaching materials.

Develop a checklist for monitoring.

There is a shortage of nurses in this hospital.

Transport is not available.

Increase the number of nurses.

Provide transport to hospital staff.

Conduct short trainings.

Employ more nurses.

Rent mini-buses for the staffs commute.

Some nurses are mishandling thermometers.

Teach how to handle thermometer correctly

Demonstrate how to handle a thermometer.

Purchase new thermometers.

Carry out regular maintenance.

Replace the old ones with new ones.

Carry out regular maintenance.

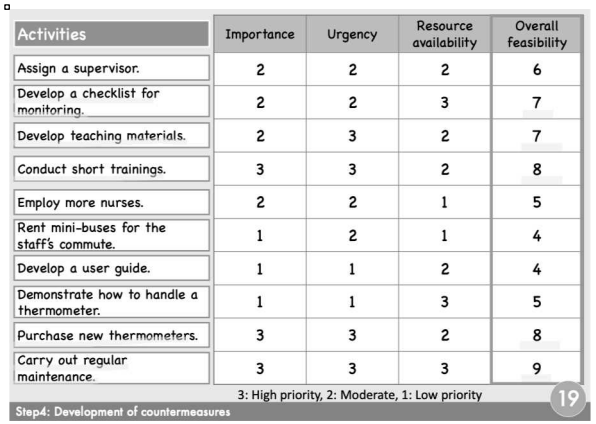
Some thermometers are old.

Regular maintenance is not carried out.

Root causes | Countermeasures | Activities

19

A matrix diagram for prioritization (Step 4)



Activities	Importance	Urgency	Resource availability	Overall feasibility
Assign a supervisor.	2	2	2	6
Develop a checklist for monitoring.	2	2	3	7
Develop teaching materials.	2	3	2	7
Conduct short trainings.	3	3	2	8
Employ more nurses.	2	2	1	5
Rent mini-buses for the staff's commute.	1	2	1	4
Develop a user guide.	1	1	2	4
Demonstrate how to handle a thermometer.	1	1	3	5
Purchase new thermometers.	3	3	2	8
Carry out regular maintenance.	3	3	3	9

3: High priority, 2: Moderate, 1: Low priority

19

Step4: Development of countermeasures

[Lines]

After listing all the possible countermeasures, we need to decide which ones are feasible. A matrix diagram is useful tool for evaluating feasibility. You can set your own criteria, such as importance, urgency, difficulty, time consumption and resource availability. In Case 1, they chose importance, urgency and resource availability as criteria and gave each activity a score. The cut-off line was set at 7, so the activities that scored 7 or more (underlined in yellow) were chosen to be carried out.

[Tips]

Please see the Guidelines on pages 44-45 for further details on the use of tree diagrams and matrix diagrams in Step 4.

Activities	Importance	Urgency	Resource availability	Overall feasibility
Assign a supervisor.	2	2	2	6
Develop a checklist for monitoring. terials.	2	2	3	7
Conduct short trainings.	2	3	2	7
Employ more nurses.	3	3	2	8
staff's commute.	2	2	1	5
Demonstrate how to handle a thermometer.	1	2	1	4
Purchase new thermometers.	1	1	2	4
Carry out regular maintenance.	1	1	3	5
	3	3	2	8
	3	3	3	9

3: High priority, 2: Moderate, 1: Low priority

Step 5: Implementation

[Lines]

Now all we have to do is put the countermeasures in practice. For successful implementation, proper planning is essential. First we develop an action plan that has the necessary information of 5W1H, then we carry out the plan. As it is recommended to finish one round of the KAIZEN process (Steps 1 to 7) in 6 months, you can spend 2-3 months on implementation. If you need more time to complete one round, the activities you selected may not be suitable.

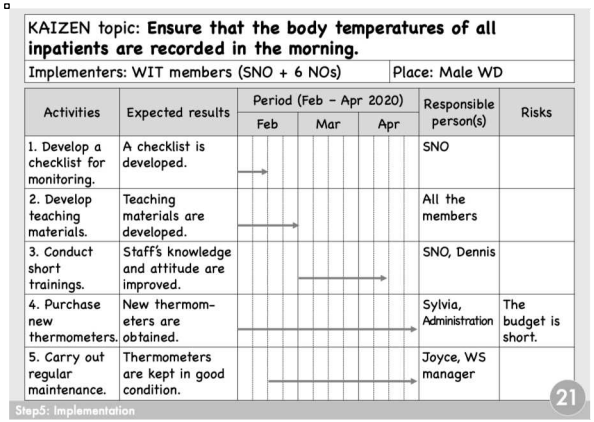
[Tips]

You can find the time frame of the KAIZEN process in the Guidelines, page 46. A template and an example of an action plan can be found on page 47.

Implementation 15

Let’s develop an action plan and begin!

An action plan for Case 1 (Step 5)



KAIZEN topic: **Ensure that the body temperatures of all inpatients are recorded in the morning.**

Implementers: WIT members (SNO + 6 NOs) | Place: Male WD

Activities	Expected results	Period (Feb – Apr 2020)			Responsible person(s)	Risks
		Feb	Mar	Apr		
1. Develop a checklist for monitoring.	A checklist is developed.				SNO	
2. Develop teaching materials.	Teaching materials are developed.				All the members	
3. Conduct short trainings.	Staff's knowledge and attitude are improved.				SNO, Dennis	
4. Purchase new thermometers.	New thermom-eters are obtained.				Sylvia, Administration	The budget is short.
5. Carry out regular maintenance.	Thermometers are kept in good condition.				Joyce, WS manager	

Step5: Implementation 21

[Lines]

Here is an example of an action plan for Case 1. As you can see, the team allocated 3 months in total to complete all 5 activities and assigned a person/persons responsible for each activity.

Activity no. 2 is the development of teaching materials for the trainings. All the WIT members are supposed to work on this activity. They are expected to finalize it by the end of February, before starting the trainings in March, as described in Activity no. 3.

Activity no. 4 is the purchase of new thermometers, which Sylvia is responsible for. She needs support from the administration, as they are the ones who approve and proceed with the procurement process. But they may not have enough budget for the purchase. This point is mentioned as a risk, so that they can avoid any unforeseen circumstances.

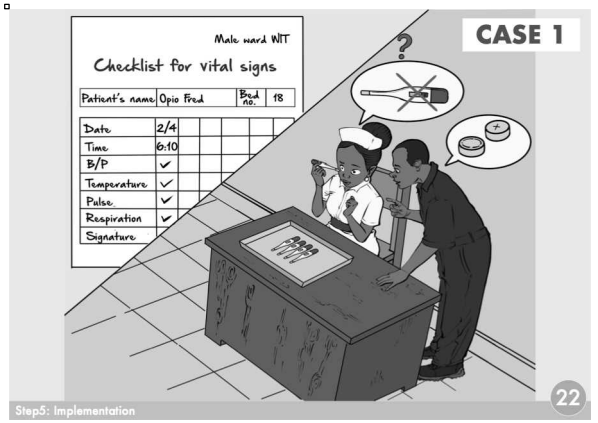
[Tips]

Remember that a useful action plan should be comprised of the answers to the 5W1H (what, why, who, when, where and how).

KAIZEN topic: **Ensure that the body temperatures of all inpatients are recorded in the morning.**

Implementers: WIT members (SNO + 6 NOs) Place: Male WD

Activities	Expected results	Period (Feb – Apr 2020) Feb	Mar	Apr	Responsible person(s)	Risks
1. Develop a checklist for monitoring.	A checklist is developed.	→			SNO	
2. Develop teaching materials.	Teaching materials are developed.	→			All the members	
3. Conduct short trainings.	Staff's knowledge and attitude are improved.		→	→	SNO, Dennis	
4. Purchase new thermometers.	New thermom-eters are obtained.	→	→	→	Sylvia, Administration	The budget is short.
5. Carry out regular maintenance.	Thermometers are kept in good condition.		→	→	Joyce, WS manager	



Actual activities in Case 1 (Step 5)

[Lines]

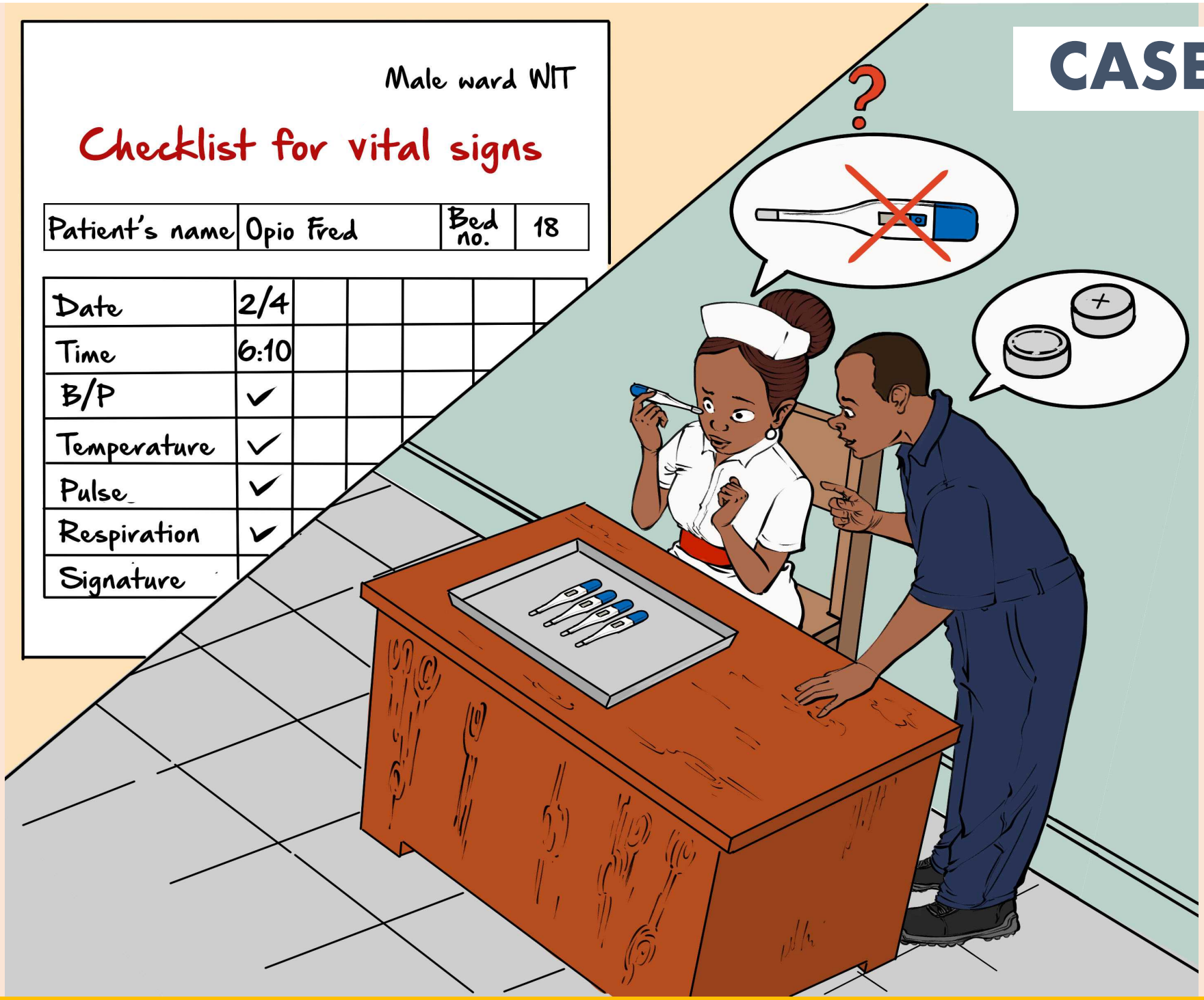
The team carried out the activities according to their action plan. The checklist for monitoring of vital signs, including body temperature, was developed and in use (see the illustration on the left).

Joyce, a nurse in the WIT, was in charge of regular maintenance of thermometers. She worked with workshop staff and checked if the thermometers were in good condition. They found that some of them did not work due to dead batteries and replaced them with new ones (see the illustration on the right).

[Tips]

In the illustration, Joyce is wondering why the thermometer is not working, and an assistant engineering officer from the workshop explains to her about the dead batteries. When you develop an action plan, you may find, like Joyce did, that some activities need support from other departments. In general, when choosing a problem to work on, you should choose something that you can solve within your team. However, during the process of KAIZEN, you may realize that you need support from another department. This is OK.

CASE 1


Male ward WIT
Checklist for vital signs
Patient's name
Opio Fred
Bed no.
18
Date
2/4
Time
6:10
B/P
Temperature
Pulse
Respiration
Signature

Actual activities in Case 1 (Step 5)

[Lines]

Also, short trainings were conducted as planned to improve knowledge and attitude among staff.

CASE 1


Why should we check a patient's temperature regularly?
5S-CQI-TQM

Step 6: Assessment of effectiveness

[Lines]

Of course, you can't just do the activities and be satisfied with what you have done. We have to check if they worked or not, and if the problem has been solved or not. In Step 6, we again collect data, see how the situation changed after the interventions, and show the result visually.

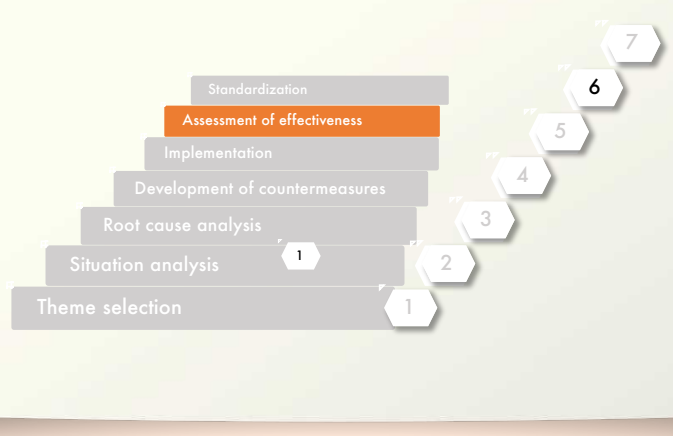
[Tips]

For using graphs and charts, please consult **the Appendix (**as with Step 3) to know which graph/chart is most suitable for showing the differences or changes.

If you want to use a Pareto chart in Step 6, please see the Guidelines on pages 48-49.

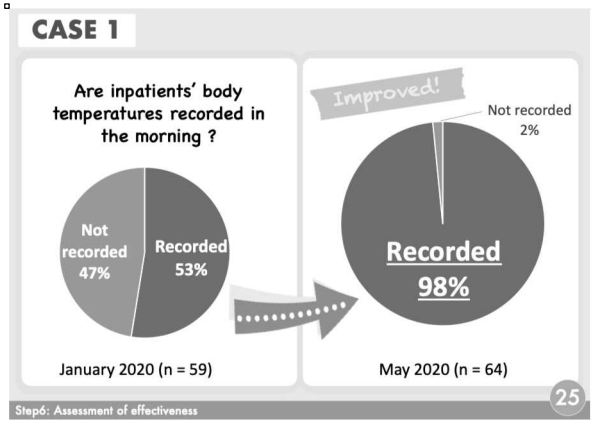
Assessment of effectiveness 16

Let’s see if your plan worked well.



25

A before-and-after comparison in Case 1 (Step 6)



[Lines]

In the case of inpatients' body temperatures, the team reviewed the inpatient records again for two weeks in May, soon after the 3-month intervention ended. Before the KAIZEN project was implemented, only 53% of the patients' body temperatures were recorded, but this improved to a whopping 98% as a result of the activities!

To effectively represent this big change, the team used pie charts to visually show the results.

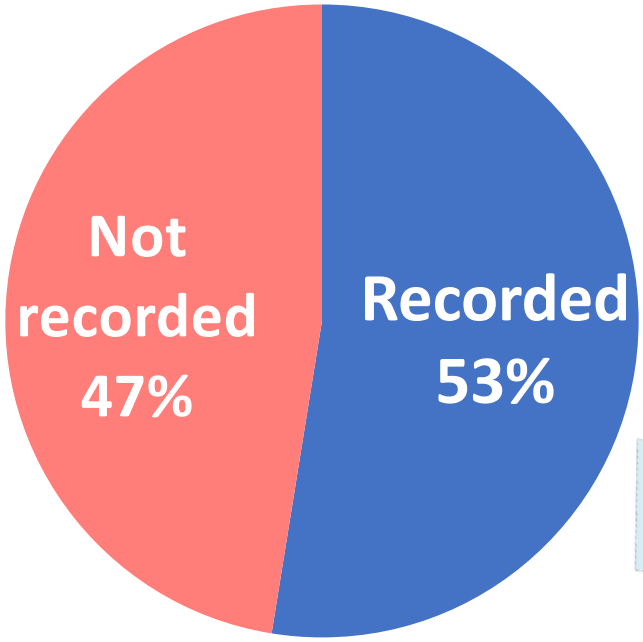
Though a goal of 100% was not achieved, they concluded that their countermeasures worked well, and that the KAIZEN project was a success.

[Tips]

Visualizing data using graphs/charts not only makes it easier for team members to capture trends and changes, but also helps to convince the management and others of the outcome.

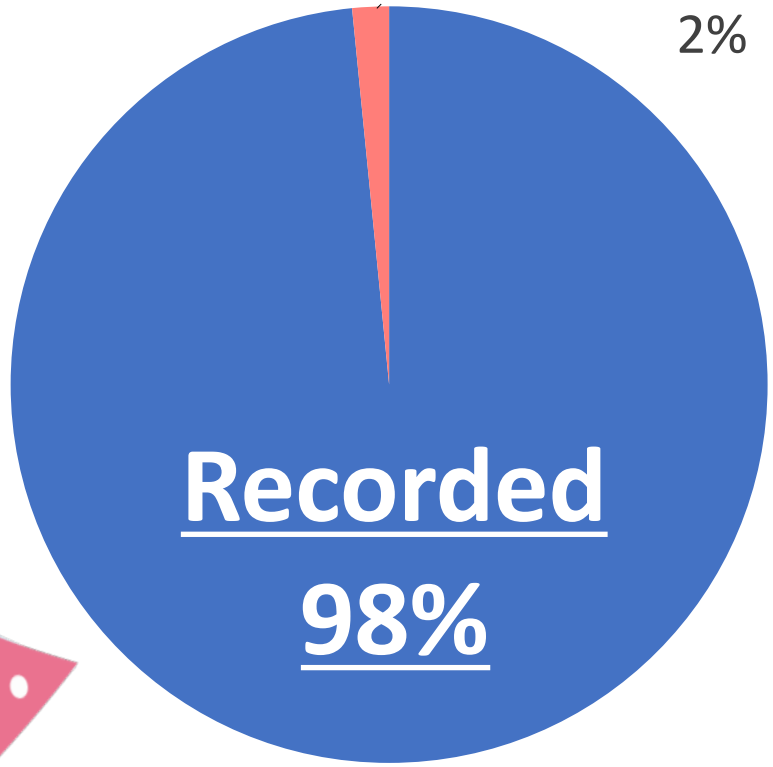
CASE 1

Are inpatients' body temperatures recorded in the morning ?



January 2020 (n = 59)

Improved!



May 2020 (n = 64)

Step 7: Standardization

[Lines]

We are finally at the last step. Your activities have yielded good results. But how do we maintain them?

In order to do that, we need to develop a plan so that all the staff in the department/section continue to implement the necessary activities in a standardized manner.

A checklist for monitoring purposes will also help you to see if you are on the right track.

[Tips]

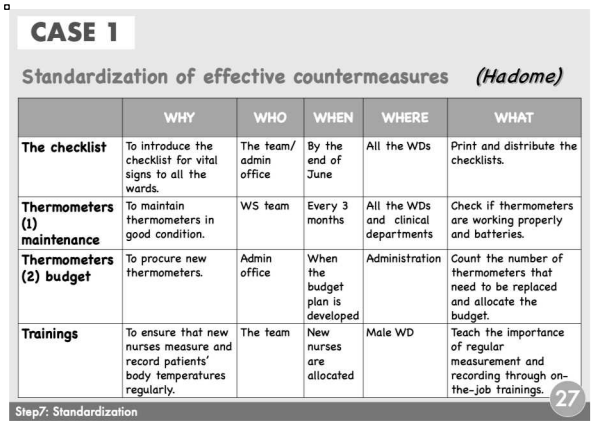
You can find samples of the standardization plan and checklist in the Guidelines on pages 49-50.

Standardization 17

How can we maintain the good results?

27

A standardization plan for Case 1 (Step 7)



CASE 1

Standardization of effective countermeasures *(Hadome)*

	WHY	WHO	WHEN	WHERE	WHAT
The checklist	To introduce the checklist for vital signs to all the wards.	The team/ admin office	By the end of June	All the WDs	Print and distribute the checklists.
Thermometers (1) maintenance	To maintain thermometers in good condition.	WS team	Every 3 months	All the WDs and clinical departments	Check if thermometers are working properly and batteries.
Thermometers (2) budget	To procure new thermometers.	Admin office	When the budget plan is developed	Administration	Count the number of thermometers that need to be replaced and allocate the budget.
Trainings	To ensure that new nurses measure and record patients' body temperatures regularly.	The team	New nurses are allocated	Male WD	Teach the importance of regular measurement and recording through on-the-job trainings.

Step7: Standardization 27

[Lines]

This is the standardization plan developed for Case 1. The team members determined 4 activities as effective countermeasures, namely, using a checklist to record inpatients' vital signs, regular maintenance of thermometers, purchase of new thermometers and trainings. They developed the standardization plan based on the information from 5W1H and clarified the standardized procedures.

[Tips]

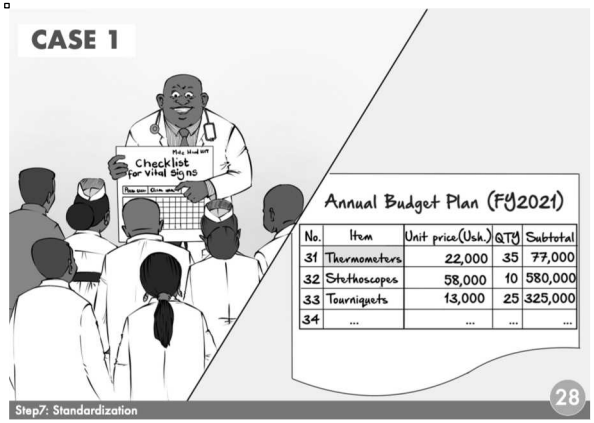
In Japanese, Step 7 is also called "*Hadome*", which means a brake that prevents recurrences.

CASE 1

Standardization of effective countermeasures (Hadome)

	WHY	WHO	WHEN	WHERE	WHAT
The checklist	To introduce the checklist for vital signs to all the wards.	The team/ admin office	By the end of June	All the WDs	Print and distribute the checklists.
Thermometers (1) maintenance	To maintain thermometers in good condition.	WS team	Every 3 months	All the WDs and clinical departments	Check if thermometers are working properly and batteries.
Thermometers (2) budget	To procure new thermometers.	Admin office	When the budget plan is developed	Administration	Count the number of thermometers that need to be replaced and allocate the budget.
Trainings	To ensure that new nurses measure and record patients' body temperatures regularly.	The team	New nurses are allocated	Male WD	Teach the importance of regular measurement and recording through on-the-job trainings.

28



Continuity is the father of success.

[Lines]

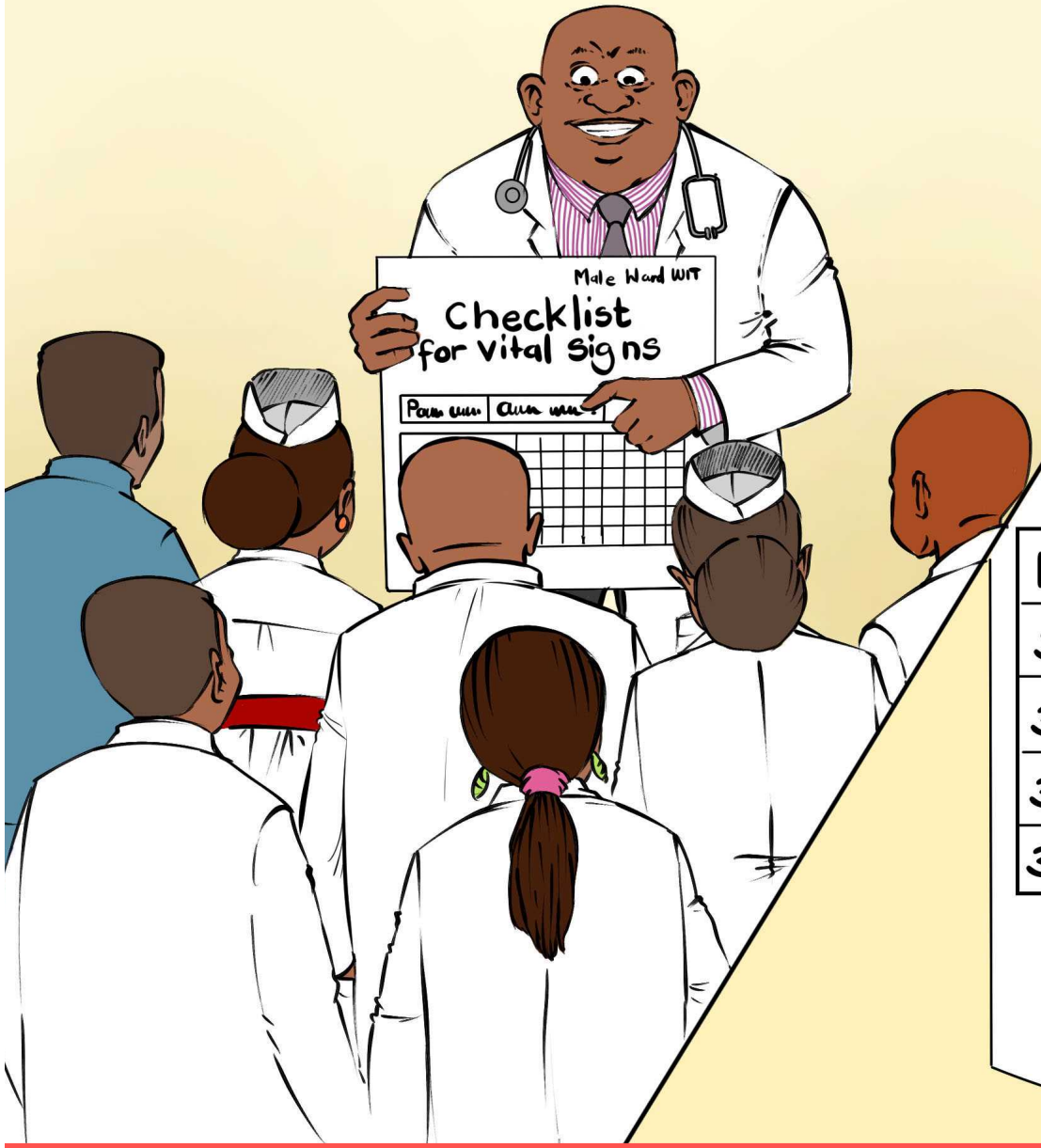
For example, the checklist for inpatients' vital signs was authorized by the hospital director, and the standardized format was introduced to all the wards (see the illustration on the left).

In order to replace broken thermometers with new ones, the team allocated the necessary funds every year when they developed the budget plan (see the illustration on the right).

Continuing these activities listed in the plan with a monitoring checklist would ensure that "the omission of inpatients' morning temperatures" would never happen again.

Continuity is the father of success. Continuous small changes add up to a big improvement. Let's keep up our efforts in quality improvement with KAIZEN!

CASE 1



Annual Budget Plan (FY2021)

No.	Item	Unit price(Ush.)	QTY	Subtotal
31	Thermometers	22,000	35	77,000
32	Stethoscopes	58,000	10	580,000
33	Tourniquets	13,000	25	325,000
34	...	...	...	...