



Quality Improvement | Design Thinking | Resilience | For Healthcare

**This publication is produced by
SingHealth Duke-NUS Institute for Patient Safety & Quality (IPSQ)**

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First Edition / 2020

**Title: Healthcare Improvement Toolkit -
Quality Improvement | Design Thinking | Resilience**

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Printed in January 2020

AM-EPIC Framework



Academic Medicine – Enhancing Performance, Improving Care (AM-EPIC)

The AM-EPIC Framework is an education and professional development framework that comprises a portfolio of programmes aimed at upskilling and uplifting the Patient Safety, Quality and Innovation capabilities of our staff.



Provides leaders with broad knowledge in systems governance, enables them to oversee effective programmes in quality & safety and align innovation & quality initiatives with academic clinical organisations' strategic initiatives.

Leadership Programmes

Provides advanced knowledge and skills that enable Quality Professionals to lead large scale quality initiatives and facilitate the work of quality, innovation and patient safety teams.

Train the Trainers / Masters Programmes

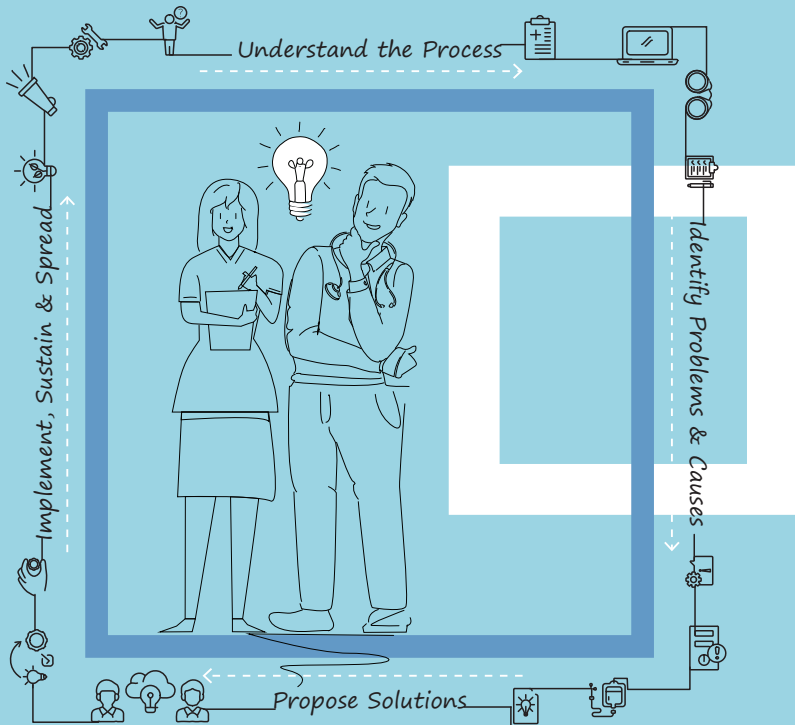
Provides quality, innovation and patient safety teams with knowledge and skills to analyse problems, develop, test and implement impactful interventions to improve care delivery systems.

Skills & Training Programmes

Provides faculty and staff with a strong foundation in key concepts in quality and safety in healthcare.

Foundation Programmes

Figure 1: Education and Professional Development Framework for Academic Medicine – Enhancing Performance, Improving Care (AM-EPIC)



Quality Improvement Toolkit

For Healthcare

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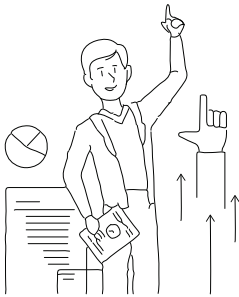
Teo Shao Chu, Seow Yee Ting & William Yap

Quality Improvement

01

Quality Improvement in Healthcare

Quality Improvement (QI) in Healthcare is a systematic approach in making processes safe, efficient, patient-centred, timely, effective and equitable.



Six Aims for Improvement

To Improve Healthcare Quality

- Safe** Ensure no additional harm is introduced when delivering care to patients
- Timely** Reduce waiting and delays, which may cause potential harm to patients
- Equitable** Provide same quality of care regardless of patient's socioeconomic status, geographical locations, race and religion
- Efficient** Avoid non-value added activities (Wastes), maximising resources
- Effective** Provide care based on professional knowledge, which produces clear evidence-based benefits to patients
- Patient-Centred** Ensure services and care provided are based on patient's preferences and needs

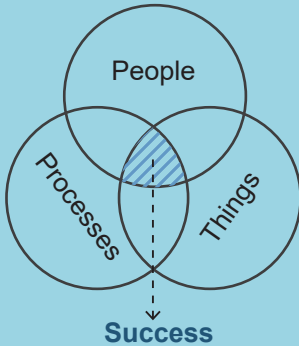
Source: *Crossing The Quality Chasm: A New Health System for the 21st Century*, IOM, 2001

Getting Ready

03

Before you start

System



Understand System

System consists of People, Things and Processes. These are interdependent elements that influence one another directly and/or indirectly to maintain their activities and the existence of the system, in order to achieve the goal of the system. Appreciating system and its elements allows us to tap on this knowledge to make changes that will result in improvement.

Identify Problem Worth Solving

- A systemic problem that is inherent, affecting stakeholders involved in the process
- Use baseline data to identify your problem
- Examples of problem worth solving: long waiting time, increase in number of complaints

A Systematic Approach to Quality Improvement

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Quality Improvement step-by-step approach

A. Understand the process

- Form a team and identify mission statement
- Map out the process flow
- Collect baseline data

B. Identify problems and causes

- Identify problems, drill down to the root causes
- Prioritise root causes to focus on

C. Propose solutions

- Focus on process streamlining without compromising patient safety and quality of care using relevant QI tools

D. Implement, sustain and spread

- Change management
- Implement, monitor and refine
- Sustain and spread improvement efforts
- Celebrate success

3 Basic Questions to Drive Quality Improvement

Goal

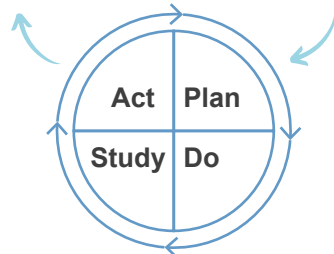
What are we trying to accomplish?

Measurement

How will we know that a change is an improvement?

Intervention

What change can we make that will result in improvement?



Source: Model for Improvement - Institute for Healthcare Improvement (IHI)

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Construct Mission Statement

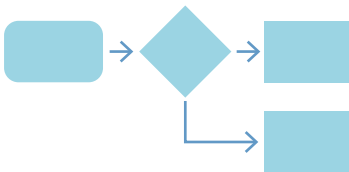
- State the project goal clearly with a measurable outcome
- Use numerical value to set stretch goal
- State the timeline to achieve the goal
- Do not work backwards from a solution

Form the team

- Involve the process owner and stakeholders
- Ensure the team consists of members from multi-disciplines to avoid biased viewpoints of the problem
- Define roles and responsibilities

Phase 1 : Understand the Process

Flow Chart



Map Process Flow

- Create a common understanding of the process in a visual manner
- Clarify steps in the process
- Identify improvement opportunities in the process (error-prone areas, inefficiencies, bottlenecks, etc.)

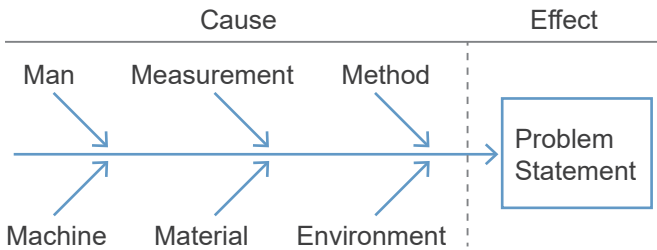
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Phase 2 : Identify Problems and Causes

Identify Root Causes

- To drill down to the underlying root causes of the problem to ultimately resolve the issues

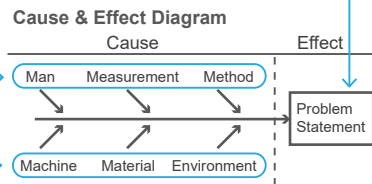
Cause & Effect Diagram Also known as Ishikawa diagram



To construct a Cause and Effect Diagram (refer to above template)

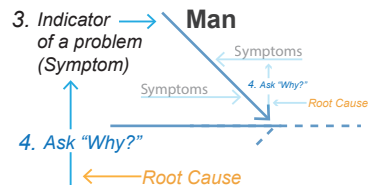
- Write the problem statement in a box on the right hand side
- List down the generic categories

Note: You can refer to some of the commonly used categories in the above template. However, this is not an exhaustive list. Please ensure the categories are relevant to your problem statement.



- Arrange the symptoms in their appropriate categories
- Ask "why" repeatedly to identify root cause to each symptom

Note: You can stop asking "why" when you have drilled down to the systemic cause (e.g. there is no policy to standardise the process).

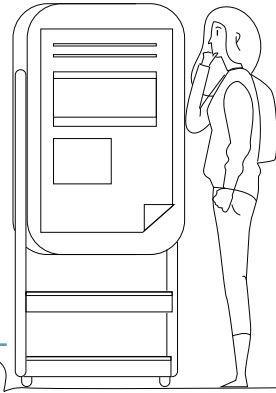


Phase 2 : Identify Problems and Causes

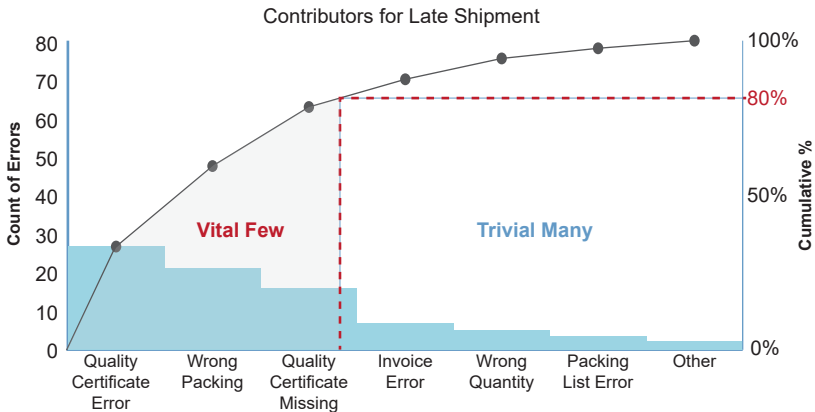
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Prioritise Root Causes

- Useful to prioritise root causes to work on when there are limited resources
- The Pareto Principle states that 80% of the problems are caused by 20% of the causes
- Using the Pareto Principle, the Pareto Chart helps to prioritise the root causes to focus on (To make improvements to the 'Vital Few')



Pareto Chart



08 Phase 2 : Identify Problems and Causes

Look Out for Wastes

- Identify and eliminate wastes in your process to maximise resources
- Wastes are process steps that require resources but customer is not willing to pay for

8 Wastes: DOWNTIME (Acronym)

Waste

Description

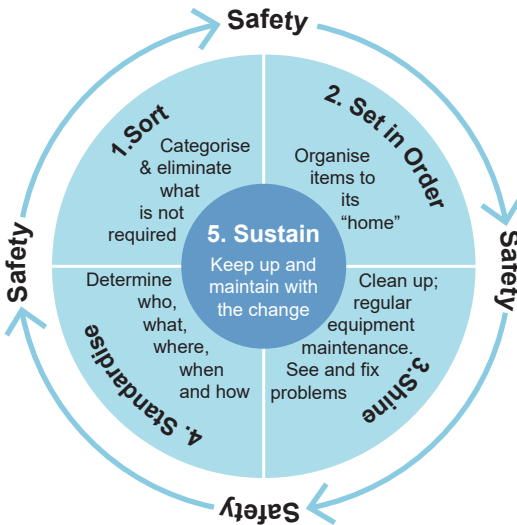
Waste	Description
D efects	Errors compromising safety, quality and time, often causing rework
O verproduction	Produce more than required or faster than the demand
W aiting	Time spent on non-value added activities in the process
N on-utilised Talent	Not utilising or underutilising staff's potential, skillset and knowledge
T ransportation	Unnecessary movement of items
I nventory	Accumulation of work in progress
M otion	Unnecessary movement of people
E xtra-processing	Excessively processing things, requiring more work or higher quality which is not required by the customer

Brainstorm for Solutions

- Use idea generation techniques to trigger new ways of thinking

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Phase 3 : Propose Solutions

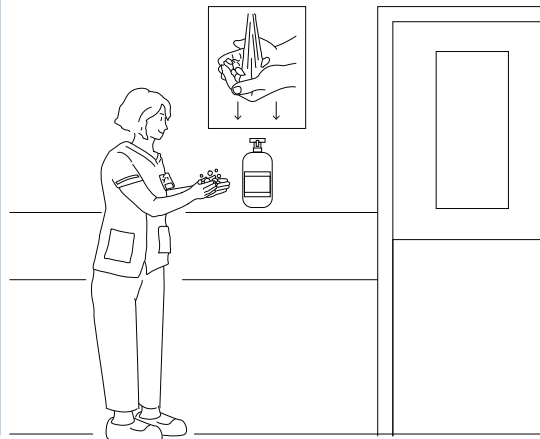


5S + Safety

- A waste-eliminating tool to improve workplace safety and organisation

Visual Management

- Use visual management tool to create a visual workplace where anyone who walks into the work area could understand the current situation immediately without having to check with anyone or against anything
- Example: directional signage, hand hygiene poster as a reminder on the moments of hand hygiene



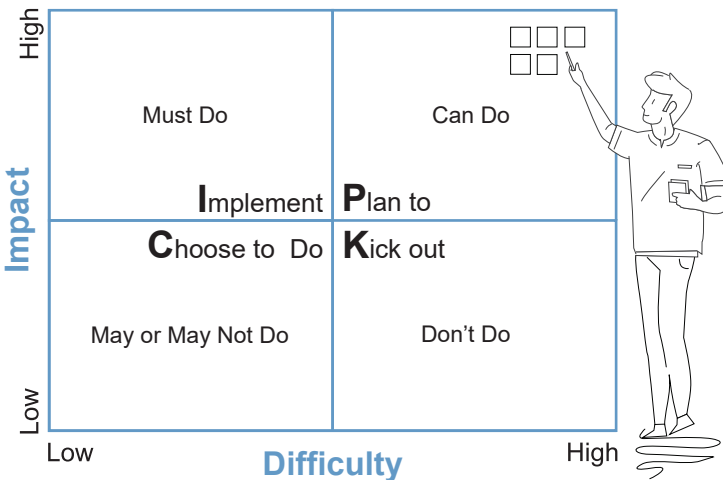
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Phase 3 : Propose Solutions

Prioritise Ideas Generated

- A 2x2 matrix to guide the project team in prioritising the ideas
- Write the ideas generated into the respective quadrant based on the level of impact on the goal and difficulty of the tasks
- Useful for focusing discussion & achieving consensus

PICK Chart





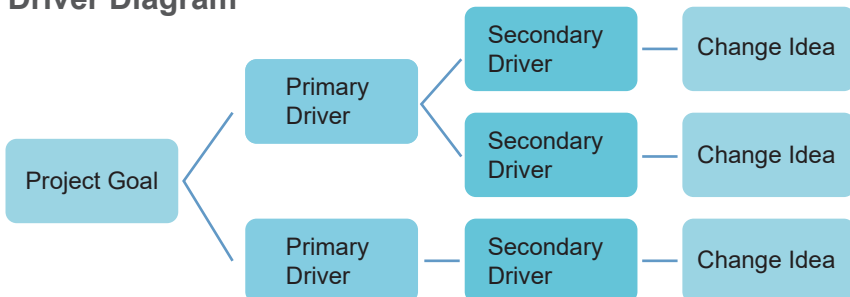
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Phase 3 : Propose Solutions

Communicate to Stakeholders

Illustrate how the factors and ideas lead to the achievement of the goal

Driver Diagram



- Primary drivers focus on the key areas and influences that need to change to achieve the project goal
- Secondary drivers break primary areas down into sub-sections or processes
- Change ideas are specific ideas that the team can test and see if they influence the secondary drivers and ultimately the goal

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Phase 3 : Propose Solutions

Test Solutions

4 Stages of the PDSA

- **PLAN** what you are going to do with the ideas, how to complete the test, who, when and where to do it
- **DO** it, preferably on a small scale first
- **STUDY** the results (Does the plan work?)
- **ACT** on the results. If the plan was successful, test on a bigger scale and eventually standardise on this new way of working. If it does not work, conduct another PDSA cycle on another idea

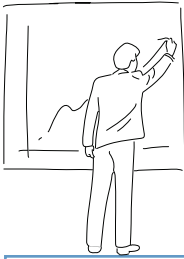


Plan,
Do,
Study,
Act
(PDSA)

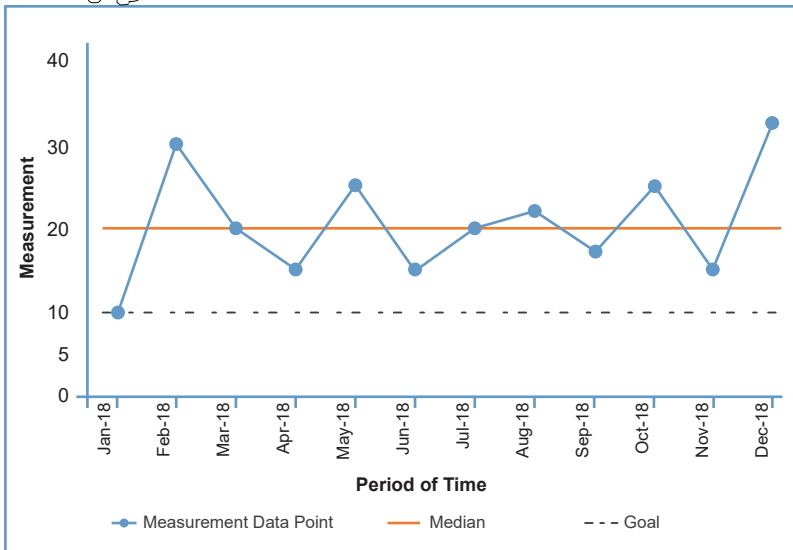


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Phase 4 : Implement, Sustain and Spread Run Chart



- A graph that displays data over time. It allows the team to verify if the changes result in real improvement by observing the pattern displayed in the data collected
- Annotate interventions / PDSAs on the run chart
- Add median line on the run chart
- Freeze baseline data as median if there are at least 12 data points



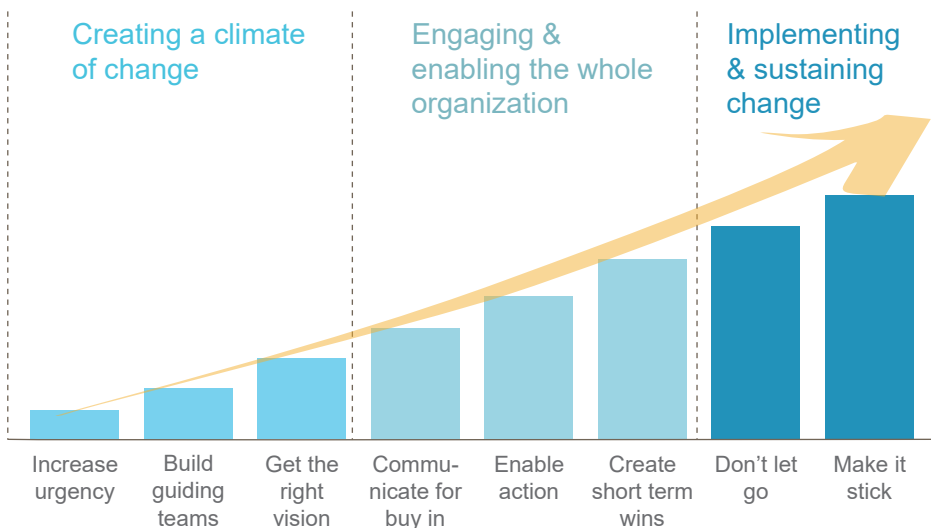
Phase 4 : Implement, Sustain and Spread

Change Management Concept:

8 sequential steps aimed at thoroughly preparing the organisation for change and implementing it successfully



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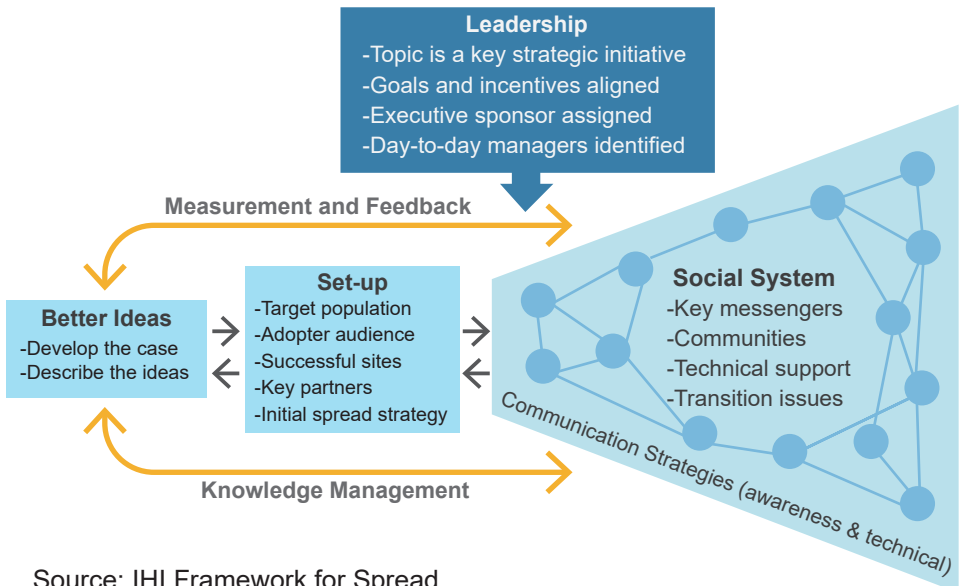
Source: Kotter's 8-step change model

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Phase 4 : Implement, Sustain and Spread

Sustain Improvement & Spread Change

- Standardise and document best practices and knowledge
- Require measurement, continuous monitoring and ongoing communication with stakeholders
- Change must be easy to understand and implement
- Ensure current and new staff are aware and comply with the new practices.



Source: IHI Framework for Spread

Showcase Quality Improvements

- Showcase successful projects internally, locally or internationally

Examples: SingHealth Duke-NUS Quality & Innovation Day, Singapore Healthcare Management Congress, Patient Safety Summit, IHI Congress, etc.

- Establish new network
- Share and learn best practices from participating healthcare organisations and professionals

Sources

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Quality Improvement & Design Thinking Methodology

Quality Improvement

Understand

Form Team
Construct Mission Statement
Map Process Flow

Identify Problems & Causes

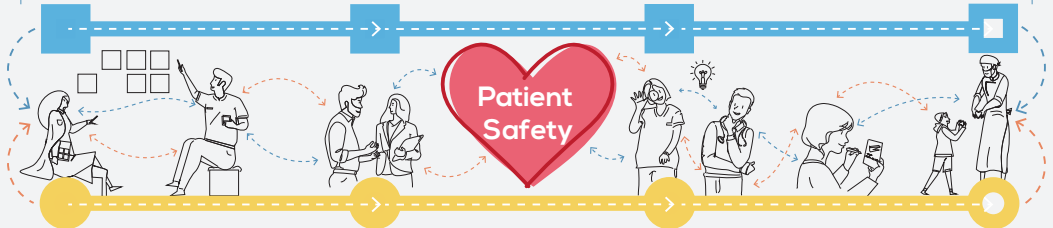
Identify & Prioritise Root Causes
Identifying Wastes of the Process

Propose Solution

Brainstorm
5S + Safety
Visual Management
PICK Chart
Communicate to Stakeholders
PDSA

Implement, Sustain & Spread

Implement
Run Chart
Change Management
Sustain & Spread



Understand

Stakeholder Mapping
Secondary Research
Empathy Interviews
User Observations
Context Immersion
Make Sense of Data
Identify Opportunities
Craft "HMW" Statements

Explore

Brain-Writing & Round Robins
Analogies
Trigger Cards
Ideas Selection

Test

Prototyping
Test & Learn
Refine & Iterate

Implement, Sustain & Spread

Implement
Sustain & Spread

Design Thinking

**In your Patient Safety and Quality
Improvement journey,
please contact your institution
representatives for their support.**



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