

LEAN HEALTHCARE OPERATIONAL & SUSTAINABILITY GUIDELINE

MEDICAL DEVELOPMENT DIVISION
MINISTRY OF HEALTH MALAYSIA

Second Edition
August 2023



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MINISTRY OF HEALTH MALAYSIA**

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The process of developing this guideline was coordinated
by the Lean Focal Team, Hospital Management & Services
Unit, Medical Development Division



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>> Foreword

Assalamualaikum warahmatullahi wabarakatuh and *Salam Sejahtera!*

In the pursuit of providing high-quality healthcare services, healthcare organizations face numerous challenges ranging from increasing patient demands, financial constraints to resource limitations. These complexities require innovative approaches that not only improve efficiency and effectiveness but also ensure the sustainability of healthcare operations while maintaining highest quality of care. As the need for optimal healthcare delivery becomes more pressing, the adoption of Lean principles has emerged as a transformative solution.

Applying Lean principles to the realm of healthcare provides a unique opportunity to optimize processes, eliminate inefficiencies, and ultimately enhance patient outcomes. While the challenges facing healthcare systems may seem daunting, the power of Lean thinking lies in its adaptability and universality. Whether applied to large medical centers or small rural clinics, Lean principles have proven to be a powerful catalyst for positive change. By embracing this framework, healthcare organizations can not only survive in the face of ever-evolving demands but thrive and excel in their mission to serve their communities.

I commend all involved in the production of in this book, for their dedication to advancing Lean principles within the healthcare sector and for producing this invaluable resource. It is my sincere hope that the "Lean Healthcare Operational and Sustainability Framework" will inspire leaders and practitioners to embrace Lean thinking, leading to a brighter and more sustainable future for healthcare in Malaysia.

Datuk Dr Muhammad Radzi Abu Hassan

Director General of Health
Ministry of Health Malaysia



>> Foreword



Dato' Dr Asmayani Khalib

Deputy Director General of Health
(Medical)

"As we move forward, the challenges in healthcare will undoubtedly persist, and new ones will emerge. However, the principles of Lean offer a timeless and adaptable approach to navigating these complexities and achieving continuous improvement. The lessons distilled from ten years of implementation captured in this volume will pave the way for a more-patient centred, efficient and resilient healthcare system. May this guidelines inspire all toward advancement of this initiative."

"I am delighted to present the Lean Healthcare Operational & Sustainability Guidelines, which explores the essential convergence of Lean principles in healthcare management. The invaluable resource is tailored to all MOH staff who are engaged in scanning, planning, developing, implementing and evaluating Lean projects within the context of MOH health facilities. The book outlines various levels of competency that proves beneficial in equipping the organization to effectively plan and enhance staff capabilities in Lean principles, ensuring a sustainable deployment of Lean Healthcare Initiative."



Dato' Dr Mohd Azman Yacob

Director of Medical Development
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>> Abbreviation

TOR	Term of Reference	NIH	National Health Institute
LC	Lean Champion	TNA	Training Need Analysis
LCOE	Lean Center of Excellence	CME	Continuous Medical Education
LHC	Lean Healthcare Control	DMAIC	Define, Measure, Act, Improve, Control
LHU	Lean Healthcare Unit	PDCA	Plan Do Check Act
LPT	Lean Project Team	HPIA	Hospital Performance Indicators Analysis
HKL	Hospital Kuala Lumpur	POA	Plan of Action
HTAR	Hospital Tengku Ampuan Rahimah	KBSI	Kaizen Burst Status Indicator
HSI	Hospital Sultan Ismail	BCG	Boston Consulting Group
OT	Operation Theatre	ROI	Return of Investment
TPKN	Timbalan Pengarah Kesihatan Negeri	LT	Lead Time
FSQ	Food Safety & Quality	SISPA	Sistem Pengurusan Aduan Awam
PPP	Penolong Pegawai Perubatan	VSM	Value Stream Mapping
JKN	Jabatan Kesihatan Negeri	FMEA	Failure Mode Effect Analysis
KPI	Key Performance Indicator	QA	Quality Assurance
MKRA	Ministerial Key Result Area	KK	Klinik Kesihatan
DG	Director General	HOD	Head of Department
IHM	Institute of Health Management		

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Exciting Lean Journey



» Section 1: Introduction

1.1 The Purpose

☆ Quotes

"Lean Thinking is Lean because it provides a way to do more and more with less and less—less human effort, less equipment, less time, and less space while coming closer and closer to providing customers with exactly what they want"

James Womack and Danielle T. Jones, 1st Edition 2003-

Lean Operational and Sustainability Framework Guideline is the updated version of the Lean Healthcare Implementation Guideline published in July 2015. This version has been developed to acknowledge the importance of continually pursuing quality and excellence in the Ministry of Health (MOH) facilities to ensure an efficient, effective and safe delivery of care.

The target users of this guideline are all MOH staff who are involved in scanning, identifying, planning, developing, implementing, and evaluating the Lean projects according to the needs and requirements of the facility setting. Additionally, it is for those who are responsible to monitor, enhance and ensure the quality of any improvement activities in the hospitals as well as the sustainability of the initiative.





1.2 Chapter Review

This guideline is comprehensive as it covers the standard implementation and sustainability frameworks as well as ready-to-use templates are included in this handbook. It consists of six sections, which contain samples, templates, and illustrations for the user's reference. The summary of each chapter is as follow:

- | | | |
|---------|----------|--|
| Section | 1 | Introduction describes the purpose, and a general overview of the framework. |
| Section | 2 | Background describes the journey of Lean Healthcare in MOH Malaysia including the objectives and benefits of implementing Lean Healthcare initiatives. |
| Section | 3 | Governance describes the fundamental structure of the governance at all levels, Ministry of Health, State Health Department, and institutional level. It also describes the term of reference (TOR) for each committee. |
| Section | 4 | Sustainability main constructs explain the important elements of a successful Lean Healthcare initiative at any healthcare facility. It also elaborates the competency traits of each element. |
| Section | 5 | Lean Project Management describes the overview of how to start to implement the Lean Healthcare initiative including a brief introduction of tools and techniques used to initiate any improvement activities. |
| Section | 6 | Way Forward mentions the MOH Malaysia aspiration and plan to ensure both the internal and external spread of Lean Thinking in its institutions, as well as to ensure this thinking is embraced and becomes the work culture of MOH staff. |

» Section 2 : Background

MOH had embraced many Quality initiatives since 1985 to improve the quality of patient care but there was minimal emphasis on the efficient use of resources in delivering quality care. The drive towards patient-centered care demands a lot more from MOH in terms of resources, whereas in the current economic climate, MOH finds it very challenging to meet all demands satisfactorily. Realizing also that there is a problem of wastage in our delivery processes, MOH needs to find alternative tools to sustain the delivery of quality care in the most effective and efficient manner.

As part of the Public Service Delivery Transformation by the government, Lean Healthcare initiative was initially introduced to look into reducing waiting time at hospitals. The first project at Hospital Sultan Ismail (HSIJ), JB in 2013 successfully reduced waiting time to receive the first radiotherapy treatment on diagnosis for patients with head and neck cancers and waiting time to see specialists at Orthopaedic Specialist clinics. Encouraging evidence of success at HSIJ, has prompted MOH to apply Lean Methodology at Hospital Tengku Ampuan Rahimah (HTAR) to reduce congestion in medical wards and waiting time for patients at the Green Zone in Emergency Department in early 2014. As of September 2014, HTAR projects have shown promising improvements by increasing the percentage of patients discharged within 2 hours in the Emergency Department from 18% to 70.72%, while in the Medical Ward, Bed Occupancy Rate (BOR) has reduced to an average of 83% and inpatient discharged cycle time increase to 83% (discharged within 4 hours).

Lean Journey in MOH Malaysia then began to take its tours through 2013 with various expansions to clinical departments and non-clinical areas, and also to different new hospitals to increase customer satisfaction, staff morale, improve productivity, eliminate waste in hospital processes, and improve quality of services delivered. The expansion plans shall be carried out in phases within the 11th Malaysia Plans.

Apart from that, making Lean into a working culture is a long journey ahead. MOH is committed to ensuring all its staff embrace the Lean concept into their daily working habits, hence improving their service delivery to the patients. The sustainability plan shall be developed within the next five years.

Rolling Out Nationwide (2013-2019)

Pilot project at Hospital Sultan Ismail, Johor

- MOH embarked on Lean journey.
- Hospital Sultan Ismail as Pilot project, involving Oncology and Orthopaedics Department.

2013

Pilot project at Hospital Tengku Ampuan Rahimah Klang

- Second pilot project was done in HTAR Klang
- Focused on Emergency Department and Medical ward.

2014

Nationwide Expansion at Emergency Department and Medical Ward (2015-2017)

- Roll-out nationwide via agile approach in batches, focusing at Emergency Department and Medical ward.
- Total 52 MOH State, Major and Minor Specialist Hospitals with 104 projects.
- Other Lean pilot projects:
- Lean Operation Theatre at HSIJB
- Lean Heijunka at Hospital Sg. Buloh
- Lean Ophthalmology and Orthopaedics Clinics
- HKL Transformation (involving 7 departments includes medical records, pathology lab, Radicare support services)

2015

Roll-out Ophthalmology and Orthopaedics Clinic Project

- 10 MOH State and Major specialist hospitals.
- Total of 18 projects.
- 1st Lean Conference in Kota Bharu.

2018

2019 and Moving Forward

- HTAR as Lean Organization.
- Lean Sustainability Framework Model.
- Lean Flying Squad.
- Competency Module.
- Expansion to Health Clinics (KK), non-specialist hospitals, clinical support services and other non-clinical areas.

2019



2.1 Objectives of Lean Healthcare Initiative

Lean is a philosophy that seeks to eliminate waste in all aspects of organizational activities such as human relations, inter-departmental relations, technology, and the management of materials. The lean concept includes principles, methods, and tools used to improve process efficiency by removing wasteful steps. Therefore, the objective of the Lean Healthcare Initiative is to **create awareness** and **train organizations on the basics of Lean management** in order to **create Lean organizations**.



2.2 Benefits of Lean Healthcare

Through the application of Lean Healthcare initiative:

- Build upon this foundation to create a Lean culture.
- The health facility will understand the foundation of Lean transformation for their organization
- Lead a Lean culture through a process of continuous improvement that will improve process efficiency, (for example the process of admitting and treating patients), allow more patients to be treated, improve patient safety and care, improve direct patient care processes, improve morale, productivity and bottom line and ultimately quality of care.

» Section 3: Governance

Transformation to high efficiency and quality healthcare organization is a long development process and requires the application of Lean in the right clinical focus with attention to organizational contexts to improve care. Most cited facilitators in the literature for Lean implementation include continuously visible leadership support, internal/external consultants to help launch the projects, a core team with assigned time and responsibility for facilitating improvement, sharing experiences within the same facilities or other facilities, a follow-up mechanism to conduct continuous improvement and multidisciplinary and interdepartmental collaboration.

Common barriers to Lean implementation include the lack of physician involvement, lack of healthcare providers' awareness of the importance of patient involvement (including carers and family), suspicion and resistance from frontline staff who were unfamiliar with Lean principles, and financial constraints.

Therefore, to ensure the smooth running and sustainability of Lean Healthcare initiatives in MOH hospitals, various committees, units and teams shall be established at the ministry, program, state and hospital levels alike as shown in Figure 1 below;

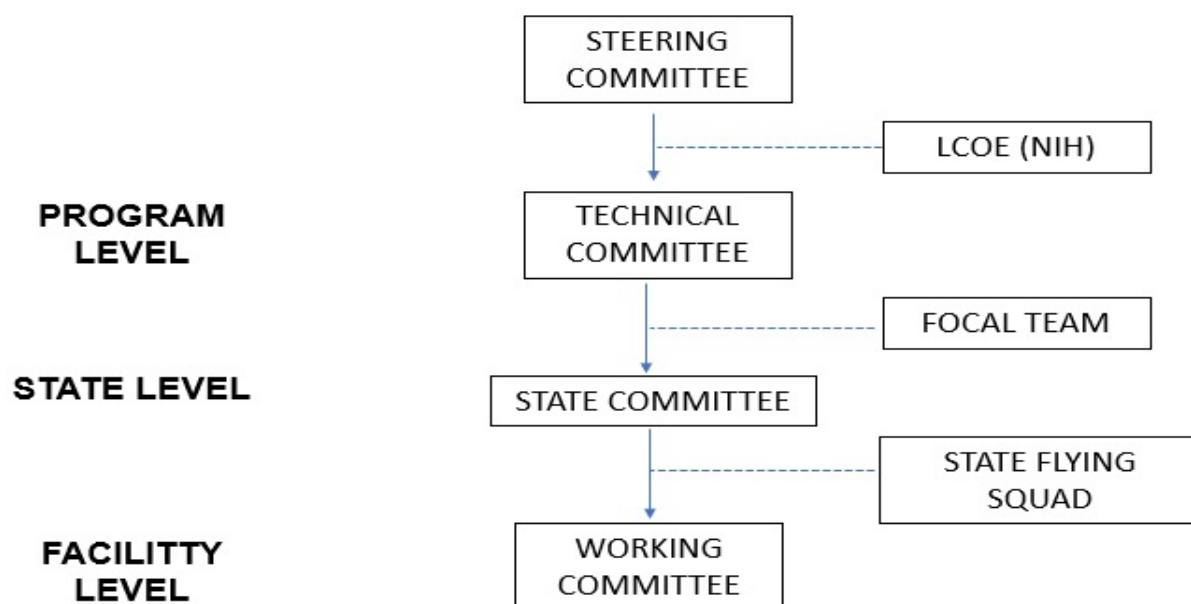


Figure 1: Lean Governance in Ministry of Health



3.1 The Steering Committee

The Steering Committee shall be co-chaired by the Secretary General of MOH and Director General of Health. The members include;

- Deputy Secretary General (Management)
- Deputy Secretary General (Finance)
- Deputy Director General of Health (Medical)
- Deputy Director General of Health (Public Health)
- Deputy Director General of Health (Research & Technical Support)
- State Health Directors
- Outside agencies such as MPC, SIRIM or other opted members as needed basis

The terms of reference of the Steering Committee shall be as follows:

- Ensure initiative is aligned to with MOH strategy
- Provide advice, guidance and direction on issues faced during implementation of the initiatives
- Assist in resolving strategic level issues and risks
- Approve or reject changes to the initiatives with a high impact on timeline and budget
- Review and approve final project deliverables

The Steering Committee shall meet minimal once a year.

3.2 Lean Centre of Excellence (LCOE)

Lean Centre of Excellence is under the National Institutes of Health (NIH). The terms of reference of the LCOE shall be as follows;

- i. Conduct research that aligns with the Lean Healthcare Initiative
- ii. Serve as a resource centre for the MOH Lean Healthcare Initiative by;
 - Providing advice as subject matter experts on lean process improvement initiatives
 - Delivering structured lean training programme tailored to MOH needs
 - Developing modules in accordance with the competency framework model
 - Disseminating information across various platforms to ensure widespread accessibility and impact

iii. Function as secretariat for the MOH Lean Steering Committee that oversees the following responsibilities:

- Maintaining the Lean Registry for Champions, Green Belt and Black Belts holders, as well as State Flying Squads, and strengthening its training for the team at state level
- Monitoring and evaluation of the MOH Lean Healthcare Initiative

3.3 The Technical Committee

The Technical Committee shall be chaired by the Deputy Director General of Health for each program. For example, under Medical Program, the members include :

- Director Medical Development Division
- Director Medical Practice Division
- Director Nursing Division
- Director Allied Health Division
- Director Traditional & Complementary Medicine Division
- Representative from other program/division as deemed appropriate (where Lean are implemented, co-opted as and when necessary)

**Other Program shall established own Technical Committee.

The terms of reference of the Technical Committee shall be as follows:-

- Monitor Lean initiative activities regularly at the facility level.
- Advice on implementation of Lean initiative activities.
- Assist the Steering Committee on policy options and decision-making.
- Review and approve the proposal for resource allocation.
- Facilitate linkages between various stakeholders.
- Provide a platform for information sharing.

The Technical Committee shall meet minimal of twice a year.

3.4 The Focal Team

The terms of reference of the Focal Team shall be as follows:

- The Focal Team shall be the secretariat for the Technical Committee.
- Act as liaison between the Technical Committee and State Flying Squad
- Prepare and synthesize reports for the Technical Committee and any other relevant committees.
- Monitor, manage and compile Lean initiative activities reports from facilities implementing Lean.
- Maintain a database on Lean initiatives.

For instance, under Medical Program, the Focal Team shall consist of relevant officers from Medical Development Division, MOH i.e. Hospital Management Services Unit, Specialty Services Development Section, and Medical Care Quality Section.

**Other Program shall established own Focal team based on need.





3.5 The Working Committee

Any facility level within own program shall established The Working Committee.

The working committee shall be established to ensure the implementation, monitoring, and sustainability of the initiative at the cluster/hospital/clinic or any facility level. The Working Committee in a cluster/hospital for example, shall be chaired by the Cluster Head/ Hospital Director. The members include;

- Deputy Director Clinical
- Deputy Director Management
- Hospital Chief Matron
- Hospital Chief Supervisor
- Head of Departments (as deemed appropriate by Hospital Director)
- Lean Hospital Manager (LHM)

LHM is to be appointed by Hospital Director and leads the Lean Healthcare Unit (LHU)/ team of the hospital.

The terms of reference of the Working Committee shall be as follows:

- Identify areas of improvement in the hospital by Lean Project Team (LPT)
- Monitor Lean initiative activities regularly at the hospital level.
- Advice on implementation of Lean initiative activities.
- Assist the Lean Project Team (LPT) on policy options and decision-making.
- Review and approve the proposal of the Lean Project Team for resource allocation.
- Facilitate linkage between various departments/ units.
- Provide a platform for information sharing.
- Prepare and synthesize the implementation report.
- The Working Committee shall meet a minimum of four times a year.



3.6 The State Flying Squad

Flying Squad is a pool of Lean Champions and Lean Healthcare Managers at the state level. Flying Squad shall be coordinated by the Lean Healthcare Manager of state to ensure Lean Healthcare expansion. Flying Squad shall be appointed among Lean Champions by the Working Committee, who will provide assistance in knowledge transfer initiatives, coordinating and coaching Lean projects; mostly for Lean teams within their facilities, either within the states or inter-states.

The terms of reference of State Flying Squad shall be as follows;

- o Advice and involve in the expansion plan of Lean Healthcare at the state level.
- o Assist and guide in the implementation of Lean in an organization.
- o Advice and supervise any lean projects on policy options.
- o Review and approve the proposal for resource allocations.
- o Form a linkage with the Focal Team at the national level.

» Section 4: The Main Constructs of Sustainability

MOH had developed a Lean Sustainability Operational Plan to fulfill the aim of sustainability, as shown in Figure 2 below. The model consists of three main constructs, namely the platform, driver, and competency.

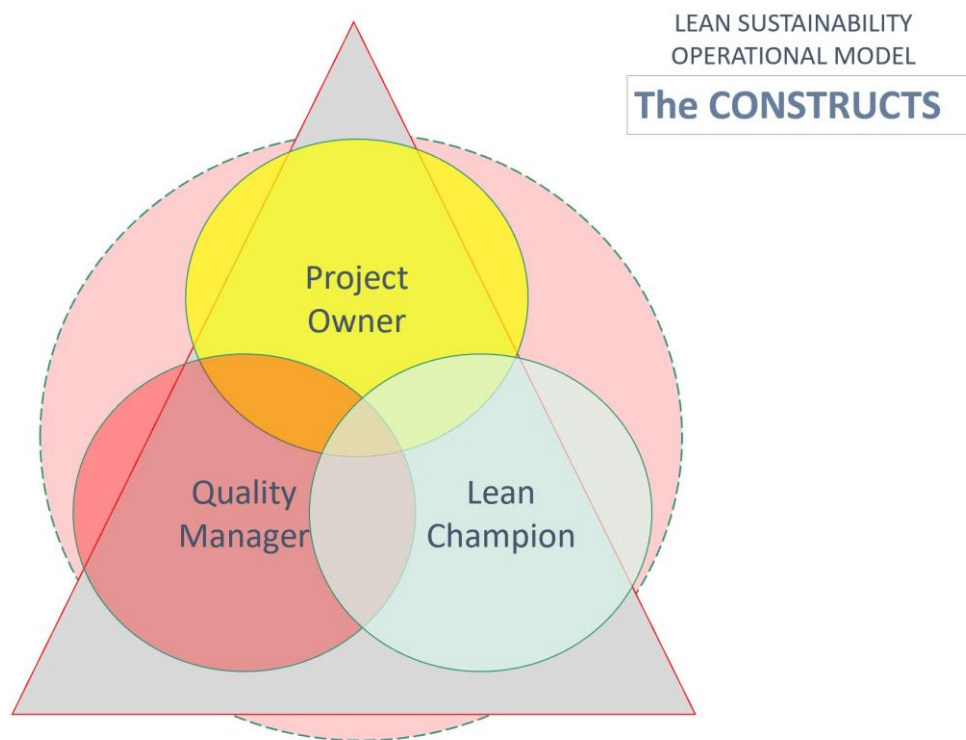


Figure 2: Lean Sustainability Operational Model



4.1 Platform

Platform is a declaration of the principles on which a group of persons stands; especially: a declaration of principles and policies adopted by an organization. (Webster, 2010)

The new way of thinking, a top-down approach shall be taken, cascading downwards from MOH to individual hospitals via State Health Department and Hospital Directors, until the culture is embraced and can sustain itself. As such, the Ministerial Key Result Area (MKRA) and Director General (DG) level Key Performance Indicator (KPIs) on Lean sustainability and expansion are also replicated in State Health Departments and Hospital Directors to ensure top-down alignment of priorities.

For the purpose of Lean Healthcare implementation at the hospital level, the platform can be regarded as a Unit in which all Lean activities are planned, regulated, and monitored. The main component of the platform can be described in Figure 3 below;

The Platform

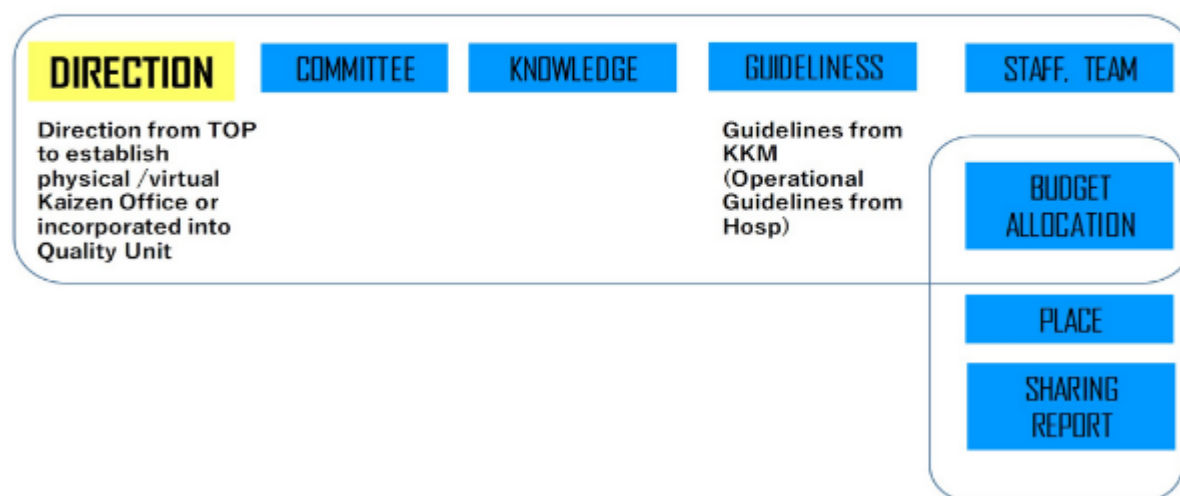


Figure 3: The Components of The Platform

4.2 Driver

The driver model was constructed in such a way as to illustrate the job functions and the inter-relationship of three main components in hospitals that will drive lean initiatives towards sustainability. The relation of three main driver components is illustrated in Figure 4 below;

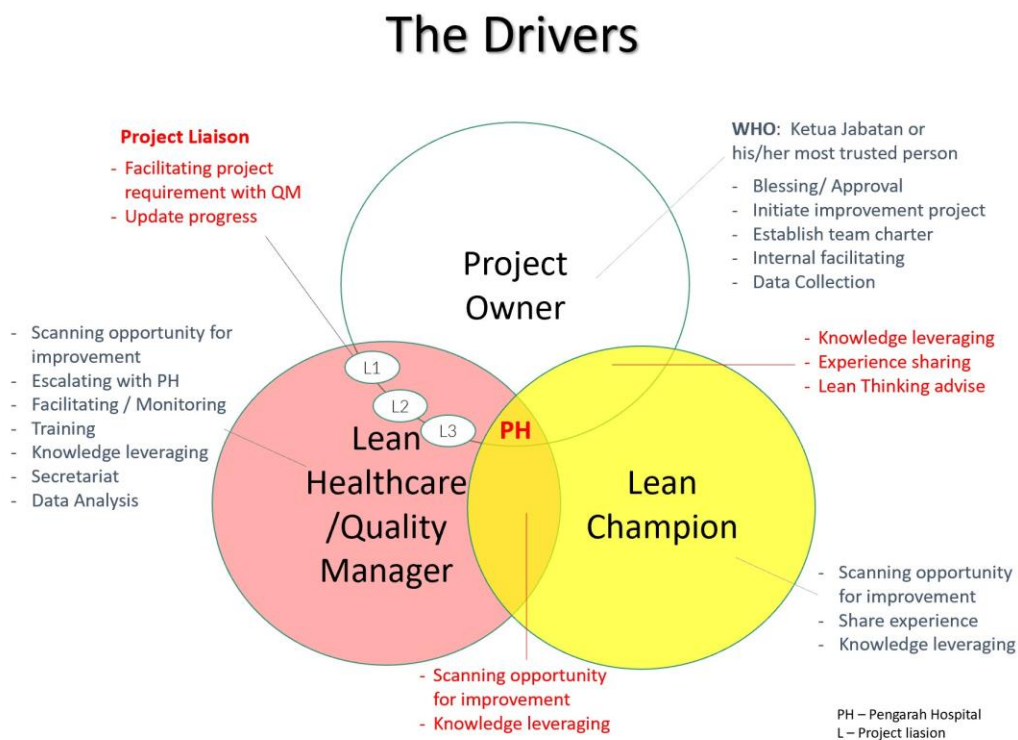


Figure 4: The Relationship and Function of Each Driver

Main highlights:

- Project owner (PO) will drive improvement activities
- LHM/Quality Manager (QM) and Lean Champion (LC) will support improvement activities based on the specified job functions.
- Pengaruh Hospital (PH) will only intervene whenever LHM/QM & LC having difficulty to penetrate new area/department.
- LHM/QM to establish a “case for improvement” based on facts and data before presenting to PH for intervention.
- Data collection is to be done by PO; while LHM/QM will perform the analysis.
- Overall secretariat function will be facilitated by LHM/QM.



4.2.1 Lean Healthcare Manager/Quality Manager

Lean Healthcare Manager/ Quality Manager is a staff/officer, who is independent of individual department heads and can help break down operational silos, encouraging cross-department syndication to generate synergies.

4.2.2 Project Owner

The Project Owner is the Head of the Department (HOD) or a senior officer who trusted by the HOD to spearhead Lean activities/ projects in the Department. Their roles and responsibilities are to approve the Lean improvement activities in their department, to work with the process owner and develop VSM, to facilitate any improvement that needs to be done as well as to ensure the implementation of the initiatives id well executed.

4.2.3 Lean Champion

The Lean Champions are clinicians or key support staff who have experienced leading Lean projects and will work with the Project Owner and Lean Manager to identify and implement process improvements as well as any opportunity that arises from further improvements.

The terms of reference for a Lean Champion are as follows:

- Understand the basics of Lean, has knowledge of various Lean Methodology and its applications.
- Understand the primary Lean objectives and practice applying the concept in daily job.
- Properly scope and define Lean projects.
- Identify Lean resources and understand the role of champions and other stakeholders in a successful Lean deployment.
- Understand the commitment necessary to implement Lean.
- Spread knowledge of Lean by teaching and monitoring other Lean projects.



4.3 Competency

A competency framework model is developed in line with the SIRIM Standard for LEAN Management – *Competency requirements for LEAN personnel*. Specific training modules will be identified for each level of competency band. The purpose of the Lean competency strategy model is to illustrate the overall competency strategy to support the need for Lean Drivers and Lean Platform model toward sustainable deployment of Lean Healthcare in Ministry of Health Malaysia

The model has been developed from the context of MOH hospital's operation considering the competency needed to ensure sustainable deployment of Lean Healthcare. The competency model covers the competency required by the intended group (new and existing staff, project team members, team leaders, coordinators, and management) as well as the internal trainer.

The model consists of five main competency levels and two supporting competency strategies i.e. enabler and monitoring. The Lean promotional component becomes the supporting enabler towards achieving the competencies sets for each level. (as per Figure 5). Training execution should consider the needs of clinical operations.

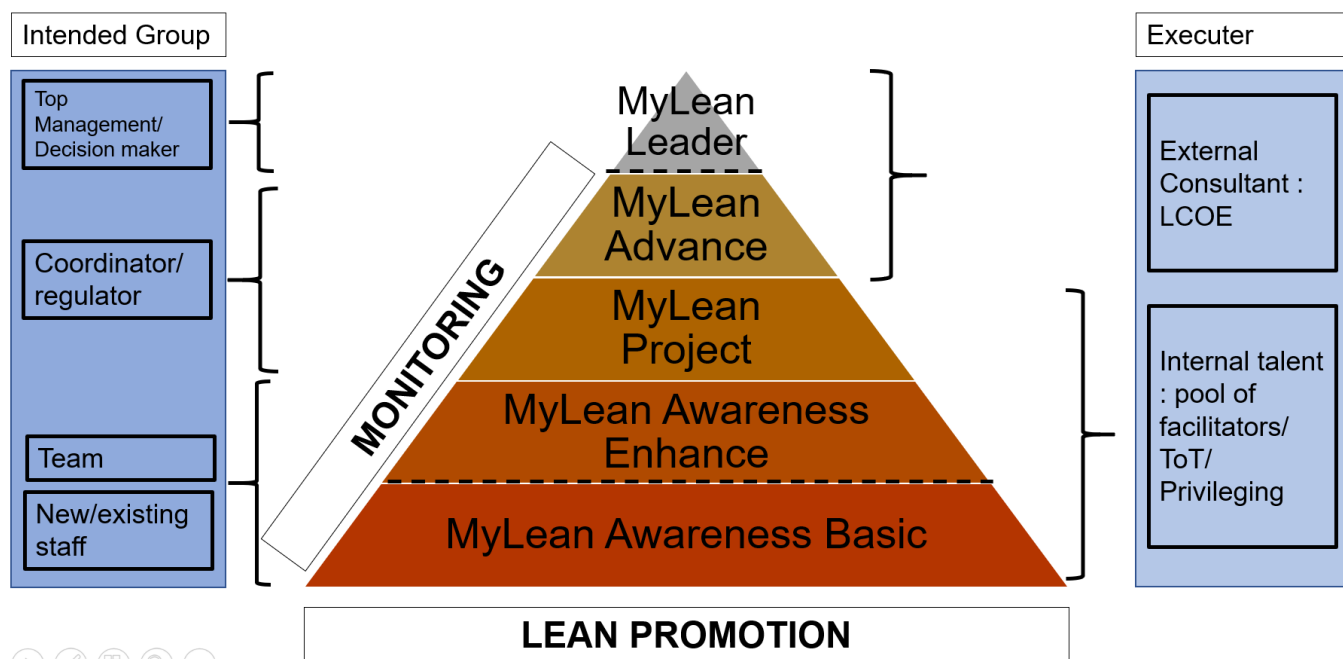


Figure 5: Five Main Competency Levels in The Competency Model



4.3. 1 Lean Promotion

Lean promotion is the most basic knowledge of Lean that should be taught at each level of hospital staff including support service staff. The continuous promotion activities should be done regularly and can be incorporated into the compulsory staff induction programme. Examples of the promotional activities includes Continuous Medical Education (CME), Kaizen Corner, Lean Healthcare Open Day, Lean Appreciation Day, putting up banners and distributing pamphlets about Lean to staff and visitors.





4.3. 2 Competency Level Description

Table 1: Descriptions of Lean Practitioners Competency Level

Competency Level	Objectives	Knowledge Area	Activities	Assessment	Executor
My Lean Awareness Basic	<ul style="list-style-type: none"> • To create awareness • To instill a basic understanding of Lean Thinking and underlying continuous improvement concepts 	<ul style="list-style-type: none"> • Lean Thinking • Lean Principles/ Concepts • Types of Waste in Lean 	<ul style="list-style-type: none"> • CME at organization level 	<ul style="list-style-type: none"> • Training done for one hour • proof of attendance • no need for certificate • Serial report by LHM on the implementation of the CME (every 3 months) for database • Target number of audience e.g. 2000 per year 	<ul style="list-style-type: none"> • Lean Healthcare Unit/ Manager/ Kaizen Office - to be done as a part of organization CME/ meetings
My Lean Awareness Enhance	<ul style="list-style-type: none"> • In-depth understanding of Lean • Ability to use lean in workplace, understand customer value, current state, solve problems and propose future state VSM 	<ul style="list-style-type: none"> • Application Lean tool and techniques – tools to identify and eliminate waste • Basic data collection and analysis/ statistical techniques 	<ul style="list-style-type: none"> • Short training and implementation at own department/ workplace/ unit 	<ul style="list-style-type: none"> • Training done for 2.5 days • Proof of (80%) attendance • ToT for Flying Squad (2x per year) • Post ToT: to deliver course min 1x within 6 months 	<ul style="list-style-type: none"> • LHU/ team/ Kaizen Office as coordinator/ trainer • Lean Champion as facilitator/ trainer



4.3. 2 Competency Level Description

Competency Level	Objectives	Knowledge Area	Activities	Assessment	Executor
My Lean Project	<ul style="list-style-type: none"> This competency level is intended for (clinicians/ Lean Quality Manager) that had been identified through implementation of the project at department level. Actively participate in improvement activities across hospital level Able to design and implement improvement activity, play leading role in managing departmental or cross functional team with some support and guidance 	<ul style="list-style-type: none"> Problem Solving Basic Demand and Capacity analysis techniques Advanced lean thinking and techniques – detailed problem solving Six Sigma/DMAIC, Shingo Model, Kata Method etc Leadership skill Soft skill – communication skill Project management (Organisational structure, Time planning/control, Cost Planning/control, Quality Assurance 	<ul style="list-style-type: none"> Inter-department and other department within own hospital 	<ul style="list-style-type: none"> Minimum 3 days Certification equivalent to Yellow Belt based on assessment MCQ i.e. theory assessment There will be 2 cohorts for this module Cohort LFS for knowledge and subsequently become trainer Cohort (LP) from the organisations that want to progress to lead a project 	<ul style="list-style-type: none"> Lean Healthcare Unit/ Team/ Kaizen Office as coordinator External consultant LCOE as facilitator/ internal consultant



4.3. 2 Competency Level Description

Competency Level	Objectives	Knowledge Area	Activities	Assessment	Executor
My Lean Advance	<ul style="list-style-type: none">• This level is intended for Lean Champion that can act as Flying Squad• Creating opportunities for Lean Champions who want to advance further in Lean practices	<ul style="list-style-type: none">• Pre-requisite: attended MyLean Project Module• Advanced lean thinking, tools and techniques (includes Kanban, SMED, Heijunka and others)• Detailed problem solving Six Sigma/DMAIC,• Oversea training experience (subject to budget availability and approval)	<ul style="list-style-type: none">• Outside own hospital, can be at any facilities within or across states	<p>This level is equivalent to Green Belt once fulfill all below criteria:</p> <ol style="list-style-type: none">i. Knowledge: 3 days course with Certificate of Attendance for MyLean Advance Moduleii. Project Report Submission and evaluation (Lean Champion MOH will be awarded if candidate completed item i and ii)iii. Certification for Green Belt by UniKL	<ul style="list-style-type: none">• External consultant• LCOE as facilitator/ internal consultant



4.3. 2 Competency Level Description

Competency Level	Objectives	Knowledge Area	Activities	Assesment	Executer
My Lean Leader	<ul style="list-style-type: none">• This level is specially designed for the top management of the hospitals/ organization	<ul style="list-style-type: none">• My Lean Basic Awareness Package• Strategy development and policy deployment• Leadership skill for effective lean transformation• Project direction, implementation and control	<ul style="list-style-type: none">• Within own hospital/ cluster/ organization	<ul style="list-style-type: none">• Minimum 2 days• Certificat eof Attendance	<ul style="list-style-type: none">• External consultant• LCOE as facilitator/ internal consultant

» Section 5: Lean Project Management and Improvement Tools



Implementation of any Lean improvement activities requires it to be right at the first time, in order to reduce wastage and errors, hence ensuring better care and value to the MOH healthcare service delivery. The usage of the right tools, techniques, and support is crucial in creating an environment in which change and improvement can flourish, hence a culture of innovation in MOH's work ethics.

5.1 Lean Project Management Guide

This project management guide shall act as a base for any improvement activities that take place in the MOH facilities. It encompasses Plan, Do, Check, and Act i.e. PDCA cycle which can be further elaborated with suitable tools in seven (7) phases as per Figure 6;



Figure 6: Project Management Guide for Implementation of Improvement Activities in MOH Facilities



5.2 Improvement Tools

The improvement tools list is not exhaustive and can be used interdependently. Tools are essential in helping to accelerate any Lean improvement activities.

Table 2: Suggestion of tools - adapted from NHS The Handbook of Quality and Service Improvement Tool

Project Management Phases	Key Steps	Relevant Actions/ Tools
Initiate	<ul style="list-style-type: none"> • Identify service or area that need to be addressed • Identify key individuals • Gather ideas from staff and patients • Test whether the current idea could be improved further. • Get support for the improvement process • Give focus for improvement by setting the measureable target • Capture all info into simple documents • Obtain agreement from project sponsor 	<ul style="list-style-type: none"> • HPIA Score Card • Hospital Operation Management Data (Demand and Capacity Data) • Affinity Diagram • Four Column • Benefit Realisation • HPIA Score Card • Project Charter Template - 4 Quadrants



Project Management Phases	Key Steps	Relevant Actions/ Tools
Define and Scope	<ul style="list-style-type: none"> • Undertake root cause analysis to help identify the underlying issues • Gather patient experienced via feedback complaints etc • Establish more detailed objectives that need to be achieved 	<ul style="list-style-type: none"> • Process Mapping • Stakeholders and users involvement • Identifying problems • Cause and effect (fishbone) • Root Cause Analysis using 5 Whys • SERVQUAL
Measure and Understand	<ul style="list-style-type: none"> • Measure baseline data • Prioritise area of improvement • Analyse the data • Update any risk, lesson learnt project charter etc 	<ul style="list-style-type: none"> • Pareto • Statistical Process Control (SPC)
Design and Plan	<ul style="list-style-type: none"> • Break down project into tasks that are clearly identifiable i.e. action plan • Set target dates • Update any risk, lesson learnt project charter etc 	<ul style="list-style-type: none"> • Brainstorming • Six Thinking Hats • Action Planning



Project Management Phases	Key Steps	Relevant Actions/ Tools
Pilot Implement and	<ul style="list-style-type: none"> • Test the pilot changes to relevant stakeholders • Test the actual changes continuously • Update any risk, lesson learnt project charter etc 	<ul style="list-style-type: none"> • Bullet proofing • Role redesign • PDCA
Sustain and Share	<ul style="list-style-type: none"> • Monitoring • Produce brief highlight report • Establish a sustainability model • Share best practices 	<ul style="list-style-type: none"> • Progress Report • A3 Report

Table 2: Suggestion of tools - adapted from NHS The Handbook of Quality and Service Improvement Tool



5.3 Lean Project Implementation (a specific approach)

5.3.1 Objective

The objective of this project is to create awareness and train organizations on the Basics of Lean Management focusing on Value Stream Map (VSM) application, Conducting Kaizen Events, Utilizing PDCA Problem Solving Concept, and A3 Reporting.

5.3.2 Desired Outcome

After the completion of the project, the organization will be able to competently apply VSM methodology, Kaizen Event, PDCA Problem Solving, and A3 Reporting; and replicating it to other products/services or processes.

5.3.3 Step by Step Approach

- Create Awareness of Lean Management Philosophy
- Train on Lean Management Principles, Tools & Techniques
- Perform Project Mining, Selection & Profiling
- Form Teams (Guidance/ Steering/ Leader & Members)
- Map Current VSM, Data Boxes, Value Analysis and Kaizen Burst/ Blitz
- Genba & Pre-Kaizen Data Collection
- Confirm Kaizen Blitz/ Burst/ Event
- Map Ideal Value Stream (optional)
- Map Future Value Stream
- Perform Root Cause Analysis & Establish Countermeasures
- Conduct Kaizen Event/ Implementation Plan
- Perform Post-Kaizen Data Collection
- Monitor/ Track Result Report and Present Result
- Sustaining Activities
- Embark on New Project/s

Note: Typically one project during start-up will take 3-6 months depending on complexity

» Section 6: Way Forward

The remaining hospitals nationwide that have yet to embark on this journey are all non-specialist hospitals and a few minor specialist hospitals. The Lean Initiative's aspirations are summarized in the Figure 7 below, including its expansion plans;

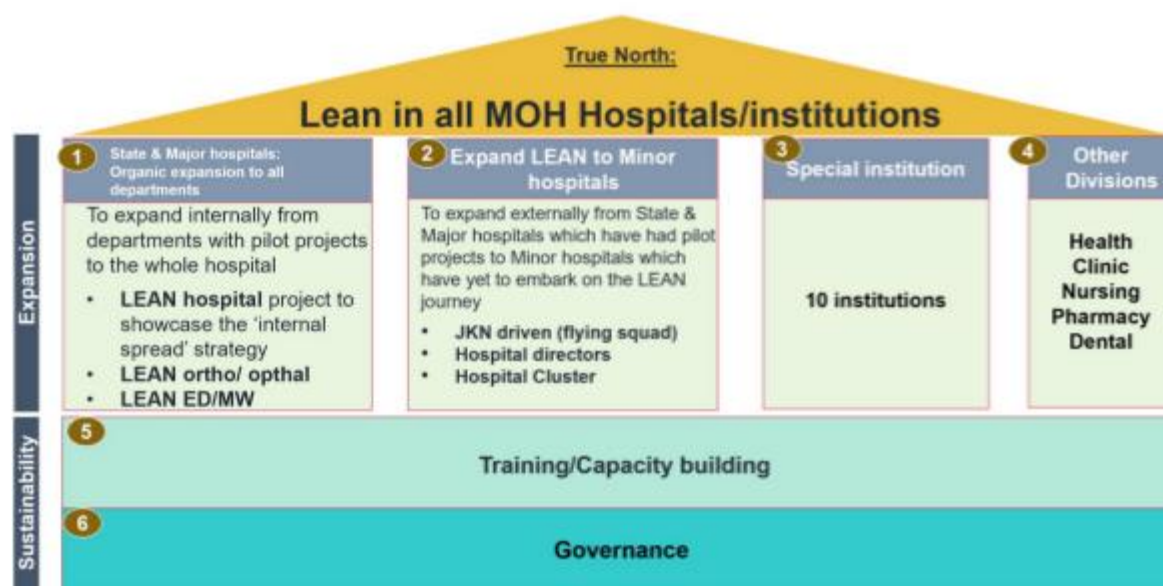


Figure 7: House Charter For Lean Healthcare Initiative in MOH

For the hospitals where Lean in Emergency Department dan Medical Ward (MW) has started, the internal expansion to other departments is encouraged, especially in areas that critically required revision of work processes, leaning on the momentum from the key drivers – LHM/QM and Lean Champions.

Apart from the Emergency Department and Medical Ward, Lean was implemented in selected Orthopaedics and Ophthalmology Departments, The projects set the benchmark for these departments in other hospitals to use Lean methodology to help with their processes in specialist clinics.

The pilot project for Lean Healthcare Hospital was conducted in Hospital Tengku Ampuan Rahimah, Klang. It sets an example of what a fully Lean Hospital entails, and serves as a pilot operational model of how a hospital can 'lean' all of its departments and divisions

There are a few hospitals, especially non-specialist hospitals, as well as health institutions and primary clinics that have yet to experience Lean Healthcare. The driver for expansion to non-specialist hospitals for example, will be three-pronged:

1. State Health Departments (JKN) - driven by the Flying Squad
2. Hospital Directors
3. Hospital Cluster initiative – i.e. Minor/non-specialist hospitals that are clustered together with State/ Major Hospitals which have embarked on Lean. The expansion can take place from the State/ Major hospitals to those hospitals. This way, the whole cluster would eventually embrace Lean Methodology as they share their services, resources & align the processes between them.

The above expansion strategies are in line with the Lean Healthcare Sustainability framework that has been developed to support the Lean Healthcare initiative. The monitoring of the expansions will be per the governance structure in Figure 8 below, in line with the Lean Healthcare Sustainability Framework.

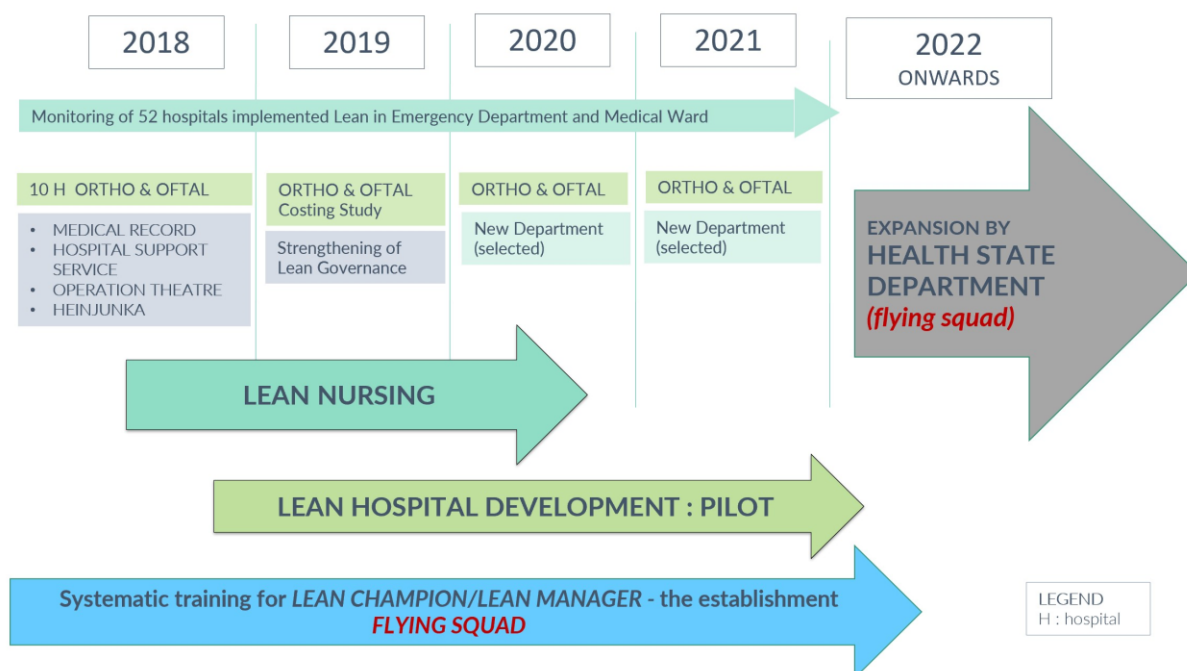


Figure 8: Expansion Strategies for Lean Healthcare

>> References

1. Tool NHS The Handbook of Quality and Service Improvement, 2010, NHS Institute for Innovation and Improvement Coventry House, University of Warwick.
2. Lean Healthcare Implementation Guideline, July 2015, Medical Development Division, Ministry of Health Malaysia.
3. Lean Management - Part 2: Requirements for Competent Person, 2017, SIRIM Berhad.

