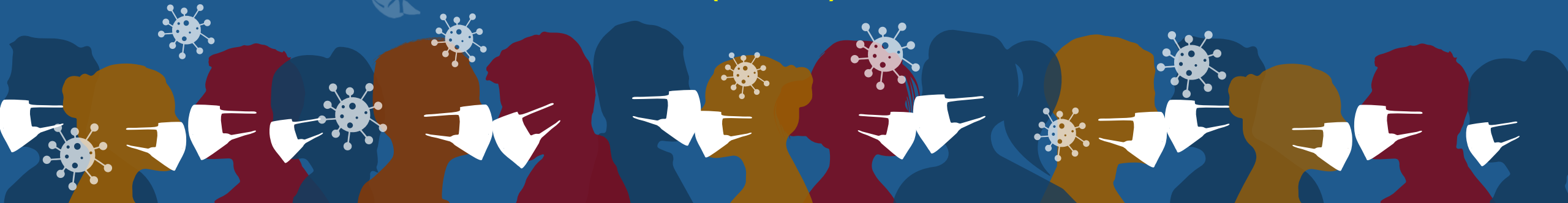


**KOLOKIU PENYELIDIKAN 2021  
INSTITUT TADBIRAN AWAM NEGARA**

**A SYSTEMATIC REVIEW  
OF  
LEAN HEALTHCARE INTERVENTION IN  
EMERGENCY DEPARTMENT**

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**MALAYSIAN ADMINISTRATIVE MODERNISATION AND MANAGEMENT PLANNING UNIT  
(MAMPU)**



# OUTLINE



## • INTRODUCTION

- Did you know?
- What is Lean?
- Lean Healthcare Journey in Malaysia
- What Do Researchers Say
- Problem Statement
- Research Objectives
- Research Questions
- Conceptual Framework



## • RESEARCH METHODOLOGY

- Inclusion and Excluded Criteria
- Research Design
- Data Collection Strategy



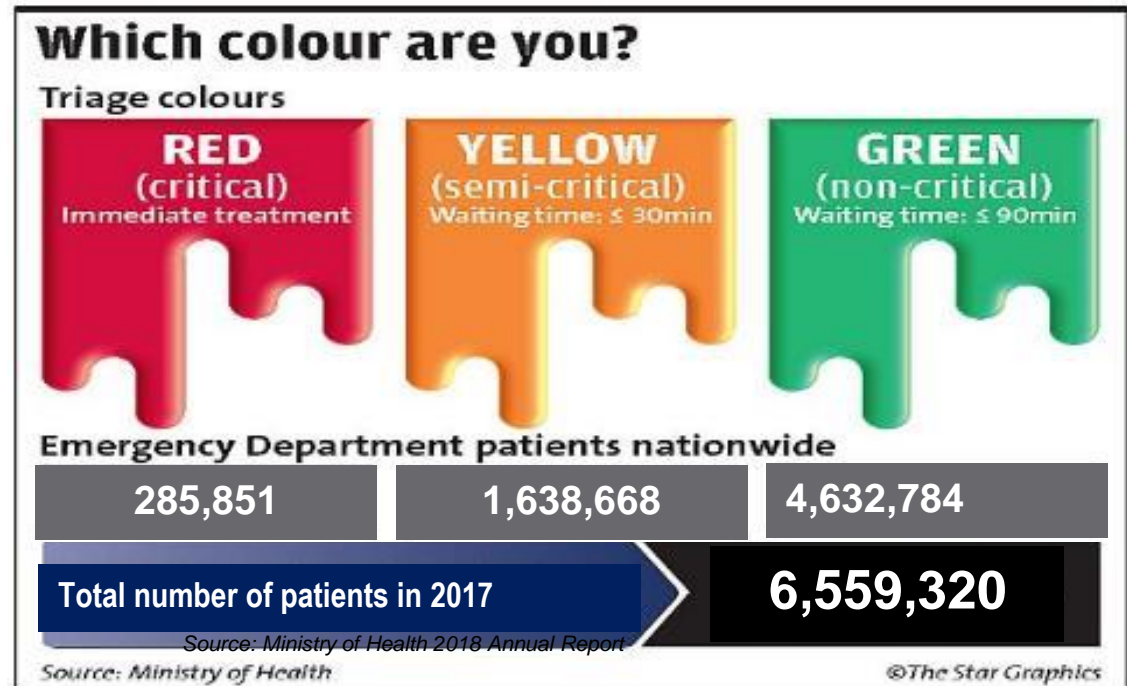
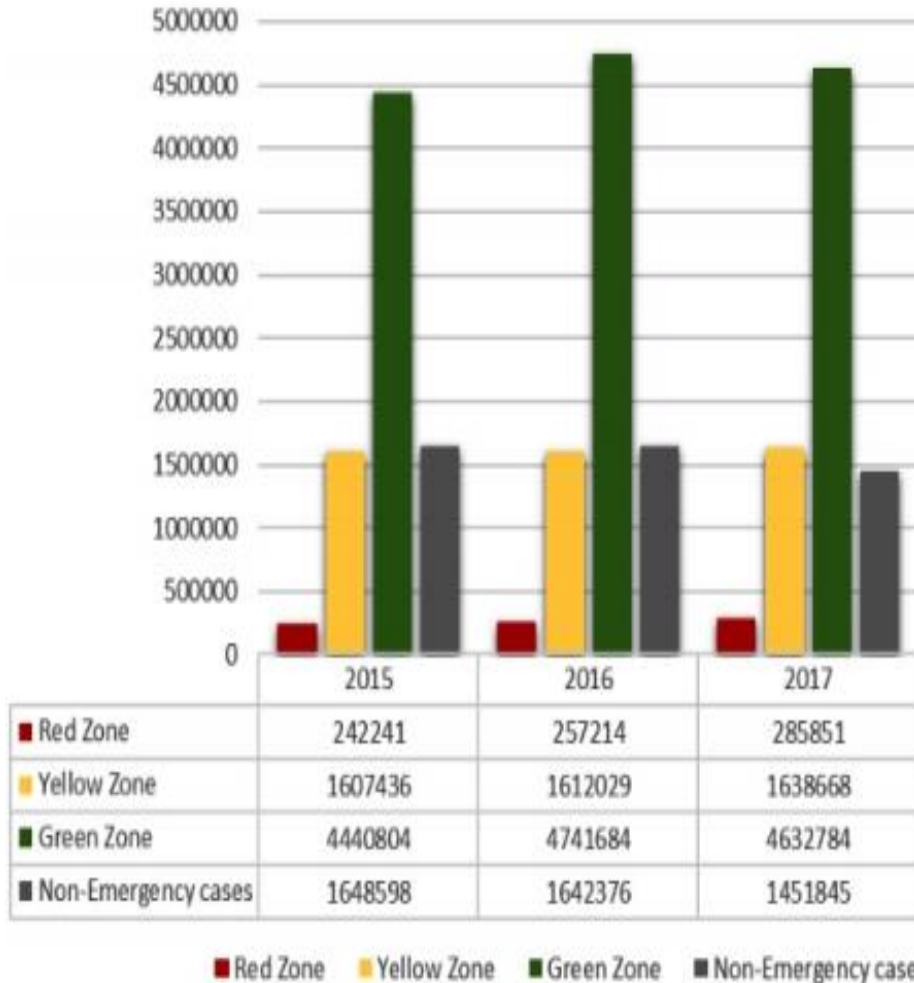
## • FINDINGS



## • CONCLUSION

- Limitation
- Future Works

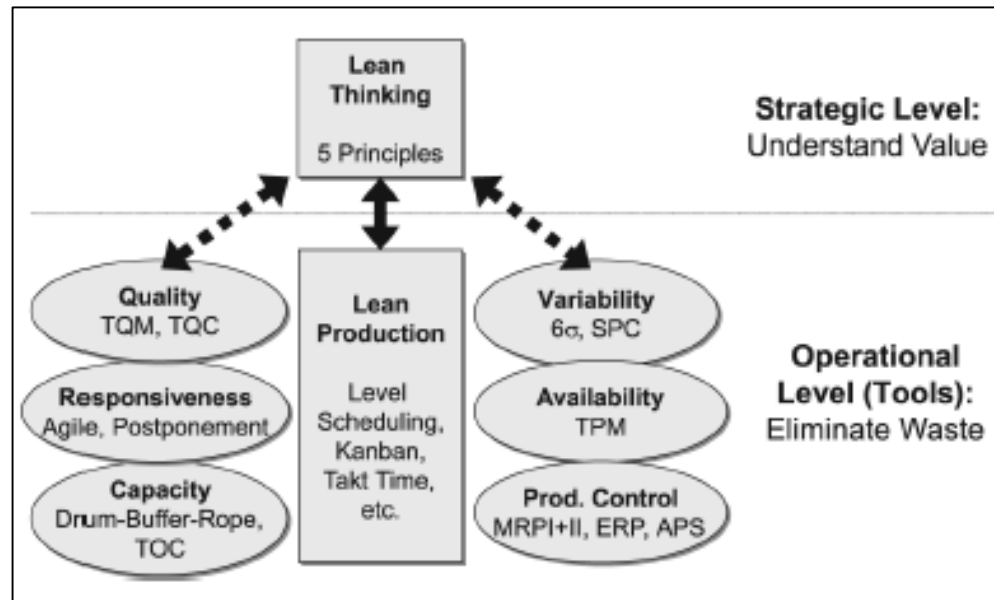
# DID YOU KNOW?



# WHAT IS LEAN?

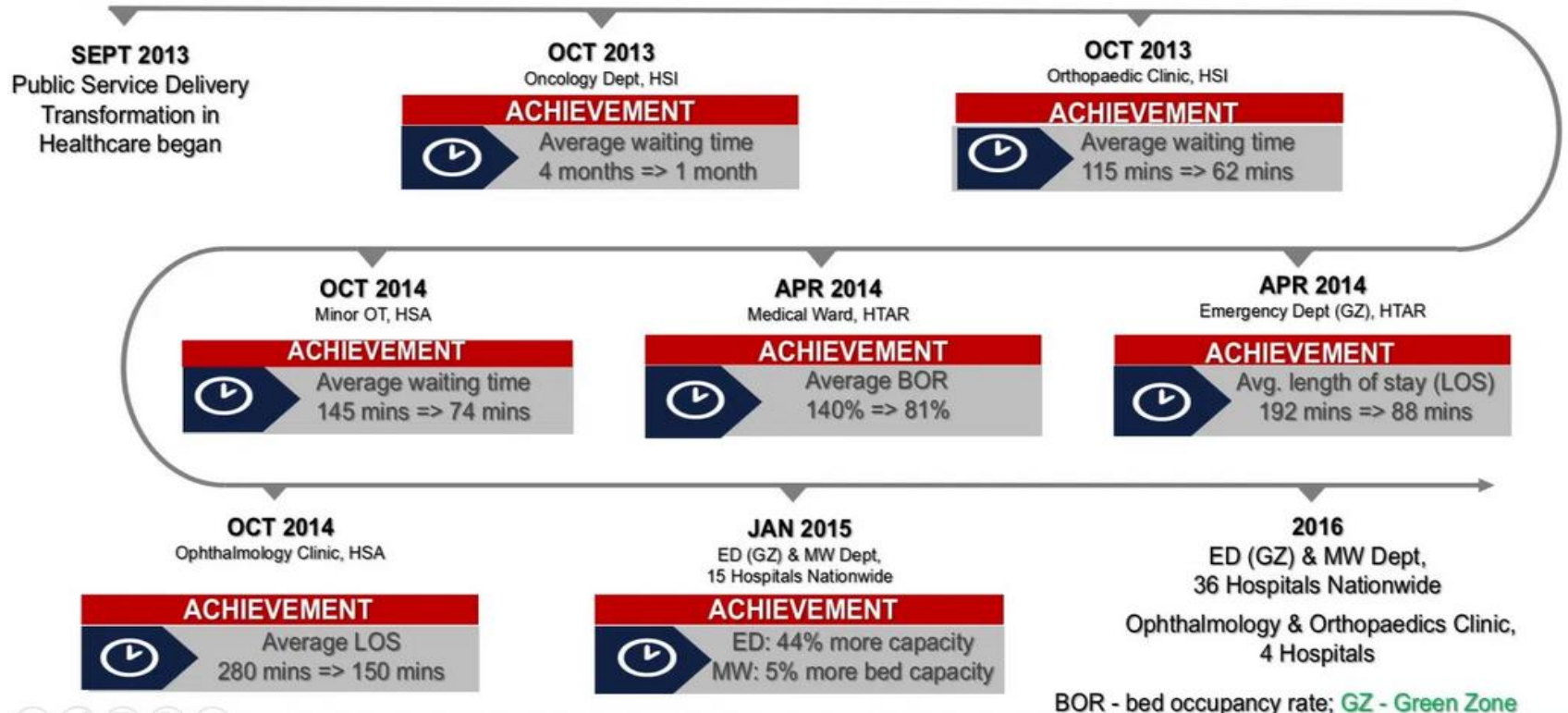
Improvement methodology adopted from Toyota Production System (TPS) which includes the PRINCIPLES, METHODS and TOOLS to IMPROVE PROCESS EFFICIENCY by REMOVING WASTEFUL STEPS.

(Source: (Womack & Jones, 1996))



Framework of Lean (Source: Hines et al., 2004)

# LEAN HEALTHCARE JOURNEY IN MALAYSIA



BOR - bed occupancy rate; GZ - Green Zone

Source: <https://kpkesehatan.files.wordpress.com/2016>



Lean Champion  
Lean Governance  
Lean Sustainability Plan

Source: <https://kikf.pharmacy.gov.my/sites/default/files/2019-08/>

# WHAT DO RESEARCHERS SAY?

- Increasing pressure in the United Kingdom (UK) urgent care system has led to Emergency Departments (EDs) failing to meet the national requirement that 95% of patients are admitted, discharged or transferred within 4-h of arrival.
- Apply the Lean technique of Value Stream Mapping (VSM) to investigate care processes and delays in patient journeys at four contrasting hospitals.
- The stage where the greatest percentage of waiting occurred varied between the 4 sites although the journey time is similar. Reasons for waiting were dominated by waits for beds, investigations or results to be available.
- The median patient journey was 223 min (3 h, 43 min); just within the 4-h target.

Swancutt, D., Joel-Edgar, S., Allen, M. Thomas, D., Brant, H., Bengner, J., Byng, R., Pinkney, J. (2017)

Four (4) hospitals in South West England

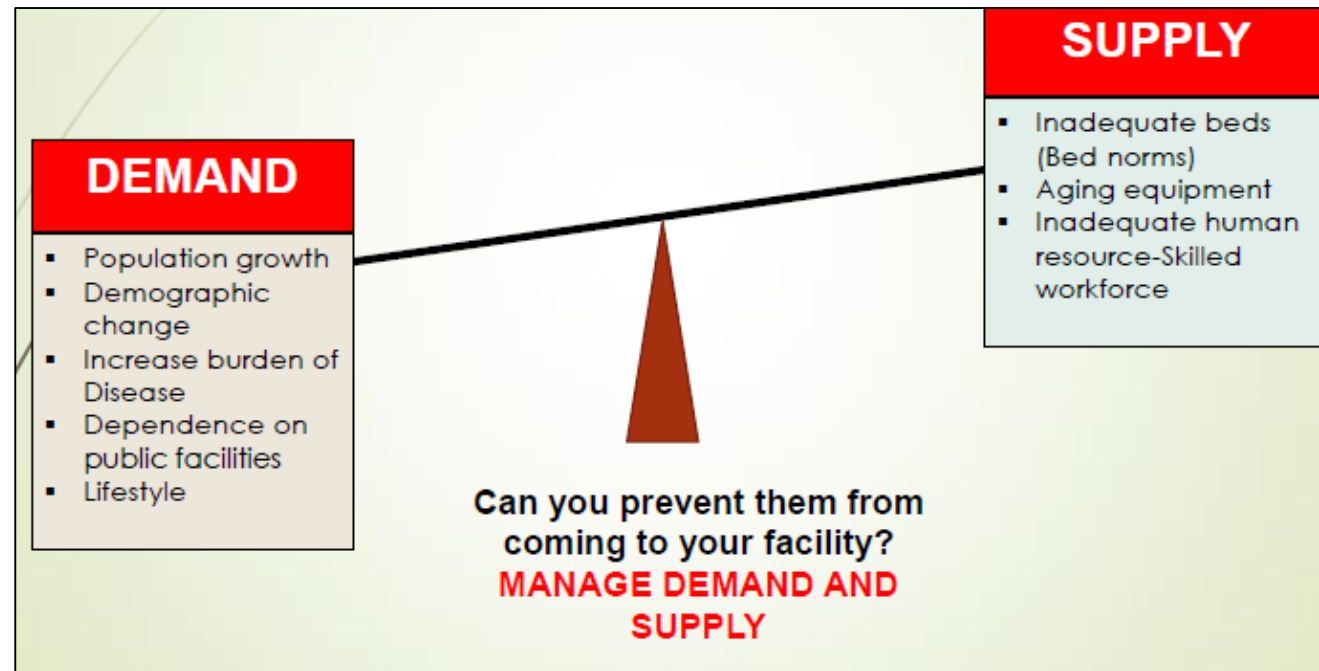
- Emergency Department overcrowding has become a global problem and a growing safety and quality concern.
- Factors that contribute to ED overcrowding are including the Radiology and laboratory Turnaround Time (TAT), ED boarding and increased ED visits .
- 71.6% of patients in the post-intervention had transportation TAT <= 10 min, as compared to 32.3% in the pre-intervention period
- Using Lean techniques can be effective in reducing transportation time to plain radiography in the Emergency Department as well as improving process reliability

Hitti, E. A., El-Eid, G. R. Tamim, H., Saleh, R. Saliba, M., Naffaa, L. (2017)  
ED of the American University of Beirut  
Medical Center (AUBMC), Lebanon

- EDs continue to face growing problems with crowding, delays, and cost containment.
- Data analyses were performed using a regression-adjusted difference-in-differences approach.
- "Door to Doctor" time decreased 12.6 minutes after the intervention, compared to 3.7 minutes in the control sites.
- Using Lean principles, the organization was able to improve the flow in the ED.

Vashi, A. A., Sheikhi, F. H., Nashton, L. A., Ellman, J., Rajagopal, P., Asch, S. M (2019)  
Veterans Affairs (VA) Medical Center

# PROBLEM STATEMENT



Source: Medical Development Division, Ministry of Health, 2014

High congestion and long waiting time in the Emergency Department happens to be a worldwide concern especially during the peak hours. Therefore, it is significant to examine the effectiveness of Lean Healthcare intervention in the Emergency Department on managing the issue of overcrowding by exploring the recent literatures for in-depth understanding.

# RESEARCH OBJECTIVE

**R01:**

To explore the Lean Healthcare intervention in the Emergency Departments.

**R02:**

To identify the challenges of implementing Lean Healthcare in the Emergency Departments.

**R03:**

To identify the opportunity to improve services in Emergency Departments by implementing Lean Healthcare.



# RESEARCH QUESTION

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RQ1:

· Is Lean Healthcare implementation in Emergency Department reducing the patients' waiting time?

RQ2:

· What are the challenges faced by the team during the Lean Healthcare implementation?

RQ3:

· What are the possible opportunities to improve services in the Emergency Departments?

# CONCEPTUAL FRAMEWORK

INSTITUTE OF MEDICINE (IOM) FRAMEWORK

- Safety
- Effective
- Patient-Centered
- Timely
- Efficient
- Equitable

# DONABEDIAN FRAMEWORK



Source: (Kourtis & Burns, 2019)

# RESEARCH METHODOLOGY

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## APPROACH

- QUALITATIVE RESEARCH



## METHOD

- SYSTEMATIC REVIEW



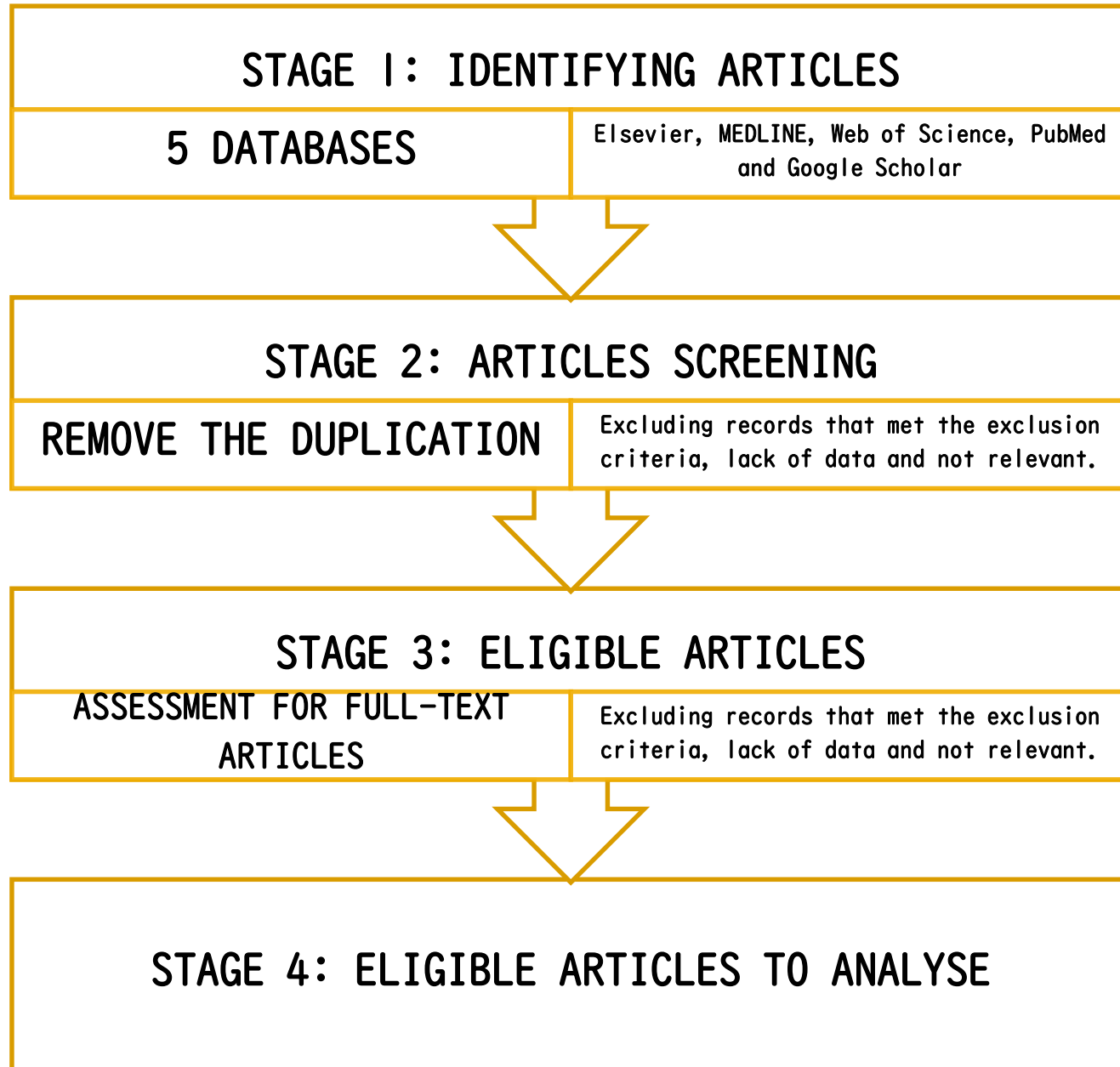
## TECHNIQUE AND DATA COLLECTION

- SECONDARY DATA
- Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA)

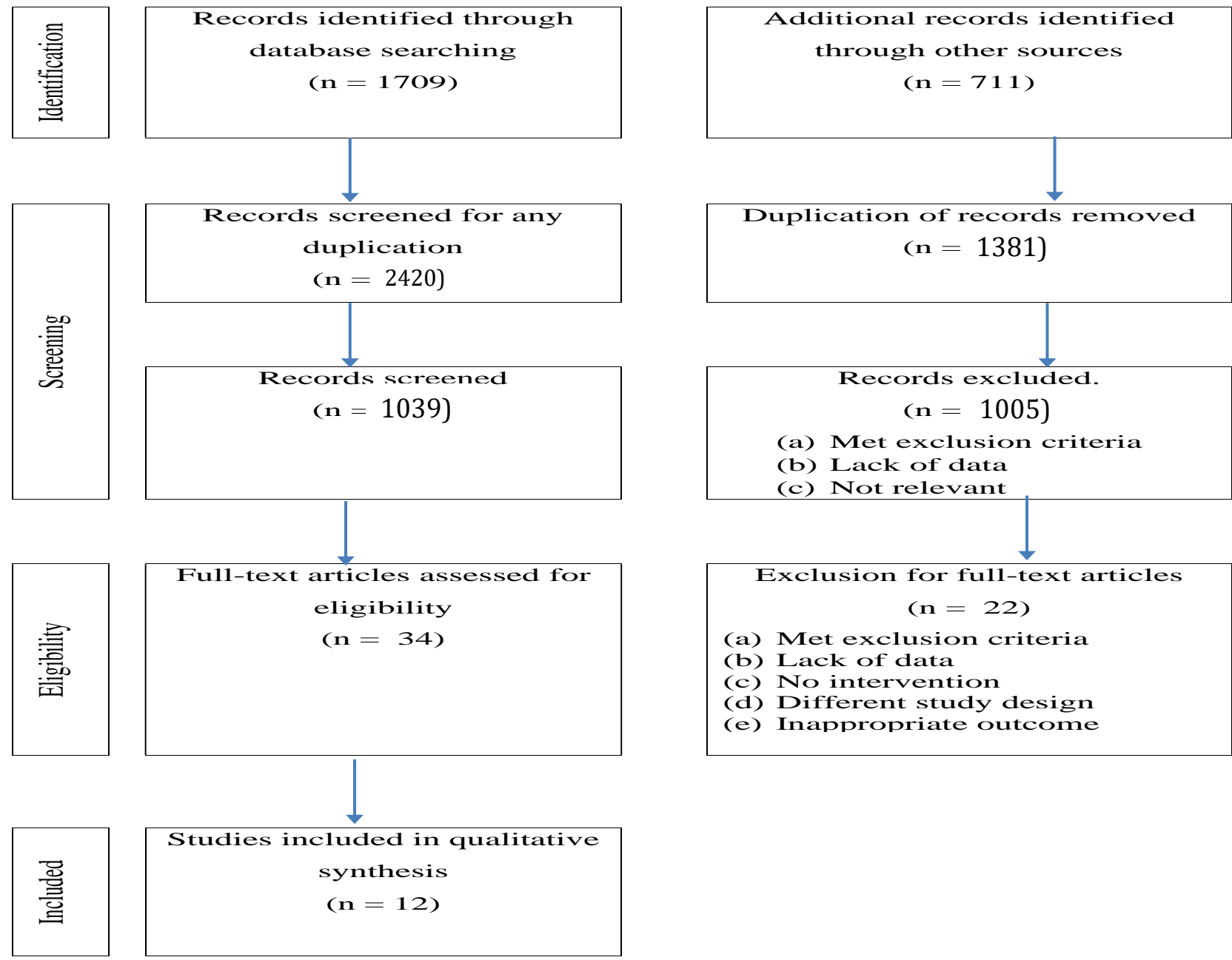
# INCLUSION AND EXCLUSION CRITERIA

INCLUSION CRITERIA	EXCLUDED CRITERIA
Publications from the year of 2015 to 2019.	Publications other than the year 2015 to 2019.
Articles/journals with English language	Publication languages are other than English
Studies done in the Emergency Department	Studies done other than Emergency Department
Publications with pre-post study design	Publications without pre-post study design
Full research articles.	Letters, presentation essays in seminars, short essays.
Research with Lean Healthcare intervention.	Research without Lean Healthcare intervention.
Signifying the effective factors of success or failure	Publications with lack of information.

# RESEARCH DESIGN



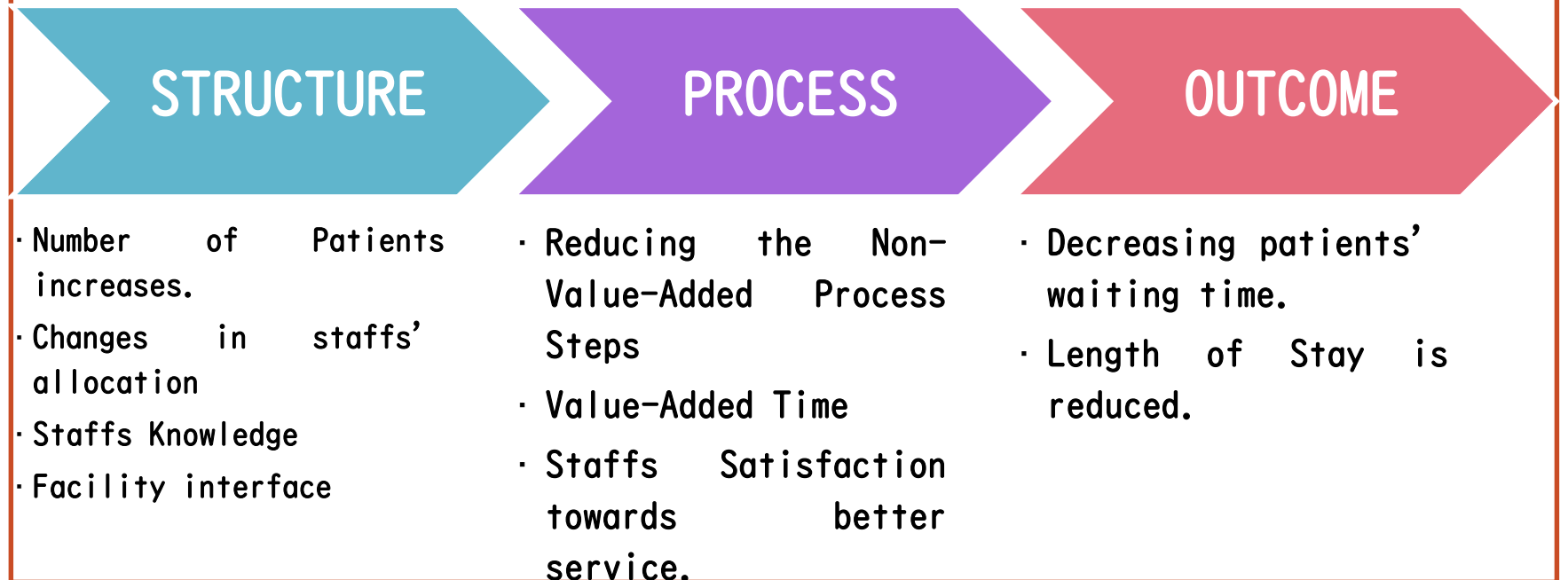
# DATA COLLECTION STRATEGY



# FINDINGS

## RQ1: Is Lean Healthcare implementation in Emergency Department reducing the patients' waiting time?

- 12 Pre-Post study design research articles from the year 2015-2019 have revealed the Lean Healthcare intervention is reducing the patients' waiting time and Length of Stay (LOS) in the Emergency Department.
- The time frame for the researches is in between four (4) to 28 months.



RQ2: What are the challenges faced by the team during the Lean Healthcare implementation?

STRUCTURE

- Unavailable resources when necessary.
- Staffs unable to understand the way of new workflow.
- Remove the old methods and move towards new standardization of the process.

PROCESS

- Unable to provide service based on the concept of patients' value.
- Sustaining the achieved results.

OUTCOME

- Unsatisfied patients.
- Increase the number of patients left without being seen.

## FINDINGS



RQ3: What are the possible opportunities to improve services in the Emergency Departments?

STRUCTURE

- Involvement from the top management.
- Work in team.
- Able to provide privacy in structural environment.

PROCESS

- Capable to learn from previous incidents.
- Reducing the left without being seen rate.

OUTCOME

- Collection and use of patient-journey survey.

FINDINGS

# LIMITATIONS

1

Taken account only the pre-post case study.

2

May have overlooked on data reported in non-English literature.

## FUTURE WORKS



Identifying the comparison between the queue management handled by the public and private hospitals to overcome the patients/ overcrowding issue in the Emergency Department.



Classifying good practice in public and private hospitals' Emergency Department in order for both organizations deliver the best service for the citizens.

The intervention of Lean Healthcare in Emergency Department is improving the patients' flow, reducing the patients' waiting time and Length of Stay.

In term of policy implication, MoH should entertain the idea of having a general policy of Lean Healthcare for all clinical departments in all public hospitals as it is already shown that could reduce significantly the waiting time for treatments to be given to patients.

## CONCLUSION

A stylized world map in a light blue color is centered in the background of the slide.

# THANK YOU

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