Project Title

Evolution of the COVID-19 Screening Activities in Singapore General Hospital

Project Lead and Members

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Organisation(s) Involved

Singapore General Hospital

Healthcare Family Group Involved in this Project

Healthcare Administration

Specialty or Discipline

Human Resource, Crisis Planning, Operations Team

Project Period

Start date: December 2019

Aims

1. To deploy and evaluate the proposed management protocol for disease outbreak events in SGH
2. To identify the key determinants that ensure the successful management of disease outbreak situations

Background

See poster appended / below

Methods

See poster appended / below

Results

See poster appended / below

Lessons Learnt

See poster appended / below

Conclusion

See poster appended / below

Additional Information

Singapore Healthcare Management (SHM) Conference 2021 – Shortlisted Project (Risk Management Category)

Project Category

Care & Process Redesign, Quality Improvement, Workflow Redesign, Lean Methodology, Value Based Care, Risk Management, Safe Care, Build Environment, Space Planning, Technology, Workforce Transformation, Job Redesign, Trans-Disciplinary

Keywords

COVID-19, Agile, Screening Station Layout, Mixed Staffing, Digitalised Travel Declaration Form

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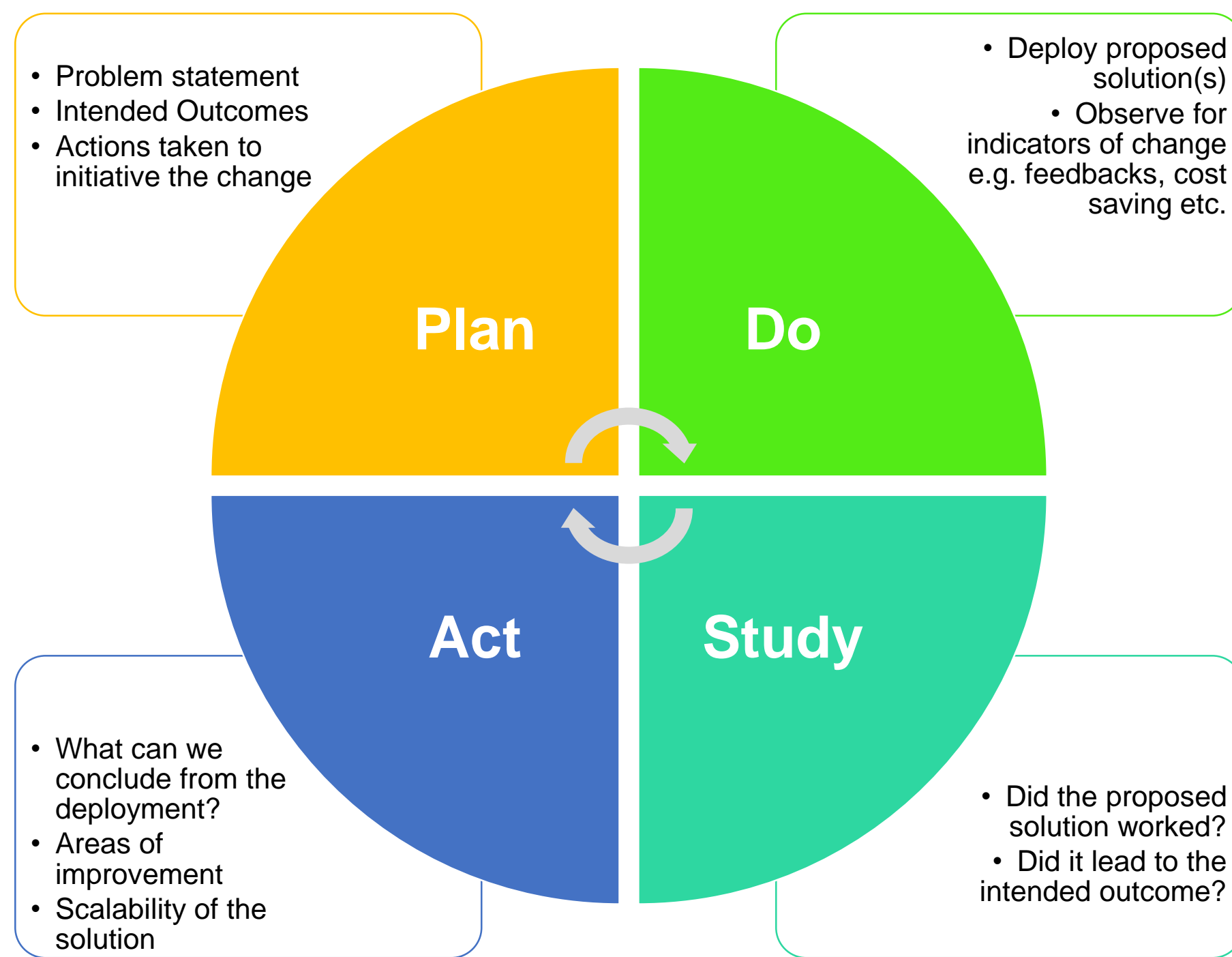Singapore General Hospital
SingHealth

Background

Since the detection of the first Coronavirus Disease 2019 (COVID-19) in December 2019, the disease has spread rapidly worldwide, impacting the world at an unforeseeable rate. Given the highly contagious nature of the Severe Acute Respiratory Syndrome Coronavirus (SARS-CoV-2), previous disease outbreak management plan were inadequate to mitigate the risk involved. There is an urgent need to review and update the measures and practices to mitigate the risk of healthcare workers acquiring COVID-19. This is especially important for healthcare institutions, where the risk of contacting the virus is much higher in contrast to other industries. This study serves to provide a basis for future disease outbreak management to build on, improving the healthcare institutions' capability in managing such crisis.

Aims

1. To deploy and evaluate the proposed management protocol for disease outbreak events in SGH

2. To identify the key determinants that ensure the successful management of disease outbreak situations

Methodology

1) Plan, Do, Study, Act (PDSA)

Plan
- Problem statement
- Intended Outcomes
- Actions taken to initiative the change

Do
- Deploy proposed solution(s)
- Observe for indicators of change e.g. feedbacks, cost saving etc.

Act
- What can we conclude from the deployment?
- Areas of improvement
- Scalability of the solution

Study
- Did the proposed solution worked?
- Did it lead to the intended outcome?

2) Four Key Agile Principles

INDIVIDUALS & INTERACTIONS
Over Processes and Tools
- Focus on the people involved in the screening operations e.g. HR, Crisis Planning and Operations team, volunteers
- Interactions with these individuals are important in solving any problems faced
- Screening process and the way it is done are secondary to the "Human" element

WORKING SOFTWARE
Over Comprehensive Documentation
Focusing on delivering a solution to the problem in a timely manner rather than fixated on finding the best solution to the problem

CUSTOMER COLLABORATION
Over Contract Negotiation
- Open to receiving feedback from all channels e.g. stakeholders, patients, staff, volunteers etc.
- Establishing a feedback loop to ensure that all feedbacks are addressed
- Ensuring the expectations and requirements are met

RESPONDING TO CHANGE
Over Following a Plan
- Accepting that "Change is the only constant"
- Requirements and priorities are always changing
- Ability to adapt to change ensures the plan stays relevant to the situation

The Plan, Do, Study, Act (PDSA) and Agile Values were adopted to address the objective set for this project. Given the urgency and novelty of the COVID-19 situation, the AGILE values offers the team the flexibility and opportunity to address the needs in a timely manner. The PDSA methodology was used to refine various stages/aspects of the screening process, while ensuring complying with the screening criteria and safety requirements from MOH and the hospital.

Key Determinants of Success

Operations

	Start of Screening Operations at SGH (Jan 2020)	Introduction of SafeEntry & Social Distancing (May 2020)	Full Laptop Deployment Across Screening Stations (Sep 2020)
Objective	To ensure all visitors & patients complete the compulsory Travel and Symptoms Declaration Form (TDF) before entering SGH	• To create an express lane for staff & self-declared individuals • To in-cooperate SafeEntry as part of the screening requirement • To enforce social distancing while assisting patients/visitors with declaration	• To improve the visibility of the staff-only & self-declared express lane • To create sufficient manned counters to assist individuals with declarations
Method of Screening	Manual Declaration Forms	• Manual Declaration Form • Digitalized Declaration Form	Digitalized Declaration Forms
Result(s)	Manpower are mainly deployed to the entrances to assist with screening. Most staff were using clipboards and reaching out to patients/visitors for declaration. Queue poles are used for crowd controlling and dividing the pathway into entrance and exit paths.	Declarations were done at tables where patients/visitors are required to queue up to be assisted. Given the crowd volume entering the premises, a large area was used for queuing. Crowd controllers were also being deployed to visually screen for those who have completed self-declaration, while managing the crowd.	Fully on-boarded digital declaration approach. Express lane for staff & self-declared individuals was created. Declaration tables were pushed further into the premises to allow for more queuing space, while not compromising patient/visitor safety.
Lesson(s) Learnt	• Manpower intensive (~15 staff) • High tendency for small clusters of crowding to occur when assisting with declaration	• Reliance on manpower continued to be high due to the need to ensure safe distancing and performing crowd control duties (~12 staff). • "Broken" queue approach was not effective in managing the crowd. • Large space was used in order to meet the requirements expected i.e. patient/visitor volume & safe distancing requirements.	• Declaration done through laptop was generally slower in contrast to declaration through manual forms. • Reduce wastage in paper as a result of change in declaration questions/criteria • Offers an all-in-one solution to align with National SafeEntry requirement i.e. SafeEntry & TDF done together at the counter

Screening Station Layout:

Technology

Digitalized Travel Declaration Form

Background:
Since the start of DORSCON Orange, it is compulsory for all patients and visitors entering SGH to complete the TDF. These forms help to screen whether an individual should be allowed entry based on the latest MOH measures and are also kept for contact tracing purpose.

Challenges faced:

Long queue and waiting time at stations

Large quantities of forms printed and stored

Retrieval of particular form for investigation is time consuming

Solution:

Electronic Travel & Symptom Declaration Form (eTDF) (Product of IHiS & Crisis, Planning & Operations Team)

Leveraging on Sharepoint database for storage and ease of retrieval based on search parameters.

Results after implementation:
- ✓ Turnover time at screening stations for those who are able to perform self-declaration is reduced.
- ✓ Improved patient experience as self-declared individuals are able to enter through express lanes and focus is given to those who have difficulties with completing the eTDF.
- ✓ Significant cost saving for organization (~$40,000 saving)
- ✗ Due to higher than normal traffic volume, instances of server downtime has also increased as more institutions migrated onto the digital declaration solution.

Manpower

Tiered Approach for Screening Staffing:

Background:
- Given the daily volume of patients & visitors entering SGH and the requirement for all to complete TDF, manpower is a critical factor that determines the success of the screening operation.
- Hiring of Temp staffing during the initial stage of COVID-19 was not a viable option due to the shortage of available manpower in the market and high employment cost.

Phases	Quick Response (Jan'20 – Feb'20)	Mixed Staffing (Mar'20 – Aug'20)	Fully External Staffing (Sep'20 till date)	Outsourced Model (Proposed Future Model)
Manpower Source	• Collaborated with HR team to source for internal staffing • Volunteers from various divisions	• Hiring of temps (odd-hours) for less popular shifts • Volunteers from various divisions	Fully manned by temp hired staff	• External vendor to fully manage screening staffing and roster • Institution to work closely with vendor on the protocol and expectations
Challenge(s) Faced	• Evening Shift & weekend duties are less popular amongst volunteers • Resorted to getting staff to clock OT for those less popular shifts	• Unstable staffing e.g. last min dropouts without replacement • Divisions unable to support due to ramp-up of services/ split team arrangement • Temp staff retention rate was poor due to low earning as a result of the short monthly working duration	• Temp staff are generally less committed in contrast to internal staff • Managing of temp staff roster on top of routine work remains challenging for screening in-charge	• High operational cost • Lengthy procurement process • Operational requirements may differ from contractual requirements defined

User Experience

Initiatives taken in response to the feedback:

Background:
Given the nature of the operations, feedbacks from various stakeholders such as patients/visitors, both internal and external staff and management are important to set the team on a continuous improvement cycle, ensuring that solutions implemented stays relevant to the context.

1) Lack of Guidance/ Knowledge on Screening Criteria

Problem Statement:
- Unfamiliar with the screening criteria
- Not confident in managing patient/visitor queries
- Lack of go-to person for advice

Solution Deployed:
- Preparation of Guides for volunteers and temp staff
- Onsite in-charge to address patient/visitor queries
- Group chat for temp staff to escalate queries to in-charge

2) Signage to improve communications

Problem Statement:
a. Patient/Visitor tends to only scan one of the QR codes placed e.g. SafeEntry or eTDF QR code
b. Staff at screening counters facing language barriers when assisting patients

Solution Deployed:
a. Improving visibility of the declaration requirements
b. Screening questions printed in English & Mandarin are placed at counters to tackle the language barrier issues

Screening Guides for staff volunteers & temp staff

Examples of signage to facilitate declaration at stations

Outcomes:
- Improved staff satisfaction
- Improved confidence in performing screening duties and handling patient/visitor queries
- Improved patient satisfaction and faster turnover at screening station

Conclusion

Given the novel nature of the COVID-19 situation, the team was successful in adapting from previous disease outbreak protocol to formulate appropriate measures to address the requirements needed for the screening operations. In preparation for future disease outbreaks, key determinants such as operational, manpower, technological and user experience factors should be emphasized as they are critical for the success of the disease outbreak operations. Various learning points formulated over the screening operations were also documented. These information and knowledge gathered are critical as it serve as a framework for future user to refer to when the need arises.

Acknowledgement