

## **Project Title**

TTSH MEC Masterplan: Transform Outpatient Care Journey

## **Project Lead and Members**

- Dr Jamie Mervyn Lim, Deputy Chief Operating Officer -
- Goh Mia Siang, Facilities, Projects & Safety Management Services/Deputy Director
- Gus Teoh, Operations (MEC Masterplan)/ Asst. Director
- Aurora Kuang, Operations (MEC Masterplan)/ Snr Executive
- Wendy Tan, Operations (MEC Masterplan)/ Snr Executive

## **Organisation(s) Involved**

Tan Tock Seng Hospital

## **Project Period**

Start date: Mar 2009

## **Project Category**

Process Improvement, Care Redesign, Technology, Process Redesign

## **Keywords**

Tan Tock Seng Hospital, Facilities Management, Outpatient Care, Improvement Tools, Lean Methodology, , Design Thinking, Care Redesign, Process Redesign, Process Improvement, , Efficient Care, Coordinated Care, Technology, Electronic Queue Management System and Enterprise Appointment System, Infrastructure, Renovation Standardised Design Layout, Reduced Waiting Time, Outpatient Capacity Expansion

## **Name and Email of Project Contact Person(s)**

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# ENTRY FORM FOR BIO MEDICAL EQUIPMENT / FACILITIES IMPROVEMENT CATEGORY

A project or program that sought to improve customer service and quality of care by preventive maintenance, systems and procedures for use or improvement in biomedical equipment and/or facilities of the hospital or department. Did the project improve the hospital's ability to deliver better service? Did it help employees to service patients better?

## INSTRUCTIONS

- a. Please fill out all the sections below and abide strictly by the word count. Words exceeding the maximum word count will be cut off automatically/truncated.
- b. IMPORTANT: It is necessary that the CEO certifies that all information you provide is true and correct by signing the form indicated in the last page.
- c. By submitting an entry, you agree that HMA will share relevant aspects of the Entry submitted on the HMA or related Resource Center website.

## Background Information

Project Title                                      TTSH MEC Masterplan: Transform Outpatient Care Journey

Date Project Started                              Mar 2009

Enhancements made (for projects that did not start operations between Jan 2013 to May 2014)

## Key staff involved in the project

- |                     |   |
|---------------------|---|
| 1. Name             | Dr Jamie Mervyn Lim   |
| Department/Function | Deputy Chief Operating Officer  |
| 2. Name             | Goh Mia Siang   |
| Department/Function | Facilities, Projects & Safety Management Services/<br>Deputy Director |
| 3. Name             | Gus Teoh  |
| Department/Function | Operations (MEC Masterplan)/ Asst. Director                           |
| 4. Name             | Aurora Kuang  |
| Department/Function | Operations (MEC Masterplan)/ Snr Executive                            |
| 5. Name             | Wendy Tan   |
| Department/Function | Operations (MEC Masterplan)/ Snr Executive                            |

**PLEASE ANSWER THE FOLLOWING QUESTIONS USING THE MAXIMUM WORD ALLOCATIONS INDICATED**

1. Please give some **background** to the project or program including how it originated. Give details of **how the project related quality of care** to the type of equipment and their proper maintenance? **Outline any specific goals or targets** you had in mind prior to the project being put together.

**MAX 350 WORDS.**

***Background***

The Medical Centre (MEC) was built in 1999 to house the Specialist Outpatient Clinics (SOCs) of Tan Tock Seng Hospital (TTSH). 12 years later, the MEC block can no longer support the increasing workload. As a central located public hospital, the annual number of visits to MEC clinics had been increasing with average appointment lead time hitting three times longer than National standard. Patients have to endure long waits and multiple stop-points whenever they visit TTSH.

Singapore's population is also rapidly ageing. By 2030, the number of elderly aged 65 is expected to reach 900,000. This may also result in an increasing burden of chronic diseases which will impact on the healthcare system. TTSH, amongst all public hospitals would be most affected as its proportion of elderly patients is higher. There was a critical need to expand capacity to meet demand as well as to provide longer, quality patient-doctor interaction time. Building more clinics is no longer enough to solve the issue. There is a need for better coordination and transform the care delivery process for the outpatient. The MEC Masterplan was thus conceived based on the two notions.

A two-prong approach focusing on infrastructure, LEAN methodology and design thinking were adopted in the MEC Masterplan.

***Objectives***

1. Capacity to meet workload growth over the next 5 years
2. 60% reduction in waiting time to get an appointment in 5 years time
3. 20% increase in doctor-patient consultation time in 2 years time
4. 100% of patients waiting less than 30 minutes at pharmacy in 2 years time
5. 95% of all patients will be given an appointment within 2 weeks to see an allied health professional in 2 years time
6. Creation of composite appointments for patients with multiple appointments to see several doctors on the same day
7. Creation of pathways to link appointments for all patients on a carepath in 3 years time

Upon completion in 2015, the clinic room numbers will be increased by 169% to 299 rooms, yet with only 113% increase in floor space.

Word count: 340 / 350

2. Please describe how the project was **beneficial from the patient's perspective** and **experience**, and how it improved patient care, patient safety or service. Preferably please present quantifiable information such as "before and after" **measurements if any. MAX 200 WORDS.**

### **Faster Access to Services**

Processes were streamlined to a single flow when moving from one service location to the next. This prevents patients from making multiple trips within the MEC premise and facilitates better patient care. Various disciplines were reorganised to help patients easily locate medical services. For example, Physiotherapy and other therapeutic services are also co-located on the same level for patients' greater convenience and access.

Based on the "Cell Concept", the clinic is divided into several self-sufficient cells comprising 5 consultation rooms, a treatment room and a waiting area. Unlike the older clinic layout where patients had to travel from one end to another in the clinic, the new interior layout comprises decentralised common services to ensure patients are served within their zone in the shortest time. This new uni-directional concept helped patients in finding their ways in a busy clinic and enhanced patient experience from registration to the point they leave clinics.

Consultation rooms that are designed with the interplay of space and relationship in mind have also encouraged better doctor-patient/caregiver interaction. (See related attachment under TTSH MEC Masterplan: Transforming Outpatient Care Journey)

Word count: 185/ 200

3. Please explain how the project reduced costs of equipment purchase and maintenance? And/or **explain what other benefits were derived? MAX 200 WORDS.**

An "after action review" session is conducted after each clinic implementation. The "dos and don'ts" is applied in the subsequent clinics as part of continual improvement. Such constant review and feedback helped **to prevent rework and avoid unnecessary financial expenses.**

Some examples (refer to attachment):

A side splash panel was installed between the sink and workstation to prevent water from splashing inside the treatment room.

A table top was installed to increase the space and reduce clutter at working area.

The design of the wall-hung cabinet in the consultation room, above the doctor's desk was modified to reduce its sharp edges and minimise the risk of injury.

Ceiling-hung signage that shows the counter numbers provided better visibility to patients

Metal railings were installed as safety features as to prevent wheelchairs or trolley beds from damaging the glass partitions.

Word count: 138/ 200

4. Please demonstrate if and how the project produced sustainable results?

**MAX 150 WORDS.**

The **design layout of all consultation rooms** are standardised with identical elements so that they can cater to the needs of doctors from different disciplines.

**Consumables are placed in the standard drawers and cabinets** for easy finding. In addition, the furniture is designed with flexibility in mind. They are multi-functional, with certain compartments replaceable (E.g. A chest drawers can be easily replaced with a cabinet module).

The new **Electronic Queue Management System and Enterprise Appointment System** has allowed patients to track their queue numbers via real time dashboard. It also allowed them to use the same queue number at the various clinics within the same day. Staff can better monitor and manage patient waiting time via the different colour prompt. This system has enhanced patient journey and increased work efficiency in the long run.

Word count: 136/ 150

5. Please give some background of the project team that originated, studied and developed the project or program. **MAX 200 WORDS.**

In March 2009, the MEC Taskforce was formed and tasked to look into the transformation of outpatient care for MEC. The taskforce members consist of various representatives from Division of Operations, Nursing, Finance, Management Information Department, doctors, Allied Health professionals and key sponsors from senior management.

Whilst infrastructure investment was required, the Taskforce's main objective was to review the entire outpatient care process. The new infrastructure seeks to facilitate the delivery of a revamped patient care and provide a seamless patient journey.

Process improvements took the centre stage. LEAN principles and design thinking concepts were applied in the entire design layout and workflow. Senior Management, Clinicians, Taskforce members and various staff were engaged in a 2-week 3P (Production, Process & Preparation) event in 2009.

The MEC Taskforce convenes on a regular basis to ensure that projects are optimally planned and executed. Involvement of stakeholders is pivotal to the success of the MEC Masterplan. The Taskforce ensures stakeholders are continuously engaged and work closely together to attain the common vision of delivering best patient care.

Word count: 174 / 200

6. Please give any other information, including third party testimonial regarding your project which you think would help convince the judges that this project (or program) should win this category. **MAX 200 WORDS.**

Since implementation, patients have voted TTSH's Specialist Outpatient Clinics the top medical centre in 2012. Our MOH patient satisfaction survey results have shown an uptrend in 2012 with significant improvement in the following.

- Patient waiting time
- Clarity in explanation
- Care Coordination
- Wayfinding

Overall, Care Coordination has increased by 19%. Patient waiting time to see a doctor has also reduced by 37.3%. Wayfinding within the clinic has also improved by 12.4%.

In 2013, we saw more visitors from overseas and local healthcare institutions visiting us wanting to learn more about our new facilities.

The taskforce eventually went on to publish a book sharing the MEC Master plan journey. It was well received by all visitors.

#### **Testimonials from Patients and staff**

*"I prefer the new consultation room layout as this improves doctor-patient relationship compared to before."*

*"I like the comfortable setting, cleaner environment and better layout which allows one to know where the rooms are .."*

*" At Rheumatology, Allergy & Immunology clinic, we're happy to have secured the prime site at Level B1 as our patients now have better access to the car-park on ground level and their physiotherapy and occupational therapy sessions."*

Word count: 196