Project Title

Setting up of Medical Ambulatory Centre

Organisation(s) Involved

Tan Tock Seng Hospital

Project Period

Start date: Mar 2012

Completed date: Jul 2013

Project Category

Quality Improvement, Care Redesign, Process Redesign, Process Improvement, Workforce Redesign, Information Technology

Keywords

Tan Tock Seng Hospital, Facilities Management, Quality Improvement, Care Redesign, Process Redesign, Process Improvement, Workforce Redesign, Information Technology, Efficient Care, Coordinated Care, Cost Reduction, 3P(Production Preparation Process) Exercise, Protocolised Care, Quick Turnaround Time, Medical Ambulatory Centre, Bed Occupancy Rate, New Facility, Nurse-led Care Delivery, Inpatient Bed Saving, Resitting Medical Services, Admission Process Centralisation, Bed Management Decentralization, Bed Booking Harmonization

Name and Email of Project Contact Person(s)

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BIO MEDICAL FACILITIES IMPROVEMENT PROJECT
(How improvement in the care, improvement of equipment and facilities improve the standards of care).

This is a project or program that sought to improve customer service and quality of care by special maintenance, systems and procedures for usage or improvement in biomedical equipment and/or facilities improvement in general. Did the project improve the hospital's ability to deliver better service for the comfort of its clientele? Did it help employees service patient needs better? Was there less downtime? Was there less cost or maintenance and repair?

Project Title:

Setting up of Medical Ambulatory Centre

Date Project Started:

Discussion to build an ambulatory centre started in March 2012, approval to start the project was given in Jul 2013.

Department Name:

1. Medical Ambulatory Centre
2. Medicine
3. Invasive Cardiac Laboratory
4. Facilities Project Services
5. Operations

Names of Key Staff Involved in This Project:

1. A/Prof Ng Wei Keong Alan, Clinical Director, MAC
2. Ms Chia Yeow Peng, Assistant Director Nursing, MAC
3. Ms Chinniah Saraswathy, Senior Nurse Manager, ICL
4. Ms Rosaline Yeo, Nurse Manager, MAC
5. Ms Phyllis Wong, Nurse Clinician, MAC
6. Mr Laley Bin Senawi, Nurse Clinician, MAC
7. Ms Suriah Bte Salleh, Senior Staff Nurse, MAC
8. Ms Hajjah Noraini Bte Junid, Senior Staff Nurse, MAC
9. Ms Adeline Ng Chee Wee, Senior Staff Nurse, MAC

10. Ms Ganesan Kavitha, Senior Staff Nurse, MAC

11. Ms Mai Moh Moh Thu, Staff Nurse, MAC

12. Ms Thamarai D/O Narayanasamy, Staff Nurse, MAC

13. Ms Martinez Leaross Elagio, Assistant Nurse, MAC

14. Ms Ranjit Kout D/O Minder Singh, Healthcare Assistant, MAC

15. Ms June Lim Yan Ling, Snr Patient Service Associate, MAC

16. A/Prof Tay Seow Yian, EDTC

17. Ms Tham Chui Mun, Assistant Director Nursing, Ambulatory & Diagnostic Medicine

18. Ms Loretta Neo Poh Choo, EDTC

19. Ms Glenda Lee, Manager, Facilities Project Services

20. Ms Jennifer Abad Trinidad, Senior Respiratory Lab Technologist, RFL/Sleep Lab

21. Ms Monica Tang, Sleep Lab

22. Ms Chong Pue Kim, Kaizen

23. Ms Sharifah Binte Ismail, Healthcare Assistant, MAC

24. Ms Grace Yew Yuh Shan, Senior Staff Nurse, MAC

25. Mr Tan Yan Hao Senior Executive, Ops (Medicine)

26. Ms Stephanie Ng, Manager, Ops (Medicine)

27. Ms Quek Geok Ing, Assistant Director, MEC Masterplan

28. Mr Yong Keng Kwang, Chief Nurse

29. Ms Yeh Huei Chen, Deputy Director, Ops (Medicine)

30. Mr Andrew Chua Kok Poh, Head, Facilities Project Services

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.**

With the increasing elderly population, there has been greater demand on healthcare resources in Singapore. Tan Tock Seng Hospital (TTSH) is a busy hospital with high demand for acute admissions. Bed occupancy rate (BOR) in the hospital has been trending above 90% despite the various initiatives taken on by the hospital to manage bed crunch e.g. hot clinics, discharge planning, use of temporary beds, creation of ED short-stay facility for monitoring of response to ED treatment and initiating of definitive care for patients awaiting beds allocation at ED.

Driven by the persistently high BOR, the concept of a Medical Ambulatory Centre (MAC) was mooted as a changing model of care. Managing patients in an ambulatory setting was explored as an alternative to inpatient care. Patients requiring procedures such as blood transfusions, infusions, radiological interventions, pleural and ascites drainage were managed in our newly created centre where we incorporated processes and workflows which permitted all care to be completed within an average of 12 hours.

We have initially demonstrated the feasibility and safety of such a model in the form of a pilot day centre in effectively avoiding hospitalisation and hence freed up limited hospital bed resources for more appropriate patients.

The MAC is thus established as a short-stay 33-bed facility where medical ambulatory services are consolidated and patients receive their treatment and are discharged within 12 hours, instead of being admitted as inpatients. To ensure the success of MAC, the following essential elements were established:

a) Good care coordination amongst different stakeholders such as diagnostic radiology, clinical departments, and the laboratory.

b) Nurse led protocolised care delivery

c) Use of IT enablers to facilitate optimal resource utilisation

When MAC was conceptualised, consideration was also given to ensure flexibility in the deployment of beds e.g. catering to increased bed demands during hospital / national bed crisis and civil emergency situations.

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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 250 WORDS.**

a) Inpatient beds freed for acute admission
Since commencement, (January 2015), 753 cases[1] were managed. Each case seen equals to at least 2 inpatient bed-days avoided. It is thus projected that in 2015, the Hospital is able to free at least 6,024 acute beds-days for patients who need it more, with the consequential reduction of ED wait time.

b) Quick turnaround time
Previously when patients were admitted for treatments, they were managed like all other inpatient episodes with clerking done by doctors, ordering of blood tests and review by senior doctors before starting the treatment/procedure. Part of the bed stay thus included the administrative process.

With MAC, the patient's assessment and pre-treatment tests are completed at the clinic where the treatment decision is made. On arrival at MAC, an admission checklist, replacing the doctor's clerking notes, is completed by the nurse. By streamlining these processes, patients need not wait needlessly for the initiation of treatment. Time spent at MAC is thus mainly for care.

Patient's average length of stay is also reduced from 48 hours to 12 hours, allowing quick turnaround for other patients' use.

c) Lower bill size
With efficient processes resulting in a shorter stay, patients now pay for a 1-day stay instead of 2 previously. This translates to 40% reduction in bill size for patients ($130 to $84[2]).

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

In addition to the above, the following benefits were derived:

a) Complementary siting of services
Sleep Lab previously run their sleep studies at the surgical high dependency (HD) ward at night. These beds were not used during daytime thus utilisation is not optimised. By re-siting Sleep Lab services in MAC, it allows optimal use of MAC beds, with elective cases using the beds during daytime and sleep studies at night.

With the Sleep Lab's relocation to MAC, the 4 beds freed up have been redeployed for HD use. Given that 159 sleep studies[3] have been conducted, it is

[1] Source: AIBMU system, 5 January – 31 March 2015

[2] Estimated bill computed based on a Singapore Citizen who qualifies for maximum subsidy admitted under C class

[3] Source: AIBMU system, 5 January – 31 March 2015

projected that 636 bed days in 2015 can be better utilised for patients requiring HD care.

b) Inpatient admission
Since the opening of MAC, the hospital continues to experience high BOR with long ED wait time. At the hospital peak BOR of > 95%, about 10 – 17 MAC beds were deployed for inpatient acute admissions, supplementing ~ 533 acute bed days. Without this, the ED queue and wait time will be worse than 60 patients waiting and beyond 30 hours respectively.

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4. Please demonstrate if and how the project produced sustainable results? **MAX 150 WORDS.**

To ensure sustainable results, we implemented:

a) Centralisation of Admission Process

Instead of proceeding to admission office and then to MDC/EDTC/Ward for procedures, patient can now proceed straight to MAC.

b) Decentralisation of Bed Bookings at Clinics

Clinic staff used to call MDC for beds before informing patient of their appointment date as they had no visibility of slots available. With decentralisation, clinic staff are able to book beds directly and let patient know their appointment date immediately.

c) Harmonisation of Bed Booking System

Instead of using different booking system to book bed for procedure, a centralised bed booking system was introduced for all MAC services.

d) Incorporation of Protocolised Care

This ensures standardisation and consistent level of care for all patients at all times. The team regularly reviews and improves existing protocols and add new ones if needed.

(Please refer to Figure 1.)

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

The project was conceived by a multidisciplinary team comprising clinicians and nurses, supported by staff from Operations, Kaizen and Facilities Management.

A visioning exercise coupled with a 3P event was conducted to map out the future state workflow and design of the ambulatory centre which will support the workflow.

The vision of MAC is "To be the Leader in providing Medical Ambulatory Care" based on efficiency, flexibility and scalability as described below:

- Efficiency - fast in, fast out, protocols
- Flexibility - Redeploy beds according to demand
- Scalability - Ability to accommodate more procedures/protocol and capability to cater for mass casualty situation.

(Please refer to Figure 2 for details.)

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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.**

Instead of doing a renovation project to add on more inpatient beds to solve the hospital bed constraint problems, the project team used this opportunity to change the model of care which allowed the hospital to treat more patients by diverting suitable patients to ambulatory care thus freeing up inpatient resources for better utilisation by appropriate patients.

Please refer to Figure 4 for pictorial illustration of MAC and Figure 5 on the MAC team who made MAC happened.

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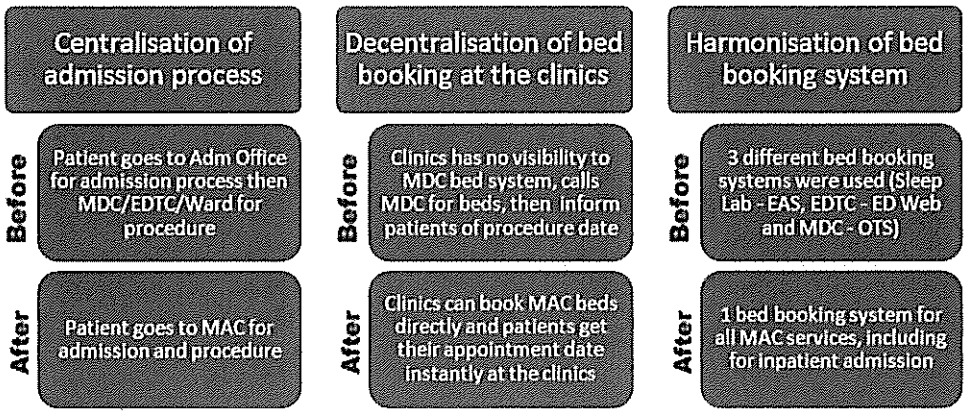

Figure 1

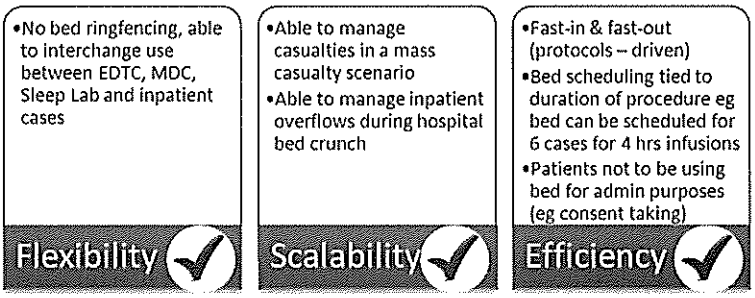

Figure 2

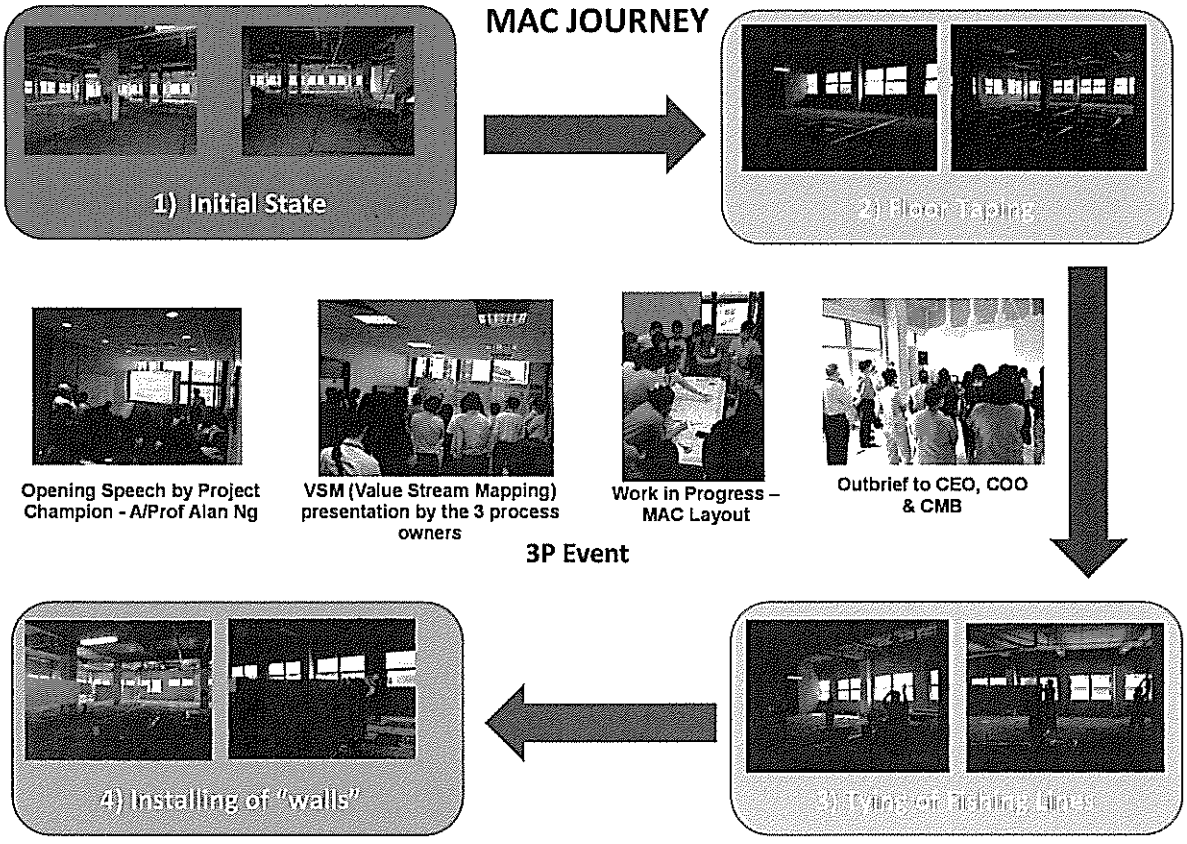

Figure 3

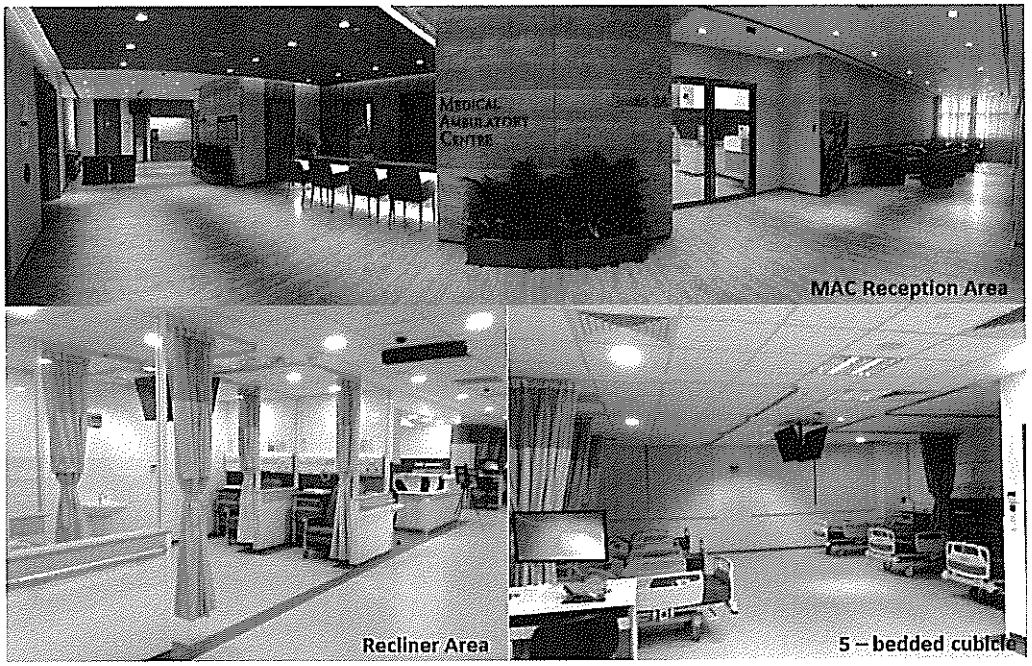

Figure 4

Figure 5