Project Title

Early review and intervention of General Medicine Patients in Emergency Department of KTPH

Project Lead and Members

Project Lead: Dr Kok Mong Thiam, Senior Consultant, Khoo Teck Puat Hospital

Project Members:

Adj Prof Phoa Lee Lan	Head of Department	General Medicine, KTPH
Dr Kok Mong Thiam	Sr Consultant	General Medicine, KTPH
Dr Thofique Adamjee	Sr Consultant	General Medicine, KTPH
Dr Kanak Naidu	Sr Consultant	Acute and Emergency Care, KTPH
Dr Nicholas Tan Yan Rui	Medical Officer	General Medicine, KTPH
Dr Alethea Chew Qiping	Resident Physician	General Medicine, KTPH
Dr Medeleine Tan Qiao Si	Medical Officer	General Medicine, KTPH
Dr Lee Siew Fen	Senior Resident	General Medicine, NHG
NM Ratnasari Yawieriin	Nursing Manager	Acute and Emergency Care, KTPH
Ms Lilian Lam Lai Ying	Assistant Manager	Hospital Admin, KTPH
Ms Lavine Ye Xinrong (Ms Bernice Leong Su Min)	Senior Executive	Acute and Emergency Care, KTPH
Muhammad Firdaus Bin Jamel	Senior Executive	Bed Management Unit, KTPH

Organisation(s) Involved

Khoo Teck Puat Hospital, National Healthcare Group

Healthcare Family Group(s) Involved in this Project

Medical, Nursing, Healthcare administrators (Bed management)

Applicable Specialty or Discipline

General Medicine, Emergency Medicine

Project Period

Start date: Nov 2020

Completed date: Jun 2021

Aim(s)

To provide definitive inpatient care for General Medicine patients waiting in the Accidents & Emergency (A&E) by providing right siting of care, reducing length of stay, cost savings and early discharge.

Background

See poster appended/ below

Methods

See poster appended/ below

Results

See poster appended/ below

Lessons Learnt

It is not easy to effect change and as people need time to adapt to change gradually and in stages. All the consultants are rotated through A&E so that everyone has the opportunity to experience the joy of serving our patients. This meaningful service should have been started earlier, and the survey, if repeated now, will yield a different result.

Conclusion

It is never easy to start something new, especially when it involves stretching our already scarce resources. However, in the spirit of providing better service to our

patients, we need to step forward to start the change even though the support may be weak in the beginning.

Additional Information

Since 2022, all the specialties within the umbrella of General Medicine and the Stroke unit have started reviewing their patients in A&E. Geriatric Medicine will soon do the same too. By 2023, we will start a Medical Unit in A&E, where it will be staffed by inpatient team of doctors, nurses and allied health and providing 24/7 services.

Project Category

Care & Process Redesign

Quality Improvement, Job Effectiveness, Access to Care, Valued Based Care

Keywords

In-patient Definitive Care (IDC) in A&E, Early Medical Review, Early Discharges, Admission Avoidance

Name and Email of Project Contact Person(s)

Name: Dr Kok Mong Thiam

Email: kok.mong.thiam@ktph.com.sg

Yishun Health
National Healthcare Group

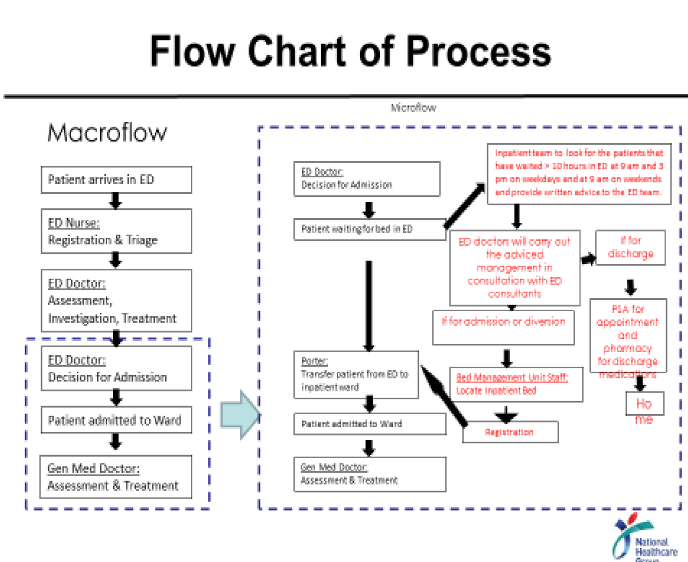
Khoo Teck Puat Hospital
National Healthcare Group

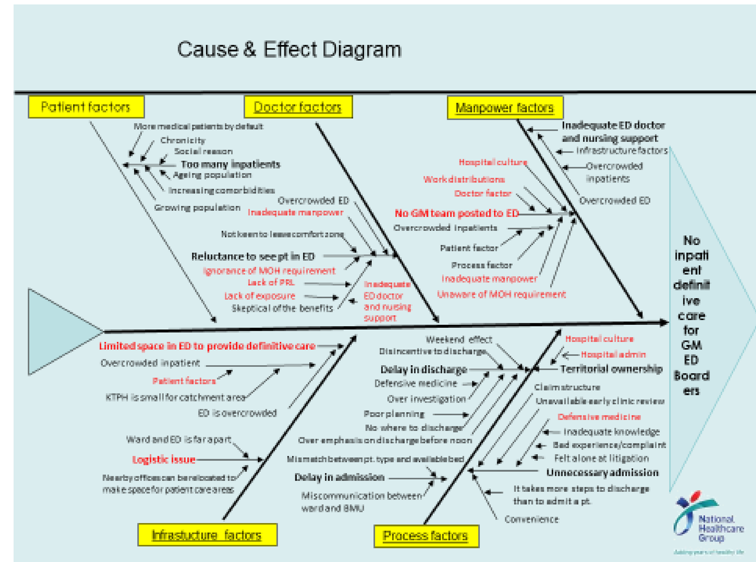
Early review and intervention of General Medicine Patients in Emergency Department of KTPH

Background & Aims

In KTPH, definitive inpatient care starts upon patients' arrival to the wards. Due to bed crunch, there were many patients, including General Medicine patients, waiting in the Emergency Department (A&E) - for hours, to days. This project involves sending a medical team to A&E to provide definitive inpatient care to this group of patients. The aim of this project includes early discharges, right siting of care, reduced length of stay and cost savings.

Methodology





PDSA Cycle 1.1: Provide Inpatient Definitive care to GM patients waiting for > 10 hours in ED during office hours on weekdays

PLAN:

Test for change:
- Send a medical team (one consultant and two MOs to ED to see GM patients who have been waiting for > 10 Hrs.
- Their role is to provide definitive inpatient care.
- They also can advise the ED team to discharge the patient or divert them to other care services whenever appropriate.
- We will provide this service in February and April 2021 during office hour in weekdays.

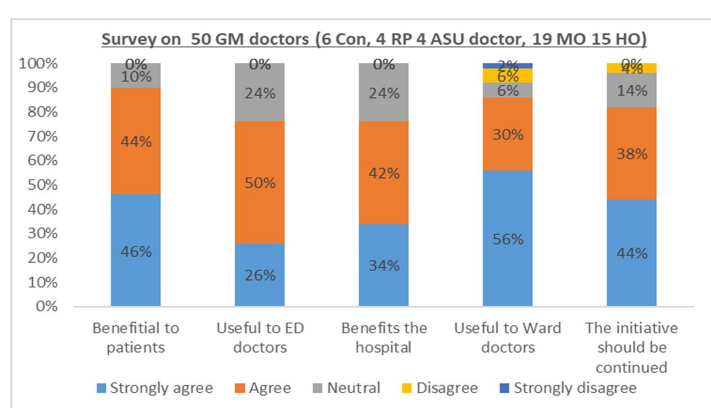
Prediction:
- This team will see 60-70% of GM patients waited > 10 hours in ED.
- There will be significant change to the management and outcome to target population in terms of right siting of care, length of stay, cost saving and care plan.

ACT:
- To increase the MOs from 2 to 3 or 4 when possible
- To cover weekends in the next two months up to 12 noon.

DO:
Target: 60-70% of GM patients waited > 10 hours.
Observation:
- The team saw 70% of GM patients

STUDY:
- The team managed to see 70 % of GM patients waited > 10 hours.
- We can increase the coverage to 80 % or more if we provide weekend service as 20% of the patients are weekend patients.

Learning points:
- There are a large fluctuation of patients from 5 patients to 30 patients. The team find it difficult to cope during the busy days.
- To increase manpower and to team up with ward team so that there will be flexibility in manpower.
- To rotate the staff from month to month to let other have the experience and find meaning in this service.
- To do a survey on the staffs to assess acceptance.



PDSA Cycle 1.2: Provide Inpatient Definitive care to GM patients waiting for > 10 hours in ED during office hours on all days.

PLAN:

Test for change:
- Send a medical team (one consultant and 3 or 4 MOs to ED to see GM patients who have been waiting for > 10 Hrs. To team up this team with a ward team to allow flexibility in manpower assignment
- The team will see GM patients in ED who have waited < 10 hours when ever feasible.
- We will try this in May and Junev2021 during office hour in weekdays.

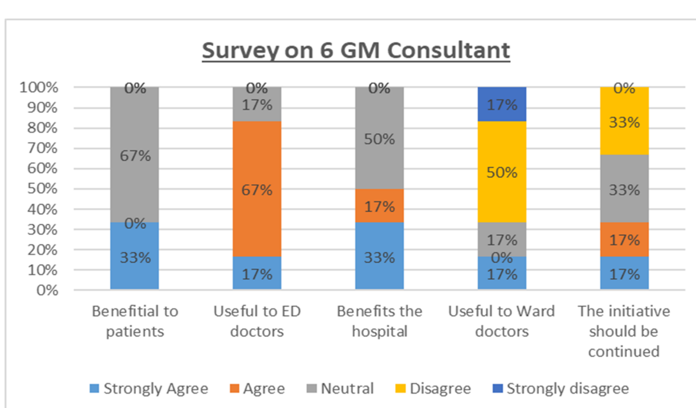
Prediction:
- This team will see > 80% of GM patients waited > 10 hours in ED.

ACT:
- To continue to rotate GM consultants through this initiatives
- To hold meeting/PRL sessions with IM divisions (10/6/21) , HOD (11/6/21) to garner support and allay anxiety

DO:
Target: >80% of GM patients waited > 10 hours.
Observation:
- The team saw > 80% of GM patients waited > 10 hours

STUDY:
- The team managed to see > 80 % of GM patients waited > 10 hours and some of the patients from < 10 hours wait.
- The survey on staffs showed positive feedbacks however the GM consultants have some reservations.

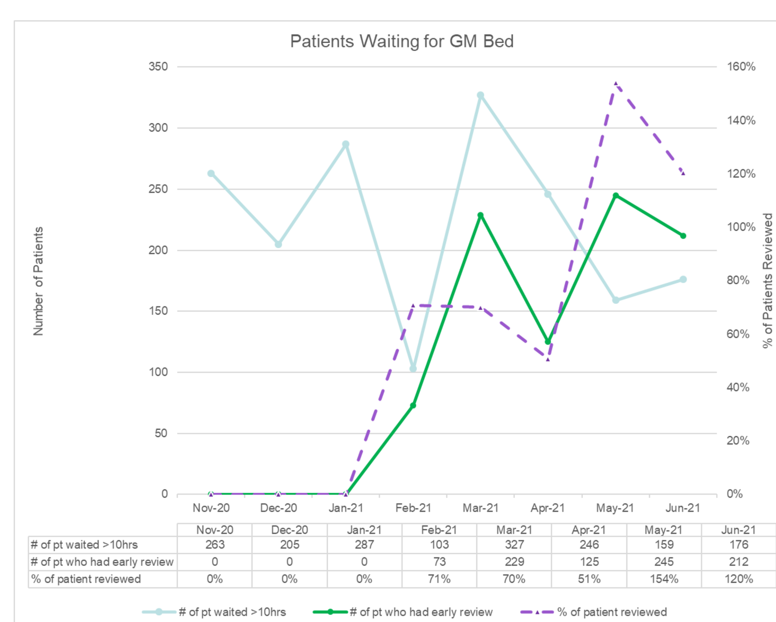
Learning points:
- Covid 19 situation in TTSH has disrupted the patient load trends and staffing availability.
- The negative feedbacks from GM consultants arised from concerns of additional workload, weekend coverage, having to let off junior staffs to help in ED surges, differences in management plans between themselves and the GM team in ED, concerns about wasted efforts when plans are not carried out by ED staffs etc.

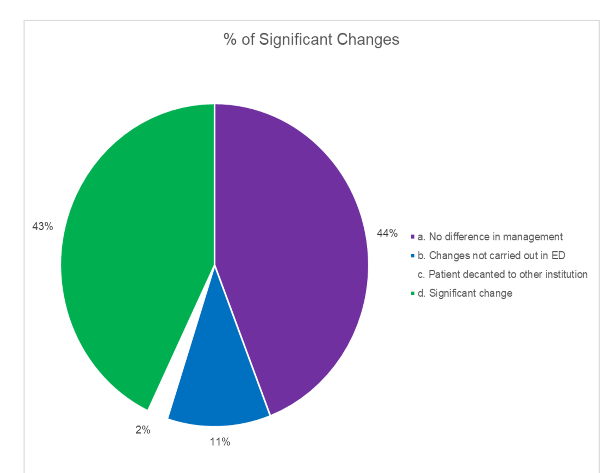


Results & Project Impact

	Jan	Feb	Mar	Apr	May	Jun	Jul
Reduction in Wait Time & ALOS							
Pre CPIP ALOS	140.1	140.1	140.1	140.1	140.1	140.1	140.1
Post CPIP ALOS		112.2	117.6	94.9	120.0	117.3	
Improvement in ALOS (hrs)		27.8	22.4	45.2	20.0	22.8	
Improvement in ALOS (%)		20%	16%	32%	14%	16%	
Pre CPIP wait time for IDC		20:15	22:33	21:01	23:38	22:00	
Post CPIP wait time for IDC		13:41	14:38	12:28	13:35	13:29	
Improvement in wait tim for IDC (hrs)		6:34	7:54	8:33	10:02	8:30	
Improvement in wait time for IDC (%)		32%	35%	41%	42%	39%	
Savings							
Number of patient waited > 10hrs	287	103	327	246	159	176	
Number of patient with early review		73	229	125	245	212	
Bed Hours Saved per patient		27.8	22.4	45.2	20.0	22.75	
Bed day saved per patient		1.2	0.9	1.9	0.8	0.9	
Total Bed Day saved		84.6	213.8	235.3	204.3	201.0	
Gross Cost Savings (Monthly)		$55,022	$138,958	$152,919	$132,775	$130,623	
Extra expenditure (Doctor's salary)		$13,000	$15,000	$15,000	$15,000	$15,000	
Net Cost Saving (Monthly)		$42,022	$123,958	$137,919	$117,775	$115,623	
Cases with admission avoided		7	27	25	28	23	
Cases diverted to other discipline		4	6	2	6	3	
Any Significant change in management?							
a. No difference in management		39	109	53	94	95	
b. Changes not carried out in ED		6	18	18	33	21	
c. Patient decanted to other institution		1	10	1	3	4	
d. Significant change		27	92	53	115	92	

The Average Length of Stay (ALOS) was taken as the median length of stay of General Medicine cases to avoid being skewed by the outliers, who stayed for extremely long time in the hospital. Pre-CPIP (Clinical Practice Improvement Programme) data was obtained from the hospital record. The post-CPIP ALOS was the median length of stay of patients who had early review. When a patient was discharged instead of being admitted, the LOS became 0. The improvement in ALOS is about 1 day (from about 6 days to about 5 days).
The waiting time for Inpatient Definitive Care (IDC) starts when the A&E consult ended. The post-CPIP wait time for IDC is the time the patient waited before being reviewed by the Medical team in A&E. The pre-CPIP wait time for IDC is taken as two hours after ward arrival of the same patient.
The differences between pre-CPIP ALOS and post-CPIP ALOS is the bed hours saved per patient.
The gross cost saving is the result of bed day saved per patient multiplied by total number of patients reviewed, multiplied by $650.00, which is the average hospital bill per day.
In May and June 2021, the number of patient with early review were higher than the total number of patient who waited for 10 hours or more because we started reviewing patient who waited less than 10 hours and some of these patients found inpatient bed or were being decanted to other hospital before the 10 hours was up.
Of all the patients who received early review, about 40% have significant change to their management which included: admission avoidance, change in their disposition, early investigation, treatment and referrals.





Sustainability & Follow-Up

Since 2022, all the specialties within the umbrella of General Medicine and the Stroke unit have started reviewing their patients in A&E. Geriatric Medicine will soon do the same too. By 2023, We will start a Medical Unit in A&E, where it will be staffed by inpatient team of doctors, nurses and allied health and providing 24/7 services.

Conclusion

Early review of patients who are lodging in A&E yields many benefits. It is sustainable and should be continued and improve upon.