

### **Project Title**

A Productivity Improvement Project on Generating Reports On The Compliance Of Documenting Estimated Discharge Dates

### **Project Lead and Members**

Project lead: Grace Goh

Project members: Josephine Wong, Liew Mei Pheng, Marissa Tan, Dennis Ng, Nathanael Tan, Shalini Menon

### **Organisation(s) Involved**

Ng Teng Fong General Hospital

### **Healthcare Family Group Involved in this Project**

Healthcare Administration

### **Applicable Specialty or Discipline**

Healthcare Administrators

### **Project Period**

Start date: Apr 2021

Completed date: Oct 2021

### **Aims**

Which was not an efficient use of manpower. Hence, we embarked on this productivity project with the aim of reducing the time needed by 75% (from 4 hrs to 1 hr per week) within 6 months.

### **Background**

See poster appended/ below

## **Methods**

See poster appended/ below

## **Results**

See poster appended/ below

## **Lessons Learnt**

Simple changes like the ones we did in this project is something everyone has the ability to make in our daily work. Substantial productivity and quality gains can be achieved, if we

- Actively seeking improvement to be able to do our job more efficiently and effectively
- Respectfully challenge status quo and overcome obstacles
- Leverage on technology and automation

## **Conclusion**

See poster appended/ below

## **Project Category**

Technology

Digital Health, Data Analytics

## **Keywords**

Automation, Tableau Data Visualisation, Data Analytics

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# IMPOSSIBLE

## DOING SOMETHING 8 TIMES FASTER ... AND MORE ACCURATELY

### A PRODUCTIVITY IMPROVEMENT PROJECT ON GENERATING REPORTS ON THE COMPLIANCE OF DOCUMENTING ESTIMATED DISCHARGE DATES

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[\*\* FROM MEDICAL AFFAIRS (MA) DEPARTMENT; \* FROM GROUP MEDICAL INFORMATICS (MI) DIVISION]

- ✓ QUALITY
  - ✓ PRODUCTIVITY
  - ✓ COST
- [Restricted, Non-sensitive]

#### (1) Background

Some of us are members of the longstayers QI project team. One of the initiatives by the team is to ensure an expected discharge date (EDD) is established and documented for every patient in the pilot wards (C7, C8, C9) by Day 5. As part of establishing a feedback loop for compliance, a weekly performance report was sent to the ward doctors and case managers driving this initiative.

#### (2) Problem & Aim

It was time-consuming to generate the weekly reports and it took half a day every week or 0.1 FTE which was not an efficient use of manpower. Hence, we embarked on this productivity project with the aim of reducing the time needed by 75% (from 4 hrs to 1 hr per week) within 6 months. Our secondary aim was to improve accuracy by leveraging on technology and automation to minimize human errors.

#### (3) Interventions

##### Start State (19 Apr 2021)

What is was: Manual process, time consuming and prone to human errors (especially when typing patient particulars such as NRIC)

63%  
reduction

##### PDSA 1 (8 Sep 2021)

What changed:  
System data led to time-savings,  
& reduced human errors

88%  
reduction

##### PDSA 2 (6 Oct 2021)

What changed:  
Automation led to further time-savings

##### KEY PROCESS STEPS:

(Process Step 1a) View patient data in Epic patient list.

(Process Step 1b) Transcribe patient data from Epic patient list to Excel manually.

(Process Step 2) Use Excel functions like filters and pivot tables to organize the data, so as to generate charts showing compliance rates and tables showing case level details of non-compliant cases.

Ward	29 Sep
C7	54%
C8	100%
C9	100%

Ward	Bed	Name	NRIC	Admission date	LOS	Attending Clinician	EDD
C7	JW75824		S 958	23/09/2021	6	VENGADASALAM, Murugam	
C7	JW75825		S 780	23/09/2021	8	VENGADASALAM, Murugam	
C7	JW75828		S 113F	23/09/2021	8	VENGADASALAM, Murugam	
C7	JW75829		S 156A	24/09/2021	5	VENGADASALAM, Murugam	
C7	JW75835		S 965F	13/09/2021	14	VENGADASALAM, Murugam	
C7	JW75838		S 953J	23/09/2021	6	VENGADASALAM, Murugam	
C7	JW75807		S 89C	09/09/2021	20	VENGADASALAM, Murugam	13/09/2021
C7	JW75812		S 951G	02/09/2021	27	VENGADASALAM, Murugam	08/09/2021
C7	JW75814		S 951C	15/09/2021	14	VENGADASALAM, Murugam	20/09/2021
C7	JW75821		S 785F	07/09/2021	22	VENGADASALAM, Murugam	13/09/2021
C7	JW75823		S 1460	08/09/2021	21	VENGADASALAM, Murugam	Unknown

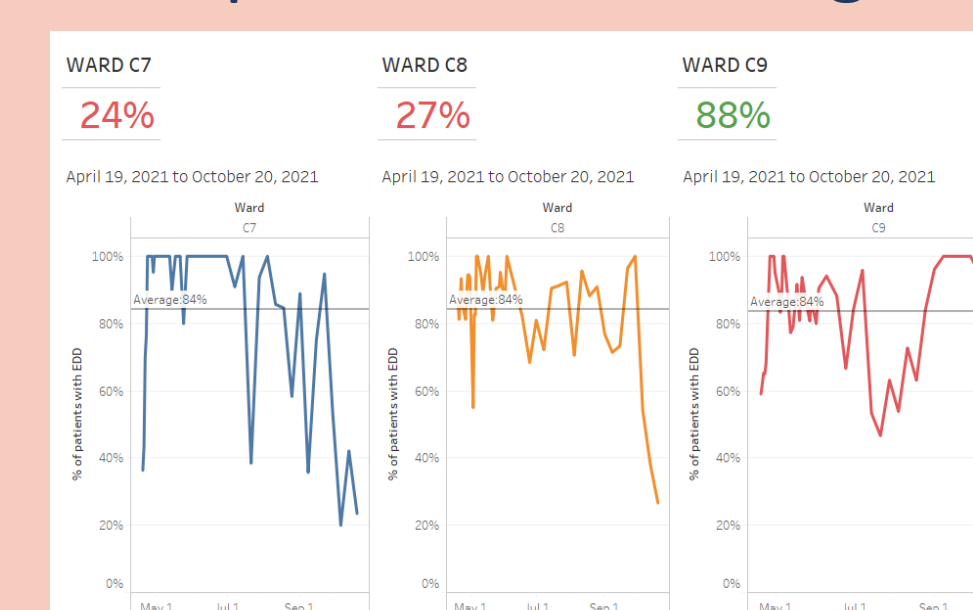
##### KEY PROCESS STEPS:

(NEW Process Step 1') MI team built a report to extract the data directly from Epic system.

##### KEY PROCESS STEPS:

(Process Step 1') Continue to use Epic report to extract the data.

(NEW Process Step 2') Built a Tableau dashboard with calculations, such that charts showing compliance rates & tables showing info non-compliance cases are generated automatically.



(Process Step 2) same as previous- use Excel functions to organize the data.

Ward	29 Sep
C7	54%
C8	100%
C9	100%

Ward	Bed	Name	NRIC	Admission date	LOS	Attending Clinician	EDD
C7	JW75834		S 95B	23/09/2021	6	VENGADASALAM, Murugam	
C7	JW75835		S 94D	23/09/2021	8	VENGADASALAM, Murugam	
C7	JW75836		S 13F	23/09/2021	8	VENGADASALAM, Murugam	
C7	JW75829		S 56A	24/09/2021	5	VENGADASALAM, Murugam	
C7	JW75835		S 86C	13/09/2021	14	VENGADASALAM, Murugam	
C7	JW75838		S 953J	23/09/2021	6	VENGADASALAM, Murugam	
C7	JW75807		S 89C	09/09/2021	20	VENGADASALAM, Murugam	13/09/2021
C7	JW75812		S 951G	02/09/2021	27	VENGADASALAM, Murugam	08/09/2021
C7	JW75814		S 951C	15/09/2021	14	VENGADASALAM, Murugam	20/09/2021
C7	JW75821		S 785F	07/09/2021	22	VENGADASALAM, Murugam	13/09/2021
C7	JW75823		S 1460	08/09/2021	21	VENGADASALAM, Murugam	Unknown

Ward	EDD Compliance Rate	Breakdown by cases
C7	24%	Blank: 13, EDD Inpact: 3, EDD Inpact: 1, Grand Total: 17

Attending Clinician	Category	Bed	Patient	ID	EDD
Yes		JW75807		XXXXX532F	Null
Yes		JW75807		XXXXX534F	Null
Yes		JW75808		XXXXX429F	Null
Yes		JW75811		XXXXX839F	Null
Yes		JW75813		XXXXX029F	Null
Yes		JW75820		XXXXX869F	Null
Yes		JW75825		XXXXX468F	Null
Yes		JW75828		XXXXX275F	Null
Yes		JW75830		XXXXX042F	Null
Yes		JW75831		XXXXX795F	Null
Yes		JW75832		XXXXX179F	Null
Yes		JW75833		XXXXX516F	Null
Yes		JW75837		XXXXX588F	Null
Yes		JW75801		XXXXX092C	14/10/2021
Yes		JW75818		XXXXX338F	29/09/2021
Yes		JW75821		XXXXX918F	13/09/2021

#### (4) Outcome

The project aim of reducing the time needed by 75% (from 4 hrs to 1 hr) was achieved after 2 PSDA cycles. In fact, we did better in achieving a reduction of 88% (to just 0.5 hr)!

Start State 4 hrs

After PDSA 1 1.5 hrs (63% reduction)

After PDSA 2 0.5 hr (88% reduction)

Time needed to generate the weekly report

#### (6) Originality, Innovation & Creativity

This is a ground up effort, and it's the first time we used Tableau (a data visualisation software) as a productivity tool.

#### (7) Joy in Work

Knowing that the little changes we made has enabled us to do work ~10 times faster and more accurately brought us a lot of satisfaction that induced intrinsic joy. The reports we generate using Tableau visually differentiated performance by colour (e.g. red is needs improvement, green is good) and each week we would celebrate green results while encouraging improvement for wards in the red zone.

#### (5) Teamwork & Communication

Despite Covid-19 restrictions that limited physical meet ups, and despite belonging to different departments (MA and MI), we were able to come together to complete this productivity improvement project, which cannot be done by either department alone.

The doctors and nurses from the Longstayers project team also provided us with valuable feedback they received from their colleagues in the wards, and this allowed us to improve the report by making it more reader-friendly & visually appealing.

#### (8) Transferability

Simple changes like the ones we did in this project is something everyone has the ability to make in our daily work. Substantial productivity and quality gains can be achieved, if we

- Actively seeking improvement to be able to do our job more efficiently and effectively
- Respectfully challenge status-quo and overcome obstacles
- Leverage on technology and automation