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# Improve Specialist Outpatient Clinics (SOCs) Resource Planning With Better Insights on Utilisation

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## Introduction

Tan Tock Seng Hospital (TTSH) manages a very busy outpatient clinic operations, with an average 2% increase of outpatient volume every year. TTSH served close to 700,000 outpatients in 2018.

As such, there is a need to ensure optimisation of all our room resources. This project was embarked to develop a standardised measure for room utilisation across SOC's at TTSH, so as to create visibility of the SOC's room utilisation and allow us to further optimise SOC's consultation rooms.

*“Do we have enough room or physical space in our clinics?”*

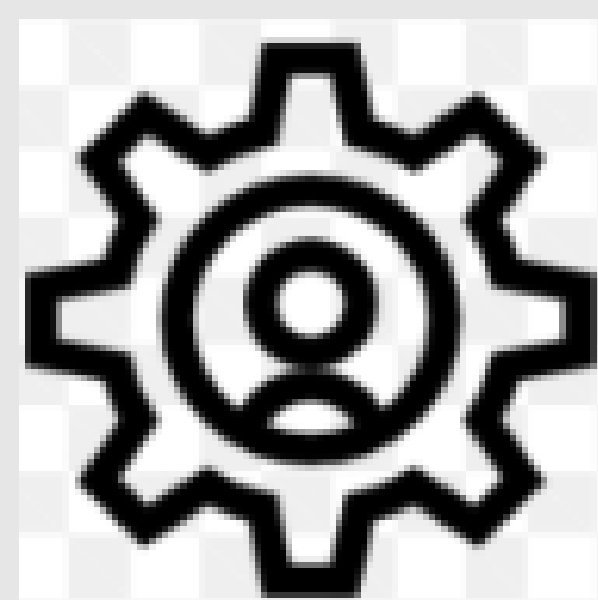
## Objectives



To develop a  
**standardised**  
measure



To create **visibility**  
of actual utilisation



To **optimise** SOC's  
consult rooms

## Methodology

Room utilisation is measured by 2 indicators; planned and actualised. Each day is split into two sessions, morning and afternoon. This is adapted from the traditional room roster planning in excel.

### Planned Utilisation

- Calculate maximum number of sessions provisioned by the clinics based on the number of consult rooms available
- Calculate planned use of sessions based on the room roster planning in excel
- Standardise the planning template across SOC's into a matrix that will reflect all the consult rooms and whether it is utilised for each session per day for the week.

### Actual Utilisation

- Using information extracted from TTSH queue management system, we can compute the total duration (by minutes) that each room is used.
- Actual utilisation might be lower than planned utilisation due to last minute change of plans (eg. doctors on leave).

## Limitations

The model is not able to take into account usage where the TTSH queue management system is not used such as:

- In non-subsidised clinics where patients are called by name
- Used by Allied Health Services or Nurse Clinician
- Used for admin purposes

## Results

This is an overview of all the outpatient clinics' room utilisation.

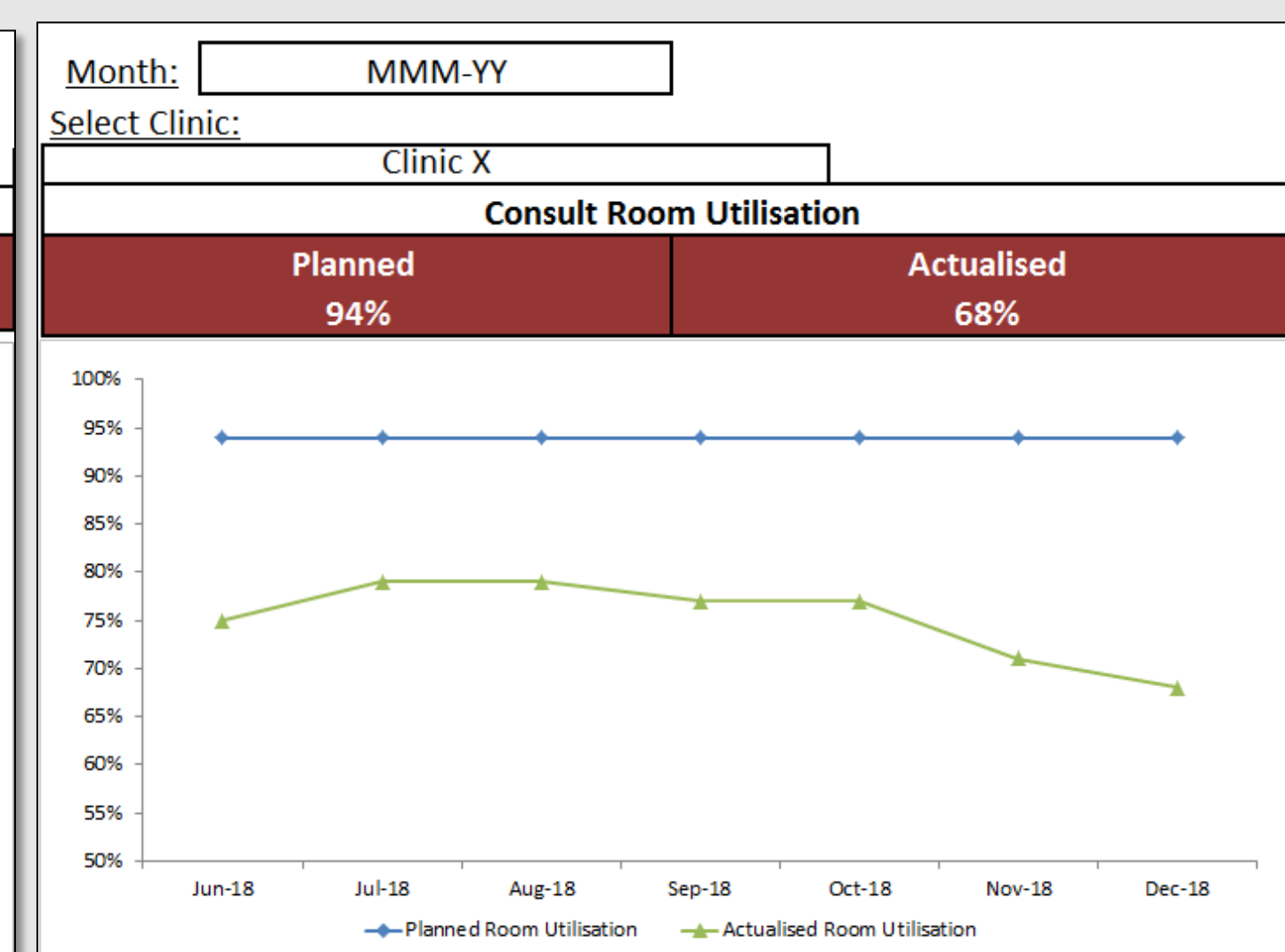
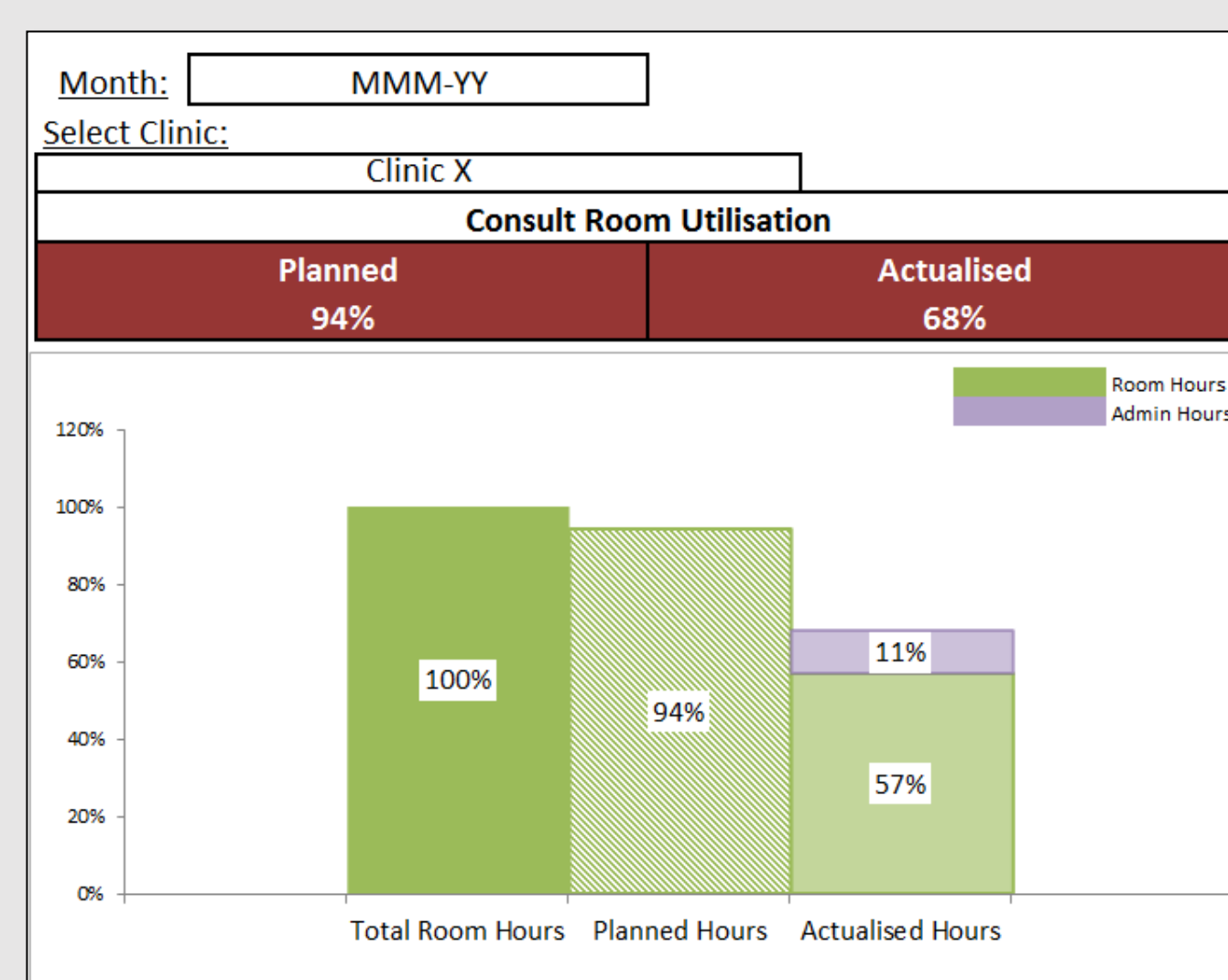
### Subsidised & Mix Clinics:

Clinic	Planned Room Utilisation	Actualised Room Utilisation (with admin)
A	99%	88%
B	83%	67%
C	90%	100%
D	100%	75%
E	95%	64%
F	92%	71%
G	94%	79%
H	95%	57%
I	96%	40%
J	77%	39%
K	97%	53%
L	85%	69%

### Non-Subsidised Clinics:

Clinic	Planned Room Utilisation	Actualised Room Utilisation (with admin)
M	71%	39%
N	53%	16%
O	78%	42%
P	77%	48%
Q	85%	56%
R	60%	18%

Drill-down to the individual clinics and monthly view. Clinics are able to monitor their utilisation trend.



Further drill-down to the individual rooms and sessions within the clinic. This allows clinics to shift and combine the under-utilised sessions to create more space.

	Monday		Tuesday		Wednesday		Thursday		Friday	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Clinic X- Room 1	39%	32%	21%	28%	44%	42%	61%	51%	57%	36%
Clinic X- Room 2	66%	43%	104%	141%	37%	75%	95%	93%	121%	65%
Clinic X- Room 3	64%	87%	105%	96%	67%	99%	85%	57%	0%	0%
Clinic X- Room 4	22%	0%	50%	33%	70%	54%	0%	103%	61%	59%
Clinic X- Room 5	33%	62%	8%	14%	42%	94%	107%	49%	31%	0%
Clinic X- Room 6	45%	53%	59%	19%	46%	109%	57%	79%	41%	0%
Clinic X- Room 7	63%	121%	54%	146%	44%	0%	8%	0%	50%	24%
Clinic X- Room 8	65%	114%	110%	156%	12%	0%	82%	108%	17%	18%
Clinic X- Room 9	70%	121%	103%	144%	0%	4%	0%	52%	0%	92%

## Conclusion & Future Works

This model gives clinics an overview and trend of their actual room utilisation and a micro view of which session and day they can optimise within their own clinic.

With this standardised measurement, the future plan is to allow clinics to optimise and load balance across.