

## **Project Title**

Automation of Outcome Evaluation for Rehabilitation Department

## **Project Lead and Members**

Project lead: Chen Changwu (Senior Principal Occupational Therapist)

Project members:

- Abdul Rashid Jailani (Deputy Director)
- Hermione Poh Mei Niang (Principal Informatics Officer)

## **Organisation(s) Involved**

Ng Teng Fong General Hospital & Jurong Community hospital

## **Project Period**

Start date: Jun 2019

Completed date: Dec 2019

## **Aims**

- To automate the process of outcome evaluation using EMR for rehabilitation departments in 6 months' time
- To encourage use of outcome in patient care

## **Background**

Ng Teng Fong General Hospital and Jurong Community Hospital (together as Jurong Health Campus, JHC) are using a generic rehabilitation outcome measure, Modified Bathel Index. JHC rehabilitation department, including Occupational Therapy (OT) and Physiotherapy (PT), worked with the Medical Informatics team from June 2019 to Dec 2019 to automate outcome evaluation process using JHC's Electronic Medical Record System. The project is completed and is running smoothly.

## **Methods**

See attachment

## Results

See attachment

## Lessons Learnt

- Early engagement of different stake holders is more effective.
- Making data meaningful to stake holders is more convincing than just persuading
- It takes time for teams to learn how to realise the potential benefit of data

## Conclusion

See attachment

## Project Category

Automation, IT & Robotics, Care Redesign

## Keywords

Automation, IT & Robotics, Care Redesign, Allied Health, Medical Informatics, Electronic Medical Record System, Functional Performance, Rehabilitation Outcome Measure, Time Savings, Ng Teng Fong General Hospital, Jurong Community Hospital, Modified Bathel Index

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

Name: Chen Changwu

Email: changwu\_chen@nuhs.edu.sg



# AUTOMATION OF OUTCOME EVALUATION FOR REHABILITATION DEPARTMENT

MEMBERS: CHEN CHANGWU, ABDUL RASHID JAILANI, HERMIONE POH MEI NIANG

## Define Problem, Set Aim

### Problem/Opportunity for Improvement

- Therapists don't know how much their patient improve objectively when patient is discharged.
- At institutional level, for specific diagnosis such as TKR (total knee replacement) or stroke, there is no data to demonstrate patient's functional improvement when patient is undergoing rehabilitation.
- To understand how much patient has improved in functional performance due to rehabilitation, therapists had to manually calculate the data collected from a sample group of patients. This process is very labour intensive.

**Explain the cost of the problem:** Between Aug 2015 to Aug 2019, rehab departments spent 30 hours per month to evaluate a generic outcome measure, Modified Bathel Index (MBI). This is below the hospital's expectation after we have started use of EMR (Electronic Medical Record) system.

### Aim

- To automate the process of outcome evaluation using EMR for rehabilitation departments in 6 months' time,
- To encourage use of outcome in patient care

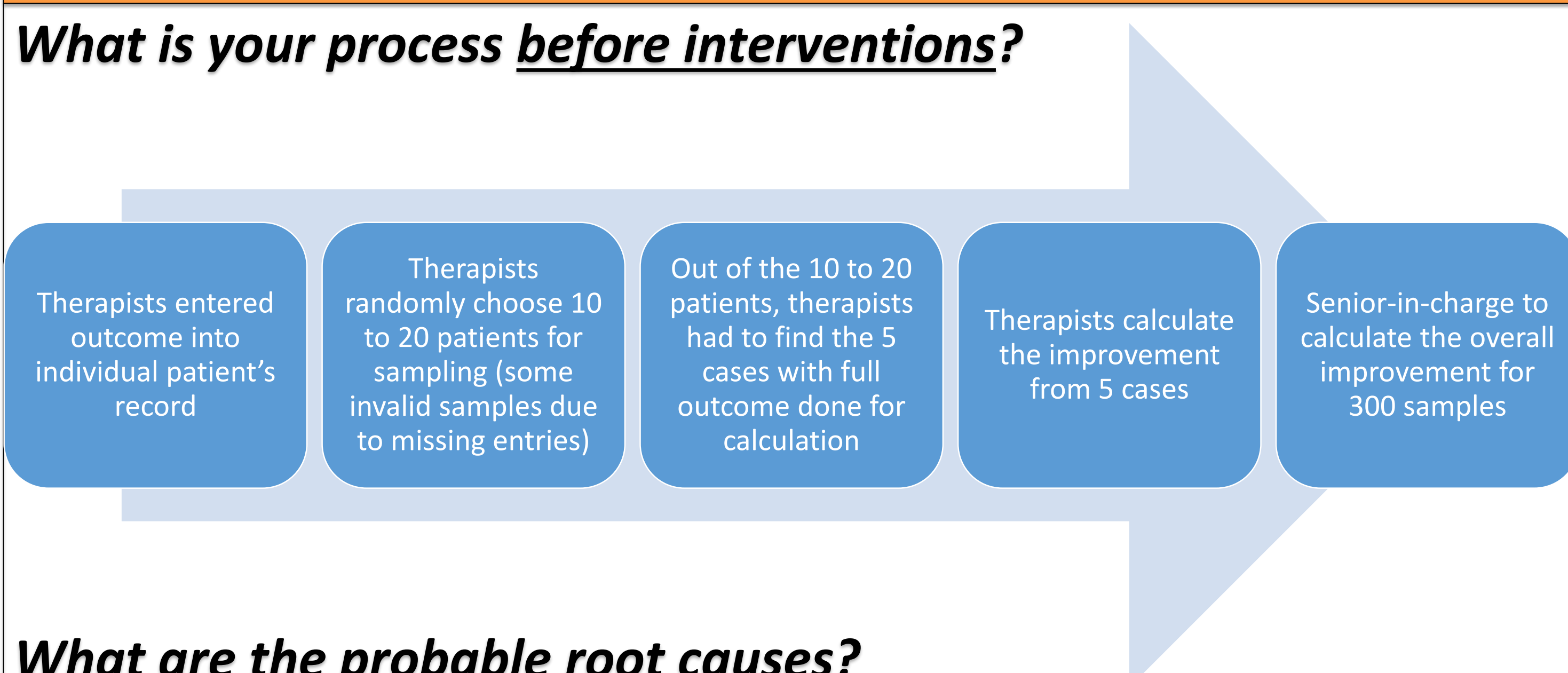
## Establish Measures

### What was your performance before interventions?

- Time spent per month to manually evaluate the outcome: 30 hours average from Jun 2015 to Jun 2019
- Percentage of outcome used for admitted patients was about 50%

## Analyse Problem

### What is your process before interventions?



### What are the probable root causes?

- Therapist used to hard copy form to evaluate the outcome
- Therapist didn't know how to get EMR to automate the process

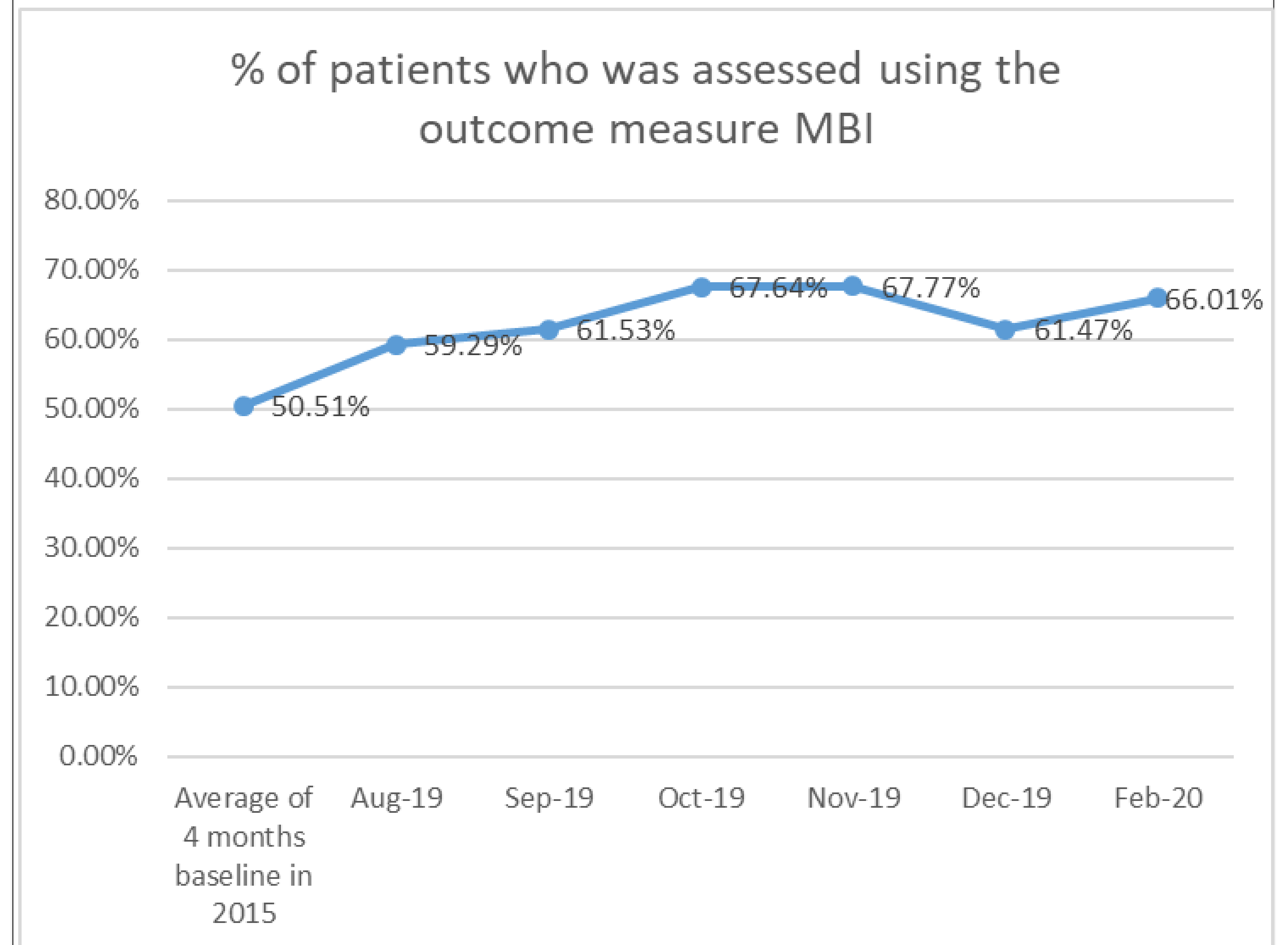
## Select Changes

**Full automation was selected as the intervention using EMR. There is no sampling required and no manual calculation required for the process.**

## Test & Implement Changes

### How do we pilot the changes? What are the initial results?

1. Saving in time after automation: from 30 hours per month to 1 hour per month
2. Increased use of outcome in patient care by therapists



## Spread Changes, Learning Points

- Early engagement of different stake holders is more effective.
- Making data meaningful to stake holders is more convincing than just persuading
- It takes time for teams to learn how to realise the potential benefit of data
- EMR (Electronic Medical System) makes evaluation of care at institutional level possible.
- Technology can facilitate behaviour change when the team is committed to it.
- It is possible for patients or NOK to know how much they have improved at the end of their stay.