

## **Project Title**

Improving Orthopaedic Inpatient Casemix Index

## **Project Lead and Members**

Project lead: Asst Prof Aravind Kumar

Project members: Fione Gun, Cynthia Xu, Jennie Sun, Flavian Li, Adj A/Prof Fareed Kagda

## **Organisation(s) Involved**

Ng Teng Fong General Hospital

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

Medical, Healthcare Administration

## **Applicable Specialty or Discipline**

Orthopaedics, Clinical Operations, Medical Record Office, Finance

## **Project Period**

Start date: 2017

Completed date: 2018

## **Aims**

To benchmark the inpatient Casemix Index (CMI) of NTFGH Department of Orthopadics with comparable Orthopaedic department of another hospital. To potentially further improve the department CMI, and eventually contributes to the overall growth of NTFGH's inpatient CMI.

## **Background**

See poster attached/ below

## **Methods**

See poster attached/ below

## **Results**

See poster attached/ below

## **Lessons Learnt**

It is important that the inpatient journey starts with accurate posting of diagnosis from clinic visits and operating notes. This requires accurately communication of diagnosis by senior staff. Clear instructions, timely case reviews and performance measurements, strong leadership from department HOD, participation from the team as well as good stakeholder support are key to the success of the department casemix index improvement project.

## **Conclusion**

See poster attached/ below

## **Project Category**

Care & Process Redesign, Quality Improvement, Value Based Care

## **Keywords**

Inpatient Casemix Index, Clinical Documentation

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

Name: Fione Gun

Email: fione\_gun@nuhs.edu.sg

# IMPROVING ORTHOPAEDIC INPATIENT CASEMIX INDEX

- SAFETY
- PRODUCTIVITY
- PATIENT EXPERIENCE
- QUALITY
- VALUE

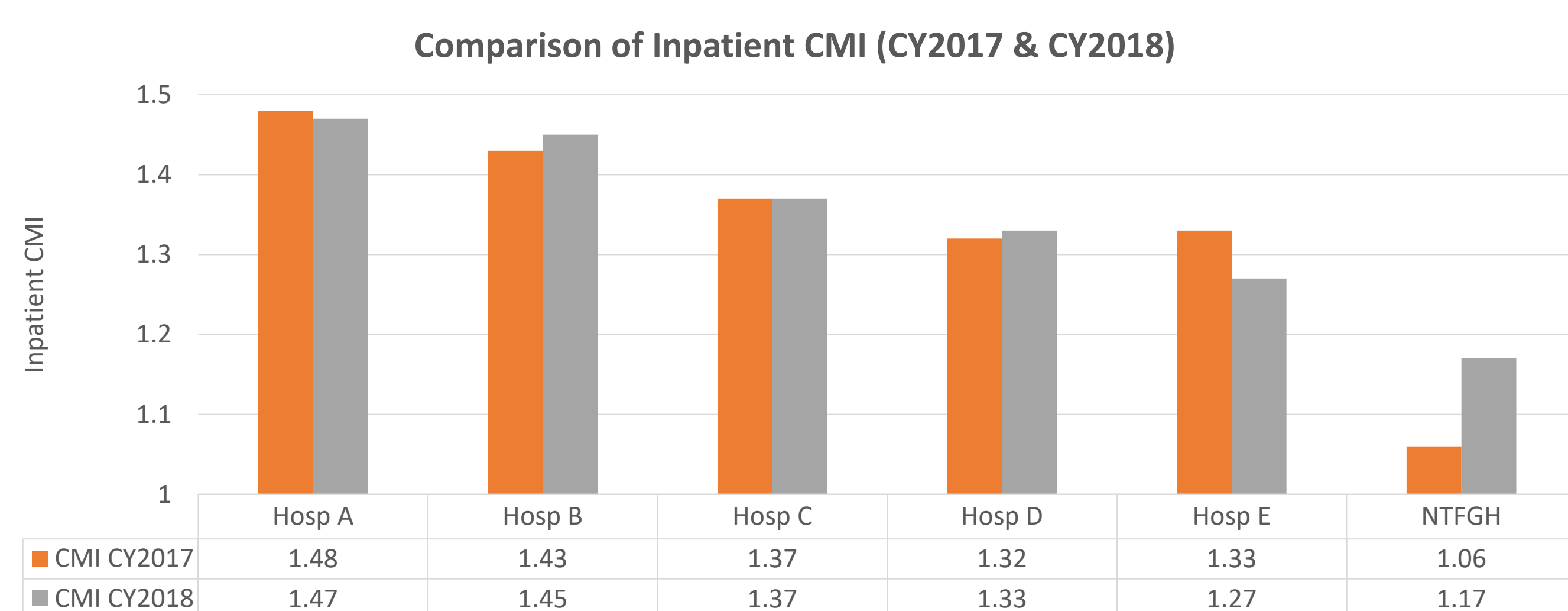
MEMBERS: ASST PROF ARAVIND KUMAR (CLINICIAN LEAD), FIONE GUN, CYNTHIA XU, JENNIE SUN, FLAVIAN LI, ADJ A/PROF FAREED KAGDA (SPONSOR)

## Define Problem/Set Aim

### Opportunity for Improvement

Casemix Index (CMI) is the cost weight per admission episode. It is a measure of the subvention that the hospital receives per patient treatment episode.

NTFGH's inpatient casemix index at 1.06 and 1.17 were the lowest among the restructured hospital in CY2017 & CY2018 respectively.



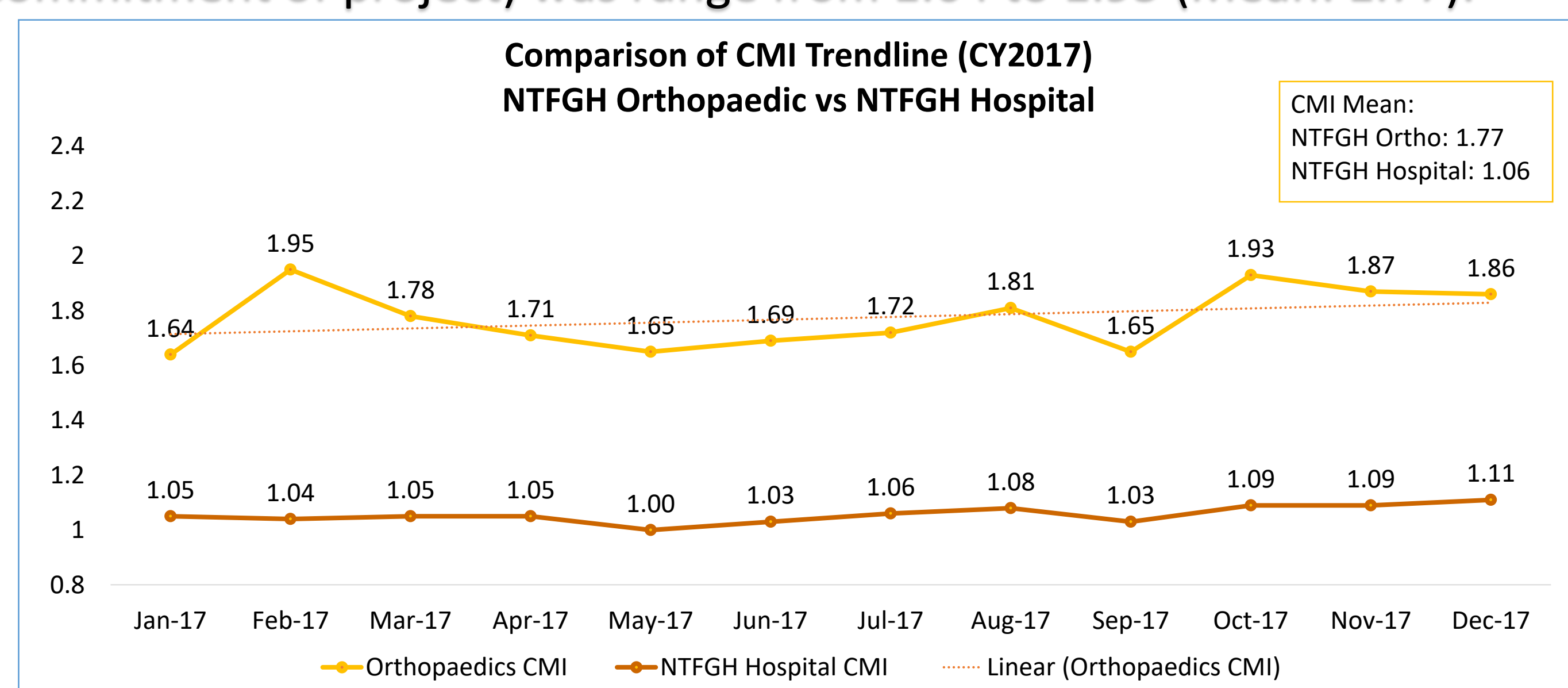
### Aim

- To benchmark the inpatient CMI of NTFGH Department of Orthopaedics with comparable Orthopaedic department of another hospital.
- To potentially further improve the department CMI, and eventually contributes to the overall growth of NTFGH's inpatient CMI.

## Establish Measures

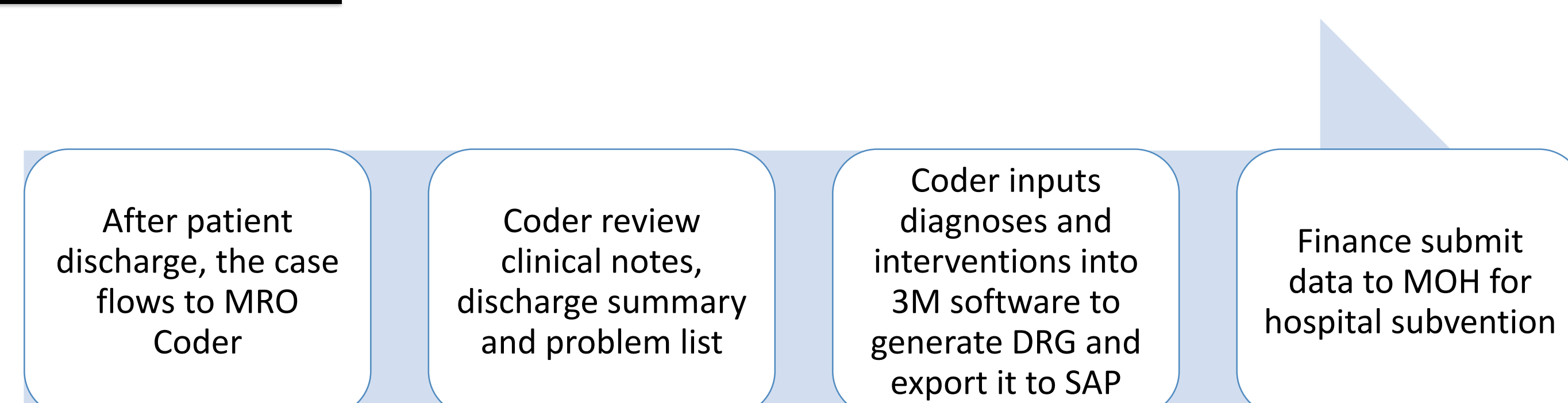
### Baseline Performance

The Orthopaedic Inpatient Casemix Index in CY2017 (12 months before commitment of project) was range from 1.64 to 1.95 (Mean: 1.77).

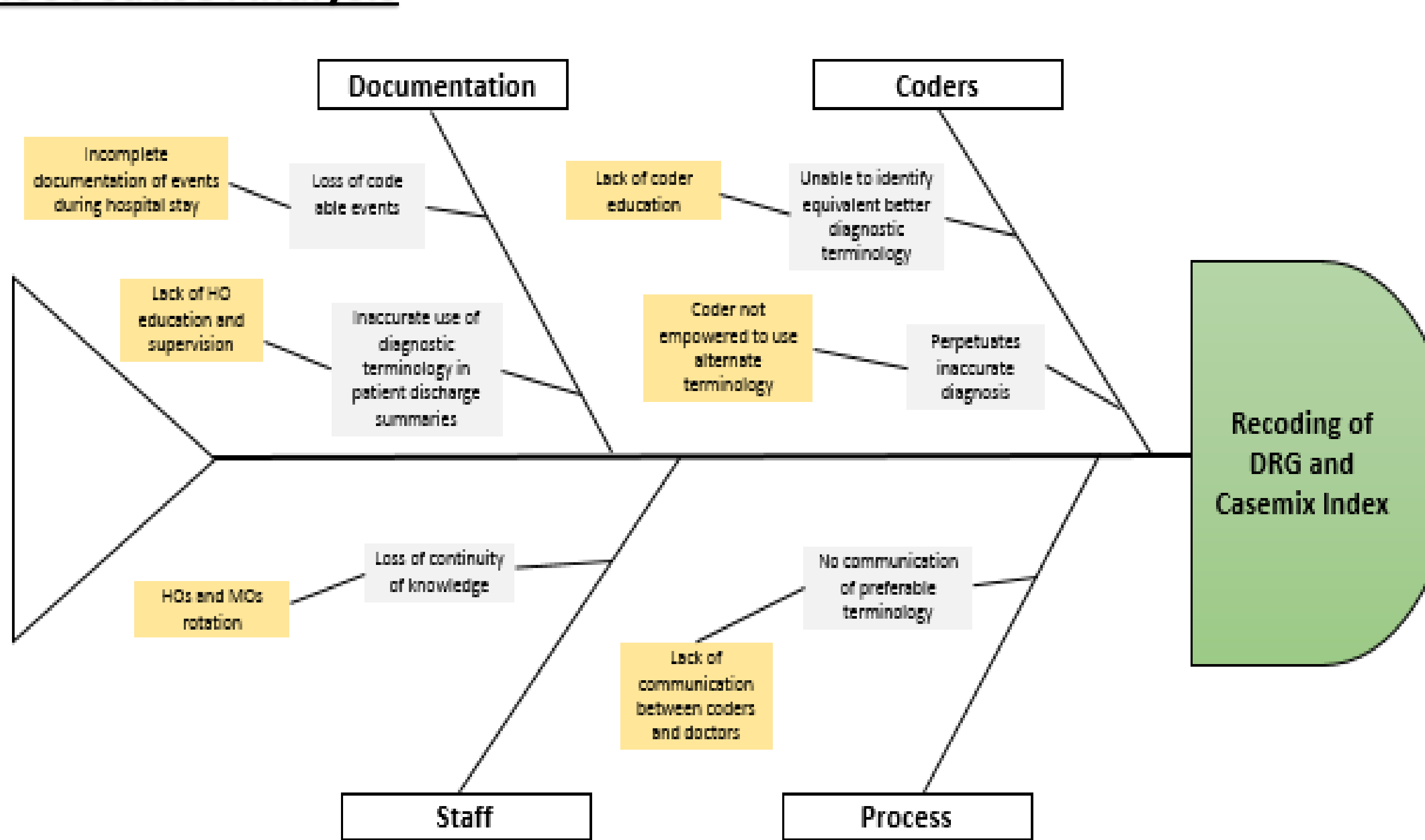


## Analyse Problem

### Current Process



### Root Cause Analysis



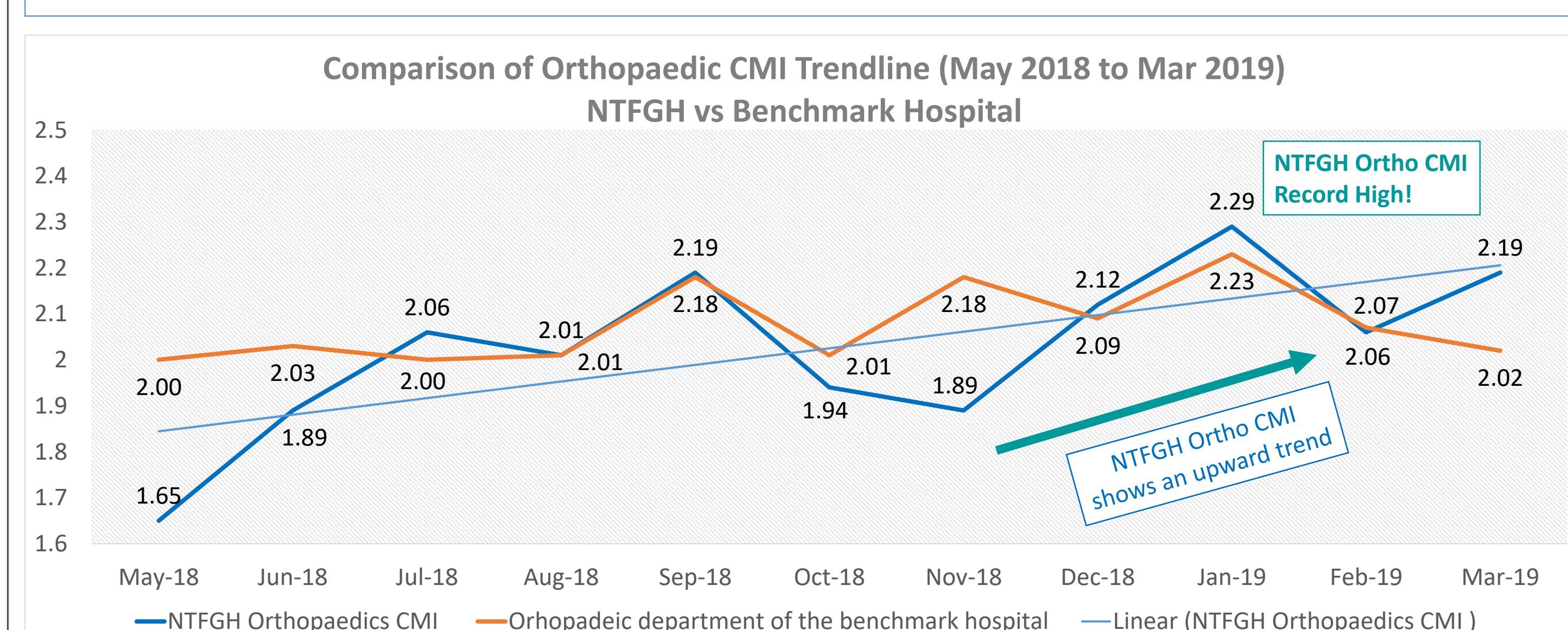
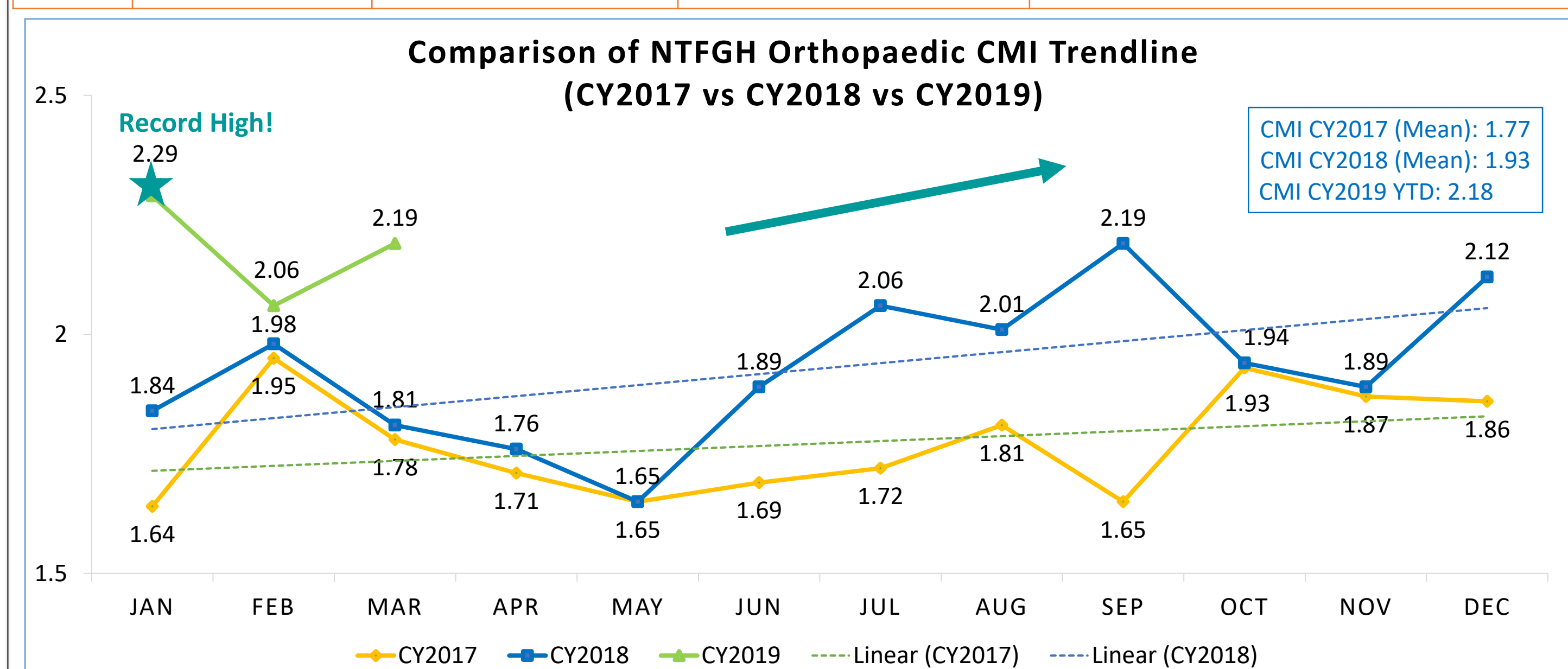
## Select Changes

### Probable Solutions

Root Cause	Solution
No communication on the preferable terminology used	Continuous improvement of clinical documentation and DRG coding through regular case reviews.
Coders are unable to identify equivalent better diagnostic terminology	
Inaccurate use of diagnostic terminology in clinical documentation	Emphasising on "Co-sign by Specialist" and sharing of guidelines for clinical documentation at the department level.
Loss of continuity of knowledge due to HO and MO rotation	Continuous education of HOs and MOs

## Test & Implement Changes

Cycle	Plan	Do	Study	Act
1	Retrospective review of Inpatient DRG coding exercises in CY2018.	A clinician lead was assigned to review 107 cases together with MRO, Finance and Clinical Operations.	14 (13.1%) cases were re-coded to higher acuity DRGs (an estimated subvention of \$66k).	Clinical documentation guidelines were shared with the department (hard copy are placed at the Orthopaedic Ward Office).
2	Conducted the same exercise in Q1CY2019	8 cases with high cost and low cost weight were selected for review	2 (25%) complex cases were re-coded to higher acuity DRGs (an estimated subvention of \$12k).	Department of Orthopaedics has taken the proactive approach for on-going case review instead of retrospective exercise with effective from July 2019.



## Spread Change/Learning Points

### Spread Change

- Continuous improvement in clinical documentation and DRGs coding.
- Educate all staff on importance of recording diagnoses and interventions, including surgeries accurately.

### Learning Points

- It is important that the process starts at the start of patient journey with accurate posting of diagnosis from clinic visits and operating notes.
- Diagnosis needs to be accurately communicated by senior staff.
- Clear instructions, timely reviewing of cases and performance measurement, strong leadership from department HOD, enthusiastic participation from Orthopaedic team, and good support from stakeholders such as MRO, Finance & Clinical Operations are key contributing factors to success of the department casemix index improvement project.

Ng Teng Fong General Hospital  
Jurong Community Hospital  
Jurong Medical Centre