

Project Title

Digitalisation of Pharmacy Dashboard to Improve Data Visualisation

Project Lead and Members

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Project members: Wong YC, Loh LL, Tee SL, Tan R, Ngoi ML

Organisation(s) Involved

St Luke's Hospital

Healthcare Family Group(s) Involved in this Project

Pharmacy

Applicable Specialty or Discipline

General Medicine, Pharmacology

Project Period

Start date: not indicated

Completed date: not indicated

Aims

Create a real time digital pharmacy dashboard of key performance indicators with aims to:

- Simplify data collection for analysis
- Improve data visualisation for better tracking
- Allow prompt implementation of counter measures if needed

Background

See poster appended/ below

Methods

See poster appended/ below

Results

See poster appended/ below

Conclusion

See poster appended/ below

Project Category

Care & Process Redesign

Value Based Care

Technology

Digital Health, Data Management, Data Analytics

Keywords

Quality Care, KPI, Medication care, pharmaceutical care

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Digitalisation of Pharmacy Dashboard to Improve Data Visualisation St Luke's Hospital

Shim YT, Wong YC, Loh LL, Tee SL, Tan R, Ngoi ML

Introduction/Background

- St Luke's Hospital (SLH) Pharmacy seeks to provide quality care for our patients and improve medication safety. As such, close calls (CC) and dispensing errors (DE) are tracked as part of risk monitoring measures to ensure good clinical outcomes.
- Currently, CC and DE are recorded on hardcopy charts (Fig. 1). Collation and computation of statistics is done monthly via manual count of entries for each month. Year-to-date CC and DE rates are also computed manually twice a year.

No.	Date	Cart fill	IP New order/ SN request / Admission	TT O	Process-ing	Packing				Tick if DE/ME	Report	Report by	Super-visor	Remarks
						Wrong Quantity	Wrong strength	Wrong drug	Others					

Figure 1: Picture of previously data entry sheet for CC/ DE reporting

- As this process is tedious, time-consuming, and statistics are not available real time, the team set out to create a digital dashboard.

Goal/Objective

Create a real time digital pharmacy dashboard of key performance indicators with aims to:

- Simplify data collection for analysis
- Improve data visualisation for better tracking
- Allow prompt implementation of counter measures if needed

Problem Analysis

- Gemba walk was done to identify areas of waste and pain points in monitoring of KPIs (Fig. 2)

Extra processing	Defect	Unused talent
<ul style="list-style-type: none"> Transcribing data from manual charts to excel files Manual computation of reportable KPIs 	<ul style="list-style-type: none"> Unavailability of real time data Data not easily accessible (saved on designated desktop) 	<ul style="list-style-type: none"> Time saved could be used to handle other pharmacy processes

Figure 2: Areas of waste identified during Gemba walk

- 5 Whys to depict root cause

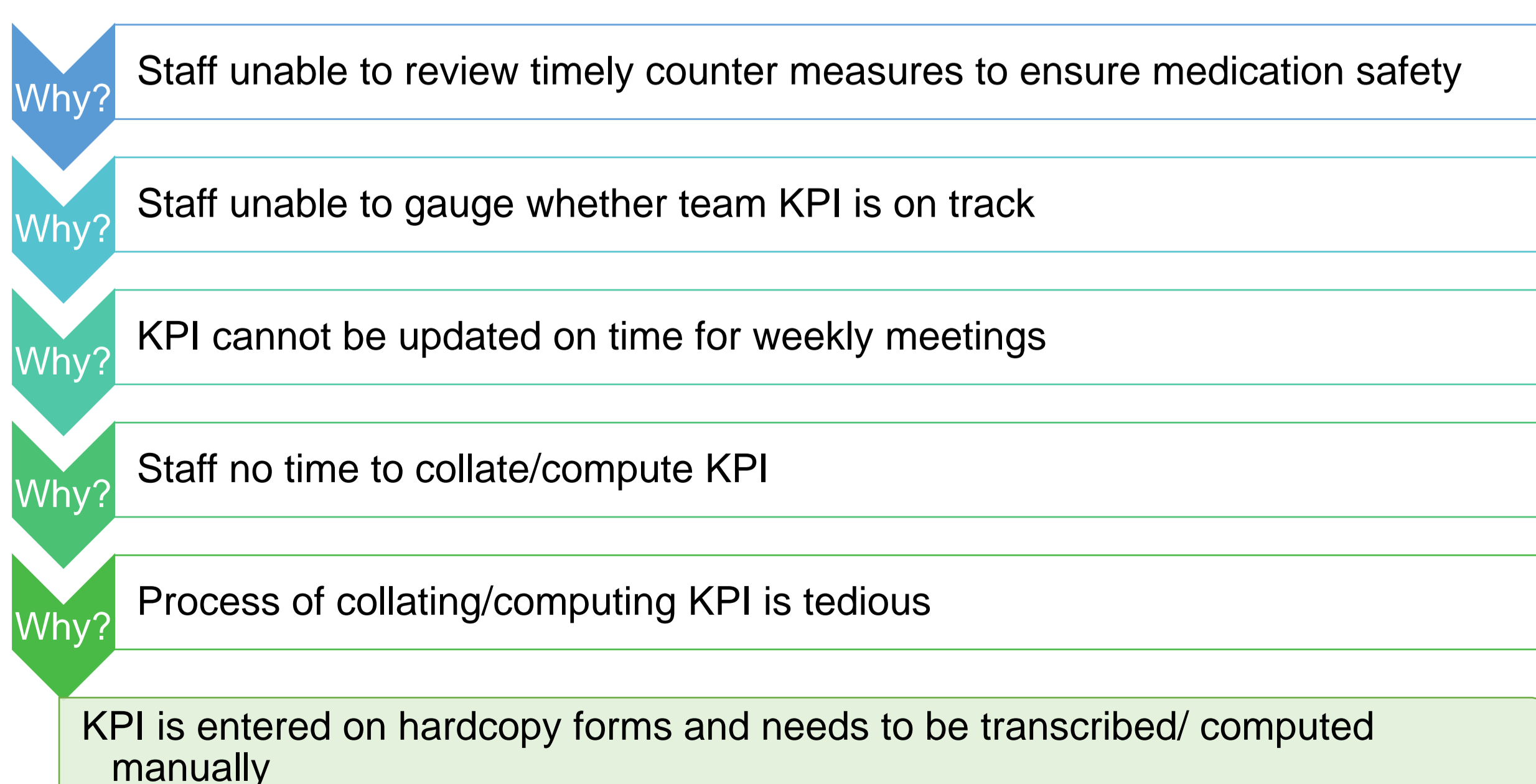


Figure 3: Chart showing 5 whys

Implementation Plan

- CC and DE are entered via Microsoft forms, accessed through scanning of printed QR code placed in the packing areas where errors are usually detected. (Fig. 3)
- Operational dashboard was created using Excel file to collate and generate relevant charts
- Monthly and year-to-date statistics were computed using preset excel formulas and presented as charts (Fig. 4).
- The dashboard was created using Excel file to collate and generate relevant graphs to improve visualisation.
- Pharmacy team reviews the KPIs during weekly team meeting.
- A survey was conducted on pharmacy staff to gather feedback on the dashboard.

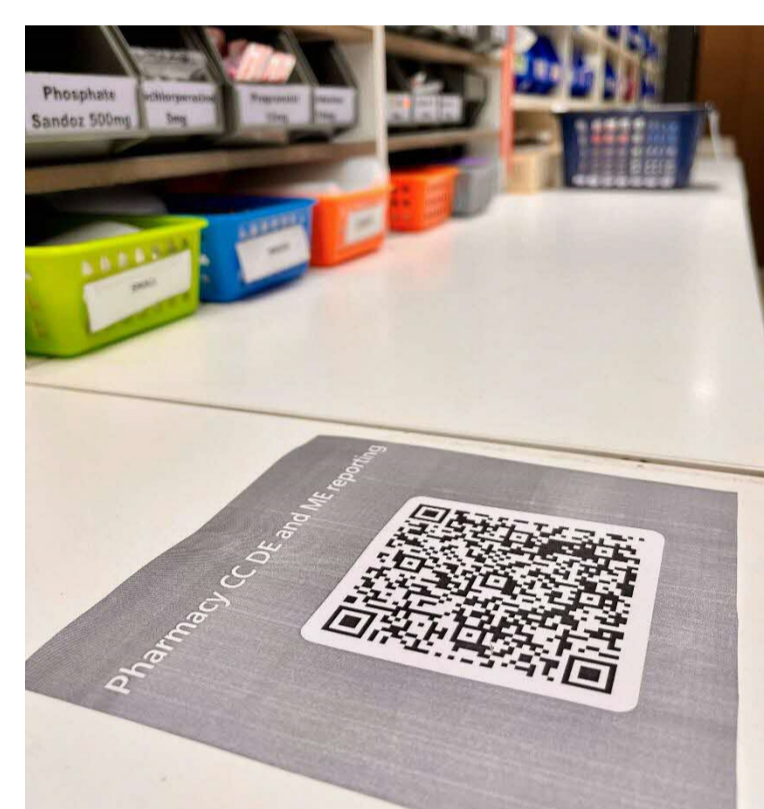


Fig 4: Picture showing placement of QR code with link to Microsoft forms for recording of CC and DE

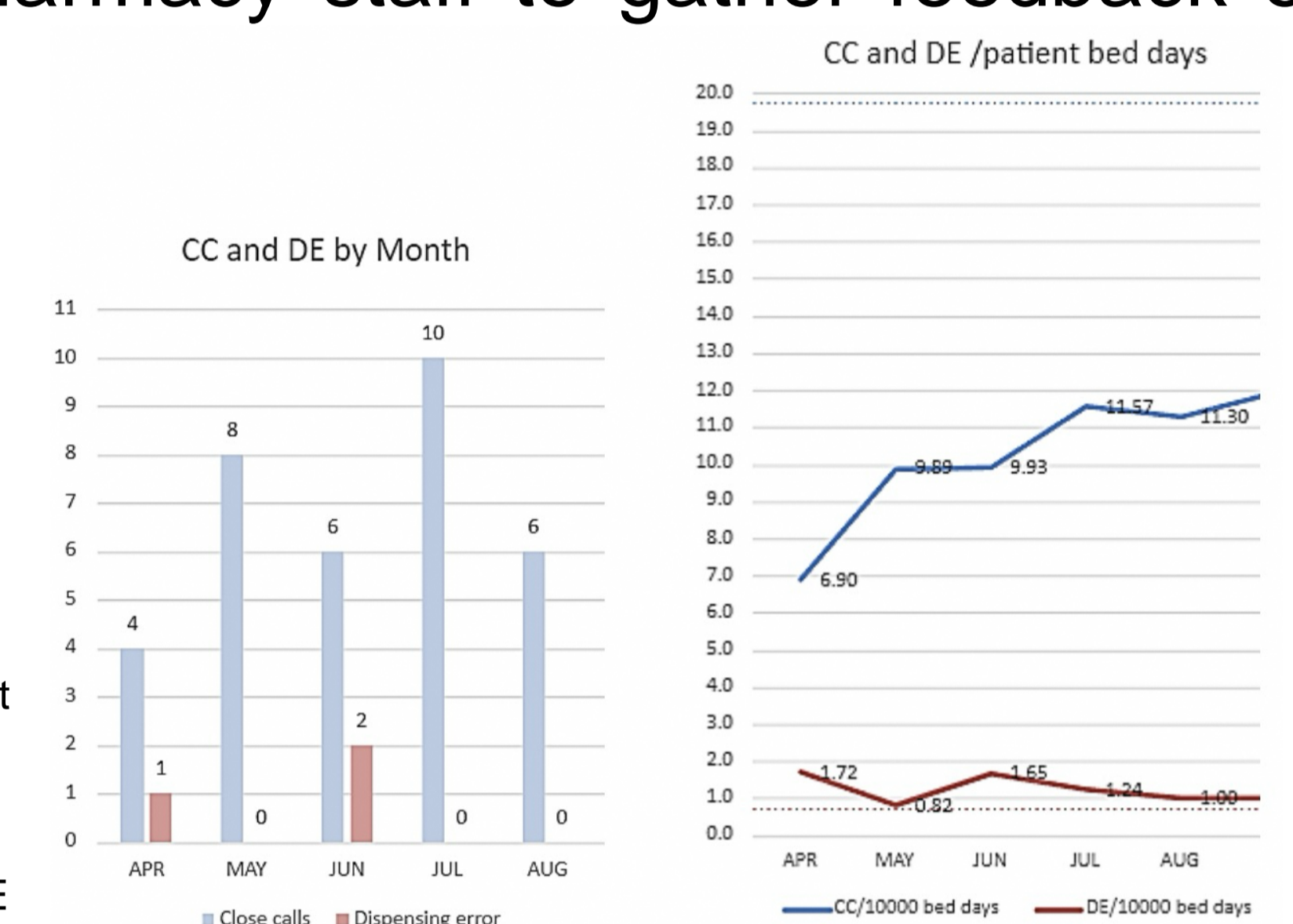


Fig 5: Screenshots of dashboard displaying CC and DE

Benefits/Results

- Reporting of CCs and DEs via QR code and Microsoft forms improves time efficiency and avoids risk of transcribing errors.
- Digital dashboard allows staff to customise and display their shared key performance indicators(KPI) in one platform.
- KPIs are now easily visible and are available real time. This allows the team to monitor and review existing pharmacy processes closely to improve medication safety.
- Dashboard has since been modified to include other pharmacy KPIs to better monitor progress.
- From a survey conducted, staff feedback that:

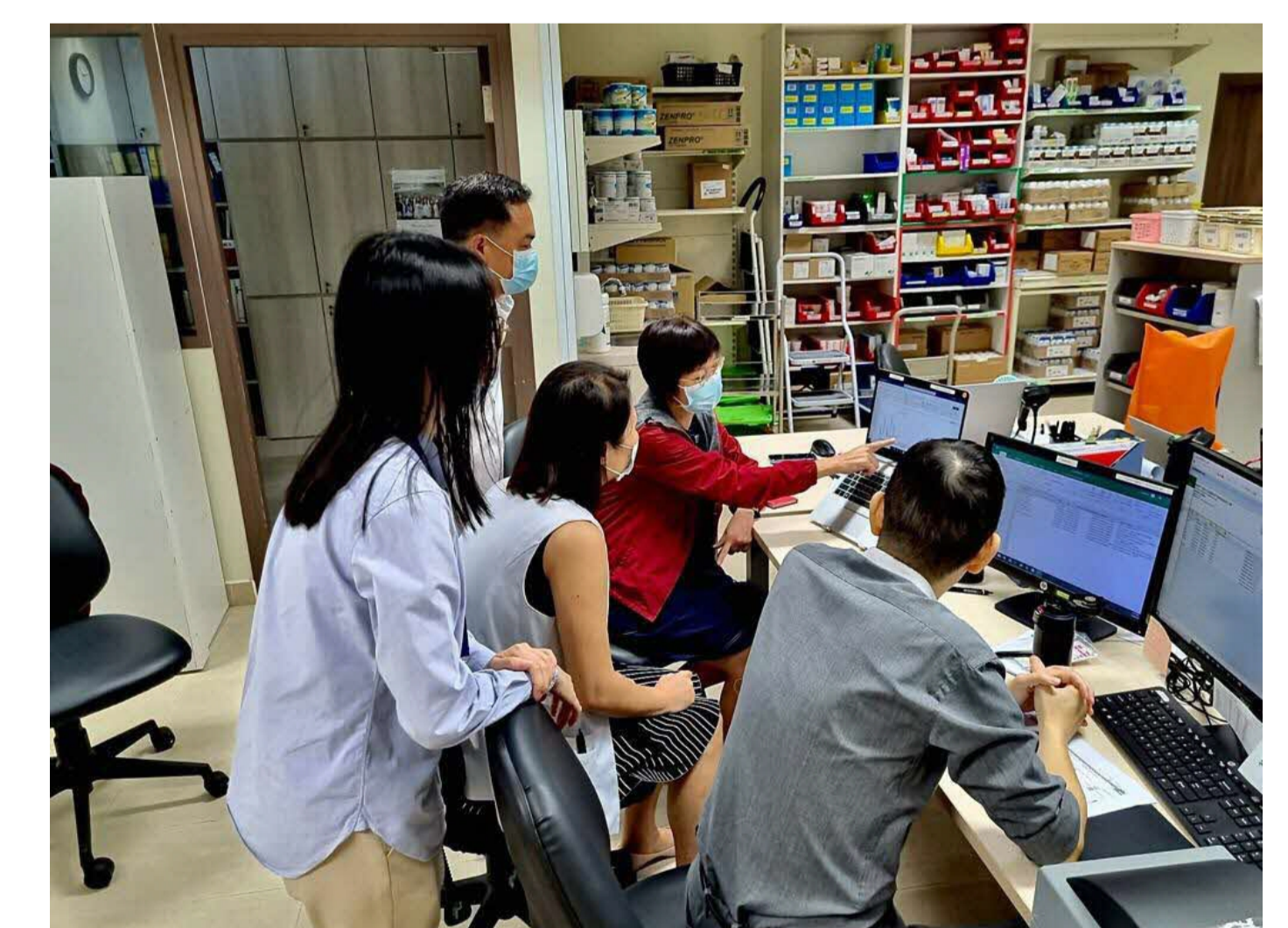
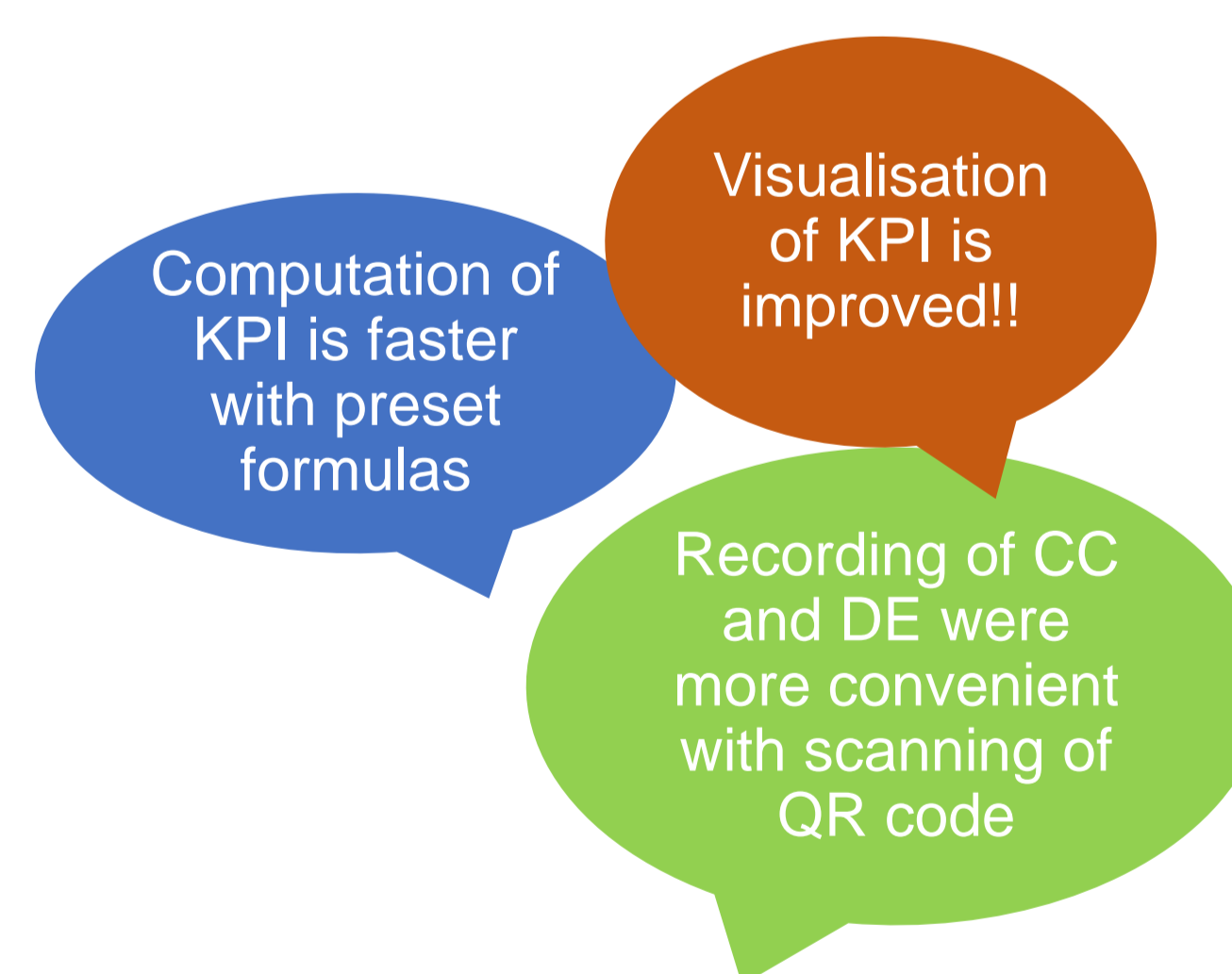


Figure 6: Picture of pharmacy team reviewing KPI on dashboard during weekly meeting

Sustainability & Reflections

- This project allows the team to constantly monitor and review existing pharmacy processes to provide safe delivery of medications and pharmaceutical care.
- It has also reduced the need for staff to manually input and compute the statistics, improving time efficiency.
- Excel file fields were protected where possible and workbook is backed up regularly to ensure integrity of data.
- Despite initiating this mid financial year, communication within the team on when digital dashboard is launched and how the data would be ported over was key to ensure that staff interprets the data correctly.