Project Title

Transforming the process of form creation to data entry

Project Lead and Members

Boey Theng Hiang (Team Lead)

Steven Liu

Goh Jian Wei

Maurya Satish Kumar Sheoshankar (RPA Engineer)

Espectacion Menardo Bayanggos (RPA Engineer)

Organisation(s) Involved

Tan Tock Seng Hospital

Healthcare Family Group(s) Involved in this Project

Pharmacy

Applicable Specialty or Discipline

Drug Management

Project Period

Start date: Sep 2022

Completed date: Jan 2023

Aims

Aimed for IT transformation to improve workflow efficiencies;

Use Robotic Process Automation (RPA) to enhance the process to:

- Reduce errors, complaints and near misses
- Improve efficiency and eventually achieve 0.5 Pharmacy Technician FTE avoidance

- Improve staff satisfaction on process and non-value adding activities

Background

See poster attached/ below

Methods

See poster attached/ below

Results

See poster attached/ below

Lessons Learnt

See poster attached/ below

Conclusion

See poster attached/ below

Project Category

Technology, Digitisation

Care & Process Redesign, Productivity, Manhour Saving, Time Saving

Keywords

Transcription Error, Error Avoidance

Name and Email of Project Contact Person(s)

Name: BOEY THENG HIANG

Email: Theng_Hiang_BOEY@ttsh.com.sg

ROAD TO AUTOMATION –
Transforming the process of form creation to data entry

<u>Boey Theng Hiang</u>, Steven Liu, Goh Jian Wei
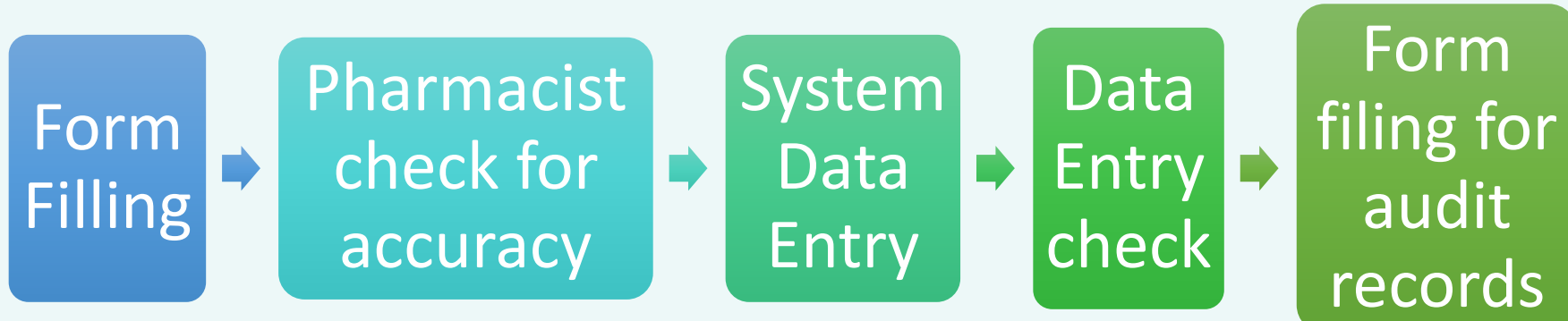Pharmacy Division, Tan Tock Seng Hospital

theng_hiang_boey@ttsh.com.sg

Tan Tock Seng HOSPITAL
National Healthcare Group

Problem Statement

TTSH Pharmacy Drug Setup Team manages the drug set up in several TTSH-based clinical and supply-chain systems (SAP, iPharm and Microsoft Access), for procurement and supply.

General Process workflow of code creation:

Form Filling → Pharmacist check for accuracy → System Data Entry → Data Entry check → Form filing for audit records

Key limitations of current Software and Hardware's and usage of manual handwritten forms results in inefficiencies from risk of transcription errors and a longer processing time. The problem worsened when alternative working arrangement were implemented during COVID.

Project Aim

The team **aimed for IT transformation** to improve workflow efficiencies and then use Robotic Process Automation (RPA) to enhance the process to:

- <u>Reduce</u> errors, complaints and near misses
- Improve efficiency and eventually achieve <u>0.5 Pharmacy Technician (PT) FTE avoidance</u>
- <u>Improve staff satisfaction</u> on process and non-value adding activities

Lessons Learnt

Process digitalization is **key to futureproofing** current changes and **providing opportunity** to introduce new software for growth. This requires extensive support from management for purchase of software and system change approval.

For sustainability, department would need to take initiative to train staff as in-house developers for the software. **Which lead(s) to:**

1. <u>Continuous development</u> of software for improved efficiency and patient safety.
2. <u>Strategic identification</u> of use cases and better assessment and implementation of procedures to ensure quality assurance.
3. <u>Internal sharing and teaching</u> of basic RPA coding for exposure and minor automation.

Potential Solutions

Workflow after implementation of various interventions:

Digitalization — **Step 1:** Fill e-form on Excel and save following recommended nomenclature.
Figure 1 Image of Excel e-form 1

PDF Conversion — **Step 2:** Save form as PDF, attach relevant documents and e-signature.
Figure 2 Image of features of PDF form

Shared Drive Usage — **Step 3:** Transfer form via shared drive for respective steps of approvals and data entry.
Figure 3 Image of Folder set-up in shared drive

Attended RPA — **Step 4:** After approvals, staff to run excel via RPA.
Figure 4 RPA Solution at a glance

Completion and Tracking — **Step 5:** Staff to sign off PDF and save file in completed folder.
Figure 5 Image of Completed Folder

Excel Tracker — Excel tracker used to track documents in folders.
Figure 6 Image of Excel Tracker

Outcomes & Impacts

Process digitalization changes measured after 6 months showed improvement of:

- **32%** decrease in errors for Drug Master & Pricing
- **0** data entry related complaints, errors and near misses
- **40%** improvement of stress on staff perception poll
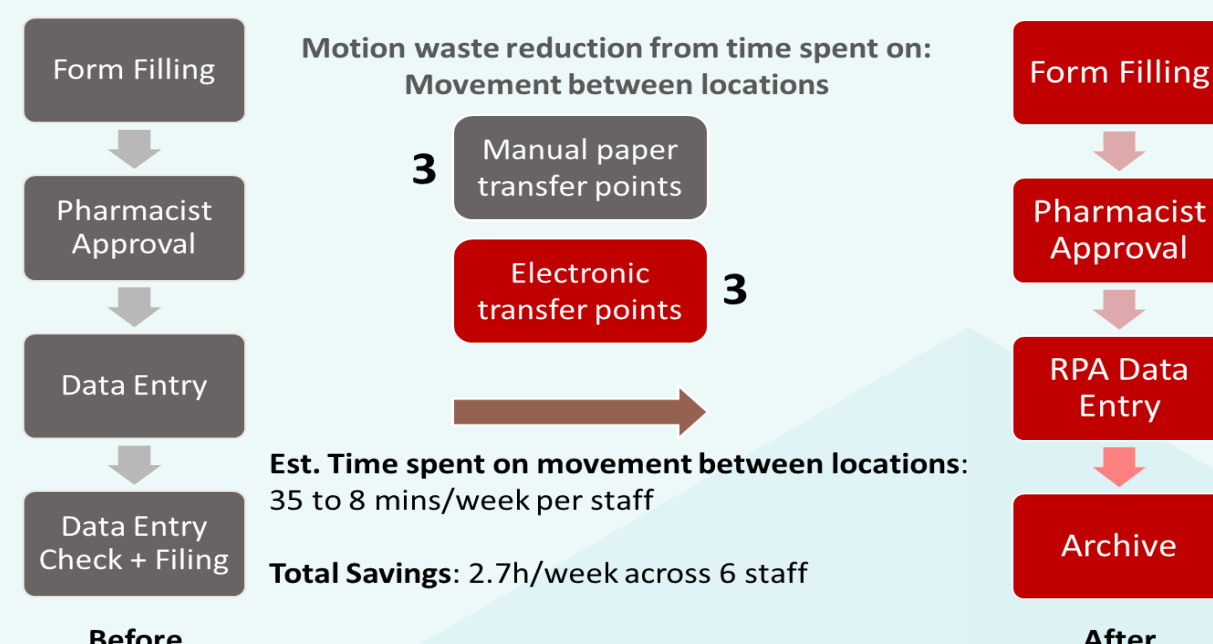- **77%** motion waste reduction

Figure 8 Diagram description of reduction in motion waste from time spent on movement

RPA implementation resulted in:

- **95%** reduction in manual effort and improvement in processing time (From est. 41 mins to 2 mins)
- **100%** avoidance in data entry error
- Total time saved for 6 recurrent use cases to date: **608.2h/year** (PT FTE Avoidance: **0.31**)
- Time saved for 5 once off use case: **~18.5 hrs**