

Project Title

TTSH Pharmacy RPA Billing: Transforming Billing Process with Robotic Process Automation (RPA)

Project Lead and Members

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Organisation(s) Involved

Tan Tock Seng Hospital

Healthcare Family Group(s) Involved in this Project

Pharmacy, Healthcare Administration

Applicable Specialty or Discipline

Digital & Smart Health Office

Project Period

Start date: Jan 2023

Completed date: May 2023

Aims

To improve workflow efficiencies, reduce repetitive work which enables:

- To provide a seamless billing experience for the patient by engaging in higher value added work
- Improve efficiency and saved 0.5 Pharmacist FTE
- Improved billing turnaround time
- Improve staff satisfaction by reducing 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

Care & Process Redesign

Quality Improvement, Workflow Redesign, Productivity, Cost Saving, Manhour Saving, Time Saving

Technology, Digitalisation

Keywords

Billing Experience, Robotic Process Automation

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TTSH Pharmacy RPA Billing

Transforming Billing Process with Robotic Process Automation (RPA)

Project team:

Teng Chew Ping (Team Lead), Wong Jia Xin, Vanessa Phang Yi Xuan, Grace Ho Zi Qian, Josephine Seow Hui En

RPA engineer: Maurya Satish Kumar Sheoshankar, Espectacion Menardo Bayanggos

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Problem Statement

TTSH Outpatient Pharmacy performs billing which is labour intensive, complex, repetitive and it requires toggling between 4 systems (i.e. SAP, iPharm, EPIC, SSRS). With the implementation of EPIC in Aug 2022, additional **20 steps** are required for each billing case. Thus creation of an encounter in EPIC are required before processing in SAP and iPharm.

It takes an average of **7.5 minutes** to process each billing case with an average of **690** daily billing workload.

Pharmacy Billing Workflow:



Challenge:

- RPA unable to access EPIC; additional potential time savings of 4 minutes if able to.

Project Aim

With the adoption of Robotic Process Automation (RPA), the Pharmacy team aims to improve workflow efficiencies, reduce repetitive work which enables:

- To provide a **seamless billing experience for the patient** by engaging in higher value added work.
- Improve efficiency and saved **0.5 Pharmacist FTE**.
- Improved billing **turnaround time**.
- Improve staff satisfaction** by reducing non-value adding activities

Lessons Learnt

Extensive support are required from the RPA engineers and the Pharmacy team for capturing the current billing process for development of RPA as well as administrative, logistic and project management support.

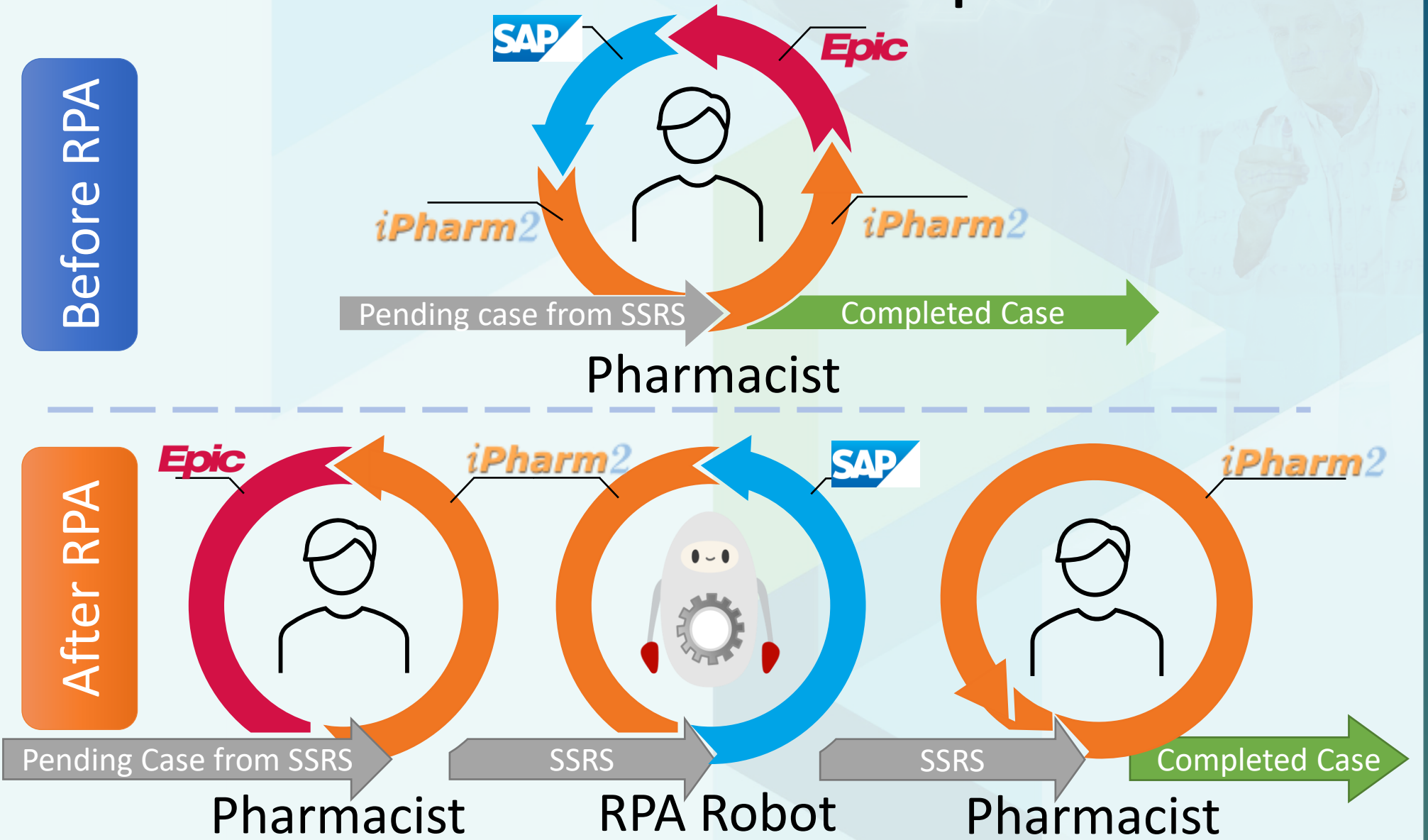
For sustainability, the department would need to train their staff as citizen developers for long term maintenance and enhancement of the current RPA processes.

Which leads to:

- Continuous enhancement to strategically identify use cases for RPA robot to automate data entry and billing processes.
- Internal sharing of training RPA robot and basic RPA coding for exposure and minor automation.

Potential Solutions

Workflow: Before RPA and After RPA implementation:



RPA robot automates the middle billing process, allowing the team to take on higher value added work.

RPA in action

- Pharmacist creates an encounter in EPIC, update iPharm basket number to "RPA" and the RPA robot will start processing the case.
- After completing the case, the RPA robot would update the iPharm basket number as "RPA_Comp" to inform pharmacist of the completion.

Outcomes & Impacts

Adoption of RPA measured after 1 year showed improvement for the following:

- Partial automation of pharmacy billing process
- Improved patient wait time for payment
- Improved data accuracy
- Reduction of stress on staff based on perception poll

Implementation of RPA resulted in:

- Automation of **50%** of billing process
- 36%** of total billing workload relieved by RPA
- 100%** avoidance in data entry error
- Time saved for 1 use case: Relieved **3mins** of staff time
- Time saved per year: **1,310 hours**
- Estimated up to **\$54,627 productivity savings per year**
- Pharmacist FTE Saved: **0.5**

Scale up plan:

- The team is working on phase 3 to automate billing for Medication Delivery (MD), potentially saving up to **2,096 hours** and estimated **\$87,403 productivity savings** per year.