

Project Title

Transforming Charging of Services and Treatments Rendered in Inpatient Wards

Project Lead and Members

Project Leads:

- A/Prof Tracy Carol Ayre, Group Chief Nurse, SingHealth
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- Mr Xu Wei, Systems Analyst, IHiS

Organisation(s) Involved

Singapore Health Services

Healthcare Family Group(s) Involved in this Project

Nursing, Healthcare Administration

Applicable Specialty or Discipline

Information Technology

Aims

To redesign the ordering process, and charging of services and treatments rendered to patients in inpatient wards.

To (i) enhance patient safety, (ii) improve nursing productivity, and (iii) harmonise charging across institutions.

Background

See poster appended/ below

Methods

See poster appended/ below

Results

See poster appended/ below

Lessons Learnt

Having rolled out to all institutions, we had a post implementation review with the institutions. Some points for improvement if we were to start over again, would be to:

1. A longer UAT period should be considered and held in collaboration for projects with the various groups of stakeholders.
2. To consider the unique set ups of institutions before projects, to mitigate risk of systems being affected e.g. SAP logic flow.

Conclusion

See poster appended/ below

Additional Information

CGH was the first site to pilot electronic charging for Nursing procedures in 2019. Based on CGH's experience, it was decided to implement this project for the rest of the SingHealth institutions with some customisations required. Phase 1 has been completed for all institutions as it is a cluster project. This rollout involved KKH, SKH, SKCH, OCH, SGH and NHCS. The Phase 1 was for procedures for Nurses and Allied Health Professionals.

The project team is currently working on Phase 2 of the project which involves doctors' procedures performed in the wards. Upon saving documentation of procedure done, the system will automatically trigger a charge form. The expected rollout for Phase 2 will be end 2023.

Project Category

Technology

Product Development, Prototyping Resources

Keywords

Electronic Charge Interphase, Capturing Ward Procedures Done, Time Saving

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Transforming Charging of Services and Treatments Rendered in Inpatient Wards

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INTRODUCTION

This project is a cluster-wide initiative to redesign the ordering process, and charging of services and treatments rendered to patients in inpatient wards.

Currently, doctors place orders for ward procedures by documenting in the clinical notes. Orders written in the clinical notes may be missed out or repeated, resulting in a potential patient safety. Nurses and Allied Health Professionals are also required to indicate the procedures/consumables that have been performed/used on hardcopy charge forms. These charge forms are then collated by ward clerks or Business Office clerks to perform manual service entry into the SAP billing system.

Through this project, an electronic charge interface between SCM and SAP-ISH enables the system to charge patients automatically for treatment services rendered in inpatient wards by Nurses and Allied Health Professionals.

OBJECTIVES

The Project has 4 key objectives:

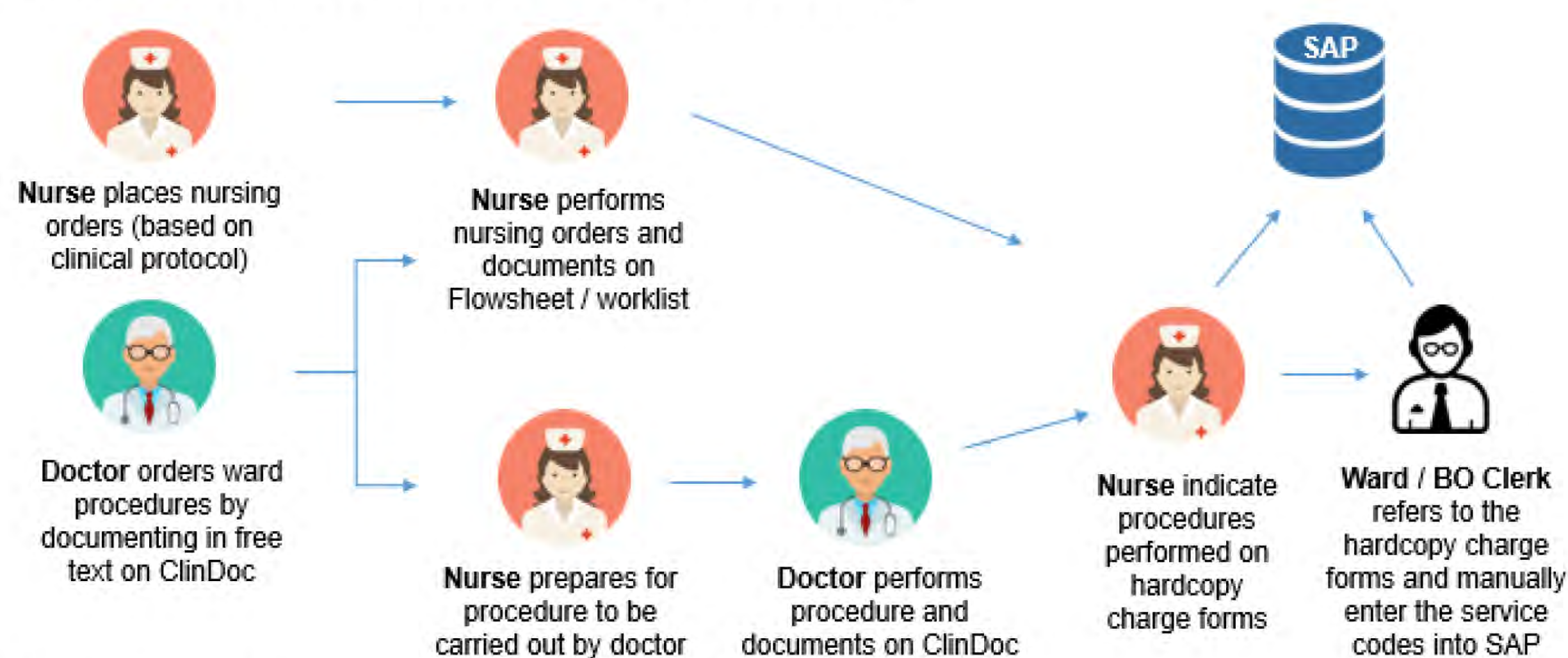
1. **Enhance patient safety** through the capturing of ward procedures as CPOE where the ordering and performing of treatment plans and orders are well-documented
2. **Improve nursing productivity** through the creation of nursing bundles and the implementation of the charge interface between SCM and SAP-ISH
3. **Facilitate cluster-wide harmonisation of charging** to achieve greater integration and operational efficiencies
4. **Reduce business office / ward clerk's workload** as they are no longer required to perform manual service entry of service codes.

METHODOLOGY

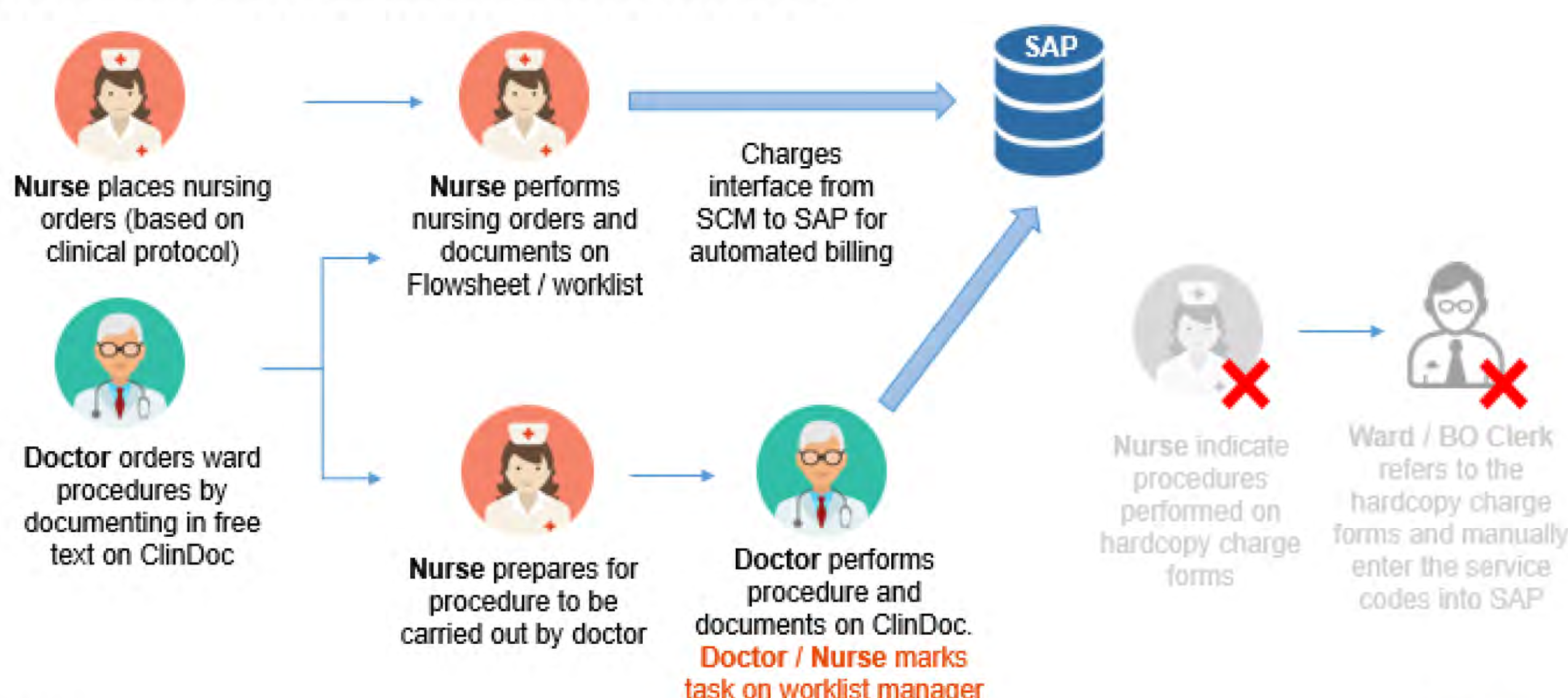
The multidisciplinary project team comprising Nurses, Allied Health Professionals, Business Office, Finance and IHIS colleagues went through various iterations before proceeding with configuration and development of the system. Multiple discussions were held to review and harmonize charge codes across the cluster. Institutions worked internally as well to create and group service charge codes which allows for more efficient billing. The team also conducted daily debrief sessions after every roll out and ensured that support was given after go-live. Monthly check-ins with users were done to refine solutions with the institutions.

The personnel from Business Office and Finance also worked closely with Nurses to run daily reports, to ensure that patients are accurately billed and procedures are properly recorded in a seamless manner.

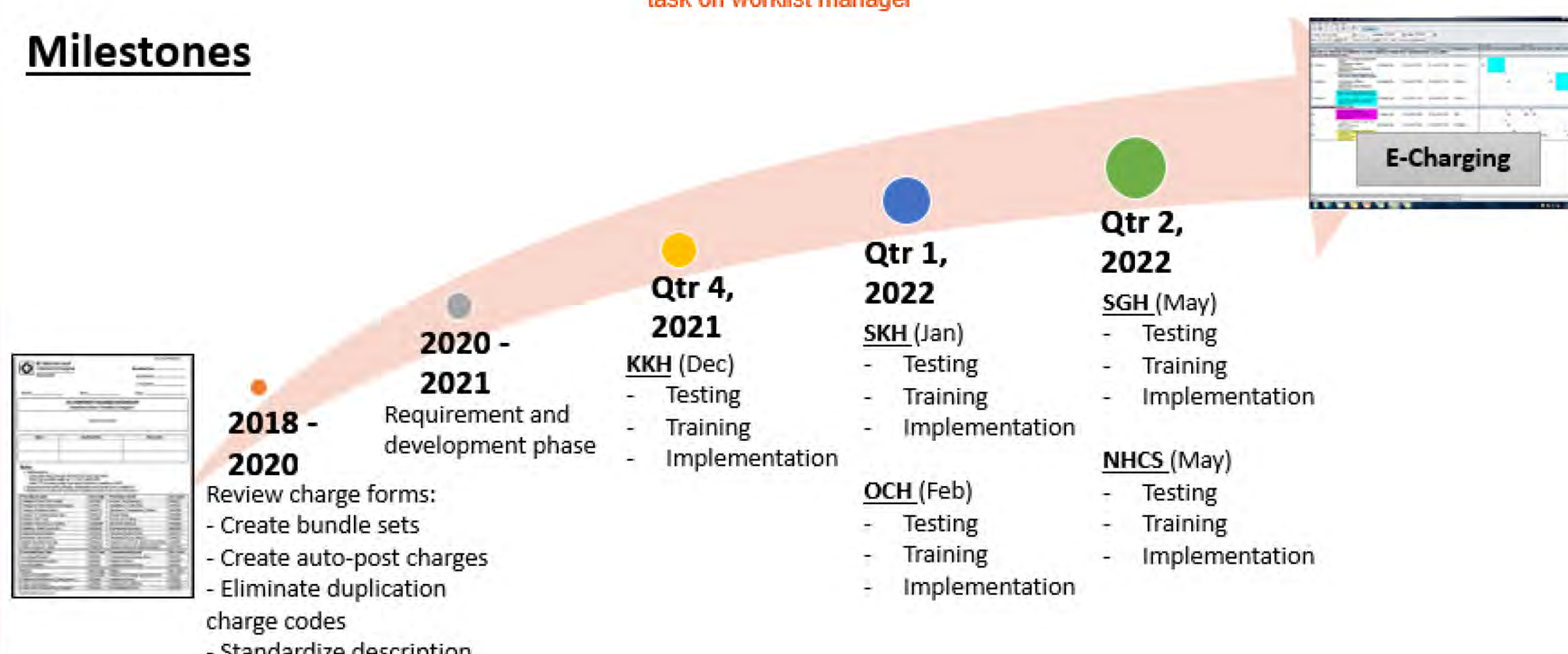
Before Implementation Workflow



After Implementation Workflow



Milestones



RESULTS

The solution is projected to reduce the time spent by Nurses and Non-Nursing staff to indicate services/ consumables rendered on hardcopy charge forms.

Institution	Estimated FTE savings (Nurses)	Estimated FTE savings (Non-Nursing Staff)	Total Estimated FTE savings
SGH	5.24	6.29	11.54
KKH	4.86	5.95	10.81
NHCS	0.22	0.00	0.22

Notes:

- *We use 2018 figures as an indication of cases Pre-Covid19
- We refer to Non-Nursing staff (e.g. Business Office / Finance staff) as colleagues who record service entries for billing
- Assuming each inpatient case requires an average of 3 paper forms to record services rendered
- Time taken to fill hardcopy form is the cumulative time taken by nurses over 3 shifts / month
- NHCS' Non-Nursing staff uses CVIS system for billing and do not use hardcopy forms
- Did not include SKH and SCH figures as SKH only commenced operations in July 2018, and SCH only opened in 2019

With the time savings, nurses are able to:

- **focus on their core clinical duties**
- **redesign their work responsibilities**
- **alleviate manpower constraints**
- **boost staff satisfaction through focusing on direct patient care or more value-added tasks and activities**

This project has also eliminated the need for clerks to perform manual service entry of service codes into the SAP platform for charging to be done. They could be redeployed to focus on higher value-added activities. Increase in accuracy of billing and error rate with digitalization of services in the wards.

The project team will conduct time motion studies to measure real time impact of the implemented solution 6 months after project roll out.

CONCLUSION

Transforming the way charging is done for services and treatments rendered in the wards, has facilitated **cluster wide harmonisation** of service codes. Through this project, **patient safety is also enhanced** as the proposed solution ensures that CPOE orders are listed in a structured format and are carried out and followed up by nurses **accurately and timely**, thereby reducing potential lapses in patient safety when patient orders are missed out. The **accuracy of billing** is also improved, with **error rates of charging significantly reduced** through this solution.

We are currently working on Phase 2 of the project, involving Doctors' procedures performed in the wards. Upon saving documentation of procedure done, the system will automatically trigger a charge form. We aim to roll out next year.

We would like to acknowledge efforts put in from our colleagues in Nursing, Allied Health, Business Office, Finance, Office for Service Transformation and IHIS to roll out this project. We would also like to thank SingHealth's Senior Management for their support, and Smart Nursing Ward Programme for funding this project.