



Singapore Healthcare Management 2017

Surveillance System Setup in Oncology Pharmacy Compounding Cleanroom to Facilitate Checking of Chemotherapy Preparation



National Cancer Centre Singapore
SingHealth

Lew Kaung Yuan¹, Ang Wei Chang¹, Peter Huang², Christopher Lim³, Germaine Lim⁴, Lita Chew¹

¹Department of Pharmacy

²Department of Cancer Informatics

³Institutional Risk Management Department

⁴Quality Development & Management Department

INTRODUCTION

The Oncology Pharmacy at National Cancer Centre Singapore prepares around 4500 chemotherapy preparations monthly in the cleanroom. Preparation of chemotherapy involves multiple processes; each carries potential risk for errors.

In May 2015, Failure Mode and Effects Analysis (FMEA) was carried out to identify potential failures in our chemotherapy preparation process.

FMEA has identified the following as potential critical failure modes:

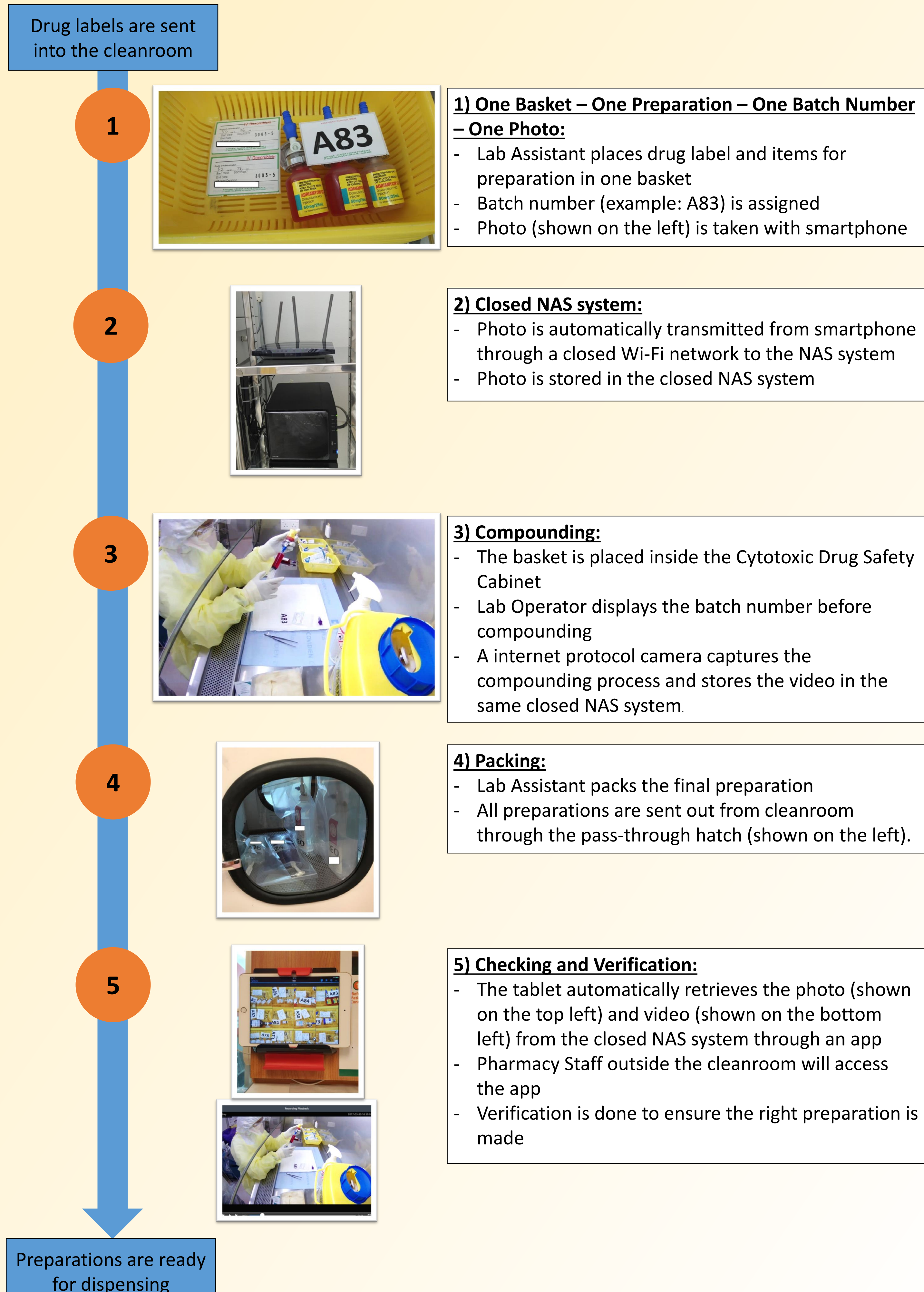
- 1) Failure to check diluent, dose and drug volume on label before compounding
- 2) Wrong drug picked and used for compounding
- 3) Wrong drug volume used during compounding process

Objectives:

- To explore the feasibility of using photography, videography and a closed network-attached storage (NAS) system to set up a surveillance system to monitor the chemotherapy preparation process and to verify the compounded drugs.
- To employ this surveillance system to mitigate potential critical failure modes in chemotherapy preparation process
- To determine whether pharmacy waiting time (our key performance indicator (KPI) is below 60 minutes) is affected by the additional steps required in the chemotherapy preparation process using the surveillance system

METHODOLOGY

Chemotherapy preparation process using surveillance system:

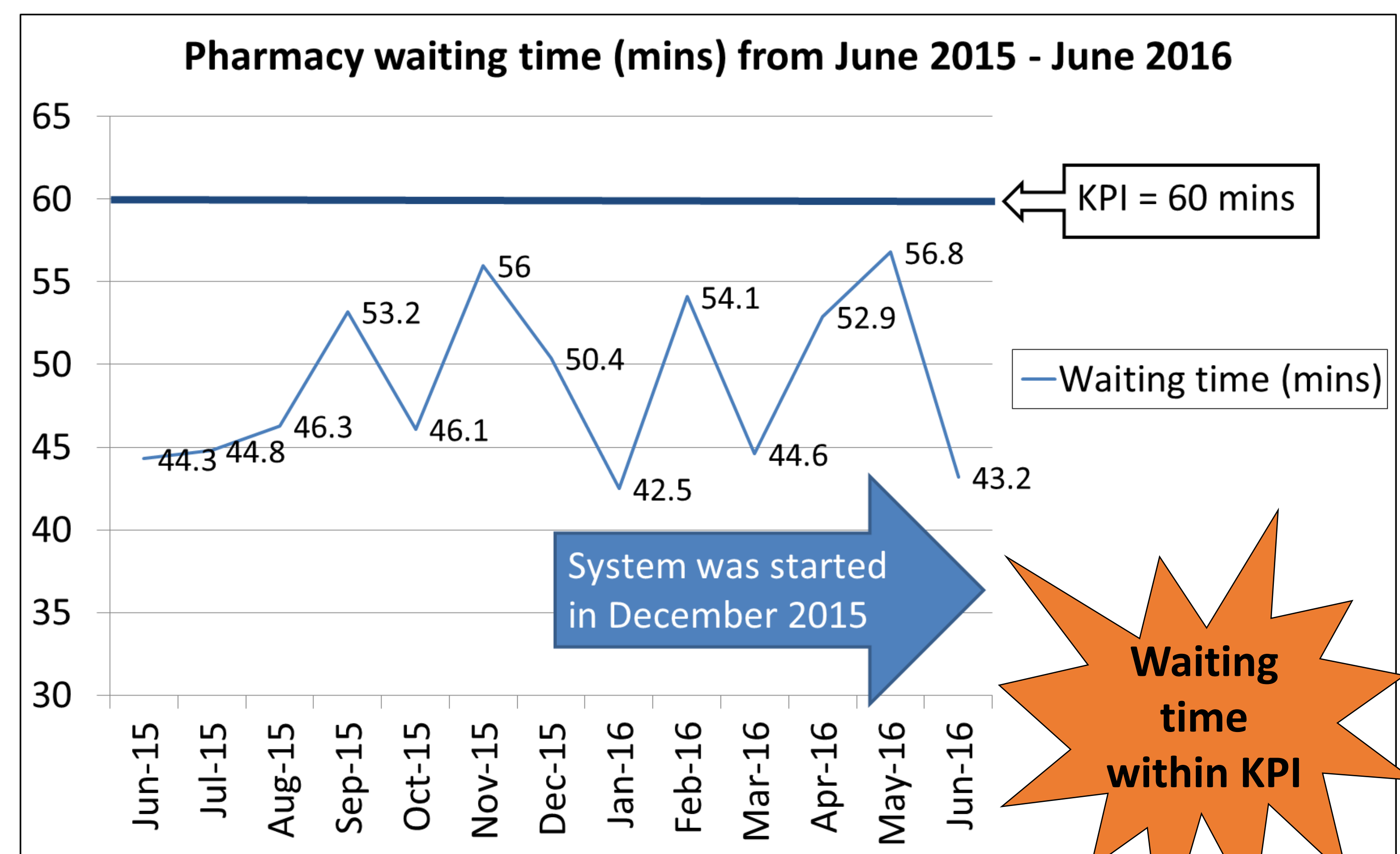
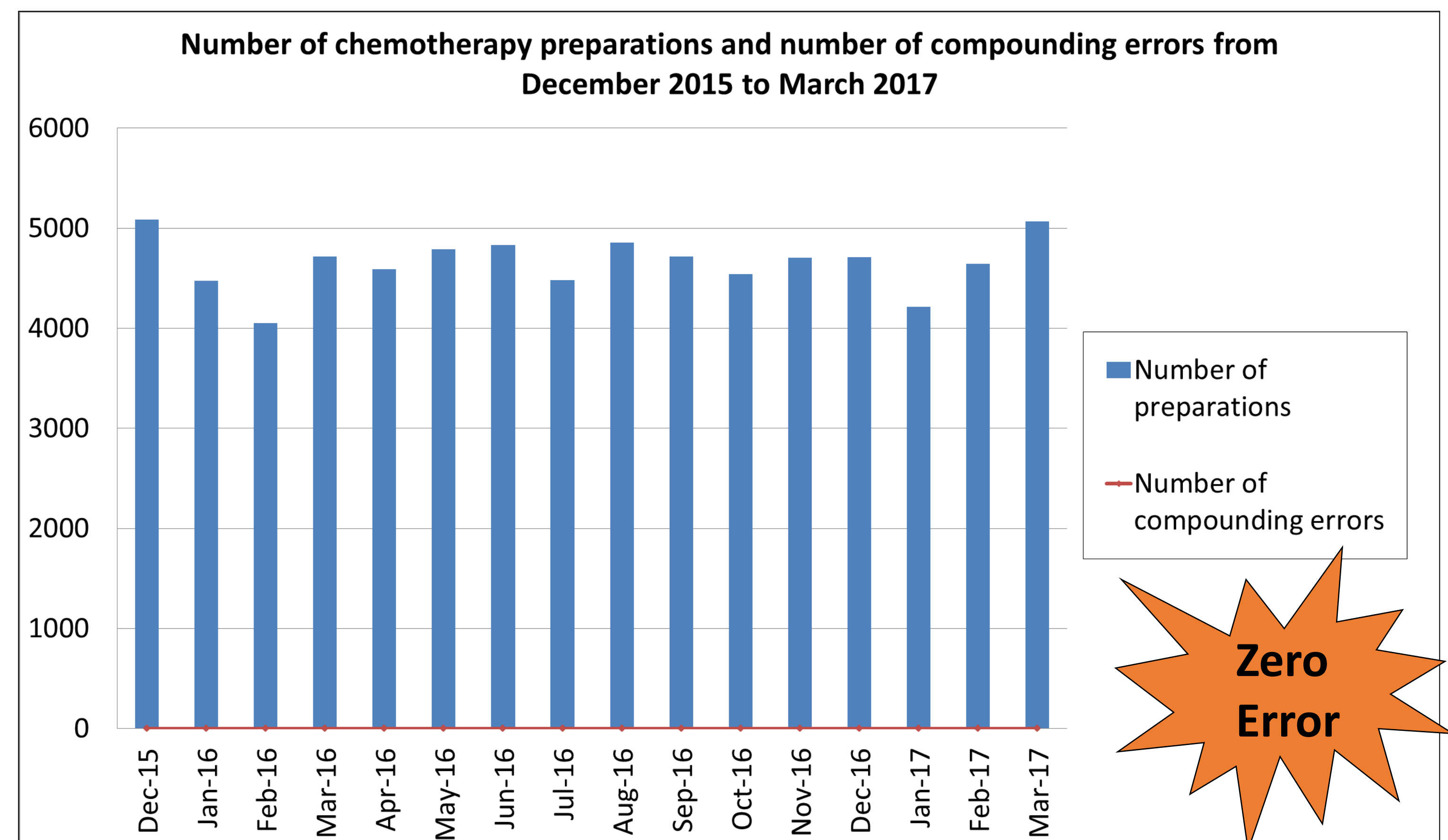


Monitoring the impact of the surveillance system:

- Track number of incident reports related to compounding error of chemotherapy
- Track pharmacy waiting time 6 months before and after implementation of the surveillance system

RESULTS

- The surveillance system utilising videography, photography and a closed NAS system was successfully implemented on 7 November 2015 and fully operational from 1 December 2015.
- A total of 74,512 preparations were verified from 1 December 2015 to 31 March 2017.



KPI – Key Performance Indicator

CONCLUSION

- The surveillance system is successfully implemented to help in the verification of chemotherapy preparation.
- This system provides quality assurance for the compounded drugs, and is useful in mitigating the risk of patients receiving wrong dose or wrong drug due to compounding error in the cleanroom.
- There is zero incident report related to compounding error of chemotherapy since the implementation of the system.
- Additional steps required to operate the surveillance system did not compromise pharmacy waiting time.

ACKNOWLEDGEMENT

The following NCCS personnel: Ms Santhi Kulanthaivelu, Ms Nurhairati Binte Hj Hussin, Mr Jonathan Ang, Ms Nadhirah Bte Md Yassin, Ms Nur Hafifah Bte Mohshin and all the Oncology Pharmacy staffs for their participation and contributions to the project.