

Project Title

A Continuous Quality Improvement Project Using SEIPS Model to Reduce Medication Error in Outpatient Pharmacy

Project Lead and Members

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Organisation(s) Involved

National Cancer Centre Singapore

Healthcare Family Group Involved in this Project

Pharmacy, Healthcare Administration

Specialty or Discipline

Quality Development and Management, Institutional Risk Management

Project Period

Start date: Aug 2017

Aims

To reduce the average number of Actual Medication Errors per month at Specialist Outpatient Clinic Pharmacy from 1.29 to 0.65 within the next 12 months

Background

See poster appended / below

Methods

See poster appended / below

Results

See poster appended / below

Lessons Learnt

See poster appended / below

Conclusion

See poster appended / below

Additional Information

Singapore Healthcare Management (SHM) Conference 2018 – Shortlisted Project (Risk Management Category)

Project Category

Care & Process Redesign, Quality Improvement, Workflow Redesign, Risk Management, Adverse Outcome Reduction

Keywords

Risk Mitigation, Pharmacy Review Service, Systems Engineering Initiative for Patient Safety Model

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Singapore Healthcare Management 2018



National Cancer
Centre Singapore
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INTRODUCTION

The risk level of medication error at outpatient pharmacy has increased from 12 (in 2016) to 16 (in 2017). Medication errors can impact treatment outcome, unnecessary hospital stay and financial burden. A Quality Improvement team has been formed with the aim of reducing incidences of medication errors at the outpatient pharmacy. This QI project is worth solving as it will enhance patient safety aspect in NCCS SOC Pharmacy.

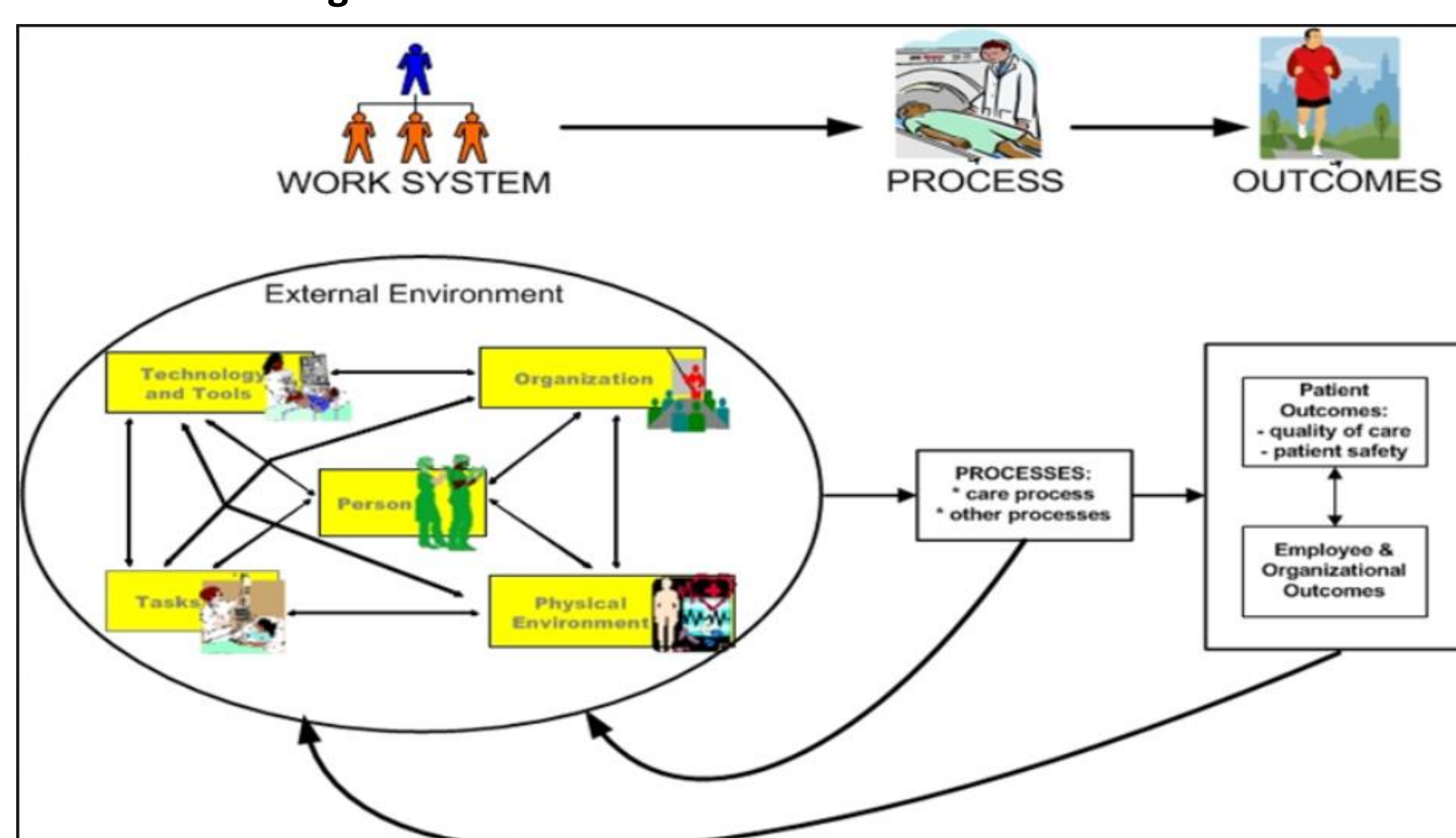
OBJECTIVES

Our project aimed to reduce the average number of Actual Medication Errors per month at SOC Pharmacy from 1.29 to 0.65 within the next 12 months.

METHODOLOGY & ANALYSIS

The QI team applied SEIPS (Systems Engineering Initiative for Patient Safety) Model and aimed to reduce the average number of Actual Medication Errors per month at SOC Pharmacy from 1.29 to 0.65 within the next 12 months.

SEIPS Model Diagram



There were a total of 9 actual medication errors from Jan 2017 to Jul 2017. By applying SEIPS Model, the QI team had identified the work system elements involved in these events.

Gaps related to SOC Pharmacy's typing, picking/packing & dispensing process had been identified by the QI team in 8 out of 9 medication errors including,

- Task - The work interaction between picker/packer & dispenser (5 cases)
 - Person - Inexperienced packer (3 cases)
 - Training - Inexperienced packer (3 cases)
 - Task - Dispenser did not read drug name to match prescription order (5 cases)
 - Task - Picker/Packer did not follow bin number while packing (3 cases)
 - Training - Dispenser was a newly qualified pharmacist (1 case)
- Task - Processes of transcribing of hard copy of prescription orders to Max Care orders (2 cases)
 - 1 case of wrong drug name
 - 1 case of wrong strength
- Technology – No common platform for Pharmacy Review Service pharmacist from Ambulatory Treatment Unit (ATU) or Oncology Pharmacy to document his/her intervention so as to inform SOC Pharmacy (1 case)

The other remaining medication error (1 case) was related to illegibility of doctor's prescription order which the QI team agreed to continue monitor the frequency of the occurrence.

RISK MITIGATION STRATEGIES

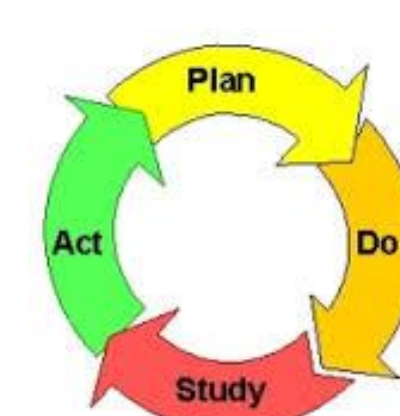
The team has identified the risks of patients being given and/or ingesting unintended or wrong drug/strength/formulation/dosage/instruction due to:

- i. Interruptions at dispensing counter by staffs, patients, students and phone calls.
- ii. Peak hour rush.
- iii. Incomplete upstream processes which disrupt downstream processes such as
 - ✓ Particular formulation of the drug being prescribed but not kept in pharmacy, resulting in staff dispensing same drug but of different formulation. This can be a result of prescriber unaware of drug formulary or pharmacy staff making assumptions and not checking with the prescriber.
 - ✓ Prescriber selecting wrong drug strength etc, hence wrong strength being dispensed.
- iv. Increasing number of oral cancer treatment drugs requiring specialized counselling and monitoring.
- v. Lack of experienced staff to man picking/packing area whole day.

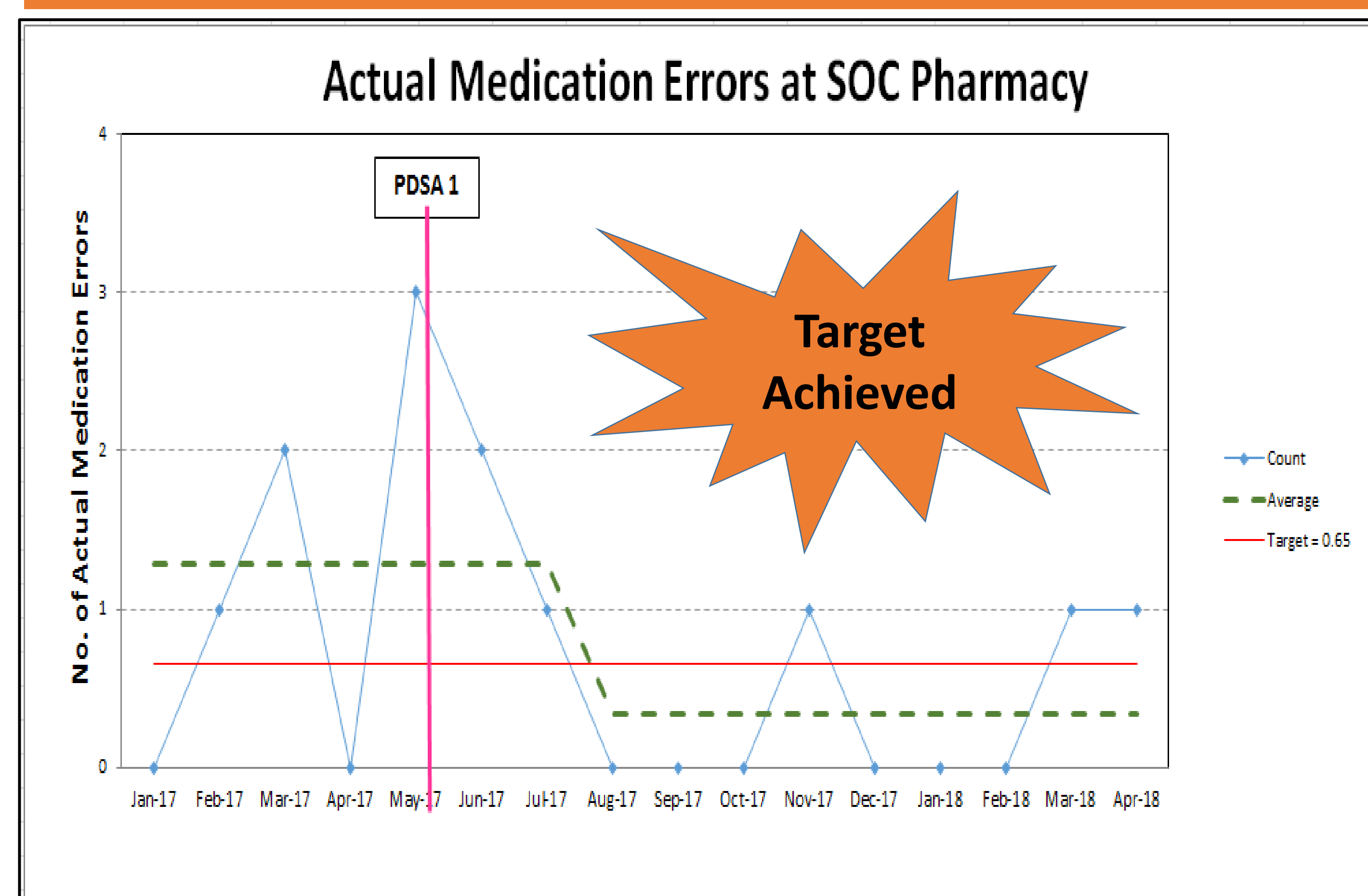
PDSA 1 (Aug 2017)

The team applied the following strategies to mitigate the identified risks.

- ✓ Task (the work interaction between picker/packer and dispenser) - Physical checking of drugs is introduced at a new counter (after picking / packing) to check the typing and picking / packing accuracy.
- ✓ Documentation of Pharm review information in Maxcare.



RESULTS



With enhanced strategies implemented through 1 PDSA cycle (2 interventions), the average number of Actual Medication Errors per month at SOC Pharmacy has reduced from 1.29 (baseline) to 0.33 (From Aug 2017 to Apr 2018). The team has met the target of 0.65 and will continue monitoring for sustainability.

CONCLUSION

By applying SEIPS Model, the QI team has identified work system elements involved in error events. The team has demonstrated sustainable improvements in the risk level of medication errors at outpatient pharmacy which can impact treatment outcome, unnecessary hospital stay and financial burden. The team has successfully enhanced patient safety aspect in NCCS SOC Pharmacy.

ACKNOWLEDGEMENT

Our gratitude and appreciation to all the NCCS SOC Pharmacy staff and Quality Development & Management staff for their participation and contributions to the QI project.