



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

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Chang Yok Ying¹, Shamilah Binte Noor Mohamad¹, Joen Chiang¹,
Alex Ong², Christopher Lim³, Lita Chew¹
¹Department of Pharmacy
²Quality Development & Management Department
³Institutional Risk Management Department

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.

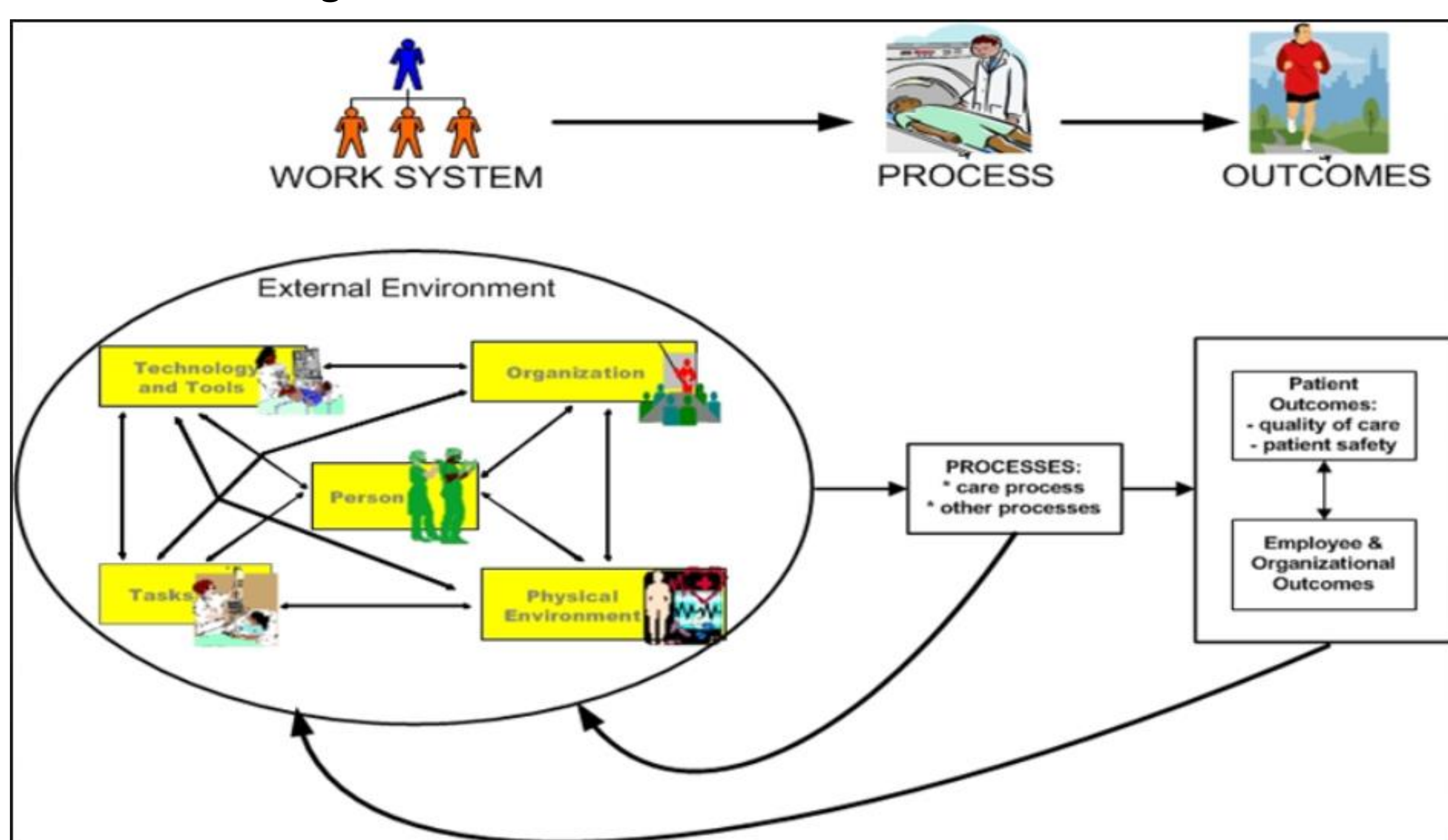
OBJECTIVES

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.

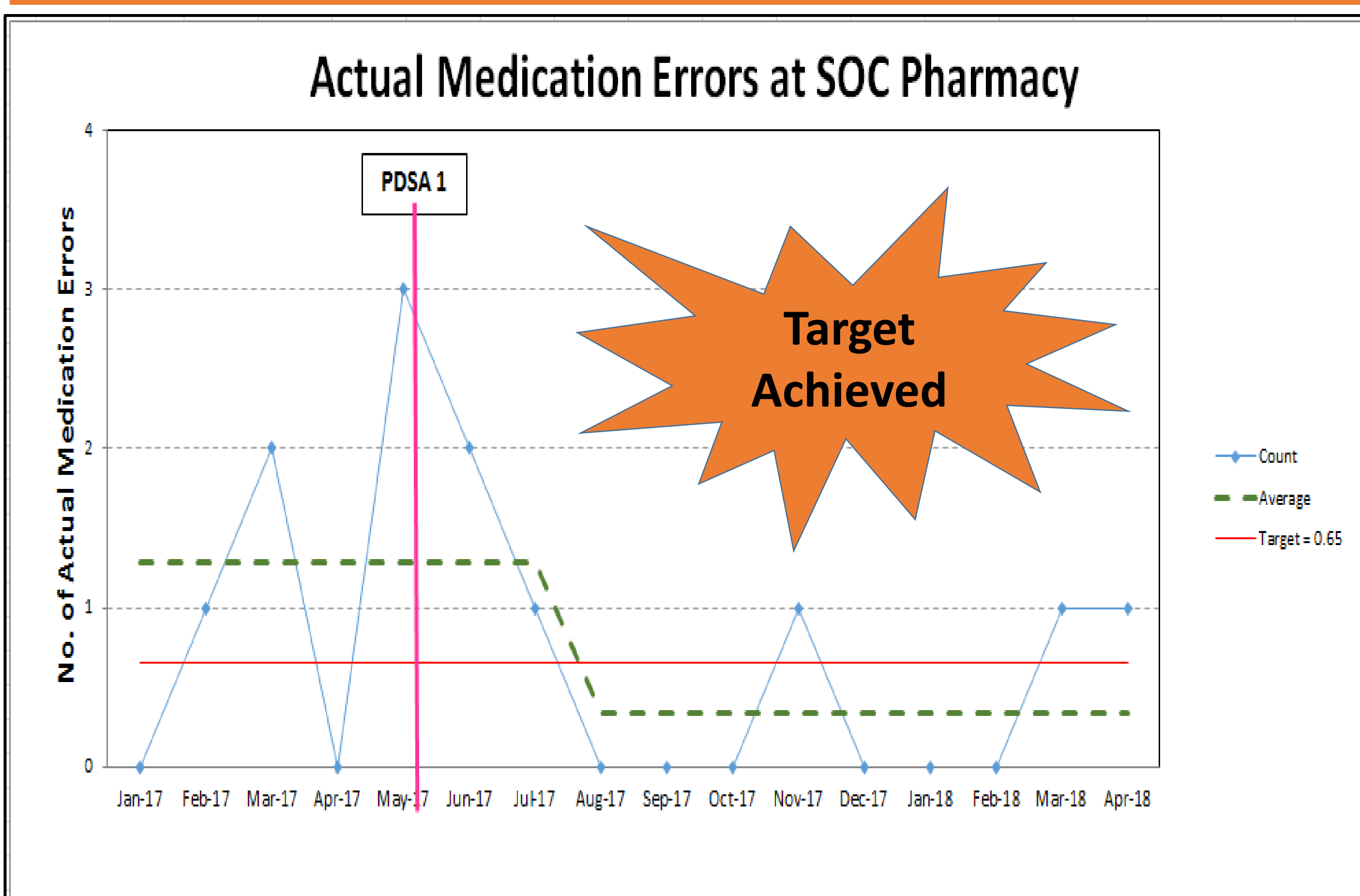
PDSA 1 (Aug 2017)



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

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