

Project Title

'Zero expired medicines supplied to inpatients' project

Project Lead and Members

Project lead: Tan Yuen Ming, Principal Pharmacist

Project members:

- Stacey Ng Hui Qi, Senior Pharmacist
- Amelia Ng Jing Jing, Pharmacist
- Khoo Chong Zen, Senior Clinical Pharmacist
- Siti Nasiha Manaf, Pharmacy Technician

Organisation(s) Involved

Ng Teng Fong General Hospital

Project Period

Start date: May 2018

Completed date: April 2019

Aims

To review medication expiry monitoring process, close gaps and work towards zero expired medicines supplied.

Background

See attached

Methods

See attached

Results

See attached

Lessons Learnt

- We learnt that making an improvement/change involves combining subject matter knowledge and science of improvement (SOI) knowledge.
- Understanding the system and learning about the nature of variations are two important components of SOI.
- Human behaviour is another critical SOI component. Being able to tap on intrinsic motivation of staff moves people towards better patient care.
- Working together on this quality improvement (QI) project allowed the team to develop insights into the theory and application of SOI, thus facilitating the building of QI capabilities amongst staff.
- This allowed the team to co-design changes that utilizes the knowledge of many, which in turn builds ownership to changes implemented.

Conclusion

See attached

Project Category

Care Redesign

Keywords

Care Redesign, Quality Improvement, Process Improvement, Workflow Improvement, Improvement Tool, Model for Improvement, Plan Do Study Act, Fishbone Diagram, Root Cause Analysis, Cost Savings, Pharmacy, Inventory Management, Medication Safety, Safe Care, Ng Teng Fong General Hospital, Expiry Management Process, Shelf Owner

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ZERO EXPIRED INPATIENT MEDICATION SUPPLIES PROJECT

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Define Problem, Set Aim

Opportunity for Improvement

- In the 3 months between March to May 2018, there were three incidences where expired medicines/milk feeds were supplied from pharmacy to inpatients.
- This presents the department with an opportunity to review the expiry monitoring process, close gaps and work towards zero expired medicines supplied.
- Supplying expired medicines unknowingly to patients affects patient safety, reduces patient satisfaction and damages the organization's reputation.
- At the department level, when discovered prior to administration, the medicine needs to be exchanged, leading to rework and reduced staff productivity.

Aim

- There will be zero expired medicines supplied to inpatients monthly by September 2018 and this result is sustained every month.

Establish Measures

Project outcome measure:

- Number of expired medicines supplied to inpatients monthly

Project process measure:

- Percentage of shelf owners who checked shelves monthly
- Percentage of bins with no expired medicines or medicines expiring in less than 2 weeks

For **outcome measure**, the data is obtained from the incident reporting system. The **first process measure** on percentage of shelf owners who checked shelves monthly is tracked by the inventory pharmacist after the 27th of each month.

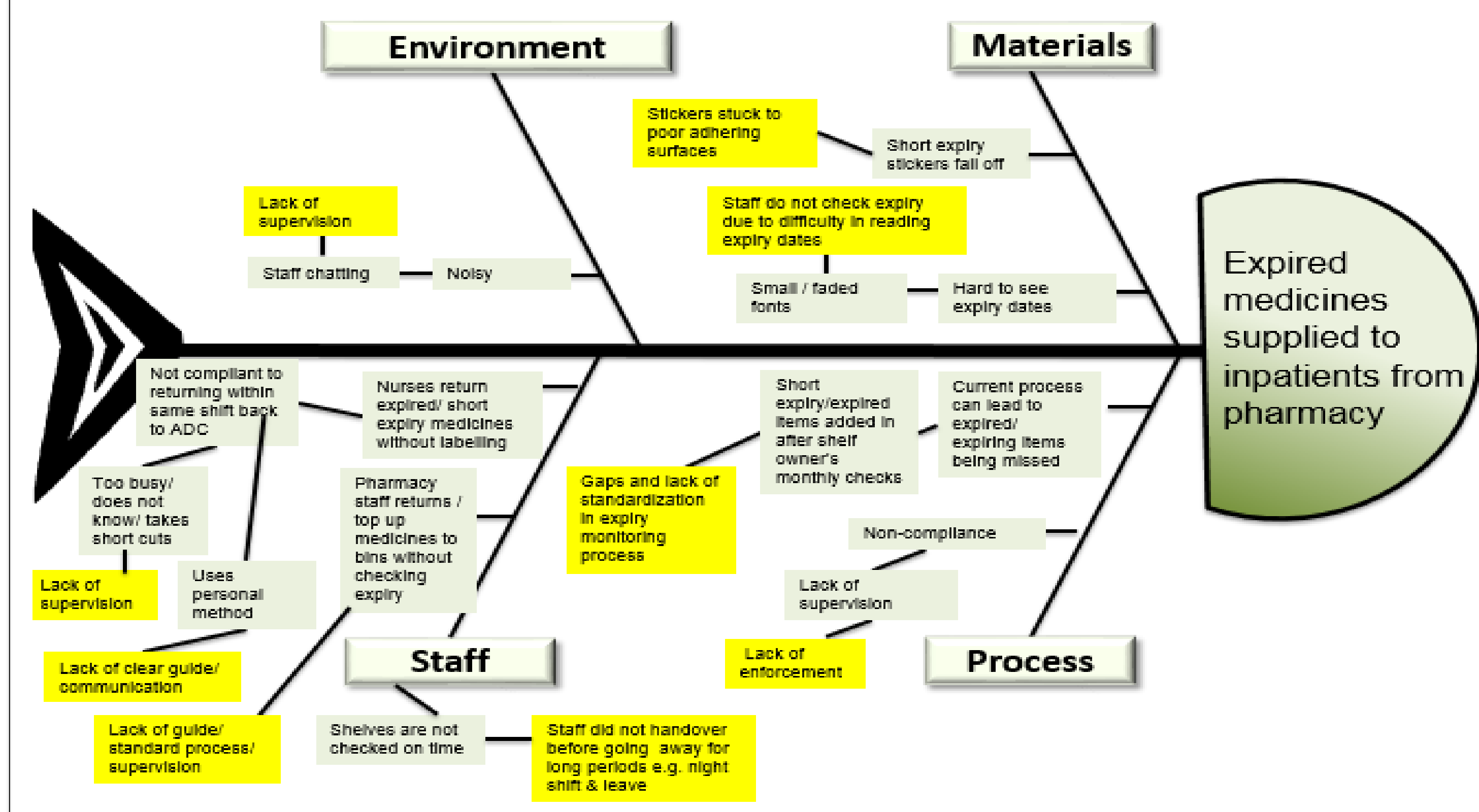
As for the **second process measure**, the IP medication safety workgroup conducts mini medication audits every two months, to check for expired or medicines expiring within 2 weeks that are still left in the medication bins. This provides the quality assurance that monthly checks by shelf owners are effective.

Analyse Problem

- Data from hospital's incident reporting system was analyzed to identify the frequency of expired medications being sent to wards.
- The expiry management process was mapped out. It was found that there are gaps in the existing process that can lead to expired or expiring medicines being missed during checks.

Identification of root causes to problem using the Fishbone Diagram

Fishbone Diagram



Select Changes

List of potential solutions

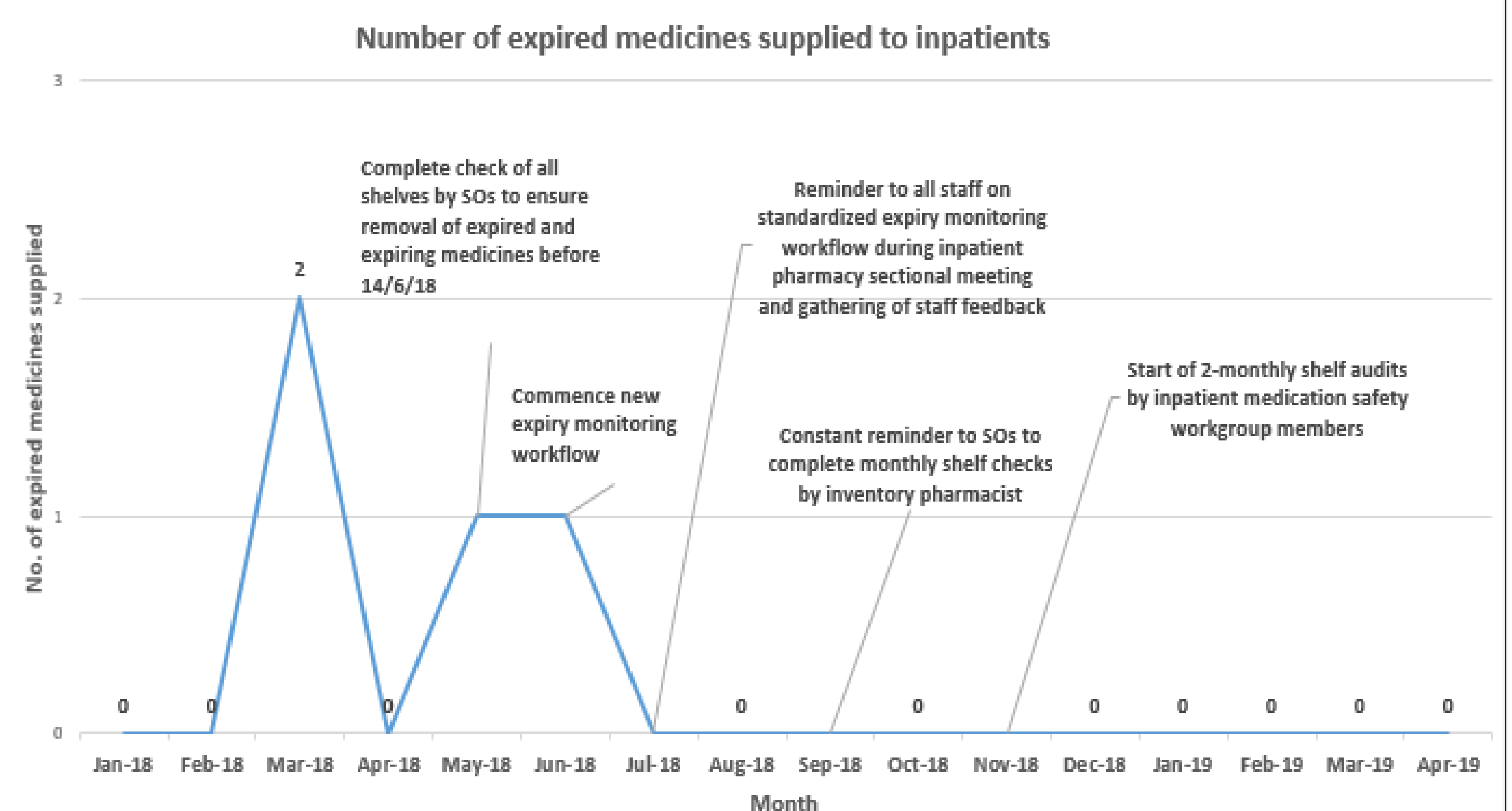
| Root Cause | Potential Solutions |
|---|---|
| (A) Gaps in and lack of standardization of current expiry monitoring process | 1 Close gaps & standardize expiry monitoring process |
| | 2 Perform failure mode and effects analysis (FMEA) on new expiry monitoring process |
| Root Cause | Potential Solutions |
| (B) Lack of compliance to expiry management checks due to minimal supervision and enforcement | 1 Inventory pharmacist to regularly remind shelf owners to check shelves in a timely manner every month |
| | 2 Mini audits by medication safety workgroup members to ensure checks are done according to new process |

Test & Implement Changes

Plan-Do-Study-Act (PDSA) cycles

| CYCLE | PLAN | DO | STUDY | ACT |
|-------|---|--|--|--|
| 1 | Start new expiry monitoring workflow by shelf owners | 1. New expiry monitoring workflow is shared with all staff and feedback obtained 2. New workflow is implemented | New workflow effective in achieving results desired as long as there is compliance | Adopt new workflow with compliance checks on a monthly basis by inventory pharmacist |
| 2 | Mini audits to test effectiveness of checks by shelf owners | Inpatient pharmacy medication safety workgroup members conduct mini audits every two months | Audits are effective in ensuring checks are done accurately | Adopt |

Run chart of outcome measure with interventions depicted



Learning Points

- We learnt that making an improvement/change involves combining subject matter knowledge and science of improvement (SOI) knowledge.
- Understanding the system and learning about the nature of variations are two important components of SOI.
- Human behaviour is another critical SOI component. Being able to tap on intrinsic motivation of staff moves people towards better patient care.
- Working together on this quality improvement (QI) project allowed the team to develop insights into the theory and application of SOI, thus facilitating the building of QI capabilities amongst staff.
- Upskilling staff with QI capabilities help build the will to change from the current state to one that is better.
- Estimated cost avoidance from this project is between \$6,390 to \$47,070 per annum.