

# Medication trolley drawer safety on the Rehabilitation Unit: Pharmacy Assistant led interventions.

Author: Tegan Brearley BPharm PGDipClinPharm, Sunshine Coast University Hospital.

## Introduction

The rehabilitation unit has unique challenges for delivering medications safely. Patients are encouraged to participate in scheduled rehabilitation programs outside of their rooms with medication trolleys utilised to allow the safe delivery of medications to various locations. In response to a high number of medication errors throughout the rehabilitation unit, this audit was conducted to identify if this trolley system may be contributing to medication administration errors and provide data relevant to the role of pharmacy assistant led programs which may reduce these errors.

## Aim

The aim of this project is to improve medication safety by:

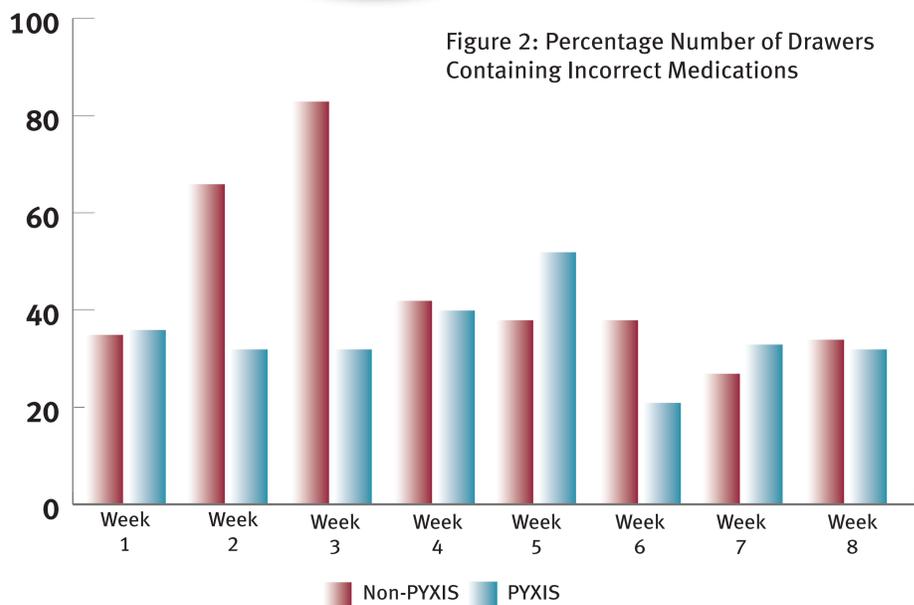
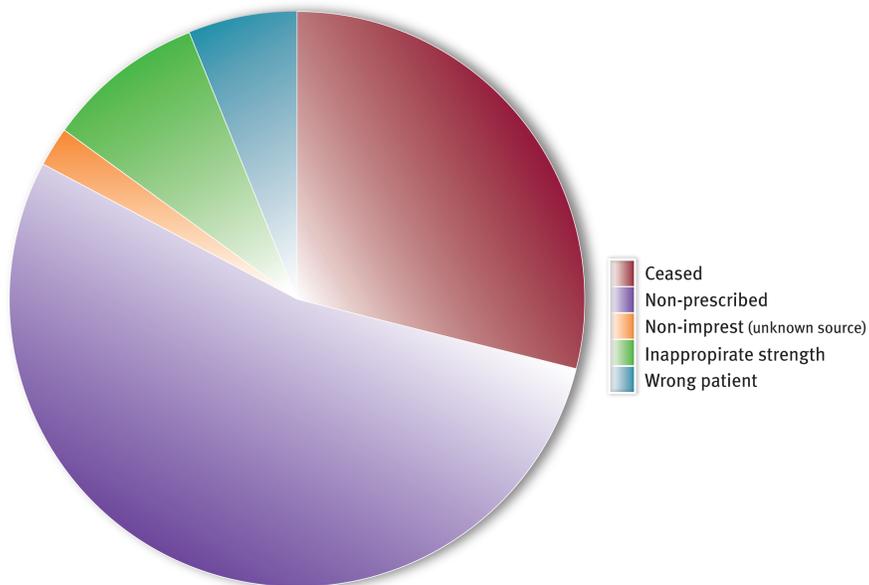
- Quantifying the extent of inappropriate medications found in medication trolley drawers
- To assess the effect of the electronic imprest system (PYXIS) on these errors.
- To quantify the number of interventions made by the pharmacy assistant

## Method

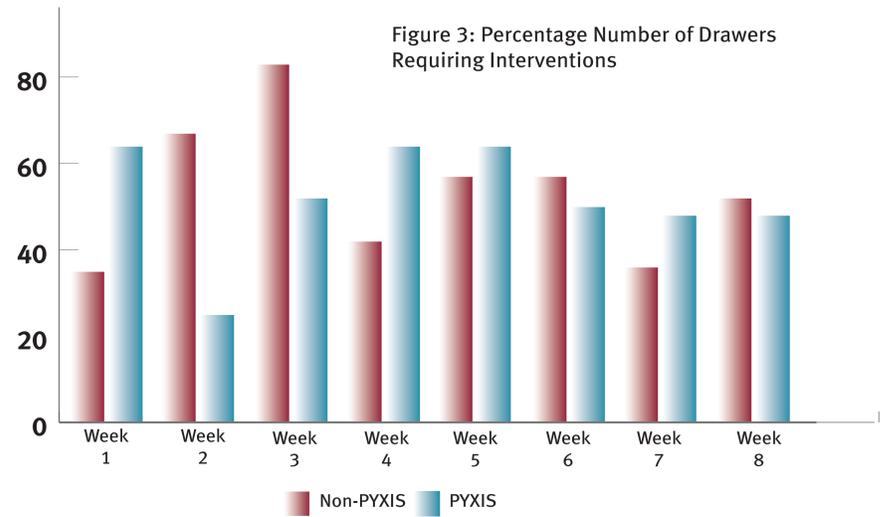
This audit was undertaken in a 25-bed Rehabilitation Unit in two 8-week periods. The first 8 weeks were conducted in a facility without a PYXIS. The next 8-week period was conducted in a facility with PYXIS access. A pharmacy assistant compared the national inpatient medication chart (NIMC) against the allocated room's drawer on the medication trolley. The drawers were checked at least once a week where inappropriate medications were identified, documented, and removed from the bedside locker. In addition to this the pharmacy assistants documented the identification of any drawers requiring supply of medications.

## Results

During the audit 349 NIMCs were compared, with 370 interventions recorded. 224 medications were deemed inappropriate and removed. Inappropriate medications were classified as per Figure 1.



The percentage of drawers with incorrect medications was on average 45% for non-PYXIS and 32.55% PYXIS facilities see Figure 2.



The number of drawers checked requiring intervention was 53.6% and 51.88% for Non-PYXIS and PYXIS facilities respectively see Figure 3.

A total of three medication clinical incidents (PRIMES) were reported as a direct result of incorrect medications in drawers being given. Phosphate Sandoz was given instead of Chlorvescent®, Amoxicillin/Clavulanic acid 500/125mg given instead of Amoxicillin/Clavulanic acid 875/125mg and phenytoin caps given instead of phenytoin liquid (patient had not been cleared to recommence solids).

The type of medications marked as inappropriate varied widely with no drug class being seen more often than others. Using the APINCH high risk drug classification 6% of inappropriate medications involved high risk medications see Figure 4.

In addition, the pharmacy assistants identified 146 medications for supply during the audit. 10 of these medications were classed as high-risk medications as per APINCH classification see Figure 4.

Figure 4: High-risk Medications classified using APINCH

	A	P	I	N	C	H
<b>Non-PYXIS</b>						
Inappropriate	0	2	1	0	0	3
Supply	0	0	1	0	0	5
<b>PYXIS</b>						
Inappropriate	0	2	3	0	0	2
Supply	0	1	0	0	0	3

## Discussion

The results of this audit raise medication safety concerns over the number of inappropriate medications with, on average, over 1/3 of drawers containing at least one inappropriate medication. This is further demonstrated by the three PRIMES recorded as a direct result of the incorrect medication or strengths being given directly from the trolley drawer. Possible contributing factors for the presence of these inappropriate medications are discharged medications not being removed from the drawer prior to a new admission, medications being returned to the incorrect drawer after administration, imprest medication being stored in the drawers inappropriately and ceased medications not being removed in a timely manner. These recurring errors identify the need for a work flow medication round practice review.

On transition from non-PYXIS to PYXIS sites, a reduction in the percentage number of drawers with medication errors was observed. However overall, there was an increase in the number of inappropriate medications removed from the drawer. This could be due to the higher number of charts checked during the second audit period or the increase in discharged medications not being cleared. With the introduction of Pyxis® it was anticipated that the number of inappropriate medications would be reduced, however the results indicate there has been no significant impact on the number of interventions made. With the significant medication safety issues identified during this audit alternative models for medication administration is recommended.

The utilisation of pharmacy assistants in completing medication trolley drawer reviews showed that timely identification and removal of inappropriate medications can have a significant contribution to medication safety. The results indicate that with allocated ward times the pharmacy assistants check more charts then when the process was ad hoc. This service is currently resourced for once a week. The results suggest daily or second daily would have a greater impact on medication safety by identifying inappropriate medications earlier.

## Conclusion

Pharmacy assistants have identified and removed 224 potentially inappropriate medications and intervened in over half of all drawer checks highlighting the need, and possible expansion, of this ongoing service. With over a third of checked medication drawers having at least one inappropriate medication even with PYXIS access, alternatives to this error prone delivery system is recommended.