# Medication Reconciliation Program Audit

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## Introduction

The Institute for Safe Medication Practices in Canada (ISMP Canada) defines medication reconciliation as a formal process in which healthcare providers work together with patients, families, and care providers to ensure accurate and comprehensive medication information is communicated consistently across transitions of care. The initial step in medication reconciliation is to create a Best Possible Medication History (BPMH) for each patient. This BPMH serves as a representation of a patient's actual medication use, which may be different than what is contained in Pharmaceutical Information Program (PIP) profile and other health records.

An accurate BPMH aids physicians, pharmacists, and nurses when making clinical decisions to continue, alert, stop or add medications. Therefore, accuracy and completeness in the BPMH is vital when performing medication reconciliation is vital.

In January 2014, a pilot study was implemented in which trained pharmacy technicians completed the BPMH in the Emergency Department (ED) of the Pasqua Hospital. The goal of the pilot was to determine if pharmacy technicians completed BPMH more accurately than Registered Nurses in the ED.

## Objectives

To evaluate the differences in BPMH completeness when performed by trained pharmacy technicians compared to other health care professionals. Also, to examine the accuracy of PIP profiles.

## Methods

Study Design
- A retrospective chart review of 941 patients

- Four study groups:
  - Licensed Practical Nurses
  - Registered Nurses
  - Pharmacy Technicians
  - Not Applicable (BPMH performer not specified due to incomplete documentation)

Patient Eligibility Criteria
- Patient of the Pasqua Hospital Emergency Department from January to March 2014

- Admitted and Non-Admitted patients of any age are included

Study Objectives
- Primary Outcome
  - Compare the completeness of BPMH between the four groups to determine the profession that is most proficient.

- Secondary Outcome
  - Identify medications that are common discrepancies on PIP profiles
  - Quantify the use of dangerous abbreviations among the four groups

## Results

Table 1: Primary Outcome – BPMH Completion of Medications on PIP

| Category | LPN | RN | Pharmacy Technician | Not Applicable | All |
|---|---|---|---|---|---|
| Drug Name (± 95% CI) | 0.98 ± 0.044 | 1.00 | 1.00 | 0.99 ± 0.013 | 0.99 ± 0.0003 |
| Drug Strength (± 95% CI) | 0.97 ± 0.044 | 0.99 ± 0.007 | 0.99 ± 0.004 | 0.99 ± 0.014 | 0.99 ± 0.005 |
| Drug Dose (± 95% CI) | 0.95 ± 0.046 | 0.96 ± 0.012 | 0.96 ± 0.014 | 0.90 ± 0.038 | 0.95 ± 0.010 |
| Route of Administration (± 95% CI) | 0.98 ± 0.044 | 1.00 | 1.00 | 0.99 ± 0.013 | 0.99 ± 0.003 |
| Frequency (± 95% CI) | 0.95 ± 0.047 | 0.97 ± 0.011 | 0.97 ± 0.013 | 0.93 ± 0.031 | 0.96 ± 0.008 |
| Last Administered Dose (± 95% CI) | 0.91 ± 0.062 | 0.80 ± 0.035 | 0.93 ± 0.023 | 0.65 ± 0.067 | 0.82 ± 0.021 |

Table 2: Primary Outcome – BPMH Completion of Medications Not on PIP Including Over-The-Counter (OTC), Herbal, and Prescription

| Category | LPN | RN | Pharmacy Technician | Not Applicable | All |
|---|---|---|---|---|---|
| Drug Name (± 95% CI) | 95.45 ± 6.229 | 99.09 ± 0.871 | 98.20 ± 1.303 | 94.97 ± 3.104 | 97.88 ± 0.760 |
| Drug Strength (± 95% CI) | 54.05 ± 13.962 | 42.26 ± 4.506 | 76.19 ± 4.027 | 43.44 ± 7.291 | 59.22 ± 2.727 |
| Drug Dose (± 95% CI) | 85.86 ± 8.973 | 91.88 ± 2.303 | 86.97 ± 2.997 | 86.11 ± 4.489 | 88.39 ± 1.573 |
| Route of Administration (± 95% CI) | 62.55 ± 14.042 | 73.68 ± 4.336 | 92.08 ± 2.919 | 54.24 ± 7.510 | 79.04 ± 2.467 |
| Frequency (± 95% CI) | 85.55 ± 10.227 | 97.00 ± 1.338 | 93.65 ± 2.541 | 92.74 ± 3.644 | 94.20 ± 1.265 |
| Last Administered Dose (± 95% CI) | 69.18 ± 13.100 | 77.14 ± 3.982 | 89.46 ± 3.186 | 64.09 ± 7.393 | 80.70 ± 2.316 |

Table 3: Allergy Completion, Use of Dangerous Abbreviations, and Rate of PIP Discrepancies Found

| | LPN (n=50) | RN (n=422) | Pharmacy Technician (n=259) | Not Applicable (n=209) | All (n=941) |
|---|---|---|---|---|---|
| % Completion of Allergies | 92.00 | 94.08 | 96.53 | 85.17 | 92.56 |
| % Use of Dangerous Abbreviations | 76.00 | 78.20 | 5.00 | 60.77 | 54.09 |
| % Occurrence of PIP Discrepancies | 70.00 | 76.54 | 79.15 | 65.55 | 74.50 |

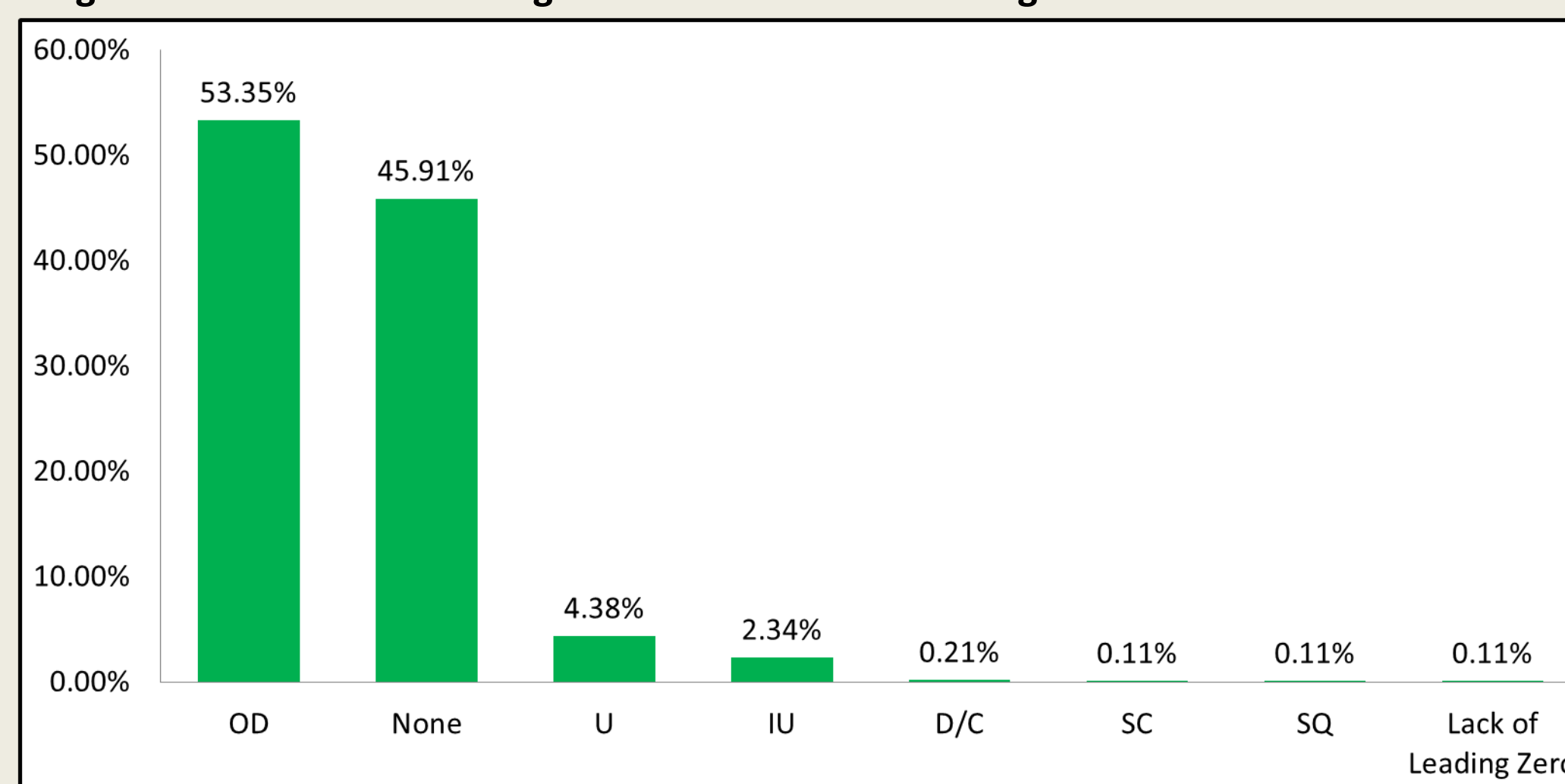Figure 1: Occurrence of Dangerous Abbreviations among all BPMH



Table 4: Secondary Outcome – Most Common Prescription Deletions and Additions on PIP

| Ranking | Deletion | Addition |
|---|---|---|
| 1 | Prednisone | Salbutamol |
| 2 | Cephalexin | Metformin |
| 3 | Amoxicillin | Mometasone |
| 4 | Azithromycin | Fluticasone |
| 5 | Acetaminophen/codeine cpd | Lorazepam |
| 6 | Ciprofloxacin | Ipratropium/Salbutamol |
| 7 | Methadone | Nitroglycerin |
| 8 | Sulfamethoxazole/Trimethoprim | Furosemide |
| 9 | HYDROmorphone | Epinephrine |
| 10 | Morphine | HYDROmorphone |

## Conclusion

This pilot demonstrated that having trained pharmacy technicians perform the BPMH resulted in a higher overall completion of BPMH compared to other health care professionals. Pharmacy technicians also found more PIP discrepancies and used few dangerous abbreviations when completing BPMH.

## Potential Significance

The results of this show the improvement in BMPH when performed by a pharmacy technician. As pharmacy technicians become licensed, their expanding scope of practice could include collecting BPMH. This may improve patient safety by allowing physicians and pharmacists to make more informed clinical decisions.

## References

1. www.ismp-canada.org/medrec