Pharmaceutical Automated Reporting: An Opioid Stewardship Tool

Dylan Turner, BA, BKin, **Paul Gottselig**, BSc, **Leland Sommer**, MN, NP, **Kelsey Dumont**, BSP, **Warren Berry**, MPH, **Casey Phillips**, BSP, PharmD, **Melissa Holowaty**, MD, PHD

Introduction

- As of 2019, Canada was among the countries with the highest opioid consumption rates (1).
- In 2022, Saskatchewan had 21.3 suspected opioid toxicity deaths per 100,000 population, compared to Manitoba which only had 3.7 (2).
- Within the two acute care facilities in Regina (~700 beds), there are no inpatient addiction medicine teams or acute, chronic, or transitional pain services.
- We developed an internal Clinical Decision Support System (CDSS) to:
  - effectively direct daily clinical interventions (for patients),
  - collect information on prescribing patterns and identify systemic deficiencies,
  - use these data to promote patient safety through efficient resource allocation, more appropriate opioid prescribing, and improved outcomes.

Methods

- The Pharmaceutical Automated Reporting (PAR) Tool consolidates inpatient prescription information from an electronic pharmacy drug system and organizes patient data according to predetermined logic (figure.1).
- Each risk factor is a decision matrix that returns a true or false value based on opioid and opioid-related prescriptions, which increases the risk for patient harm such as opioid use disorder or overdose.
- Black- grey- and white-box testing and clinician evaluation were employed to validate the tool for accuracy.

Risk Factors

- Received morphine equivalent dose (MED) equal to or exceeding 90
- Intravenous route opioid therapy lasting more than seven days
- Potential opioid agonist therapy
- Frequent opioid dosing (every 1, 2, or 3 hours)
- Administration of naloxone
- Concurrent prescription of benzodiazepines and opioids
- Absence of naloxone prescription with an active opioid prescription
- Potential use of the Clinical Institute Withdrawal Assessment for Alcohol, Revised (CIWA) protocol
- Multiple opioids prescribed

Results

In the first seven months (July 10, 2023 to January 15, 2024; figure 2):

- ✓10,562 distinct patient visits (55.9 per day)
- ✓65,688 prescriptions (347.6 per day)
- ✓10,450 (98.9%) patients with at least one opioid-related risk factor
- ✓6,590 (62.4%) patient triggering multiple risk factors simultaneously
- ✓Average of 389 MED available per patient
- ✓average percent utilization (received MED divided by available MED) of 16%.

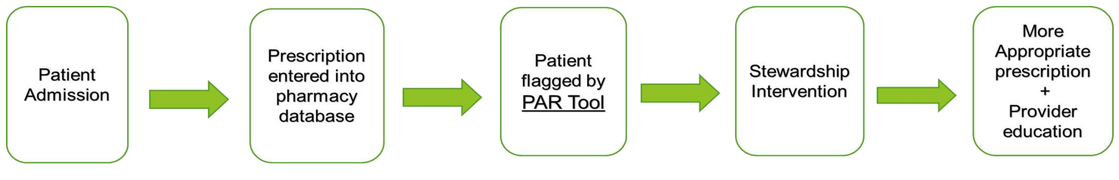

Figure 1 - PAR tool data extraction within patient flow

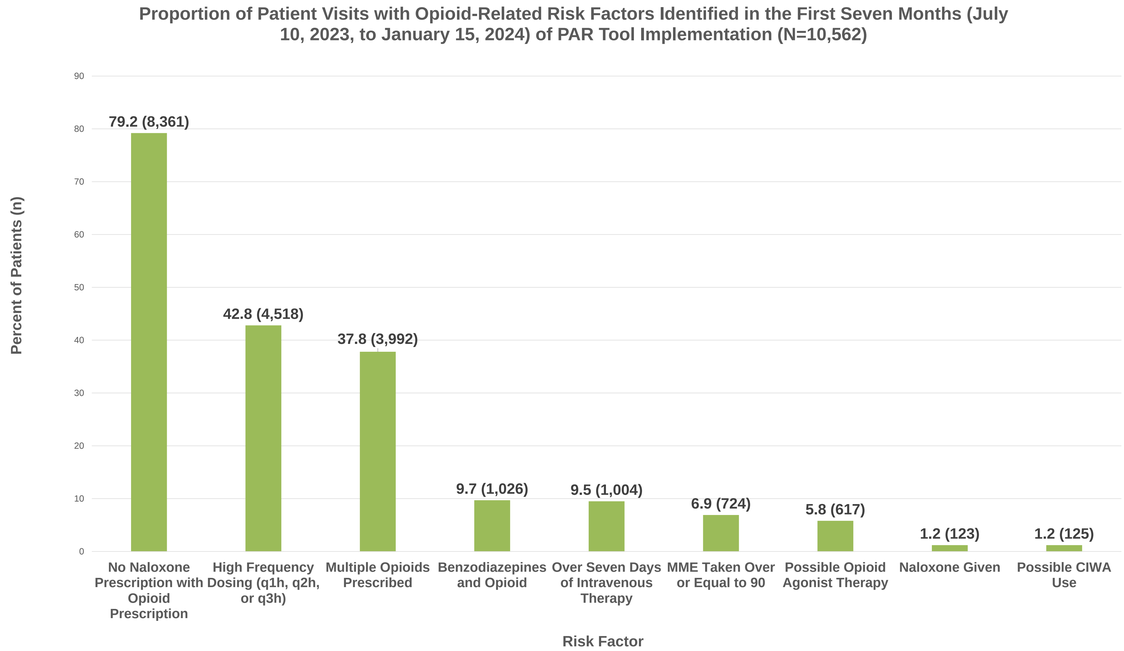

Figure 2 – Proportion of patient visits with opioid-related risk factors identified. Data are from the first seven months of PAR Tool Implementation. Numbers above bars are %(n).

Note –: MME = MED

Discussion

- The PAR tool identified units, service lines, and specific risk factors where data-driven interventions can target the promotion of appropriate prescribing practices.
- Access to system-level data will be used to direct and track stewardship interventions, inform systemic policy change around appropriate opioid use, and evaluate the impact on quality indicators.
- Limitations:
  - Requirement for clinical interpretation
  - Passive evaluation
  - Dependent on the standardized output of the pharmaceutical reports

Conclusion

- Resource-constrained healthcare organizations can leverage accessible open-source software to develop customized CDSS for collecting system- and local-level data, thereby enhancing the efficacy of identifying opioid-related risk factors within their facilities.
- Data can be utilized to: promote appropriate prescribing practices, monitor stewardship interventions, inform policy revisions, evaluate the impact on quality metrics, and inform and support opioid-related research and quality improvement projects.

Contact

Scan to view our website.

Opioid Stewardship Program

Tel: **+1 (306-766-3520)**

Email:
Opioid.Stewardship@saskhealthauthority.ca

References

1. Jayawardana S, Forman R, Johnston-Webber C, Campbell A, Berterame S, deJoncheere C, et al. Global consumption of prescription opioid analgesics between 2009-2019: a country-level observational study. EClinicalMedicine [Internet].2021;42:101198. Available from: https://doi.org/10.1016/j.eclinm.2021.101198

2. Federal, provincial, and territorial Special Advisory Committee on the Epidemic of Opioid Overdoses. Ottawa: Public Health Agency of Canada. 2023. Opioid- and Stimulant-related Harms in Canada. Available from: https://healthinfobase.canada.ca/substance-related-harms/opioids-stimulants/maps

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