

International Journal of Population Data Science

Journal Website: www.ijpds.org



Using newly linked hospital and population data to identify opportunities to reduce harms from sedative-hypnotic prescribing at population scale

Surain B Roberts^{1,2}, Mohammad A Imrit¹, Marwa F Ismail¹, Trong Shen¹, Christine Soong^{2,3,4}, Barbara Liu^{5,6}, Denise YF Mak¹, Vladyslav Kushnir¹, Laura C Rosella^{7,8,9,10}, Fahad Razak^{1,2,11}, and Amol A Verma^{1,2,11}

¹Li Ka Shing Knowledge Institute, Unity Health Toronto

²Institute of Health Policy, Management and Evaluation, University of Toronto

³Division of General Internal Medicine and Hospital Medicine, Sinai Health System

⁴Centre for Quality and Patient Safety, University of Toronto

⁵Division of Geriatric Medicine, Sunnybrook Health Sciences Centre

⁶Department of Medicine, University of Toronto

⁷Dalla Lana School of Public Health, University of Toronto

⁸ICES

⁹Institute for Better Health, Trillium Health Partners

¹⁰Temerty Faculty of Medicine, University of Toronto

¹¹Department of Medicine, St Michael's Hospital

Objective and Approach

Sedative-hypnotic medications are associated with harms such as delirium and falls, and may be overprescribed in hospitals. Measuring potentially inappropriate in-hospital sedative-hypnotic prescriptions requires distinguishing new initiations from pre-hospital prescriptions, but pre-hospital medications may not be captured in hospital data. To quantify physician- and hospital-level variation in sedative-hypnotic prescribing, we use linked data between GEMINI (which includes EMR data from >1.8 million admissions across 30 hospitals, approximately 60% of medical inpatient beds in Ontario) and ICES (which houses administrative healthcare databases, including outpatient prescriptions for adults ≥ 65 years). We will validate whether data in hospital clinical notes or pharmacy records can reliably identify pre-hospital prescriptions.

Results

Using provincial health insurance number, 98.1% of GEMINI records could successfully be linked deterministically to ICES. Our exploratory sedative-hypnotic cohort included 90,806 general medicine patients treated by 437 physicians from 17 hospitals across Ontario from 2021-2022. Median age was 72 years and 48.7% were female. The proportion of patients receiving a new sedative-hypnotic prescription varied markedly across hospitals (median 0.21, range 0.04-0.41) and across physicians within hospitals (median within-hospital difference between lowest and highest prescriber: 0.18, range of within-hospital differences 0.07-0.67). Validation of new rather than continued prescriptions is underway. Full results will be ready for presentation at the conference.

Conclusion

Sedative-hypnotic prescribing is common and highly variable in hospitals across Ontario, indicating an opportunity to improve patient safety.

Implications

Based on these analyses, the province of Ontario has made reducing in-hospital sedative-hypnotic prescribing a provincial priority for 2023-2024.

