

**Submission Id:** 6730

**Title**

*Predictors of exposure to high-priority drug-drug interactions among non-elderly adults in Quebec, Canada*

**Priority 1 (Research Category)**

Prescribing and pharmacotherapeutics

**Presenters**

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**Abstract**

Context: Drug-drug interactions (DDI) are a preventable source of adverse drug effect. The predictors of exposure to DDI among the population of non-elderly community-dwelling adults are unknown.

Objective: to identify the demographic and health system variables that predict risk of exposure to DDI over 1 year. Study design and Analysis: Retrospective cohort study using provincial administrative health databases. Drug reimbursement claims were used to identify periods of overlapping exposure to 2 or more prescription drugs between April 1, 2015 and March 31, 2016. DDI were identified using the list of high-priority DDI of the U.S. Office of the National Coordinator for health information. Demographic characteristics, health service use, continuity of care, and index of comorbidity were evaluated as predictors of exposure to DDI using an ensemble machine learning approach. Dataset: A cohort containing a random sample of 5% of the database population of Quebec provincial administrative databases including demographic data, pharmacy claims data, medical consultations, and hospitalizations was used. Population Studied: Community-dwelling non-elderly adults (19-64 years) residents of Quebec and covered by the public prescription drug insurance between 2014 and 2017.

Outcome measures: sensitivity, specificity, area under the receiver operating characteristic curve for the predictive algorithms, and variable importance scores for predicting the risk of exposure to at least one DDI. Results: Our cohort included 63,834 individuals aged 19-64 (mean age 44.9 SD 13.2, 51.6% female); among these, 34,131 (53.5%) claimed 2 or more prescription drugs during the study year, and 73.0% of all prescriptions claimed were issued by a family physician. Among 56,661 individuals at risk of an incident DDI exposure, 2,695 (4.8%) were exposed to at least one DDI over one year. Number of prescription drugs, and continuity of prescriber and pharmacy care were identified as important predictors of exposure to DDI. Conclusions: Encouraging prescriber and pharmacist continuity of care may help lower the risk of exposure to a DDI among non-elderly community-dwelling adults.

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