DSEN ABSTRACT

Validation of COVID-19 Diagnoses in Administrative Health Data (Q21-04)

A study conducted by the Canadian Network for Observational Drug Effect Studies (CNODES)

Summary

- This study provides new information regarding the validity of COVID-19 diagnoses captured in Canadian inpatient hospital records, ED records and outpatient healthcare provider service claims during the first year of the pandemic.

Key messages

- This multi-province validation study supports the use of inpatient and ED records as alternatives to population-based laboratory tests for identification of COVID-19 cases during the first year of the pandemic.
- Our findings do not support the use of outpatient service claims to identify people infected with COVID-19.

Project Lead & Team

- Lix L, PhD & Paterson M, MSc
- Team members available here.

Link to publication

- In preparation

What is the issue?

- Coronavirus disease 2019 (COVID-19) has had a substantial effect on the Canadian population leading to interest in investigating disease trends, risk factors and treatment effectiveness, and in understanding variations in patient attributes associated with COVID-19 infection and outcomes across patient populations.
- There is little information about the accuracy of Canadian administrative health data for COVID-19 case ascertainment.

What was the aim of the study?

- Our main objective was to assess the validity (i.e., accuracy) of COVID-19 diagnosis coding in hospital discharge abstracts, emergency department (ED) records and outpatient healthcare provider service claims in three Canadian provinces.

How was the study conducted?

- Population-based inpatient, ED, and outpatient service records were linked to results of SARS-CoV-2 polymerase chain reaction (PCR) tests, which are used to diagnose COVID-19. The study data were from British Columbia, Manitoba, and Ontario for April 1, 2020 to March 31, 2021.
- Sensitivity, specificity, positive predictive value (PPV), and negative predictive value (NPV) of COVID-19 diagnosis codes (ICD-10 U07.1) and fee codes were estimated for each quarter in the study period, overall and by province, age group, and sex.

What did the study find?

- We studied over 19 million Canadian residents and more than 13 million SARS-CoV-2 PCR tests.
- Validity estimates varied across the three study provinces, but were generally highest for inpatient hospital data.
- Specificity and NPV were consistently high (i.e., most estimates were > 95%).
- Hospital discharge abstracts:
  - Overall sensitivity was 86% in the first three months (Apr to Jun 2020), but decreased to 66% in the last three months (Jan to Mar 2021).
  - Overall PPV was relatively stable, from 50% and 66% across quarters.
- ED records:
  - Overall sensitivity was 60% (first three months) and 48% (last three months).
  - Overall PPV was 77% (first three months) and 68% (last three months).
- Outpatient service claims:
  - Overall sensitivity was 20% (first three months) and 25% (last three months).
  - Overall PPV was 7% (first three months) and increased to 29% (last three months).

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CIHR IRSC Canadian Institutes of Health Research / Instituts de recherche en santé du Canada

CNODES CANADIAN NETWORK FOR OBSERVATIONAL DRUG EFFECT STUDIES

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