

NAPCRG 52nd Annual Meeting — Abstracts of Completed Research 2024.

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Title

Describing Differences Across Place and Provider in Canadian Team-Based Care Settings Using Electronic Health Records

Priority 1 (Research Category)

Healthcare informatics

Presenters

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Abstract

Background

Team-based care (TBC) has established benefits for patient outcomes. In rural areas, TBC can help address challenges arising from limited access to specialized care. These same access challenges can also impact populations with barriers to care in urban areas, through different mechanisms. In both cases, TBC can help by providing a collaborative approach to care that can better manage the complex needs of patients.

Community Health Centres (CHCs) provide TBC for both urban and rural populations with barriers to care in Ontario, Canada, and they share a common electronic health record (EHR) system that records codes assigned by providers during an encounter. The system is used by different provider types to document needs and care in both urban and rural settings. This allows us to examine, in a TBC setting, 1) how patterns of codes differ between urban and rural localities, and 2) how patterns of codes differ between provider types for the same patient.

Objective

Describe differences in coding patterns across locality and provider type within team-based care settings in Ontario, Canada.

Analysis

We apply topic modeling to the codes recorded for clients. Topic modeling has been extensively used to identify "topics" of codes that commonly co-occur within the same client's EHR. Our analysis employs Structural Topic Models, which can additionally model effects of covariates like urban/rural status and provider type on the distributions of codes and topics.

Dataset

We used an aggregate dataset derived from CHC EHRs containing 13,688,536 encounters between 2009 and 2019 from 220,580 clients. In our study cohort, 171,456 clients had urban postal codes, while 49,124 clients had rural postal codes. This dataset comes from 59 CHCs across Ontario, Canada.

Results

We observed that providers in rural areas tend to use more codes related to social determinants of health compared with providers in non-rural settings. We also observed that family physicians and nurses tend to use more clinically-oriented codes, while mental health care providers and therapists use more codes related to social determinants of health.

Conclusions

In team-based care settings, different provider types use different patterns of codes to describe client needs, and those patterns change depending on urban/rural context.

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