

TITLE: Exploring primary health care EMR data and its impact on building population clinical profiles

Introduction

The Canadian Institute for Health Information (CIHI) population grouping methodology (CIHI POP Grouper) looks at the population over an extended period across multiple healthcare settings and assigns each person in the population a clinical profile that includes health conditions, Health Profile Group (HPG), cost weights, and predicted future use of select health services. In a recent study, CIHI explored the impact of including information from electronic medical records (EMR) for a sub-population who received primary health care (PHC) via community health centres in the POP Grouper. CIHI also evaluated the impact of including person-level social determinants of health (SDOH) captured in the EMR data to the overall performance of POP Grouper cost models and the predicted costs.

Methods

The data used in this study included clinical and cost data for inpatient, day surgery, emergency department and physician visits as well as clinical data for long-term care and home care services between fiscal years 2015/16 and 2017/18. The population of interest included individuals who visited a community health centre for PHC and where clinical and SDOH information was captured in their EMR.

Descriptive analyses were conducted to assess the impact of including EMR data on building population clinical profiles. Linear regression models were built to examine the effect of the SDOH variables on model performance and cost weights. The ordinary least squares estimation method was employed in fitting these models. These models used cost as the response variable and the predictor variables were age, sex, the 226 health conditions, the most influential 2-way health condition interactions, and the following SDOH variables: language, income, education, household composition and racial/ethnic group.

Results

With the addition of PHC EMR data, on average more health conditions and higher cost weights were assigned to a person's clinical profile. Inclusion of EMR data also moved a good proportion of the clients to a different or more severe health condition category. Regional population profile comparison showed that adding EMR data provided a more accurate picture of regional differences.

Analysis on the impact of adding SDOH predictors to the predicted cost models is still underway, and is scheduled to be completed by May 2022.

Conclusions

The pilot study showed that adding PHC EMR data enhances population clinical profiles by providing a more accurate picture of these patients health care resource requirements. Adding EMR data is also important for regional comparison and facilitates a more fulsome understanding of regional health needs.

The SDOH information adds valuable sociodemographic risk factors to the clinical-focused POP Grouper cost model. Work is still underway to identify if including SDOH variables in the cost models helps to further describe sub-population's (especially for vulnerable populations) resource requirements. The study will continue to be refined as more EMR data becomes available to CIHI.