TITLE: Comparison of Johns Hopkins ACGs and the CIHI Population Grouper for assessing the morbidity and health care utilization of the population of Ontario, Canada

Introduction

There are two different approaches for measuring patient morbidity that are in common use in Ontario: Johns Hopkins Adjusted Clinical Groups (JH ACGs) and the Canadian Institute for Health Information (CIHI) Population Grouper. The JH ACGs have been used extensively in research applications in Ontario, while the CIHI Population Grouper has been used more commonly for program planning and evaluation, and payment applications. Little is known about how the measures from these two grouping methodologies compare with one another.

The objective of this research is to compare how well measures from the JH ACGs and CIHI Population Grouper are able to identify chronic conditions, predict concurrent health care utilization, and predict health care costs for the population of Ontario.

Methods

The analysis used data for the population of Ontario for fiscal year 2022 (April 1, 2022 to March 31, 2023). Both groupers were run on two years of administrative diagnostic data (FY 2022 and 2021) from physician encounters, hospital admissions, and emergency department visits. The CIHI grouper also included diagnoses for mental health inpatient admissions and long-term care assessments.

The specificity and sensitivity of identifying chronic conditions was evaluated by comparing 9 different chronic conditions recorded in disease registries and the Institute for Clinical Evaluative Sciences with Expanded Diagnostic Clusters from the JH ACGs and Health Conditions from the CIHI Grouper.

The ability of each tool to predict health care utilization (primary care and specialist physician encounters, emergency department visits, and hospital admissions) and costs (primary care and total) was evaluated by comparing the correlation between the outcomes and the JH ACG resource intensity weights (RIWs) and resource utilization bands, and the CIHI grouper RIWs and quintile groups of RIWs.

Results

Initial analysis using a beta version of the CIHI grouper found that the CIHI grouper had greater specificity in identifying chronic conditions and predicted a higher proportion of total costs compared to the ACG measures. Both measures performed equally well at predicting health care utilization and both under-predicted high-cost users. This analysis will be updated using the most recent version of the CIHI population grouper.

Discussion/conclusions

The CIHI population grouper was developed using data from Ontario, along with other Canadian provinces, and includes more sources of administrative diagnostic data than the JH

ACGs. This could account for its improved performance in identifying chronic conditions and predicting health care costs. Other factors to consider when selecting a case-mix grouping methodology are ease of use, interpretability of results, cost, and adaptability to available data.