

Title: Estimating cost of COVID-19 hospitalizations in Canada using forecasted financial information

Introduction

Since the onset of the COVID-19 pandemic in Canada in March 2020, CIHI has been providing support and guidance on clinical and financial coding practices to encourage jurisdictional data collection on COVID-19. Despite this, there have been challenges in reporting the costs of treating COVID-19 patients in hospital settings. During the pandemic clinical data were updated regularly on a quarterly basis, while financial data continued to be reported annually with a significant delay. Up until recently, only pre-pandemic financial data were available. This presentation will highlight the methodology used to estimate the costs of COVID-19 hospitalizations based on pre-pandemic financial data. We also will compare those estimates with values obtained with the actual, pandemic year 2020-2021, financial data.

Methods

CIHI has been reporting COVID-19 hospitalization costs on a quarterly basis since March 2021. At that time, neither patient cost data nor aggregate level expenditure data were available. Hence, a methodology was used to create cost estimates based on available pre-pandemic financial data.

A cohort of COVID-19 hospitalizations was compiled from CIHI's Discharge Abstract Database that covers all acute care hospitalizations between January 1, 2020 and December 31, 2021. Case selection was based on ICD-10-CA COVID-19 diagnosis codes. By inflating CIHI's Cost of a Standard Hospital Stay (CSHS) indicator using Statistics Canada's Consumer Price Index (CPI), we obtained forecasted CSHS values for 2020. These inflated CSHS values were then multiplied by each hospitalization's Resource Intensity Weight (RIW) to create cost estimates for each COVID-19 hospitalization. This approach allowed us to develop cost estimates on a timely basis for quarterly reporting. In May 2022, we were able to update COVID-19 cost estimates with actual CSHS 2020 values that used pandemic year financial data.

Results

The national cost of COVID-19 hospitalizations estimated with the pre-COVID-19 data was 9% lower than the value calculated with the pandemic year financial data. Jurisdictional comparisons revealed differences in accuracy across provinces and territories and varied between 1% and 20%. The true impact of COVID-19 on hospital costs is much greater than what can be predicted by using CPI values.

We also compared cost estimates between COVID-19 hospitalizations and other reasons for hospitalizations, which showed that a COVID-19 hospital stay costs about 4 times more than for influenza and almost as much as a kidney transplant hospital stay.

Other highlights from this analysis include:

- Statistics related to case volumes, length of stay and resource intensity of COVID-19 hospitalizations.
- Comparison of ICU and non-ICU hospitalization cost estimates.
- Discussion of what is included in the health portion of CPI.

Conclusions

Understanding the costs associated with COVID-19 hospitalizations has helped health system managers to better plan and make better decisions in light of ongoing pandemic pressures. While most up-to-date financial information might not be available, this forecasting methodology has helped to provide early cost estimates that are more relevant. They also help to develop critical insight into recent hospital spending and resource utilization to ultimately enable informed decision-making.