

About the Data: Top High Cost Health Care Users

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Top High Cost Health Care Users: 2010 Fiscal Year

Introduction

The purpose of the High Cost Users indicator project was to identify and describe the top 1%, and top 5% of health care users in Ontario that live in the Toronto Central Local Health Integration Network (TC LHIN) in 2010. The top 1% patient segment refers to the 1% of patients in Ontario with the highest combined expenditure for all care types.

The investigation describes the utilization of and costs of health care services used by this group and the characteristics of these patients with high resource use, within the nine Health Links (HL) in the TC LHIN and overall for patients with their residence in TC LHIN.

Measures-Expenditures

For the purposes of this analysis, we measured all expenditures (costs) associated with the following services for all patients in Ontario

Types of services included for calculating costs:

Inpatient, day surgery, emergency department visits, inpatient mental health admissions, inpatient rehabilitation, complex continuing care (CCC), home care, long-term care (LTC), physician services, dialysis clinics, oncology clinics, the Ontario drug benefit plan, physician capitation, costs associated with the assistive devices program (ADP).

Data sources and methods

The data sources for these analyses, including costing algorithms, are described below. All data sources used in these analyses are housed at the Institute for Clinical Evaluative Sciences (ICES).

Inpatient Records: Canadian Institute of Health Information (CIHI), Discharge Abstract Database (DAD) was used to identify hospital discharge records; these data include newborns (excluding stillbirths) and all patients discharged from acute care beds (excluding adult designated mental health beds).

Year-specific Resource Intensity Weights (RIWs) given in the CIHI data were utilized and were multiplied by the year-specific cost

Mental health (MH) related cases were identified using Case Mix Groups (CMGs)*. The average cost for each mental health CMG was obtained from the Ontario Case Costing Initiative (OCCI) reporting facilities, housed at ICES

**Note: Case Mix Groupings (CMGs) are defined and computed by CIHI and are reported as part of CIHI databases.*

Same Day Surgery: The Same-Day Surgery Database (SDS) was used to identify same-day surgeries. The cost per case is equal to the product of the year-specific Resource Intensity Weights (RIW) and the cost per weighted case. SDS data includes activity completed in operating rooms, endoscopy rooms, cardiac catheterization labs and recovery rooms including Electroconvulsive (ECT) treatments for patients who are not admitted to inpatient care, and would not be reported in the National Ambulatory Care Reporting System (NACRS). ECT patients are those that used the ECT treatment in the Emergency Department but they are not hospitalized as inpatients. These patients are reported as SDS services only but not reported in the CIHI-DAD database.

Emergency Department: Includes all Emergency Department (ED) visits reported in NACRS. ED data utilizes the same costing methodology as same day surgery (see info above) and includes all scheduled and unscheduled visits to the ED and hospital-based urgent care centres.

Dialysis: The methods for dialysis clinic costs are the same as for the ED costs (see above) and derived from NACRS.

Oncology: The methods for oncology clinic costs are the same as for the ED costs (see above) and derived from NACRS.

Ontario Drug Benefits: Costs for the Ontario Drug Benefit (ODB) plan are coded as the total payment captured in the data. The ODB database contains claims for prescription drugs received under the ODB program. Most of for those who received the benefit are patients aged 65+.

Rehabilitation: For rehabilitation methods and costs we used data from the National Rehabilitation Reporting System (NRS). Each Rehabilitation Program Group (RPG) has a corresponding rehabilitation cost weight.

Complex Continuing Care (CCC): We used the health card number and admission date as the admission identifier. Discharge date or estimation of discharge date was used to determine length of stay.

Home Care Services: Home Care Service costs were based on the sum of the service-specific price and total number of services or service duration.

Physician Costs: Ontario Health Insurance Program (OHIP) costs were computed at the patient level by calendar year and month for years 2002 and onwards (not including lab-claims and non-physician claims). Family Health Network (FHN)/Family Health Organization (FHO) physician capitation costs are a monthly payment to the physician to which an individual (patient) is rostered. As long as an individual is rostered to a FHN/FHO group for at least one day in a month, the monthly cost would be attributed to this patient

Long-Term Care (LTC): Not all nursing homes report to the Continuing Care Reporting System (for Chronic Care) CCRS. For those patients ODB and OHIP claims were relied on to determine when an individual entered and exited a Long-Term Care (LTC) facility. LTC costs are the product of the yearly LTC/LOS (length of stay) cost per diem.

Inpatient Mental Health Care Beds - Ontario Mental Health Reporting System (OMHRS). Total cost was based on total length of stay (LOS) by applying appropriate Case Mix Indices (CMI).

Assisted Device Program (ADP): The cost for assistive devices is coded as the total payment captured in the ADP data.

Note: Expenditures/cost data based on types of service use were generated using a specific algorithm developed by the Institute for Clinical Evaluative Sciences (ICES) called “Get Cost Macro.” The purpose of this macro is to compute individual-level health care costs for any requested time period between April 1, 2002 and the latest fiscal year in which the major administrative datasets are available. Using Cost Macro, we were able to identify the high cost health care users residing in the TC LHIN including TC LHIN Health Links (HL) boundaries.

Selection of individuals

We further wished to identify “chronic” and “acute” high cost users for the purposes of identifying chronic and acute high cost users over time. To do this, we used data from three fiscal years: 2008, 2009 and 2010 to identify those who remained high cost users throughout each of three years (“chronic high users”) and those who were high users for only one year or two years (“acute high users”). We also identified those high users who died during the follow-up period.

We used the following inclusion criteria to identify “chronic” and “acute” high cost users:

- Valid Ontario postal code at index (best address from the Registered Persons Database (RPDB))
- Alive at index date
- Date of last contact with the system \leq 3 years prior to index year

- For individuals aged ≥ 3 years at index: RPDB eligibility ≥ 3 years (in RPDB at index and 1095 days prior to index)
- For individuals aged < 3 years at index: no RPDB eligibility requirement, however must be born in Ontario.

Health conditions for high health care utilization

In order to capture reasons for high health care utilization, we generated prevalence rates among high users for the following chronic diseases based on linkages with ICES disease registries:

- Diabetes
- Chronic Obstructive Pulmonary Disease (COPD)
- Hypertension
- Asthma
- Congestive Heart Failure (CHF)
- Myocardial Infarction (MI)
- Cancer (only new diagnoses within our study time period based on diagnosis date)
- All mental health conditions, as well as non-psychotic disorders and psychotic disorders

Chronic vs. acute high cost users

As previously mentioned, for the purposes of identifying chronic and acute high cost users over time, we identified high cost users for fiscal years 2008, 2009, and 2010 to identify high cost users who remained high cost users throughout each of these 3 years (“chronic high users”) and also identified those who were high users for only one year or two years (“acute high users”).

Our analysis shows the proportion of people in each year who appear in one year, two years and all three years. For each group of individuals we provide information for age, sex and income quintile distribution and the proportion of people who died in each year.

How to use the data

These analyses are based on individual-level linked data that utilize information that spans virtually the entire health care system. As such, these data can be used to manage and track health care system costs and efficiencies.

Limitations

The methodology used is person-specific and does not include important health service activities aimed at the community level. Important services that are not reflected in these cost estimates include services paid for by the Ministry of Health and Long-Term Care (MOHLTC) or Local Health Integration Networks (LHINs) where an individual health card number is not tracked at the time of service

provision. Examples include day outreach programs, community services for seniors, supportive housing, public health, and Community Health Centres (CHCs).

A significant cost that is also missing from these data is ambulatory care costs incurred in acute care settings, such as specialist clinics. Also absent from these analyses are non-billed laboratory costs and the costs associated with specific technologies performed within acute care hospitals (e.g. magnetic resonance imaging (MRI), computed tomography (CT) scan) due to an inability to determine site-specific valid and representative unit costs. In addition, individuals treated for a particular condition have been grouped within one Case Mix Group (CMG) or Rehabilitation Patient Group (RPG) or Resource Utilization Groups (RUG). Individuals within an institution are all allocated the same costs regardless of detailed differences in their person-specific costs.

For further information about this project, the datasets or analyses, please contact either:

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List of Acronyms and Abbreviations used in this document:

ACG Ambulatory Care Groups
ADP Assistive Devices Program
CACS Comprehensive Ambulatory Care Classification System
CCAC Community Care Access Centers
CCC Complex Continuing Care
CCI Canadian Classification of Health Interventions
CCM Comprehensive Care Model
CCRS Continuing Care Reporting System
CIHI Canadian Institute of Health Information
CMG Case Mix Group
CMI Case Mix Index
COI Cost of Illness
CPI Consumer Price Index
CPRWPD Cost per Rug-Weighted Patient Day
CPWC Cost per Weighted Case
DAD Discharge Abstract Database
ED Emergency Department
ECT Electroconvulsive therapy
FFS Fee-For-Service
FHN Family Health Network
FHO Family Health Organization
ICES Institute for Clinical Evaluative Sciences
IR Inpatient Rehabilitation
LHIN Local Health Integration Network
LOS Length of Stay
LTC Long Term Care

MCC Major Clinical Categories
MDS Minimum Data Set Resident Assessment Instrument
MH (Inpatient) Mental Health
MIS Management Information Systems
MOHLTC Ontario Ministry of Health and Long Term Care
NACRS National Ambulatory Care Reporting System
NDFP New Drug Funding Program
NPC Nursing and Personal Care
NRS National Rehabilitation Reporting System
OA Other Accommodation
OCCI Ontario Case Costing Initiative
ODB Ontario Drug Benefit database
OHCAS Ontario Home Care Administrative System
OHIP Ontario Health Insurance Plan
OMHRS Ontario Mental Health Reporting System
PAC-10 Prospective Complexity Adjustment Weighting System
PSS Program and Support Services
RAI-MDS Resident Assessment Instrument – Minimum Data Set
RBC Resident Basic Co-Payment
RCW Rehabilitation Cost Weight
RIW Resource Intensity Weight
RPDB Ontario Registered Persons Database
RPG Rehabilitation Patient Group
RUG Resource Utilization Groups
RWPD RUG-Weighted Patient Day
SDS Same Day Surgery