Dynamic Cohort of Complex, High System Users – 2011-2015

A CIHR-CIHI Collaboration

Winter 2017

Table of Contents

Overview of the Dynamic Cohort

CIHR and the Canadian Institute for Health Information (CIHI) have partnered to create a dynamic cohort of complex, high system users. The cohort was developed using CIHI's in-house datasets (e.g., hospitalizations, ER visits, and costing data) to facilitate cross-jurisdictional research. The research priorities generated for SPOR's Primary and Integrated Health Care Innovations (PIHCI) Network were considered when building the cohort, which resulted in the development of 8 subset cohorts to encompass various definitions of "complex, high system user", and two age groups: children (<18 years old) and adults (≥ 18 years):

1. **Highest acute care cost** (eg. patients with very costly interventions and investigations): children
2. **Highest acute care cost** (eg. patients with very costly interventions and investigations): adults
3. **Highest length of stay** (eg. patients waiting for alternative care): children
4. **Highest length of stay** (eg. patients waiting for alternative care): adults
5. **Most frequent hospitalizations** (eg. patients at risk of frequent exacerbations / deterioration): children
6. **Most frequent hospitalizations** (eg. patients at risk of frequent exacerbations / deterioration): adults
7. **Most frequent emergency room visits** (eg. patients who lack a primary care team or patients who suffer from uncontrolled illness): children
8. **Most frequent emergency room visits** (eg. patients who lack a primary care team or patients who suffer from uncontrolled illness): adults

For each subset, CIHI stratified hospitalization and ED visit records by age group (children, adults), province and year, and then identified the top 10% of patients with respect to 1) acute care cost, 2) length of stay, 3) number of hospitalizations, 4) number of ED visits. To create the control group, a 20% random sample was selected from the remaining 90% of non-high users. The cohort currently includes data from 2011-2012 to 2014-2015 and will be updated each year as data becomes available. Patients that are selected each year will be followed forward in time, updating their records each year. This will allow researchers to investigate sporadic, persistent and one-time high system users.

The dynamic cohort is available from CIHI for all research funding opportunities and we encourage those applying to use it as a way of assisting in the rapid turn-around required for many of the cross-jurisdictional research projects.

For more information on the Dynamic Cohort, please contact CIHI's Corporate Data Request Program at cdrp@cihi.ca.

Accessing the Dynamic Cohort from CIHI

Dynamic Cohort Data Request Process at CIHI

1. CIHI and CIHR have developed a streamlined process for the researcher to access the data.

2. CIHI will work with researcher to determine if there are any inclusion/exclusion criteria and any linkage requirements for the data request. A detailed specifications document and cost estimate are prepared and approved by the requesting researcher. A cost of $150/hour will be incurred for data extraction, linkage and verification. Linkage and verification is estimated to require ½ hour per database

3. CIHI's Privacy, Confidentiality and Security Committee reviews and approves requests that include data linkage (within and across data holdings).

4. CIHI extracts, verifies, and releases data to researcher in a secure manner.

For more information on this process and to access the data please contact CIHI's Corporate Data Request Program at cdrp@cihi.ca.

Assumptions

- The cohorts can be linked to other data holdings at CIHI, as required by the specific research programs brought forth by researchers, via CIHI's custom data request process.

- Only data that CIHI is authorized to disclose through its Data Sharing Agreements with provinces and territories, and that are required to support the research, will be included.

CIHI Data Holdings

See https://www.cihi.ca/sites/default/files/document/data_holdings_availability_en.xlsx for a detailed list of data holdings

Hospital Data

- o Discharge Abstract Database (DAD)
  The Discharge Abstract Database (DAD) captures administrative, clinical and demographic information on hospital discharges (including deaths, sign-outs and transfers). Some provinces and territories also use the DAD to capture day surgery.

- o Hospital Mental Health Database (HMHDB)
  The Hospital Mental Health Database (HMHDB) contains data from across Canada on hospitalizations for mental illness. It also provides demographic and medical diagnosis information from all provinces and territories for inpatient hospital stays for mental illness reasons.

- o National Rehabilitation Reporting System (NRS)
  The National Rehabilitation Reporting System (NRS) collects data from participating adult inpatient rehabilitation facilities and programs across Canada.

- o Canadian Joint Replacement Registry (CJRR)
  The Canadian Joint Replacement Registry (CJRR) was launched in May 2001 as a voluntary registry and has now been mandated by selected provinces. It was developed to provide a rich set of additional patient-level clinical, surgical and prosthesis information beyond what is captured in the Hospital Morbidity Database and the Discharge Abstract Database, allowing for more in-depth analysis of hip and knee replacement procedures.

- o Canadian Organ Replacement Register (CORR)
  The Canadian Organ Replacement Register (CORR) is a national database that provides statistics to track long-term trends for dialysis activity, organ transplantation, organ donation, and wait list statistics.

- o Ontario Mental Health Reporting System (OMHRS)
  The Ontario Mental Health Reporting System (OMHRS) collects, analyzes and reports on information submitted to CIHI about individuals admitted to designated adult mental health beds in Ontario. It includes information about mental and physical health, social support and service use.

Ambulatory and Community Care

- o National Ambulatory Care Reporting System (NACRS)
  The National Ambulatory Care Reporting System (NACRS) contains data for all hospital-based and community-based ambulatory care: day surgery, outpatient and community-based clinics, and emergency departments.

- o Home Care Reporting System (HCRS)
  The Home Care Reporting System (HCRS) contains demographic, clinical, functional and resource utilization information on clients served by publicly funded home care programs in Canada. HCRS captures data on clients at multiple points throughout their home care services. Information on organization characteristics that supports comparative reporting and benchmarking is also captured.

- o Continuing Care Reporting System (CCRS)
  The Continuing Care Reporting System (CCRS), launched in 2003–2004, contains demographic, clinical, functional and resource utilization information on individuals receiving continuing care services in hospitals or long-term care homes in Canada. Information on facility characteristics that supports comparative reporting and benchmarking is also captured.

Other (where linkable at the patient level)

- o Health Workforce Databases (Health Workforce)
  CIHI's Health Workforce Database includes information about 30 groups of health care professionals—information such as practice setting, regulatory environment, supply, and demographic, education and employment characteristics. This information is used by health care planners, decision-makers, policy-makers and researchers to support resource and use planning.

- o National Prescription Drug Utilization Information System (NPDUIS)
  The National Prescription Drug Utilization Information System Database contains prescription claims-level data collected from publicly financed drug benefit programs in Canada. The database also contains supporting information for additional context: Formulary and drug product information; and information on policies of public drug plans in Canada.

- In addition, data may be linked to other geographical and population information available at CIHI, including Statistics Canada's reference population files and postal code conversion file (PCCF).

The Dynamic Cohort Methodology and Descriptive Statistics

1. Highest Acute Care Cost

Cohort description

This cohort is created using CIHI's Cost of a Standard Hospital Stay (CSHS) indicator for acute inpatient hospitalization data from CIHI's Discharge Abstract Database (DAD). The CSHS is an indicator that measures the relative cost-efficiency of a hospital's ability to provide acute inpatient care. This indicator compares a hospital's total acute inpatient care expenses to the number of acute inpatient weighted cases related to the inpatients for which care was provided. The result is the hospital's average full cost of treating the average acute inpatient. A high cost for a standard hospital stay indicates a relatively high cost of treating the average acute inpatient; a low cost for a standard hospital stay indicates that the cost of treating the average acute inpatient is relatively low.

CSHS is used in conjunction with a Resource Intensity Weight (RIW) to estimate the cost of an acute inpatient hospital stay for each individual patient. These cost estimates are adjusted between provinces to account for different administrative structures (for example: some provinces are regionalized and other not) and for some data quality issues.

For this cohort, please note that provincial CSHS values will be used to calculate patient cost estimates.

Methodological notes about the CSHS indicator can be found at
http://indicatorlibrary.cihi.ca/download/attachments/1114237/Cost%20of%20a%20Standard%20Hospital%20Stay.pdf?version=1&modificationDate=1433857303000&api=v2.

Cohort selection: High Acute Care Cost Users and Controls

The cohort was created by first stratifying by year, province (by patient residence), and age group children (age < 18) and for adults (age ≥18). Starting with the first hospitalization in the year, the costs for each hospitalization were summed using the patient level costs generated by CSHS, and then the top 10% of high cumulative acute care cost patients within each stratum. Within each stratum, a control group is randomly selected from the 90% in the bottom deciles, using a sampling ratio of 4:1.

Time Frame and database for cohort selection

The cohort includes the fiscal years of 2011-2012 to 2014-2015 inclusively. Each year the cohort selection process was (and will be) repeated, adding the patients for that fiscal year updating the data for all the patients previously selected. The dynamic nature of the cohort allows for the patients selected to be followed forward in time. Baseline data corresponding to the 2 years prior to the selection of the patient in the cohort is also available.

Exclusions

1. Acute inpatient records from provinces for which a provincial CSHS value was not available (Quebec).
2. Acute inpatient records for which an RIW was not assigned.

Descriptive statistics: Top 10% Highest Acute Care Cost (2014-2015)

| Child / Adult | Prov | Total Population | | High User Cohort Descriptive Stats: Age | | | | | High User Cohort Descriptive Stats: Cost | | | | | Gender Analysis |
		Total # of unique patients in this population	# of High Users identified by Cumulative Cost	Min	Max	Med	Mean	Std Dev	Min ($)	Max ($)	Median ($)	Mean ($)	Std Dev ($)	Ratio M:F
Adult	AB	230,788	23,086	18	105	70	67.78	17.99	33,600.96	2,214,986.32	58,048.56	80,500.79	71,699.08	1.11
Child	AB	71,581	7,159	0	17	0	4.61	6.27	10,724.80	1,625,840.84	24,517.08	47,400.98	79,221.80	1.16
Adult	BC	257,278	25,729	18	106	73	69.45	17.54	28,503.69	1,800,279.83	45,858.16	61,340.65	48,914.61	1.15
Child	BC	56,577	5,658	0	17	0	5.45	6.68	7,863.37	980,146.00	17,229.10	31,122.62	49,969.76	1.14
Adult	MB	75,917	7,592	18	104	74	71.03	17.10	32,270.32	4,399,769.69	56,563.70	79,630.34	91,966.79	0.99
Child	MB	21,077	2,123	0	17	0	4.42	6.25	7,783.68	963,230.50	15,810.97	32,750.81	54,707.04	1.08
Adult	NB	51,089	5,109	18	104	73	71.32	15.48	27,482.89	3,551,452.21	44,902.11	67,009.31	90,988.96	1.00
Child	NB	10,651	1,071	0	17	3	6.26	6.74	7,351.92	868,766.07	13,795.96	26,527.72	46,207.03	1.15
Adult	NL	33,075	3,308	18	101	71	68.98	15.35	32,228.50	574,218.36	54,861.97	75,161.43	58,809.85	1.07
Child	NL	6,453	646	0	17	2	5.94	6.69	8,917.59	445,688.25	18,810.85	36,427.90	52,773.70	1.20
Adult	NS	55,463	5,547	18	103	73	70.40	15.95	32,322.41	2,268,618.95	54,169.92	74,487.57	70,116.29	1.02
Child	NS	11,638	1,169	0	17	1	5.76	6.70	8,688.68	809,163.23	18,309.31	37,509.27	66,088.22	1.07
Adult	ON	678,481	67,851	18	108	72	69.47	16.13	22,588.89	3,161,722.85	36,124.06	51,294.14	51,902.73	1.17
Child	ON	184,385	18,439	0	17	0	4.99	6.46	7,174.20	1,722,919.84	15,386.57	29,755.58	49,816.18	1.10
Adult	PE	9,794	980	18	101	72	70.74	15.16	32,357.20	799,993.21	53,725.38	70,050.54	53,060.42	0.97
Child	PE	2,217	222	0	17	0	5.16	6.50	8,357.50	297,075.65	14,259.75	27,864.07	36,874.79	1.22
Adult	SK	76,744	7,675	18	104	71	68.27	18.29	30,889.46	822,745.55	50,021.37	66,346.46	52,302.07	1.05
Child	SK	22,457	2,246	0	17	1	4.88	6.27	9,694.58	1,107,775.26	19,963.67	41,450.75	72,033.31	1.17
Adult	TE	3,532	354	18	95	63	60.73	16.77	24,273.17	581,114.44	42,694.22	64,991.21	65,014.22	1.41
Child	TE	1,267	127	0	17	0	2.80	5.07	18,877.53	731,329.91	35,723.24	66,367.59	104,083.25	1.23

Descriptive statistics: Control Group – Acute Care Cost (2014-2015)

Child/Adult	Prov	Population		Control Cohort Descriptive Stats: Age					Control Cohort Descriptive Stats: Cost					Gender Analysis
		Total # of unique patients in this population	# of Selected Controls for High Users identified by Cumulative Cost	Min	Max	Median	Mean	Std Dev	Min ($)	Max ($)	Median ($)	Mean ($)	Std Dev ($)	Ratio M:F
ADULT	AB	230,788	92,344	18	106	47	49.61	20.72	705.83	33,589.19	5,771.45	8,240.09	6,370.16	0.54
CHILD	AB	71,581	28,636	0	17	0	1.72	4.29	705.83	10,724.01	1,720.99	2,522.05	2,039.32	1.05
ADULT	BC	257,278	102,916	18	109	58	55.93	21.41	525.43	28,495.51	5,170.75	7,288.80	5,759.85	0.65
CHILD	BC	56,577	22,632	0	17	0	1.78	4.35	525.43	7,833.56	1,281.14	1,893.87	1,482.39	1.08
ADULT	MB	75,917	30,368	18	108	52	52.26	21.89	553.03	32,266.63	4,987.76	7,368.74	6,330.38	0.55
CHILD	MB	21,077	8,492	0	17	0	1.75	4.43	553.03	7,748.00	1,348.44	1,845.31	1,480.05	1.02
ADULT	NB	51,089	20,436	18	105	60	57.16	20.83	464.53	27,471.53	4,890.26	6,893.97	5,513.66	0.69
CHILD	NB	10,651	4,284	0	17	0	2.17	4.57	464.53	7,330.22	1,172.44	1,793.47	1,367.92	1.03
ADULT	NL	33,075	13,232	18	102	59	55.87	20.19	549.00	32,224.75	5,466.35	7,890.92	6,337.99	0.66
CHILD	NL	6,453	2,584	0	17	0	3.05	5.30	737.88	8,901.96	1,614.33	2,289.91	1,690.35	1.02
ADULT	NS	55,463	22,188	18	106	59	56.31	20.73	549.00	32,287.61	5,704.93	8,043.34	6,439.59	0.67
CHILD	NS	11,638	4,676	0	17	0	2.02	4.60	549.00	8,653.87	1,338.60	2,091.51	1,698.67	1.01
ADULT	ON	678,481	271,404	18	108	57	55.86	21.49	486.10	22,587.27	4,506.86	6,215.47	4,574.89	0.57
CHILD	ON	184,385	73,756	0	17	0	1.72	4.20	486.10	7,173.12	1,185.25	1,753.64	1,384.28	1.05
ADULT	PE	9,794	3,920	18	104	58	55.84	21.15	537.90	32,310.20	5,331.14	8,032.74	6,719.66	0.65
CHILD	PE	2,217	888	0	17	0	2.50	4.90	737.88	8,338.95	1,564.64	2,369.65	1,816.23	1.01
ADULT	SK	76,744	30,700	18	106	53	52.75	22.26	642.40	30,870.17	5,570.79	7,951.93	6,227.75	0.56
CHILD	SK	22,457	8,984	0	17	0	2.21	4.72	642.40	9,687.43	1,615.01	2,418.86	1,893.65	1.00
ADULT	TE	3,532	1,416	18	98	46	46.52	18.42	691.19	24,204.01	5,281.16	6,788.11	4,752.44	0.62
CHILD	TE	1,267	508	0	17	0	3.21	5.59	691.19	18,479.46	1,963.61	3,555.35	3,603.87	1.04

Descriptive statistics: Top 10% Highest Acute Care Cost (2013-2014)

Child / Adult	Prov	Total Population		High User Cohort Descriptive Stats: Age					High User Cohort Descriptive Stats: Cost					Gender Analysis
		Total # of unique patients in this population	# of High Users identified by Cumulative Cost	Min	Max	Med	Mean	Std Dev	Min ($)	Max ($)	Median ($)	Mean ($)	Std Dev ($)	Ratio M:F
Adult	AB	22,5724	22,573	18	108	70	67.33	17.92	31,966.87	2,117,171.48	54,052.54	75,397.69	69,738.18	1.12
Child	AB	69,382	6,965	0	17	0	4.55	6.26	10,286.73	1,538,612.23	22,890.66	43,804.53	69,294.94	1.18
Adult	BC	258,770	25,877	18	106	72	69.13	17.45	27,779.34	1,203,836.38	44,218.49	59,731.56	50,261.40	1.14
Child	BC	57,092	5,800	0	17	0	5.51	6.70	7,758.50	627,556.52	16,615.81	30,078.46	43,709.54	1.14
Adult	MB	74,499	7,450	18	106	74	70.50	17.26	31,276.17	10,907,499.42	54,249.21	77,371.93	143,847.60	1.04
Child	MB	20,914	2,093	0	17	0	4.91	6.46	7,424.14	915,461.99	15,378.62	31,977.88	58,288.94	1.12
Adult	NB	51,348	5,135	18	112	73	70.49	16.26	27,205.79	2,925,992.90	44,690.40	64,694.55	76,624.46	1.00
Child	NB	10,638	1,064	0	17	2	6.20	6.78	6,943.43	360,075.98	12,417.92	23,413.47	29,783.49	1.17
Adult	NL	33,240	3,324	18	100	70	68.17	15.65	27,356.57	943,764.91	46,159.82	64,319.87	54,749.98	1.13
Child	NL	6,363	638	0	17	3	5.80	6.48	8,028.62	655,274.36	17,857.96	33,988.47	54,849.76	1.08
Adult	NS	54,290	5,429	18	104	73	70.43	16.27	29,538.41	2,097,320.33	49,309.06	71,246.68	75,123.65	1.00
Child	NS	11,940	1,218	0	17	3	6.11	6.68	7,781.99	1,514,430.36	15,538.17	31,779.94	66,747.00	1.02
Adult	ON	669,937	66,996	17	109	72	69.37	16.03	22,215.03	2,949,361.18	35,243.31	50,415.92	51,270.29	1.18
Child	ON	183,568	18,514	0	17	0	4.80	6.45	6,993.61	2,902,561.53	14,504.99	28,415.79	54,071.98	1.10
Adult	PE	9,854	986	18	100	73	70.71	15.70	30,402.98	1,199,444.63	50,734.02	69,853.20	69,311.64	0.98
Child	PE	2,283	229	0	17	0	5.14	6.74	9,233.91	114,367.45	16,534.94	23,862.03	19,717.65	1.16
Adult	SK	75,893	7,590	18	108	72	68.52	17.75	29,863.02	1,181,509.59	47,722.16	64,094.14	52,770.68	1.08
Child	SK	22,278	2,228	0	17	0	4.90	6.36	9,231.05	979,145.29	18,684.08	36,552.16	61,763.54	1.21
Adult	TE	3,369	337	18	100	62	60.53	16.77	25,010.36	838,192.59	41,895.92	66,947.72	78,302.85	1.36
Child	TE	1,245	125	0	17	0	3.70	5.78	14,135.49	552,398.93	28,853.91	53,285.31	76,141.02	1.12

Descriptive statistics: Control Group – Acute Care Cost (2013-2014)

| Child/Adult | Prov | Population | | Control Cohort Descriptive Stats: Age | | | | | Control Cohort Descriptive Stats: Cost | | | | | Gender Analysis |
		Total # of unique patients in this population	# of Selected Controls for High Users identified by Cumulative Cost	Min	Max	Median	Mean	Std Dev	Min ($)	Max ($)	Median ($)	Mean ($)	Std Dev ($)	Ratio M:F
ADULT	AB	225,724	90,292	18	108	47	49.54	20.69	561.41	31,966.87	5,791.83	8,232.23	6,139.24	0.54
CHILD	AB	69,382	27,860	0	17	0	1.72	4.29	744.35	10,267.03	1,750.21	2,455.90	1,951.62	1.04
ADULT	BC	258,770	103,508	18	107	57	55.68	21.24	518.83	27,773.62	5,118.98	7,245.87	5,607.61	0.65
CHILD	BC	57,092	23,200	0	17	0	1.92	4.51	598.00	7,756.22	1,320.05	1,923.17	1,475.70	1.05
ADULT	MB	74,499	29,800	18	106	52	52.14	21.83	589.80	31,267.16	5,097.38	7,392.93	6,098.71	0.54
CHILD	MB	20,914	8,372	0	17	0	1.80	4.51	589.80	7,409.73	1,386.81	1,831.84	1,436.25	1.00
ADULT	NB	51,348	20,540	18	105	59	56.74	20.69	535.75	27,195.42	5,125.60	7,193.22	5,486.18	0.66
CHILD	NB	10,638	4,256	0	17	0	2.30	4.72	570.66	6,915.15	1,432.66	1,993.64	1,399.33	1.02
ADULT	NL	33,240	13,296	18	101	58	55.43	19.89	518.83	27,321.15	5,122.51	7,202.30	5,489.80	0.68
CHILD	NL	6,363	2,552	0	17	0	3.25	5.49	652.48	8,022.83	1,500.35	2,125.61	1,538.62	0.99
ADULT	NS	54,290	21,716	18	104	59	56.12	20.75	563.11	29,536.69	5,562.82	7,684.47	5,915.55	0.65
CHILD	NS	11,940	4,872	0	17	0	2.11	4.66	654.85	7,757.33	1,324.04	2,038.56	1,609.12	1.00
ADULT	ON	669,937	267,984	18	110	57	55.52	21.38	518.83	22,214.50	4,568.01	6,261.09	4,502.78	0.57
CHILD	ON	183,568	74,056	0	17	0	1.76	4.29	518.83	6,992.55	1,219.93	1,758.76	1,358.93	1.04
ADULT	PE	9,854	3,944	18	100	57	55.18	20.98	883.57	30,350.32	5,221.85	7,732.02	6,164.49	0.63
CHILD	PE	2,283	916	0	17	0	2.88	5.34	781.80	9,144.10	1,612.06	2,289.62	1,677.90	1.00
ADULT	SK	75,893	30,360	18	105	53	52.70	22.09	672.82	29,850.68	5,627.15	7,960.99	6,017.65	0.57
CHILD	SK	22,278	8,912	0	17	0	2.31	4.83	672.82	9,223.51	1,582.01	2,394.39	1,829.76	1.00
ADULT	TE	3,369	1,348	18	96	44	45.60	18.56	518.83	24,891.69	5,845.94	7,141.17	4,681.32	0.60
CHILD	TE	1,245	500	0	17	0	2.98	5.40	757.11	14,000.86	2,249.30	3,229.29	2,766.37	1.02

Descriptive statistics: Top 10% Highest Acute Care Cost (2012-2013)

Child / Adult	Prov	Total Population		High User Cohort Descriptive Stats: Age					High User Cohort Descriptive Stats: Cost					Gender Analysis
		Total # of unique patients in this population	# of High Users identified by Cumulative Cost	Min	Max	Med	Mean	Std Dev	Min ($)	Max ($)	Median ($)	Mean ($)	Std Dev ($)	Ratio M:F
Adult	AB	219,289	21,929	18	105	71	67.66	17.92	31,781.56	2,485,658.55	53,410.90	74,616.21	70,772.20	1.08
Child	AB	69,099	6,910	0	17	0	4.52	6.24	9,886.20	1,209,561.35	22,199.80	41,977.39	68,146.48	1.18
Adult	BC	251,064	25,108	18	104	73	69.63	17.30	26,692.14	2,230,413.53	42,853.26	57,810.22	49,536.78	1.14
Child	BC	58,119	5,812	0	17	0	5.41	6.65	7,322.10	927,579.74	15,139.68	27,874.33	42,849.69	1.16
Adult	MB	75,048	7,506	18	105	74	70.54	17.35	29,972.39	2,231,604.58	53,360.37	76,853.29	79,180.98	1.00
Child	MB	21,272	2,128	0	17	0	4.73	6.43	7,560.37	1,265,722.55	15,230.55	30,568.62	56,931.24	1.16
Adult	NB	52,011	5,202	18	101	73	70.36	16.23	26,170.03	1,976,493.57	43,714.07	64,420.77	73,470.14	0.94
Child	NB	11,192	1,120	0	17	1	5.83	6.63	7,107.64	413,467.20	13,587.58	23,607.58	29,339.02	1.02
Adult	NL	33,658	3,366	18	105	71	68.95	15.30	29,575.27	799,343.08	47,865.74	67,638.46	60,273.98	1.14
Child	NL	5,587	559	0	17	6	7.33	6.70	8,548.25	812,446.70	15,209.98	30,962.02	48,982.02	1.12
Adult	NS	54,541	5,456	18	105	73	70.43	16.01	28,682.52	949,300.64	49,300.34	69,457.19	57,828.60	1.05
Child	NS	12,334	1,245	0	17	2	6.14	6.77	7,712.33	677,147.29	16,496.18	31,007.43	48,389.05	1.12
Adult	ON	666,646	66,665	17	107	72	69.33	16.06	21,930.73	2,313,186.39	34,819.25	49,698.67	50,262.63	1.16
Child	ON	185,911	18,657	0	17	0	4.71	6.39	7,033.72	907,850.26	14,599.22	27,716.25	42,435.85	1.14
Adult	PE	9,891	990	18	100	74	71.20	15.38	31,253.38	670,489.50	51,251.24	66,675.13	46,410.02	1.10
Child	PE	2,234	224	0	17	0	5.28	6.61	9,612.59	407,393.97	18,777.46	36,163.51	55,069.05	1.04
Adult	SK	74,563	7,457	17	106	72	68.55	18.06	29,364.12	1,525,406.31	46,702.08	63,771.01	61,602.37	1.08
Child	SK	22,365	2,237	0	17	0	4.85	6.36	8,901.86	918,874.07	17,811.68	36,338.81	57,501.74	1.18
Adult	TE	3,576	358	19	94	61	59.32	16.44	23,511.62	559,047.30	38,788.44	55,167.77	49,094.01	1.34
Child	TE	1,157	116	0	17	0	3.26	5.70	15,283.08	560,587.80	30,328.05	55,499.94	69,568.57	1.15

Descriptive statistics: Control Group – Acute Care Cost (2012-2013)

| Child/Adult | Prov | Population | | Control Cohort Descriptive Stats: Age | | | | | Control Cohort Descriptive Stats: Cost | | | | | Gender Analysis |
		Total # of unique patients in this population	# of Selected Controls for High Users identified by Cumulative Cost	Min	Max	Median	Mean	Std Dev	Min ($)	Max ($)	Median ($)	Mean ($)	Std Dev ($)	Ratio M:F
ADULT	AB	219,289	87,716	18	107	48	49.82	20.89	651.53	31,774.91	5,648.66	8,166.36	6,182.83	0.54
CHILD	AB	69,099	27,640	0	17	0	1.88	4.49	615.90	9,880.29	1,706.20	2,454.10	1,944.33	1.05
ADULT	BC	251,064	100,432	18	106	57	55.60	21.38	537.97	26,685.57	4,989.13	6,988.28	5,392.95	0.64
CHILD	BC	58,119	23,248	0	17	0	1.86	4.43	537.97	7,311.40	1,264.95	1,852.36	1,434.13	1.06
ADULT	MB	75,048	30,024	18	106	52	52.08	21.86	578.22	29,961.21	4,992.55	7,147.04	5,862.83	0.56
CHILD	MB	21,272	8,512	0	17	0	2.04	4.74	578.22	7,549.69	1,359.57	1,867.73	1,460.92	1.00
ADULT	NB	52,011	20,808	18	108	59	56.47	20.91	539.06	26,164.54	5,017.01	7,061.22	5,337.50	0.67
CHILD	NB	11,192	4,480	0	17	0	2.53	4.90	574.19	7,107.64	1,441.51	2,021.93	1,441.54	1.08
ADULT	NL	33,658	13,464	18	102	58	55.38	20.00	555.85	29,568.35	5,446.04	7,859.29	5,951.54	0.67
CHILD	NL	5,587	2,236	0	17	0	3.74	5.63	719.34	8,491.56	2,025.73	2,512.77	1,712.26	1.04
ADULT	NS	54,541	21,824	18	106	58	55.89	20.91	522.20	28,663.27	5,365.52	7,480.65	5,674.71	0.65
CHILD	NS	12,334	4,980	0	17	0	2.28	4.79	555.85	7,700.45	1,306.99	2,059.87	1,632.72	1.02
ADULT	ON	666,646	266,660	18	114	56	55.32	21.43	522.20	21,930.20	4,572.16	6,232.39	4,460.63	0.58
CHILD	ON	185,911	74,628	0	17	0	1.79	4.34	522.20	7,031.07	1,227.86	1,765.79	1,363.42	1.05
ADULT	PE	9,891	3,960	18	104	57	55.78	21.07	555.85	31,186.57	5,268.09	7,866.34	6,374.68	0.71
CHILD	PE	2,234	896	0	17	0	3.03	5.30	612.98	9,559.85	1,959.09	2,614.55	1,937.31	1.06
ADULT	SK	74,563	29,828	18	104	53	53.11	22.40	651.53	29,364.12	5,449.13	7,715.45	5,858.33	0.56
CHILD	SK	22,365	8,948	0	17	0	2.45	4.96	573.03	8,883.28	1,737.64	2,396.17	1,803.31	1.03
ADULT	TE	3,576	1,432	18	92	44	45.61	18.33	651.53	23,407.96	5,481.88	6,921.13	4,657.63	0.66
CHILD	TE	1,157	464	0	17	0	3.54	5.70	615.90	14,589.09	2,501.72	3,532.21	3,000.42	1.08

Descriptive statistics: Top 10% Highest Acute Care Cost (2011-2012)

Child / Adult	Prov	Total Population		High User Cohort Descriptive Stats: Age					High User Cohort Descriptive Stats: Cost					Gender Analysis
		Total # of unique patients in this population	# of High Users identified by Cumulative Cost	Min	Max	Med	Mean	Std Dev	Min ($)	Max ($)	Median ($)	Mean ($)	Std Dev ($)	Ratio M:F
Adult	AB	214,902	21,491	18	107	71	67.63	17.89	29,296.90	2,855,175.85	50,340.32	70,655.98	74,009.99	1.08
Child	AB	66,772	6,680	0	17	0	4.56	6.22	9,163.80	1,654,724.20	20,207.76	39,675.94	65,241.11	1.28
Adult	BC	249,121	24,915	18	107	73	69.11	17.51	24,786.28	7,988,578.89	39,820.33	54,701.43	68,954.97	1.13
Child	BC	58,268	5,827	0	17	0	5.27	6.52	6,998.25	1,558,544.26	14,739.84	26,703.56	44,575.72	1.16
Adult	MB	75,775	7,578	18	105	74	70.58	17.21	2,8612.28	1,438,112.13	49,629.26	69,096.20	68,326.06	0.99
Child	MB	20,872	2,088	0	17	0	5.16	6.61	68,53.09	1,395,843.89	13,721.95	28,604.39	61,175.37	1.23
Adult	NB	53,010	5,301	18	105	73	70.11	16.28	25,671.99	1,092,657.61	41,738.93	60,109.95	56,775.89	0.97
Child	NB	11,656	1,166	0	17	3	6.30	6.72	7,035.00	281,797.87	12,802.31	22,551.22	28,830.06	1.09
Adult	NL	33,896	3,390	18	104	70	68.20	15.43	29,978.87	1,271,818.46	49,143.66	68,828.99	66,880.17	1.12
Child	NL	5,391	540	0	17	6	7.17	6.87	9,469.07	711,959.56	19,475.48	36,377.88	55,239.58	1.26
Adult	NS	54,910	5,491	18	104	73	70.51	15.96	28,425.90	3,229,930.98	48,204.72	65,950.72	70,852.04	1.01
Child	NS	12,739	1,284	0	17	2	5.78	6.66	7,503.17	940,611.33	14,130.57	29,400.75	48,671.17	1.16
Adult	ON	658,447	65,987	17	107	72	69.33	16.03	21,529.60	9,033,957.14	34,272.92	49,381.77	61,661.56	1.16
Child	ON	188,531	18,854	0	17	0	4.66	6.33	6,822.02	969,955.10	14,319.06	26,884.03	41,146.05	1.20
Adult	PE	9,941	995	18	102	74	70.97	15.53	29,651.47	3,414,424.40	47,935.24	65,704.99	115,713.45	1.06
Child	PE	2,426	243	0	17	0	5.78	7.01	8,137.40	266,200.88	17,387.45	29,345.62	37,171.44	1.17
Adult	SK	74,110	7,411	18	107	73	68.76	18.02	28,347.92	908,796.76	45,653.31	62,062.96	52,476.05	1.03
Child	SK	22,163	2,219	0	17	1	5.09	6.47	8,485.08	542,319.35	16,707.37	31,423.65	43,308.90	1.18
Adult	TE	3,479	348	18	100	61	58.99	18.86	22,846.87	453,613.74	37,829.55	55,059.09	51,313.74	1.10
Child	TE	1,107	111	0	17	0	3.90	6.19	17,193.85	997,928.21	36,585.68	74,131.11	121,642.59	1.06

Descriptive statistics: Control Group – Acute Care Cost (2011-2012)

Child/ Adult	Prov	Population		Control Cohort Descriptive Stats: Age					Control Cohort Descriptive Stats: Cost					Gender Analysis
		Total # of unique patients in this population	# of Selected Controls for High Users identified by Cumulative Cost	Min	Max	Median	Mean	Std Dev	Min ($)	Max ($)	Median ($)	Mean ($)	Std Dev ($)	Ratio M:F
ADULT	AB	214,902	85,964	18	105	48	50.05	20.91	519.08	29,294.83	5,334.65	7,635.88	5,779.53	0.55
CHILD	AB	66,772	26,720	0	17	0	1.91	4.51	675.69	9,160.35	1,588.77	2,282.35	1,811.02	1.05
ADULT	BC	249,121	99,660	18	106	56	55.41	21.37	510.46	24,783.68	4,743.82	6,627.66	5,086.47	0.63
CHILD	BC	58,268	23,308	0	17	0	1.91	4.48	543.73	6,994.09	1,200.25	1,763.60	1,358.45	1.06
ADULT	MB	75,775	30,312	18	104	53	52.70	21.91	519.08	28,600.46	4,776.60	6,973.16	5,745.85	0.57
CHILD	MB	20,872	8,352	0	17	0	2.19	4.91	553.20	6,846.89	1,300.76	1,748.90	1,331.27	1.03
ADULT	NB	53,010	21,204	18	110	59	56.49	20.83	519.08	25,667.53	5,058.97	7,086.86	5,277.60	0.65
CHILD	NB	11,656	4,664	0	17	0	2.70	5.01	547.46	6,974.24	1,463.98	2,079.93	1,441.92	1.08
ADULT	NL	33,896	13,560	18	104	57	55.55	19.95	649.84	29,968.29	5,921.39	8,313.90	6,113.96	0.69
CHILD	NL	5,391	2,160	0	17	0	4.35	5.87	755.73	9,462.45	2,422.69	2,843.88	1,888.87	1.06
ADULT	NS	54,910	21,964	18	104	58	55.73	20.85	542.93	28,414.85	5,194.33	7,391.95	5,737.48	0.64
CHILD	NS	12,739	5,136	0	17	0	2.38	4.93	578.32	7,488.79	1,451.87	2,031.28	1,550.80	1.03
ADULT	ON	658,447	263,948	18	112	56	55.15	21.38	519.08	21,529.07	4,499.91	6,180.10	4,420.49	0.57
CHILD	ON	188,531	75,416	0	17	0	1.81	4.32	519.08	6,821.49	1,220.52	1,783.35	1,363.17	1.06
ADULT	PE	9,941	3,980	18	102	57	55.16	20.93	542.93	29,615.96	4,876.47	7,430.88	6,053.15	0.64
CHILD	PE	2,426	972	0	17	0	2.92	5.27	792.28	8,018.45	1,812.95	2,338.20	1,698.42	1.05
ADULT	SK	74,110	29,644	18	104	53	53.27	22.40	553.20	2,8342.15	5,245.65	7,552.00	5,822.67	0.57
CHILD	SK	22,163	8,876	0	17	0	2.65	5.10	670.45	8,484.44	1,683.17	2,362.88	1,742.44	0.99
ADULT	TE	3,479	1,392	18	98	44	45.87	18.41	1052.62	22,568.15	5,336.44	6,742.21	4,429.18	0.61
CHILD	TE	1,107	444	0	17	0	3.36	5.64	744.89	16,937.18	2,328.49	3,508.65	3,271.47	1.11

2. Highest Length of Stay

Cohort description

This cohort is created using CIHI's Discharge Abstract Database (DAD) and the Ontario Mental Health Reporting System (OMHRS). The OMHRS contains records for patients admitted to the designated adult inpatient mental health beds in the province of Ontario.

CIHI uses the inpatient DAD database and the OMHRS to sum the different lengths of hospital stay for each patient within each fiscal year.

Acute inpatient hospitalization data submitted from Quebec will not be included. However, patients with QC postal codes who were hospitalized outside of QC will be included.

Cohort selection: Highest Length of Stay Users and Controls

The cohort was created by first stratifying by year, province (by patient residence), and age group children (age < 18) and for adults (age ≥18). Starting with the first hospitalization in the year, the length of stay for each hospitalization was summed, and then the top 10% of cumulative length of stay patients within each stratum was identified. Within each stratum, a control group is randomly selected from the 90% in the bottom deciles, using a sampling ratio of 4:1.

Time Frame and database for cohort selection

This cohort includes the fiscal years of 2011-2012 to 2014-2015 inclusively. Each year the cohort selection process was/will be repeated, adding the patients for that fiscal year and updating the data for all the patients previously selected. The dynamic nature of the cohort allows for the patients selected to be followed forward in time. Baseline data corresponding to the 2 years prior to the selection of the patient in the cohort is also available.

Exclusions

1. Hospitalization records with gender = undefined or other
2. Hospitalization records with an invalid/missing health card number or birthdate
3. Hospitalization records with an invalid/missing admission date
4. Hospitalization records with an invalid/missing discharge date
5. Hospitalization records belonging to non-Canadian residents

Descriptive statistics: Top 10% Highest Length of Hospital Stay (2014-2015)

Child / Adult	Province	Total Population		High User Cohort Descriptive Stats: Age					High User Cohort Descriptive Stats: Cumulative LOS					Gender Analysis
		Total # of unique patients in this population	# of High Users identified by Cumulative Length of Stay	Min	Max	Median	Mean	Std Dev	Min	Max	Median	Mean	Std Dev	Ratio M:F
Adult	AB	230,849	23,875	18	105	73	68.83	18.92	25	1175	46	63.37	55.84	0.95
Child	AB	71,598	7,190	0	17	0	4.44	6.35	7	663	14	25.25	33.62	1.08
Adult	BC	257,339	26,516	18	110	75	70.61	18.65	29	927	49	63.05	42.27	0.98
Child	BC	56,582	6,398	0	17	0	4.66	6.48	6	459	12	21.70	28.08	1.13
Adult	MB	75,940	7,616	18	104	76	72.07	17.87	34	2858	61	87.70	91.63	0.86
Child	MB	21,079	2,123	0	17	0	4.44	6.39	7	351	13	22.59	27.07	1.01
Adult	NB	51,115	5,233	18	104	75	72.33	16.51	33	3977	57	89.70	130.55	0.85
Child	NB	10,654	1,128	0	17	0	5.70	6.75	7	365	14	22.94	29.60	1.10
Adult	NL	33,101	3,328	18	101	72	70.28	15.80	31	1713	51	73.40	67.05	0.92
Child	NL	6,456	720	0	17	2	5.85	6.68	7	306	13	22.37	27.22	1.21
Adult	NS	55,474	5,665	18	103	75	71.77	16.71	31	1407	54	76.59	71.20	0.88
Child	NS	11,639	1,207	0	17	0	4.53	6.36	7	626	13	24.57	36.42	1.10
Adult	ON	702,908	72,328	18	108	73	69.07	18.61	22	2020	36	49.41	48.53	0.96
Child	ON	185,066	20,435	0	17	0	4.86	6.57	6	1188	11	20.57	27.98	1.03
Adult	PE	9,796	984	18	101	75	71.31	16.59	35	789	58.5	77.42	57.69	0.85
Child	PE	2,217	244	0	17	0	5.10	6.74	8	195	15	24.40	27.52	1.26
Adult	SK	76,753	7,817	18	104	74	69.36	19.24	26	1117	43	55.90	43.63	0.91
Child	SK	22,457	2,331	0	17	0	4.53	6.31	7	510	12	21.78	30.15	1.05
Adult	TERR	7,223	745	18	96	61	58.77	18.81	17	419	29	47.03	50.15	1.24
Child	TERR	2,860	325	0	17	0	4.19	6.15	8	320	13	23.85	32.10	1.18

Descriptive statistics: Control Group – Length of Hospital Stay (2014-2015)

Child/Adult	Prov	Population		Control Cohort Descriptive Stats: Age					Control Cohort Descriptive Stats: Cumulative LOS					Gender Analysis
		Total # of unique patients in this population	# of Selected Controls for High Users identified by Cumulative Length of Stay	Min	Max	Median	Mean	Std Dev	Min	Max	Median	Mean	Std Dev	Ratio M:F
ADULT	AB	230,849	95,500	18	106	47	49.51	20.43	1	24	3	4.41	4.74	0.55
CHILD	AB	71,598	28,760	0	17	0	1.69	4.25	1	6	2	1.85	1.12	1.07
ADULT	BC	257,339	106,064	18	109	58	55.77	21.11	1	28	3	5.45	5.81	0.67
CHILD	BC	56,582	25,592	0	17	0	1.82	4.38	1	5	2	1.98	1.07	1.08
ADULT	MB	75,940	30,464	18	102	52	52.04	21.69	1	33	3	5.87	6.62	0.56
CHILD	MB	21,079	8,492	0	17	0	1.80	4.48	1	6	2	2.05	1.17	1.04
ADULT	NB	51,115	20,932	18	107	60	56.93	20.65	1	32	4	6.36	6.64	0.69
CHILD	NB	10,654	4,512	0	17	0	2.27	4.66	1	6	2	2.15	1.18	1.04
ADULT	NL	33,101	13,312	18	105	59	55.76	19.94	1	30	4	6.33	6.32	0.70
CHILD	NL	6,456	2,880	0	17	0	2.86	5.20	1	6	2	2.23	1.19	1.04
ADULT	NS	55,474	22,660	18	106	59	55.97	20.62	1	30	4	6.09	6.25	0.67
CHILD	NS	11,639	4,828	0	17	0	2.17	4.80	1	6	2	2.29	1.19	1.04
ADULT	ON	702,908	28,9312	18	110	57	55.32	21.22	1	21	3	4.60	4.46	0.61
CHILD	ON	185,066	81,740	0	17	0	1.76	4.25	1	5	2	1.83	1.00	1.05
ADULT	PE	9,796	3,936	18	106	58	55.77	20.97	1	34	4	6.90	7.27	0.64
CHILD	PE	2,217	976	0	17	0	2.47	4.83	1	7	2	2.60	1.44	1.15
ADULT	SK	76,753	31,268	18	106	53	52.52	21.91	1	25	3	5.11	5.16	0.58
CHILD	SK	22,457	9,324	0	17	0	2.30	4.82	1	6	2	2.08	1.20	1.01
ADULT	TE	7,223	2,980	18	98	40	43.88	18.73	1	16	3	3.71	3.20	0.48
CHILD	TE	2,860	1,300	0	17	0	2.93	5.43	1	7	2	2.40	1.50	0.99

Descriptive statistics: Top 10% Highest Length of Hospital Stay (2013-2014)

Child / Adult	Province	Total Population		High User Cohort Descriptive Stats: Age					High User Cohort Descriptive Stats: Cumulative LOS					Gender Analysis
		Total # of unique patients in this population	# of High Users identified by Cumulative Length of Stay	Min	Max	Median	Mean	Std Dev	Min	Max	Median	Mean	Std Dev	Ratio M:F
Adult	AB	225,793	23,149	18	108	73	68.53	18.84	25	1237	45	60.52	49.34	0.95
Child	AB	69,391	7,778	0	17	0	4.45	6.34	6	589	13	23.00	31.39	1.13
Adult	BC	258,813	26,186	18	106	75	70.41	18.57	29	686	49	63.07	42.94	0.94
Child	BC	57,094	6,501	0	17	0	4.92	6.57	6	318	12	21.88	26.50	1.11
Adult	MB	74,520	7,465	18	106	76	71.64	18.09	33	4374	61	86.33	91.58	0.90
Child	MB	20,914	2,423	0	17	0	4.63	6.44	6	480	11	20.92	31.39	1.08
Adult	NB	51,379	5,228	18	112	75	71.74	16.78	31	3416	54	81.79	107.29	0.83
Child	NB	10,640	1,135	0	17	0	5.67	6.76	7	449	12	21.61	27.56	1.10
Adult	NL	33,249	3,354	18	101	72	69.40	16.24	29	758	48	68.46	57.07	0.96
Child	NL	6,363	722	0	17	1	5.57	6.60	7	340	14	24.94	31.18	0.94
Adult	NS	54,308	5,453	18	104	76	71.83	16.81	31	1353	53	78.42	72.61	0.83
Child	NS	11,942	1,443	0	17	0	5.07	6.48	6	1053	10	21.40	45.13	1.02
Adult	ON	694,235	70,785	18	109	73	68.83	18.56	22	1538	36	49.12	44.88	0.96
Child	ON	184,372	20,634	0	17	0	4.92	6.63	6	685	11	20.63	27.62	1.03
Adult	PE	9,855	1,013	18	100	75	71.46	17.11	34	1954	60	81.20	80.38	0.84
Child	PE	2,283	262	0	17	0	5.05	6.78	8	90	15	21.02	16.30	1.13
Adult	SK	75,907	7,614	18	108	74	69.40	18.98	26	1429	43	56.32	44.82	0.93
Child	SK	22,280	2,271	0	17	0	4.74	6.40	7	411	12	21.80	28.44	1.11
Adult	TERR	7,209	776	18	100	60	58.08	19.37	16	557	28.5	42.93	40.42	1.25
Child	TERR	2,940	294	0	17	0	3.56	5.69	8	312	14	23.51	28.44	1.03

Descriptive statistics: Control Group – Length of Hospital Stay (2013-2014)

Child/Adult	Prov	Population		Control Cohort Descriptive Stats: Age					Control Cohort Descriptive Stats: Cumulative LOS					Gender Analysis
		Total # of unique patients in this population	# of Selected Controls for High Users identified by Cumulative Length of Stay	Min	Max	Median	Mean	Std Dev	Min	Max	Median	Mean	Std Dev	Ratio M:F
ADULT	AB	225,793	92,596	18	106	47	49.45	20.44	1	24	3	4.47	4.79	0.56
CHILD	AB	69,391	31,112	0	17	0	1.73	4.29	1	5	1	1.78	0.99	1.05
ADULT	BC	258,813	104,744	18	106	57	55.52	20.94	1	28	3	5.40	5.82	0.67
CHILD	BC	57,094	26,004	0	17	0	1.97	4.57	1	5	2	1.97	1.06	1.05
ADULT	MB	74,520	29,860	18	108	52	51.92	21.61	1	32	3	5.84	6.49	0.55
CHILD	MB	20,914	9,692	0	17	0	1.86	4.56	1	5	2	1.97	1.04	1.01
ADULT	NB	51,379	20,912	18	107	59	56.62	20.54	1	30	4	6.10	6.16	0.68
CHILD	NB	10,640	4,540	0	17	0	2.37	4.76	1	6	2	2.23	1.20	1.07
ADULT	NL	33,249	13,416	18	101	58	55.13	19.69	1	28	4	5.95	5.77	0.68
CHILD	NL	6,363	2,888	0	17	0	3.16	5.37	1	6	2	2.24	1.18	1.08
ADULT	NS	54,308	21,812	18	105	59	56.09	20.54	1	30	4	6.06	6.18	0.66
CHILD	NS	11,942	5,772	0	17	0	2.16	4.71	1	5	2	2.23	1.05	1.00
ADULT	ON	694,235	283,140	18	109	56	54.88	21.15	1	21	3	4.64	4.48	0.60
CHILD	ON	184,372	82,536	0	17	0	1.78	4.30	1	5	2	1.87	1.01	1.05
ADULT	PE	9,855	4,052	18	101	57	55.00	20.74	1	33	4	6.43	6.73	0.65
CHILD	PE	2,283	1,048	0	17	0	2.84	5.20	1	7	2	2.68	1.49	1.03
ADULT	SK	75,907	30,456	18	105	53	52.75	21.82	1	25	3	5.17	5.23	0.59
CHILD	SK	22,280	9,084	0	17	0	2.29	4.78	1	6	2	2.11	1.19	1.02
ADULT	TE	7,209	3,104	18	99	38	42.55	18.26	1	15	3	3.55	3.03	0.51
CHILD	TE	2,940	1,176	0	17	0	2.92	5.45	1	7	2	2.35	1.47	1.03

Descriptive statistics: Top 10% Highest Length of Hospital Stay (2012-2013)

Child / Adult	Province	Total Population		High User Cohort Descriptive Stats: Age					High User Cohort Descriptive Stats: Cumulative LOS					Gender Analysis
		Total # of unique patients in this population	# of High Users identified by Cumulative Length of Stay	Min	Max	Median	Mean	Std Dev	Min	Max	Median	Mean	Std Dev	Ratio M:F
Adult	AB	219,345	22,771	18	105	73	68.85	18.87	25	1211	45	61.41	52.08	0.93
Child	AB	69,114	7,762	0	17	0	4.27	6.23	6	795	12	21.74	31.00	1.13
Adult	BC	251,114	25,439	18	105	76	70.79	18.41	29	749	49	63.43	42.48	0.93
Child	BC	58,122	6,639	0	17	0	4.60	6.41	6	347	12	21.47	26.74	1.15
Adult	MB	75,073	7,716	18	105	76	71.61	18.00	31	2503	58	85.58	88.32	0.85
Child	MB	21,273	2,494	0	17	0	4.54	6.44	6	707	11	19.84	29.49	1.11
Adult	NB	52,031	5,277	18	101	75	71.24	16.97	30	2661	53	79.85	95.57	0.78
Child	NB	11,195	1,196	0	17	0	5.27	6.62	7	209	12	20.81	23.45	1.02
Adult	NL	33,674	3,425	18	105	73	70.74	15.71	28	619	47	63.22	48.59	0.93
Child	NL	5,587	655	0	17	5	7.00	6.74	7	814	12	22.50	41.65	1.16
Adult	NS	54,556	5,679	18	106	75	71.70	16.69	29	1735	52	76.22	69.14	0.90
Child	NS	12,336	1,500	0	17	0	4.73	6.41	6	385	10	20.68	29.42	1.07
Adult	ON	690,928	70,681	18	107	73	69.04	18.33	22	2206	36	48.94	45.04	0.94
Child	ON	186,779	20,883	0	17	0	4.72	6.54	6	536	12	20.53	26.37	1.07
Adult	PE	9,893	996	18	100	75	71.28	16.58	36	395	60	78.55	51.83	0.97
Child	PE	2,234	236	0	17	0	5.50	6.96	10	192	17	27.42	28.00	0.80
Adult	SK	74,572	7,616	18	108	75	69.87	19.05	26	2751	42.5	56.18	51.99	0.91
Child	SK	22,366	2,294	0	17	0	4.58	6.39	7	418	12	22.28	30.91	1.10
Adult	TERR	7,374	738	18	97	61	58.53	18.64	17	458	29	42.24	38.78	1.13
Child	TERR	2,848	303	0	17	0	4.26	6.35	8	235	13	24.47	30.18	1.06

Descriptive statistics: Control Group – Length of Hospital Stay (2012-2013)

Child / Adult	Prov	Population		Control Cohort Descriptive Stats: Age					Control Cohort Descriptive Stats: Cumulative LOS					Gender Analysis
		Total # of unique patients in this population	# of Selected Controls for High Users identified by Cumulative Length of Stay	Min	Max	Median	Mean	Std Dev	Min	Max	Median	Mean	Std Dev	Ratio M:F
ADULT	AB	219,345	91,084	18	105	48	49.62	20.58	1	24	3	4.58	4.85	0.55
CHILD	AB	69,114	31,048	0	17	0	1.88	4.47	1	5	2	1.82	1.02	1.07
ADULT	BC	251,114	101,756	18	109	57	55.42	21.14	1	28	3	5.47	5.85	0.66
CHILD	BC	58,122	26,556	0	17	0	1.95	4.52	1	5	2	2.01	1.08	1.05
ADULT	MB	75,073	30,864	18	106	52	51.97	21.64	1	30	3	5.59	6.06	0.57
CHILD	MB	21,273	9,976	0	17	0	2.04	4.75	1	5	2	1.97	1.04	1.00
ADULT	NB	52,031	21,108	18	104	59	56.36	20.73	1	29	4	6.08	6.15	0.69
CHILD	NB	11,195	4,784	0	17	0	2.49	4.81	1	6	2	2.24	1.20	1.03
ADULT	NL	33,674	13,700	18	103	57	55.09	19.75	1	27	4	6.10	5.78	0.69
CHILD	NL	5,587	2,620	0	17	0	3.81	5.63	1	6	2	2.33	1.29	1.04
ADULT	NS	54,556	22,716	18	107	58	55.82	20.65	1	28	4	5.93	5.90	0.66
CHILD	NS	12,336	6,000	0	17	0	2.37	4.91	1	5	2	2.22	1.06	1.05
ADULT	ON	690,928	282,724	18	114	56	54.62	21.20	1	21	3	4.69	4.49	0.60
CHILD	ON	186,779	83,532	0	17	0	1.82	4.36	1	5	2	1.90	1.02	1.06
ADULT	PE	9,893	3,984	18	103	58	55.59	20.77	1	35	4	6.83	7.18	0.69
CHILD	PE	2,234	944	0	17	0	2.95	5.20	1	9	2	2.91	1.80	1.05
ADULT	SK	74,572	30,464	18	104	53	52.76	22.15	1	25	3	5.20	5.17	0.58
CHILD	SK	22,366	9,176	0	17	0	2.47	4.93	1	6	2	2.16	1.25	1.02
ADULT	TE	7,374	2,952	18	99	40	43.67	18.53	1	16	3	3.91	3.38	0.53
CHILD	TE	2,848	1,212	0	17	0	2.92	5.43	1	7	2	2.45	1.50	0.93

Descriptive statistics: Top 10% Highest Length of Hospital Stay (2011-2012)

Child / Adult	Province	Total Population		High User Cohort Descriptive Stats: Age					High User Cohort Descriptive Stats: Cumulative LOS					Gender Analysis
		Total # of unique patients in this population	# of High Users identified by Cumulative Length of Stay	Min	Max	Median	Mean	Std Dev	Min	Max	Median	Mean	Std Dev	Ratio M:F
Adult	AB	214,959	21,559	18	107	73	68.89	18.68	26	1395	47	63.50	55.50	0.92
Child	AB	66,790	7,341	0	17	0	4.30	6.21	6	997	12	22.22	30.31	1.24
Adult	BC	249,162	25,639	18	106	75	70.15	18.64	28	6660	48	62.68	60.48	0.93
Child	BC	58,274	6,560	0	17	0	4.46	6.31	6	407	12	21.79	26.89	1.16
Adult	MB	75,796	7,779	18	105	77	71.84	17.91	31	2270	57	80.35	78.98	0.86
Child	MB	20,873	2,342	0	17	0	4.71	6.57	6	1790	11	20.50	46.53	1.12
Adult	NB	53,028	5,383	18	105	75	71.13	17.11	29	1809	49	73.60	78.91	0.83
Child	NB	11,656	1,194	0	17	0	5.47	6.68	7	192	12	20.52	22.23	1.14
Adult	NL	33,916	3,500	18	102	72	69.51	15.96	28	562	45	60.63	46.83	0.97
Child	NL	5,392	549	0	17	5	6.92	6.82	8	340	15	27.30	33.77	1.21
Adult	NS	54,928	5,597	18	104	75	71.46	16.72	30	3458	52	74.03	74.75	0.82
Child	NS	12,742	1,550	0	17	0	5.01	6.55	6	542	10	20.74	32.60	1.14
Adult	ON	682,032	70,583	18	109	73	68.94	18.21	22	3948	36	49.18	46.96	0.93
Child	ON	189,240	20,770	0	17	0	4.48	6.39	6	663	11	20.11	25.98	1.13
Adult	PE	9,942	997	18	102	75	71.43	16.73	34	3896	57	76.79	129.65	0.87
Child	PE	2,426	256	0	17	0	5.14	6.99	9	271	15	24.90	30.38	1.15
Adult	SK	74,127	7,700	18	107	75	69.80	18.95	26	815	43	56.77	40.97	0.89
Child	SK	22,164	2,259	0	17	0	4.68	6.41	7	386	12	20.83	26.22	1.17
Adult	TERR	7,302	733	18	100	62	58.56	19.77	17	337	31	43.65	37.34	1.04
Child	TERR	2,684	300	0	17	0	4.09	6.37	8	351	14	27.05	39.58	1.27

Descriptive Statistics: Control Group – Length of Hospital Stay (2011-2012)

Child / Adult	Prov	Population		Control Cohort Descriptive Stats: Age					Control Cohort Descriptive Stats: Cumulative LOS					Gender Analysis
		Total # of unique patients in this population	# of Selected Controls for High Users identified by Cumulative Legnth of Stay	Min	Max	Median	Mean	Std Dev	Min	Max	Median	Mean	Std Dev	Ratio M:F
ADULT	AB	214,959	86,236	18	106	48	49.93	20.69	1	25	3	4.74	5.10	0.56
CHILD	AB	66,790	29,364	0	17	0	1.89	4.47	1	5	1	1.82	1.03	1.05
ADULT	BC	249,162	102,556	18	106	56	55.25	21.17	1	27	3	5.47	5.74	0.66
CHILD	BC	58,274	26,240	0	17	0	1.97	4.54	1	5	2	2.04	1.10	1.07
ADULT	MB	75,796	31,116	18	107	52	52.38	21.88	1	30	3	5.83	6.25	0.57
CHILD	MB	20,873	9,368	0	17	0	2.16	4.85	1	5	2	2.01	1.03	1.03
ADULT	NB	53,028	21,532	18	110	58	56.30	20.77	1	28	4	6.14	6.07	0.66
CHILD	NB	11,656	4,776	0	17	0	2.81	5.10	1	6	2	2.27	1.22	1.03
ADULT	NL	33,916	14,000	18	105	57	55.38	19.78	1	27	4	6.26	5.90	0.69
CHILD	NL	5,392	2,196	0	17	1	4.45	5.89	1	7	2	2.46	1.45	1.12
ADULT	NS	54,928	22,388	18	106	58	55.45	20.69	1	29	4	6.11	6.12	0.65
CHILD	NS	12,742	6,200	0	17	0	2.35	4.87	1	5	2	2.29	1.09	1.01
ADULT	ON	682,032	282,332	18	112	55	54.52	21.20	1	21	3	4.83	4.57	0.60
CHILD	ON	189,240	83,080	0	17	0	1.88	4.39	1	5	2	1.95	1.04	1.05
ADULT	PE	9,942	3,988	18	105	58	55.57	21.04	1	33	4	7.07	7.09	0.65
CHILD	PE	2,426	1,024	0	17	0	3.09	5.42	1	8	3	2.88	1.59	1.10
ADULT	SK	74,127	30,800	18	104	54	53.18	22.27	1	25	3	5.36	5.33	0.58
CHILD	SK	22,164	9,036	0	17	0	2.60	5.01	1	6	2	2.18	1.25	1.04
ADULT	TE	7,302	2,932	18	102	40	43.31	18.30	1	16	3	3.81	3.36	0.54
CHILD	TE	2,684	1,200	0	17	0	2.98	5.53	1	7	2	2.64	1.53	1.00

3. Most Frequent Hospitalizations Cohort

Cohort description
This cohort is created using CIHI's [Discharge Abstract Database](#) (DAD) and the [Ontario Mental Health Reporting System](#) (OMHRS). The OMHRS contains records for patients admitted to the designated adult inpatient mental health beds in the province of Ontario. The inpatient DAD database and the OMHRS is used to count the total number of hospital discharges for each patient within each fiscal year.

Cohort selection: Most Frequent Hospitalization Users and Controls
The cohort was created by first stratifying by year, province (by patient residence), and age group children (age < 18) and for adults (age ≥18). Starting with the first hospitalization in the year, the number of hospitalizations was counted for each patient, and then the top 10% of most frequently hospitalized patients within each stratum was identified. Within each stratum, a control group is randomly selected from the 90% in the bottom deciles, using a sampling ratio of 4:1.

Time Frame and database for cohort selection
This cohort will initially cover the fiscal years of 2011-2012 to 2014-2015 inclusively. Each year the cohort selection process was/will be repeated, adding the patients for that fiscal year updating the data for all the patients previously selected. The dynamic nature of the cohort allows for the patients selected to be followed forward in time. Baseline data corresponding to the 2 years prior to the selection of the patient in the cohort is also available.

Exclusions
1. Hospitalization records with gender = undefined or other 2. Hospitalization records with an invalid/missing health card number or birthdate 3. Hospitalization records with an invalid/missing admission date 4. Hospitalization records with an invalid/missing discharge date 5. Hospitalization records belonging to non-Canadian residents

Descriptive Statistics: Top 10% Most Frequent Hospitalizations (2014-2015)

Child / Adult	Province	Total Population		High User Cohort Descriptive Stats: Age					High User Cohort Descriptive Stats: # Discharges					Gender Analysis
		Total # of unique patients in this pop	# of High Users identified by Total Number of discharge	Min	Max	Median	Mean	Std Dev	Min	Max	Median	Mean	Std Dev	Ratio M:F
Adult	AB	230,849	49,940	18	106	63	60.33	20.69	2	26	2	2.61	1.17	0.87
Child	AB	71,598	8,164	0	17	0	2.95	5.41	2	26	2	2.44	1.23	1.17
Adult	BC	257,339	65,847	18	110	67	63.36	20.41	2	26	2	2.68	1.26	0.93
Child	BC	56,582	6,310	0	17	0	3.96	6.04	2	19	2	2.46	1.19	1.20
Adult	MB	75,940	17,708	18	105	65	60.84	21.61	2	25	2	2.61	1.14	0.77
Child	MB	21,079	21,079	0	17	0	2.10	4.77	1	14	1	1.12	0.51	1.03
Adult	NB	51,115	13,301	18	103	68	65.49	18.19	2	18	2	2.63	1.16	0.96
Child	NB	10,654	10,654	0	17	0	2.71	5.10	1	35	1	1.15	0.67	1.06
Adult	NL	33,101	8,176	18	102	66	62.97	18.58	2	21	2	2.60	1.17	0.94
Child	NL	6,456	735	0	17	1	4.72	6.19	2	15	2	2.52	1.46	1.13
Adult	NS	55,474	13,847	18	104	67	63.97	18.80	2	20	2	2.57	1.08	0.97
Child	NS	11,639	1,201	0	17	0	4.10	6.04	2	22	2	2.52	1.48	1.15
Adult	ON	702,908	160,474	18	108	68	64.32	19.64	2	33	2	2.63	1.20	0.93
Child	ON	185,066	21,156	0	17	0	3.40	5.72	2	31	2	2.47	1.26	1.16
Adult	PE	9,796	1,039	18	101	68	65.73	17.51	3	15	3	3.81	1.38	1.03
Child	PE	2,217	273	0	17	0	3.59	5.76	2	11	2	2.37	1.00	1.37
Adult	SK	76,753	7,836	18	104	69	65.24	19.92	3	32	3	3.94	1.59	0.91
Child	SK	22,457	2,681	0	17	0	3.69	5.77	2	17	2	2.54	1.37	1.10
Adult	TERR	7,223	1,820	18	101	53	51.60	19.71	2	23	2	2.69	1.31	0.89
Child	TERR	2,860	403	0	17	0	4.05	6.02	2	11	2	2.41	0.97	1.41

Descriptive Statistics: Control Group – Hospitalizations (2014-2015)

Child/Adult	Prov	Population		Control Cohort Descriptive Stats: Age					Control Cohort Descriptive Stats: # Discharges					Gender Analysis
		Total # of unique patients in this population	# of Selected Controls for High Users identified by Total Number of Discharges	Min	Max	Median	Mean	Std Dev	Min	Max	Median	Mean	Std Dev	Ratio M:F
ADULT	AB	230,849	162,747	18	104	45	48.74	20.51	1	1	1	1	0	0.52
CHILD	AB	71,598	32,656	0	17	0	1.88	4.47	1	1	1	1	0	1.03
ADULT	BC	257,339	168,787	18	109	56	54.83	21.29	1	1	1	1	0	0.62
CHILD	BC	56,582	25,240	0	17	0	1.93	4.56	1	1	1	1	0	1.07
ADULT	MB	75,940	51,391	18	108	52	52.15	21.77	1	1	1	1	0	0.55
CHILD	MB	21,079												
ADULT	NB	51,115	32,832	18	107	58	55.51	21.08	1	1	1	1	0	0.61
CHILD	NB	10,654												
ADULT	NL	33,101	22,099	18	105	58	55.25	20.19	1	1	1	1	0	0.64
CHILD	NL	6,456	2,940	0	17	0	2.96	5.28	1	1	1	1	0	1.07
ADULT	NS	55,474	36,994	18	106	58	55.39	21.08	1	1	1	1	0	0.61
CHILD	NS	11,639	4,804	0	17	0	2.25	4.89	1	1	1	1	0	1.01
ADULT	ON	702,908	487,749	18	108	55	54.03	21.40	1	1	1	1	0	0.56
CHILD	ON	185,066	84,624	0	17	0	1.93	4.48	1	1	1	1	0	1.03
ADULT	PE	9,796	4,156	18	104	60	56.76	21.47	1	2	1	1.18	0.39	0.66
CHILD	PE	2,217	1,092	0	17	0	2.60	5.00	1	1	1	1	0	1.11
ADULT	SK	76,753	31,344	18	104	53	52.88	22.13	1	2	1	1.18	0.38	0.59
CHILD	SK	22,457	10,724	0	17	0	2.32	4.87	1	1	1	1	0	1.03
ADULT	TE	7,223	4,749	18	99	37	42.31	18.27	1	1	1	1	0	0.48
CHILD	TE	2,860	1,612	0	17	0	2.93	5.50	1	1	1	1	0	1.00

Descriptive Statistics: Top 10% Most Frequent Hospitalizations (2013-2014)

Child / Adult	Province	Total Population		High User Cohort Descriptive Stats: Age					High User Cohort Descriptive Stats: # Discharges					Gender Analysis
		Total # of unique patients in this pop	# of High Users identified by Total Number of discharge	Min	Max	Median	Mean	Std Dev	Min	Max	Median	Mean	Std Dev	Ratio M:F
Adult	AB	225,793	49,832	18	108	63	59.95	20.69	2	27	2	2.62	1.17	0.86
Child	AB	69,391	7,820	0	17	0	3.11	5.57	2	22	2	2.42	1.17	1.18
Adult	BC	258,813	66,153	18	107	66	62.99	20.36	2	35	2	2.68	1.29	0.91
Child	BC	57,094	6,385	0	17	0	4.27	6.24	2	23	2	2.46	1.23	1.13
Adult	MB	74,520	17,583	18	104	64	60.48	21.43	2	25	2	2.63	1.21	0.77
Child	MB	20,914	20,914	0	17	0	2.24	4.95	1	25	1	1.12	0.57	1.02
Adult	NB	51,379	13,450	18	105	67	64.85	18.43	2	32	2	2.66	1.23	0.92
Child	NB	10,640	1,079	0	17	0	4.28	6.09	2	24	2	2.51	1.46	1.15
Adult	NL	33,249	8,094	18	102	65	61.62	18.95	2	23	2	2.66	1.32	0.92
Child	NL	6,363	6,363	0	17	0	3.47	5.58	1	23	1	1.16	0.68	1.03
Adult	NS	54,308	13,377	18	105	66	63.53	18.84	2	23	2	2.58	1.12	0.91
Child	NS	11,942	1,230	0	17	0	4.21	6.00	2	20	2	2.57	1.57	1.06
Adult	ON	694,235	157,764	18	110	67	63.92	19.57	2	32	2	2.62	1.20	0.93
Child	ON	184,372	20,606	0	17	0	3.50	5.83	2	27	2	2.45	1.24	1.16
Adult	PE	9,855	1,001	18	99	69	65.42	18.40	3	16	3	3.77	1.27	0.95
Child	PE	2,283	264	0	17	0	4.69	6.38	2	9	2	2.48	1.10	1.03
Adult	SK	75,907	7,668	18	104	69	65.21	19.79	3	24	3	3.93	1.57	0.91
Child	SK	22,280	2,556	0	17	0	3.91	5.87	2	16	2	2.50	1.33	1.13
Adult	TERR	7,209	1,793	18	100	53	51.45	19.72	2	18	2	2.72	1.34	0.82
Child	TERR	2,940	370	0	17	0	3.85	5.83	2	9	2	2.45	1.03	1.10

Descriptive Statistics: Control Group – Hospitalizations (2013-2014)

Child/Adult	Prov	Population		Control Cohort Descriptive Stats: Age					Control Cohort Descriptive Stats: # Discharges					Gender Analysis
		Total # of unique patients in this population	# of Selected Controls for High Users identified by Total Number of Discharges	Min	Max	Median	Mean	Std Dev	Min	Max	Median	Mean	Std Dev	Ratio M:F
ADULT	AB	225,793	162,295	18	108	45	48.79	20.56	1	1	1	1	0	0.52
CHILD	AB	69,391	31,280	0	17	0	1.88	4.48	1	1	1	1	0	1.04
ADULT	BC	258,813	175,195	18	107	56	54.69	21.15	1	1	1	1	0	0.62
CHILD	BC	57,094	25,540	0	17	0	2.06	4.69	1	1	1	1	0	1.04
ADULT	MB	74,520	51,617	18	108	51	51.79	21.84	1	1	1	1	0	0.53
CHILD	MB	20,914												
ADULT	NB	51,379	33,995	18	112	57	55.22	20.92	1	1	1	1	0	0.62
CHILD	NB	10,640	4,316	0	17	0	2.44	4.93	1	1	1	1	0	1.05
ADULT	NL	33,249	22,911	18	107	57	54.88	19.85	1	1	1	1	0	0.65
CHILD	NL	6,363												
ADULT	NS	54,308	37,416	18	106	58	55.47	21.04	1	1	1	1	0	0.60
CHILD	NS	11,942	4,920	0	17	0	2.32	4.89	1	1	1	1	0	1.00
ADULT	ON	694,235	494,991	18	109	54	53.79	21.33	1	1	1	1	0	0.55
CHILD	ON	184,372	82,424	0	17	0	1.95	4.53	1	1	1	1	0	1.03
ADULT	PE	9,855	4,004	18	105	58	55.82	21.41	1	2	1	1.18	0.38	0.65
CHILD	PE	2,283	1,056	0	17	0	3.03	5.46	1	1	1	1	0	1.02
ADULT	SK	75,907	30,672	18	104	54	53.13	22.18	1	2	1	1.18	0.38	0.58
CHILD	SK	22,280	10,224	0	17	0	2.38	4.92	1	1	1	1	0	1.00
ADULT	TE	7,209	4,872	18	99	36	41.65	18.05	1	1	1	1	0	0.48
CHILD	TE	2,940	1,480	0	17	0	2.84	5.42	1	1	1	1	0	1.05

Descriptive Statistics: Top 10% Most Frequent Hospitalizations (2012-2013)

Child / Adult	Province	Total Population		High User Cohort Descriptive Stats: Age					High User Cohort Descriptive Stats: # Discharges					Gender Analysis
		Total # of unique patients in this pop	# of High Users identified by Total Number of discharge	Min	Max	Median	Mean	Std Dev	Min	Max	Median	Mean	Std Dev	Ratio M:F
Adult	AB	219,345	48,571	18	105	63	60.06	20.68	2	33	2	2.61	1.19	0.84
Child	AB	69,114	7,781	0	17	0	2.87	5.35	2	34	2	2.44	1.29	1.15
Adult	BC	251,114	63,622	18	106	66	63.03	20.29	2	24	2	2.66	1.22	0.91
Child	BC	58,122	6,562	0	17	0	3.98	6.04	2	21	2	2.43	1.08	1.16
Adult	MB	75,073	17,804	18	106	64	60.37	21.52	2	16	2	2.64	1.20	0.78
Child	MB	21,273	21,273	0	17	0	2.35	5.05	1	16	1	1.13	0.58	1.03
Adult	NB	52,031	13,206	18	103	67	64.55	18.72	2	18	2	2.67	1.21	0.91
Child	NB	11,195	11,195	0	17	0	2.90	5.19	1	23	1	1.14	0.64	1.05
Adult	NL	33,674	8,184	18	102	64	61.79	18.73	2	24	2	2.66	1.35	0.90
Child	NL	5,587	620	0	17	2	5.54	6.45	2	14	2	2.56	1.36	1.20
Adult	NS	54,556	13,216	18	106	66	63.42	18.80	2	31	2	2.59	1.11	0.95
Child	NS	12,336	1,276	0	17	0	4.36	6.16	2	19	2	2.57	1.60	1.14
Adult	ON	690,928	155,154	18	106	67	63.65	19.64	2	39	2	2.61	1.18	0.92
Child	ON	186,779	20,946	0	17	0	3.36	5.73	2	26	2	2.45	1.26	1.16
Adult	PE	9,893	1,037	18	100	68	65.01	18.01	3	11	3	3.70	1.17	1.23
Child	PE	2,234	295	0	17	1	4.70	6.19	2	20	2	2.57	1.57	1.11
Adult	SK	74,572	7,705	18	108	70	65.61	20.14	3	25	3	3.89	1.49	0.90
Child	SK	22,366	2,791	0	17	0	3.67	5.85	2	18	2	2.52	1.36	1.16
Adult	TERR	7,374	1,920	18	96	53	51.65	19.26	2	15	2	2.72	1.31	0.84
Child	TERR	2,848	390	0	17	0	4.37	6.33	2	13	2	2.47	1.21	0.97

Descriptive Statistics: Control Group – Hospitalizations (2012-2013)

Child / Adult	Prov	Population		Control Cohort Descriptive Stats: Age					Control Cohort Descriptive Stats: # Discharges					Gender Analysis
		Total # of unique patients in this population	# of Selected Controls for High Users identified by Total Number of Discharges	Min	Max	Median	Mean	Std Dev	Min	Max	Median	Mean	Std Dev	Ratio M:F
ADULT	AB	219,345	162,567	18	107	46	48.99	20.76	1	1	1	1	0	0.52
CHILD	AB	69,114	31,124	0	17	0	2.05	4.67	1	1	1	1	0	1.05
ADULT	BC	251,114	176,957	18	109	55	54.71	21.37	1	1	1	1	0	0.61
CHILD	BC	58,122	26,248	0	17	0	2.02	4.61	1	1	1	1	0	1.05
ADULT	MB	75,073	53,998	18	110	51	51.91	21.95	1	1	1	1	0	0.55
CHILD	MB	21,273												
ADULT	NB	52,031	36,324	18	111	57	55.39	21.04	1	1	1	1	0	0.63
CHILD	NB	11,195												
ADULT	NL	33,674	24,089	18	105	57	54.98	20.07	1	1	1	1	0	0.65
CHILD	NL	5,587	2,480	0	17	0	3.89	5.75	1	1	1	1	0	1.06
ADULT	NS	54,556	39,040	18	107	57	55.37	21.21	1	1	1	1	0	0.59
CHILD	NS	12,336	5,104	0	17	0	2.47	5.00	1	1	1	1	0	1.03
ADULT	ON	690,928	510,169	18	114	54	53.76	21.39	1	1	1	1	0	0.56
CHILD	ON	186,779	83,784	0	17	0	2.00	4.60	1	1	1	1	0	1.05
ADULT	PE	9,893	4,148	18	104	58	55.92	21.33	1	2	1	1.17	0.38	0.66
CHILD	PE	2,234	1,180	0	17	0	3.19	5.46	1	1	1	1	0	0.97
ADULT	SK	74,572	30,820	18	106	54	53.29	22.38	1	2	1	1.18	0.38	0.58
CHILD	SK	22,366	11,164	0	17	0	2.51	5.01	1	1	1	1	0	1.02
ADULT	TE	7,374	5,161	18	99	38	42.40	18.24	1	1	1	1	0	0.52
CHILD	TE	2,848	1,560	0	17	0	3.00	5.49	1	1	1	1	0	0.95

Descriptive Statistics: Top 10% Most Frequent Hospitalizations (2011-2012)

Child / Adult	Province	Total Population		High User Cohort Descriptive Stats: Age					High User Cohort Descriptive Stats: # Discharges					Gender Analysis
		Total # of unique patients in this pop	# of High Users identified by Total Number of discharge	Min	Max	Median	Mean	Std Dev	Min	Max	Median	Mean	Std Dev	Ratio M:F
Adult	AB	214,959	47,208	18	106	62	59.81	20.70	2	37	2	2.61	1.20	0.84
Child	AB	66,790	7,389	0	17	0	2.89	5.35	2	27	2	2.44	1.24	1.25
Adult	BC	249,162	62,149	18	105	66	62.49	20.41	2	22	2	2.66	1.21	0.89
Child	BC	58,274	6,392	0	17	0	3.82	5.90	2	24	2	2.46	1.21	1.19
Adult	MB	75,796	18,438	18	102	64	60.28	21.65	2	18	2	2.67	1.26	0.74
Child	MB	20,873	20,873	0	17	0	2.45	5.14	1	20	1	1.12	0.60	1.03
Adult	NB	53,028	13,631	18	103	66	63.83	18.82	2	24	2	2.66	1.22	0.93
Child	NB	11,656	1,216	0	17	1	4.47	6.08	2	13	2	2.43	1.10	1.14
Adult	NL	33,916	8,271	18	105	64	61.53	18.96	2	22	2	2.64	1.32	0.88
Child	NL	5,392	612	0	17	3	6.30	6.59	2	14	2	2.54	1.24	1.19
Adult	NS	54,928	13,576	18	106	66	63.01	19.08	2	23	2	2.56	1.04	0.91
Child	NS	12,742	1,368	0	17	0	4.04	6.03	2	18	2	2.51	1.46	1.19
Adult	ON	682,032	151,058	18	109	67	63.30	19.60	2	46	2	2.60	1.17	0.92
Child	ON	189,240	20,685	0	17	0	3.26	5.60	2	26	2	2.45	1.26	1.21
Adult	PE	9,942	1,006	18	99	67	64.91	17.19	3	13	3	3.78	1.23	1.19
Child	PE	2,426	294	0	17	0	4.31	6.42	2	11	2	2.51	1.12	1.31
Adult	SK	74,127	7,759	18	107	70	65.41	20.01	3	26	3	3.92	1.55	0.90
Child	SK	22,164	2,764	0	17	0	3.79	5.91	2	18	2	2.55	1.41	1.18
Adult	TERR	7,302	1,751	18	98	52	51.23	19.94	2	15	2	2.71	1.29	0.80
Child	TERR	2,684	376	0	17	0	4.11	6.29	2	7	2	2.39	0.78	1.25

Descriptive Statistics: Control Group – Hospitalizations (2011-2012)

Child / Adult	Prov	Population		Control Cohort Descriptive Stats: Age					Control Cohort Descriptive Stats: # Discharges					Gender Analysis
		Total # of unique patients in this population	# of Selected Controls for High Users identified by Total Number of Discharges	Min	Max	Median	Mean	Std Dev	Min	Max	Median	Mean	Std Dev	Ratio M:F
ADULT	AB	214,959	167,751	18	107	47	49.54	20.89	1	1	1	1	0	0.53
CHILD	AB	66,790	29,556	0	17	0	2.04	4.66	1	1	1	1	0	1.06
ADULT	BC	249,162	187,013	18	112	56	54.94	21.41	1	1	1	1	0	0.62
CHILD	BC	58,274	25,568	0	17	0	2.04	4.63	1	1	1	1	0	1.07
ADULT	MB	75,796	57,358	18	107	52	52.48	22.07	1	1	1	1	0	0.55
CHILD	MB	20,873												
ADULT	NB	53,028	39,397	18	110	58	55.82	21.06	1	1	1	1	0	0.62
CHILD	NB	11,656	4,864	0	17	0	2.88	5.19	1	1	1	1	0	1.02
ADULT	NL	33,916	25,645	18	104	57	55.16	19.96	1	1	1	1	0	0.66
CHILD	NL	5,392	2,448	0	17	0	4.31	5.90	1	1	1	1	0	1.05
ADULT	NS	54,928	41,352	18	104	57	55.36	21.11	1	1	1	1	0	0.61
CHILD	NS	12,742	5,472	0	17	0	2.57	5.11	1	1	1	1	0	1.02
ADULT	ON	682,032	530,974	18	112	54	53.98	21.40	1	1	1	1	0	0.56
CHILD	ON	189,240	82,740	0	17	0	2.02	4.57	1	1	1	1	0	1.06
ADULT	PE	9,942	4,024	18	104	58	55.59	21.11	1	2	1	1.18	0.39	0.66
CHILD	PE	2,426	1,176	0	17	0	3.16	5.52	1	1	1	1	0	0.99
ADULT	SK	74,127	31,036	18	105	54	53.65	22.42	1	2	1	1.18	0.39	0.58
CHILD	SK	22,164	11,056	0	17	0	2.72	5.12	1	1	1	1	0	0.99
ADULT	TE	7,302	5,551	18	102	38	42.49	18.10	1	1	1	1	0	0.51
CHILD	TE	2,684	1,504	0	17	0	2.95	5.50	1	1	1	1	0	1.01

4. Most Frequent Emergency Department (ED) Visits

Cohort description

This cohort is created using CIHI's National Ambulatory Care Reporting System (NACRS). Only ED records submitted by Ontario and Alberta to the National Ambulatory Care Reporting System (NACRS) are included.

We will use the NACRS to count the total number of emergency department visits for each patient within each fiscal year.

Cohort selection: Most Frequent Emergency Department Users and Controls

The cohort was created by first stratifying by year, province (by patient residence), and age group children (age < 18) and for adults (age ≥18). Starting with the first ED visit in the year, the number of ED visits was counted, and then the top 10% of most frequent ED visitors within each stratum was identified. Within each stratum, a control group is randomly selected from the 90% in the bottom deciles, using a sampling ratio of 4:1.

Time Frame for cohort selection

This cohort will initially cover the fiscal years of 2011-2012 to 2014-2015 inclusively. Each year the cohort selection process will be repeated, adding the patients for that fiscal year updating the data for all the patients previously selected. The dynamic nature of the cohort allows for the patients selected to be followed forward in time. Baseline data corresponding to the 2 years prior to the selection of the patient in the cohort is also available.

Exclusions

1. ED records with gender = undefined or other
2. ED records with an invalid/missing health card number or birthdate
3. ED records belonging to non-Canadian residents

Descriptive Statistics: Top 10% Most Frequent ED Visitors (2014-2015)

Child / Adult	Province	Total Population		High User Cohort Descriptive Stats: Age					High User Cohort Descriptive Stats: # Discharges					Gender Analysis
		Total # of unique patients in this population	# of High Users identified by Total Number of Discharges	Min	Max	Median	Mean	Std Dev	Min	Max	Median	Mean	Std Dev	Ratio M:F
Adult	AB	841,346	103,757	18	106	46	48.07	20.74	4	466	5	6.77	6.63	0.82
Child	AB	288,386	53,365	0	17	5	6.78	5.72	3	57	4	4.23	2.09	1.10
Adult	ON	2,572,057	467,738	18	110	51	52.03	21.62	3	502	4	4.61	3.54	0.79
Child	ON	694,254	100,351	0	17	5	6.93	5.78	3	101	3	4.05	1.87	1.06

Descriptive Statistics: Control Group – ED Visitors (2014-2015)

Child/Adult	Prov	Population		Control Cohort Descriptive Stats: Age					Control Cohort Descriptive Stats: # Discharges					Gender Analysis
		Total # of unique patients in this population	# of Selected Controls for High Users identified by Total Number of ED Visits	Min	Max	Median	Mean	Std Dev	Min	Max	Median	Mean	Std Dev	Ratio M:F
ADULT	AB	841,346	415,028	18	114	43	45.55	18.71	1	3	1	1.40	0.65	0.97
CHILD	AB	288,386	192,503	0	17	7	7.30	5.51	1	2	1	1.25	0.43	1.13
ADULT	ON	2,572,057	1,755,350	18	128	49	49.10	19.59	1	2	1	1.23	0.42	0.91
CHILD	ON	694,254	401,404	0	17	7	7.68	5.57	1	2	1	1.22	0.42	1.15

Descriptive Statistics: Top 10% Most Frequent ED Visitors (2013-2014)

Child / Adult	Province	Total Population		High User Cohort Descriptive Stats: Age					High User Cohort Descriptive Stats: # Discharges					Gender Analysis
		Total # of unique patients in this population	# of High Users identified by Total Number of Discharges	Min	Max	Median	Mean	Std Dev	Min	Max	Median	Mean	Std Dev	Ratio M:F
Adult	AB	825,554	102,403	18	105	45	47.75	20.63	4	420	5	6.81	6.51	0.80
Child	AB	279,999	51,780	0	17	5	6.79	5.77	3	54	4	4.23	2.06	1.10
Adult	ON	2,512,160	453,353	18	109	51	51.57	21.46	3	549	4	4.61	3.89	0.79
Child	ON	673,778	94,331	0	17	5	7.01	5.83	3	66	3	4.02	1.77	1.06

Descriptive Statistics: Control Group – ED Visitors (2013-2014)

Child / Adult	Prov	Population		Control Cohort Descriptive Stats: Age					Control Cohort Descriptive Stats: # Discharges					Gender Analysis
		Total # of unique patients in this population	# of Selected Controls for High Users identified by Total Number of ED Visits	Min	Max	Median	Mean	Std Dev	Min	Max	Median	Mean	Std Dev	Ratio M:F
ADULT	AB	825,554	409,612	18	127	43	45.27	18.65	1	3	1	1.42	0.65	0.97
CHILD	AB	279,999	195,241	0	17	7	7.38	5.50	1	2	1	1.25	0.43	1.13
ADULT	ON	2,512,160	1,798,793	18	128	48	48.83	19.52	1	2	1	1.24	0.43	0.90
CHILD	ON	673,778	377,324	0	17	7	7.72	5.56	1	2	1	1.22	0.42	1.16

Descriptive Statistics: Top 10% Most Frequent ED Visitors (2012-2013)

Child / Adult	Province	Total Population		High User Cohort Descriptive Stats: Age					High User Cohort Descriptive Stats: # Discharges					Gender Analysis
		Total # of unique patients in this population	# of High Users identified by Total Number of Discharges	Min	Max	Median	Mean	Std Dev	Min	Max	Median	Mean	Std Dev	Ratio M:F
Adult	AB	800,823	101,502	18	105	45	47.66	20.70	4	422	5	6.86	6.83	0.80
Child	AB	278,464	53,951	0	17	5	6.78	5.80	3	63	4	4.28	2.19	1.11
Adult	ON	2,477,466	448,578	18	107	50	51.36	21.40	3	498	4	4.60	3.72	0.80
Child	ON	678,782	97,793	0	17	5	7.02	5.87	3	54	3	4.04	1.80	1.09

Descriptive Statistics: Control Group – ED Visitors (2012-2013)

Child/Adult	Prov	Population		Control Cohort Descriptive Stats: Age					Control Cohort Descriptive Stats: # Discharges					Gender Analysis
		Total # of unique patients in this population	# of Selected Controls for High Users identified by Total Number of ED Visits	Min	Max	Median	Mean	Std Dev	Min	Max	Median	Mean	Std Dev	Ratio M:F
ADULT	AB	800,823	406,008	18	107	43	45.25	18.79	1	3	1	1.43	0.66	0.96
CHILD	AB	278,464	205,392	0	17	7	7.44	5.51	1	2	1	1.26	0.44	1.13
ADULT	ON	2,477,466	1,794,312	18	126	48	48.67	19.61	1	2	1	1.24	0.43	0.90
CHILD	ON	678,782	391,172	0	17	7	7.77	5.57	1	2	1	1.23	0.42	1.16

Descriptive Statistics: Top 10% Most Frequent ED Visitors (2011-2012)

| Child / Adult | Province | Total Population | | High User Cohort Descriptive Stats: Age | | | | | High User Cohort Descriptive Stats: # Discharges | | | | | Gender Analysis |
		Total # of unique patients in this population	# of High Users identified by Total Number of Discharges	Min	Max	Median	Mean	Std Dev	Min	Max	Median	Mean	Std Dev	Ratio M:F
Adult	AB	762,230	97,774	18	105	45	47.63	20.69	4	481	5	6.92	6.86	0.81
Child	AB	265,966	51,071	0	17	5	6.93	5.82	3	57	4	4.29	2.16	1.11
Adult	ON	2423,795	436,656	18	109	50	50.92	21.30	3	336	4	4.61	3.70	0.80
Child	ON	695,202	101,415	0	17	5	7.11	5.84	3	111	3	4.04	1.83	1.10

Descriptive Statistics: Control Group – ED Visitors (2011-2012)

| Child/Adult | Prov | Population | | Control Cohort Descriptive Stats: Age | | | | | Control Cohort Descriptive Stats: # Discharges | | | | | Gender Analysis |
		Total # of unique patients in this population	# of Selected Controls for High Users identified by Total Number of ED Visits	Min	Max	Median	Mean	Std Dev	Min	Max	Median	Mean	Std Dev	Ratio M:F
ADULT	AB	762,230	391,096	18	112	43	45.25	18.98	1	3	1	1.45	0.68	0.96
CHILD	AB	265,966	204,284	0	17	7	7.47	5.54	1	2	1	1.27	0.44	1.14
ADULT	ON	2,423,795	1,746,624	18	112	47	48.54	19.74	1	2	1	1.25	0.44	0.89
CHILD	ON	695,202	405,660	0	17	7	7.80	5.56	1	2	1	1.24	0.43	1.17