Appendix 1 (as supplied by the authors)

Definition of mental health and addition-related costs

Costs related to mental health and addiction care were defined in line with previous work.[1] These included all costs of psychiatric hospitalizations captured in the Ontario Mental Health Reporting System; hospitalizations with an *International Classification of Diseases*, Tenth Revision (ICD-10) diagnosis code for mental health and addiction (F00-F99) included in the Discharge Abstract Database; emergency department (ED) visits with ICD-10 diagnosis codes for mental health and addiction (F00-F99) and self-harm (X60-X84; Y10-Y19, Y28) included in the National Ambulatory Care Reporting System; psychiatrist billings and primary care physician billings related to mental health and addiction care, selected from the Ontario Health Insurance Plan claims database using a validated algorithm;[2] electroconvulsive therapy procedures codes and serum lithium lab claims from the Ontario Health Insurance Plan claims database; outpatient prescription drugs for psychiatric disorders (e.g. antidepressants, antipsychotics, and mood stabilizers) covered under the public provincial drug plan, the Ontario Drug Benefit Program; and home care psychology services (e.g. psychosocial nursing care) included in the Home Care Database. All other costs were defined as non-mental health and addiction care costs.

Description of costing methodology

We used a cost estimation algorithm, available at ICES, to estimate all direct health care costs incurred by patients and borne by the public third-party payer, the Ontario Ministry of Health.[3] This algorithm estimates costs associated with hospitalizations (both acute and psychiatric), ED visits and other ambulatory care, outpatient clinic visits, physician visits and outpatient care, outpatient prescription drugs (covered under the public provincial drug plan), inpatient rehabilitation, complex continuing care, long-term care, and home care. The cost of hospital encounters, such as inpatient hospitalizations, same-day surgeries and emergency department visits, etc., was obtained by multiplying the respective encounter-specific resource intensity weight, a measure of utilisation, by the corresponding average cost per standard encounter/visit. For other institution-based care with long stays, such as psychiatric hospitalizations and long-term care, a similar

costing approach, which accounted for length of stay, was used. The cost of physician services was estimated by multiplying each physician billing code by their respective unit cost. Shadow billings were estimated for cases where a fee-for-service was not applicable. The cost of outpatient prescription drugs was estimated by multiplying the number of drugs by their respective unit cost. For other care, such as home care, the cost was obtained by multiplying the number of services by a service-specific average cost obtained from the Ministry of Health. The costs captured by the algorithm account for over 90% of all government paid costs associated with health care services.[4] Costs were categorised into the following categories: psychiatric hospitalizations, acute care hospitalizations, other hospital/institution-based care (i.e., inpatient rehabilitation, complex continuing care and long-term care), hospital outpatient clinic visits, ED visits, other ambulatory care (i.e., same-day surgery, dialysis clinic visits and cancer clinic visits), physician services, outpatient prescription drugs covered under the public provincial drug plan (i.e., for individuals 65 and older, and those on social assistance), and home care. All costs were reported in 2018 Canadian dollars.

Cost analyses

We estimated total mean health care costs in 2010 by high-cost and health service categories. We also estimated the costs of potentially preventable acute care for each group, defined as costs of potentially preventable acute care hospitalizations (determined through the Agency for Healthcare Research and Quality's Prevention Quality Indicators)[5] and potentially preventable ED visits (determined through the Billings et al. (2000) algorithm,[8] updated by Johnston et al. (2017)).[6] The Prevention Quality Indicators define potentially preventable acute care hospitalizations as those for conditions which good outpatient care can likely prevent the need for hospitalization (e.g. bacterial pneumonia or diabetes),[7] while the Billings-Johnston algorithm classifies ED visits into those considered preventable (i.e., non-emergent, emergent/primary care treatable, and emergent/emergency department care needed but preventable) and not preventable (i.e., emergency department care needed but not preventable, alcohol use, drug use, injury and mental health).[6,7] We also estimated total costs by high-cost group for each year to understand how these changed over time.

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Table A1. Summary of administrative health care databases

Database	Setting	Description
Discharge Abstract Database	acute care hospitalisations	The Discharge Abstract Database is a national database, which contains demographic and clinical data on all acute care inpatient hospitalisations. It also includes psychiatric inpatient hospitalisations for children and adolescents and psychiatric inpatient hospitalisations, which occur in non-psychiatric designated beds.
Ontario Mental Health Reporting System	psychiatric hospitalisations	The Ontario Mental Health Reporting System collects demographic and clinical data on all adult psychiatric inpatient hospitalisations in Ontario.
Continuing Care Reporting System	complex continuing care, long-term care	The Continuing Care Reporting System contains demographic and clinical information on individuals receiving facility-based continuing care. These services include medical long-term care, rehabilitation, geriatric assessment, respite palliative care, and nursing home care.
National Rehabilitation Reporting System	rehabilitation	The National Rehabilitation Reporting System contains national data on rehabilitation facilities and clients, collected from participating adult inpatient rehabilitation facilities and programs.
National Ambulatory Care Reporting System	emergency department visits, day surgery and outpatient clinic visits	The National Ambulatory Care Reporting System contains data on all ambulatory care including emergency department visits, day surgery and outpatient clinic visits (for example, chemotherapy and dialysis).
Ontario Health Insurance Plan Claims Database	outpatient and physician services	The Ontario Health Insurance Plan Claims Database covers all services and procedures provided by health care providers who can claim under the Ontario Health Insurance Plan (such as, physician and laboratory/diagnostic services).
Ontario Drug Benefit Claims Database	outpatient prescription drugs	The Ontario Drug Benefit Claims Database includes data on all drugs dispensed in community pharmacies and long-term care/nursing facilities. The Ontario Drug Benefit program covers prescription drugs listed in the provincial formulary for all seniors (aged 65+) as well as those under the age of 65 on social assistance.
Home Care Database	home care	The Home Care Database provide data on government-funded services coordinated by Ontario's Community Care Access Centres for individuals requiring home care.

Table A2. Mean health care costs (and 95% confidence intervals) by high-cost patient group and health service, 2010-2017

	Sporadic n=17,746	Lower CI	Upper CI	Moderate n=16,743	Lower CI	Upper CI	Persistent n=18,149	Lower CI	Upper CI
Psychiatric hospitalisations									
2010	14,417	13,983	14,852	19,834	19,166	20,503	30,944	29,956	31,932
2011	2,072	1,870	2,274	11,790	11,145	12,435	25,977	24,974	26,980
2012	492	417	567	8,042	7,505	8,579	24,033	23,034	25,032
2013	250	203	296	4,633	4,261	5,005	20,682	19,793	21,571
2014	234	192	275	3,190	2,937	3,443	20,112	19,212	21,012
2015	223	175	270	2,884	2,636	3,132	19,579	18,668	20,490
2016	204	163	245	3,058	2,789	3,326	18,794	17,871	19,716
2017	320	248	392	3,298	2,989	3,607	18,301	17,353	19,249
Acute care hospitalisations									
2010	408	377	439	587	542	632	612	568	657
2011	302	249	355	1585	1438	1731	1556	1439	1674
2012	177	138	216	1414	1288	1541	1768	1605	1931
2013	145	116	173	1271	1142	1400	2037	1891	2183
2014	149	123	175	1108	991	1226	2239	2056	2423
2015	153	130	176	1006	906	1106	2300	2120	2480
2016	186	157	215	1121	1005	1238	2307	2133	2481
2017	257	198	316	1217	1082	1352	2148	1979	2317
Other hospital/institution-based care*									
2010	167	135	199	308	266	351	372	324	419
2011	80	54	106	1,436	1,304	1,568	1,634	1,502	1,767
2012	20	9	31	1,474	1,331	1,617	2,271	2,109	2,432
2013	3	-1	5	1,092	960	1,223	2,716	2,538	2,894
2014	12	2	22	366	299	433	3,262	3,073	3,452

2015	7	2	12	276	221	331	3,388	3,189	3,588
2016	14	6	23	327	266	388	3,426	3,228	3,625
2017	36	19	54	575	468	682	3,311	3,097	3,525
Hospital outpatient clinic visits									
2010	2,190	2,145	2,235	2,487	2,434	2,540	2,666	2,608	2,724
2011	547	530	563	2,128	2,076	2,180	2,706	2,644	2,769
2012	421	407	435	1,658	1,615	1,701	2,529	2,470	2,587
2013	359	346	371	1,314	1,279	1,349	2,357	2,303	2,412
2014	333	322	345	1,056	1,028	1,085	2,173	2,122	2,224
2015	305	294	317	918	893	943	2,048	2,000	2,096
2016	313	302	325	887	861	912	1,942	1,895	1,988
2017	547	530	563	850	825	875	1,824	1,775	1,874
Emergency department visits									
2010	674	659	690	777	757	796	844	819	870
2011	216	206	225	544	524	563	770	744	795
2012	158	153	164	494	475	513	765	739	791
2013	142	136	147	444	425	462	794	765	823
2014	137	132	143	375	361	388	783	753	813
2015	134	129	140	340	328	351	767	737	798
2016	133	128	138	349	336	362	744	710	777
2017	145	140	151	370	354	385	732	696	768
Other ambulatory care**									
2010	123	115	131	169	147	191	171	158	185
2011	99	87	110	271	241	300	253	230	276
2012	76	70	82	283	250	316	397	357	437
2013	78	71	86	291	253	328	429	385	473

2014	82	72	92	252	220	283	438	390	485
2015	72	66	78	258	220	295	468	414	522
2016	79	72	86	292	256	327	505	445	565
2017	102	91	113	305	264	346	517	452	582
Physician services									
2010	4,380	4,318	4,442	5,229	5,148	5,311	5,818	5,734	5,902
2011	2,148	2,105	2,191	4,356	4,285	4,426	5,742	5,647	5,836
2012	1,413	1,386	1,439	3,794	3,729	3,860	5,665	5,571	5,760
2013	1,195	1,173	1,218	3,211	3,119	3,302	5,490	5,404	5,576
2014	1,100	1,079	1,120	2,659	2,612	2,706	5,221	5,135	5,307
2015	1,055	1,035	1,075	2,445	2,400	2,490	5,068	4,987	5,148
2016	1,019	1,000	1,038	2,399	2,352	2,447	4,870	4,789	4,952
2017	1,047	1,025	1,068	2,339	2,291	2,388	4,496	4,417	4,575
Outpatient prescription drugs*									
2010	702	679	725	1,392	1,357	1,427	2,947	2,893	3,000
2011	574	555	592	1,540	1,503	1,577	3,342	3,284	3,400
2012	537	520	554	1,622	1,583	1,661	3,914	3,845	3,983
2013	536	518	554	1,574	1,537	1,612	4,351	4,276	4,427
2014	520	504	537	1,463	1,428	1,498	4,664	4,584	4,743
2015	522	495	549	1,516	1,461	1,571	4,958	4,864	5,051
2016	520	496	544	1,645	1,575	1,715	5,220	5,108	5,333
2017	567	534	599	1,805	1,726	1,884	5,340	5,218	5,463
Home care									
2010	144	133	155	272	254	290	339	318	360
2011	48	41	55	348	314	382	472	438	505
2012	24	20	28	302	271	333	537	497	577
2013	21	17	25	252	226	278	661	614	708

2014	21	18	24	157	140	174	766	715	816
2015	22	18	26	167	148	185	784	733	835
2016	23	20	27	203	179	226	820	767	873
2017	34	29	40	259	231	286	858	795	921
Total cost									
2010	23,204	22,741	23,668	31,055	30,359	31,751	44,713	43,724	45,703
2011	6,573	6,337	6,809	23,996	23,289	24,704	42,452	41,441	43,463
2012	3,443	3,333	3,553	19,083	18,477	19,689	41,879	40,860	42,897
2013	2,789	2,712	2,866	14,080	13,615	14,546	39,517	38,604	40,431
2014	2,614	2,540	2,687	10,625	10,293	10,958	39,657	38,723	40,591
2015	2,521	2,443	2,599	9,810	9,484	10,136	39,360	38,416	40,303
2016	2,482	2,405	2,559	10,280	9,922	10,638	38,628	37,665	39,591
2017	2,821	2,696	2,945	11,018	10,603	11,432	37,527	36,528	38,526

* includes rehabilitation, complex continuing care and long-term care
** includes same-day surgery, dialysis clinic visits and cancer clinic visits
*** includes outpatient prescriptions drugs for individuals covered under the public provincial drug plan (i.e., individuals 65 and older and those on social assistance)

Note: Costs are in 2018 CAD.

Source: Administrative health care data housed at ICES, Toronto Ontario

Table A3. Pooled multinomial logistic regression (with mood disorders): predictors of persistency in the high cost state among mental health high-cost patients (n = 393,511) in Ontario, 2010-2017

Variable	Predictor	Reference case	Ratio of relative risk of persistent vs. sporadic high-cost patient (95% CI)	Ratio of relative risk of moderate vs. sporadic high-cost patient (95% CI)
Sex	Male	Female	0.80 (0.76, 0.84)	0.85 (00.81, 0.89)
Age group	45-64	18-44	1.19 (1.13, 1.26)	1.09 (1.04, 1.15)
	65-84		1.71 (1.53, 1.91)	1.48 (1.33, 1.65)
	85-105		1.28 (0.97, 1.69)	1.71 (1.34, 2.19)
Migrant status	Immigrant	Long-term resident	0.59 (0.54, 0.65)	0.80 (0.74, 0.88)
	Refugee		0.64 (0.55, 0.74)	0.74 (0.64, 0.86)
Neighbourhood income quintile	2 – medium low	1 - low	0.85 (0.82, 0.89)	0.90 (0.86, 0.95)
	3 – medium		0.76 (0.73, 0.81)	0.88 (0.84, 0.92)
	4 – medium high		0.77 (0.73, 0.81)	0.88 (0.83, 0.93)
	5 – high		0.84 (0.80, 0.89)	0.92 (0.87, 0.98)
	Missing		1.21 (0.98, 1.49)	1.08 (0.87, 1.34)
Rural residence	Yes	No	0.61 (0.56, 0.66)	0.81 (0.76, 0.88)
	Missing		1.10 (0.78, 1.55)	0.91 (0.62, 1.33)
Rheumatoid arthritis	Yes	No	2.05	1.36

			(1.62, 2.59)	(1.07, 1.73)
Asthma	Yes	No	1.34 (1.26, 1.41)	1.11 (1.04, 1.17)
Cancer	Yes	No	1.82 (1.62, 2.04)	1.76 (1.58, 1.97)
COPD	Yes	No	1.71 (1.59, 1.82)	1.40 (1.30, 1.50)
Diabetes	Yes	No	2.08 (1.95, 2.21)	1.35 (1.26, 1.44)
HIV	Yes	No	4.29 (3.06, 6.01)	2.47 (1.73, 3.53)
Hypertension	Yes	No	1.49 (1.41, 1.57)	1.32 (1.25, 1.39)
Congestive heart failure	Yes	No	2.25 (1.89, 2.68)	1.85 (1.55, 2.20)
Crohn's/colitis	Yes	No	2.15 (1.73, 2.67)	1.61 (1.29, 2.02)
Dementia	Yes	No	3.25 (2.84, 3.73)	2.03 (1.77, 2.32)
Psychosis	Yes	No	3.37 (3.21, 3.54)	1.80 (1.72, 1.89)
Mood disorders	Yes	No	1.15 (1.10, 1.21)	1.14 (1.09, 1.19)
Administrative health region	2 – South West	1 – Erie St. Clair	1.27 (1.11, 1.46)	1.29 (1.12, 1.48)
	3 – Waterloo Wellington		0.85 (0.73, 0.99)	0.99 (0.85, 1.15)
	4 – Hamilton Niagara Haldimand Brant		1.01 (0.88, 1.15)	1.13 (0.99, 1.29)
	5 – Central West		0.94 (0.80, 1.09)	1.12 (0.96, 1.31)
	6 – Mississauga Halton		0.97 (0.84, .1.13)	1.14 (0.99, 1.32)
	7 – Toronto Central		2.14 (1.89, 2.42)	1.61 (1.42, 1.83)

	8 – Central		1.25 (1.10, 1.43)	1.23 (1.08, 1.41)
	9 – Central East		1.15 (1.01, 1.31)	1.16 (1.01, 1.32)
	10 – South East		1.26 (1.08, 1.47)	1.19 (1.02, 1.40)
	11 – Champlain		1.50 (1.32, 1.71)	1.42 (1.24, 1.62)
	12 – North Simcoe Muskoka		1.11 (0.95, 1.30)	1.21 (1.03, 1.42)
	13 – North East		1.14 (0.99, 1.32)	1.14 (0.99, 1.33)
	14 – North West		0.98 (0.80, 1.20)	1.22 (1.01, 1.48)
Year	2011	2010	1.03 (1.03, 1.04)	1.05 (1.04, 105)
	2012		1.03 (1.03, 1.04)	1.03 (1.02, 1.03)
	2013		1.02 (1.02, 1.03)	0.98 (0.97, 0.99)
	2014		1.00 (0.99, 1.01)	0.93 (0.92, 0.94)
	2015		0.97 (0.96, 0.98)	0.90 (0.89, 0.91)
	2016		0.92 (0.91, 0.94)	0.88 (0.87, 0.89)
	2017		0.88 (0.87, 0.89)	0.87 (0.85, 0.88)

Legend: CI – confidence interval

Source: Administrative health care data housed at ICES, Toronto Ontario

Table A4. Pooled multinomial logistic regression (without decedents and individuals ineligible for public health care insurance coverage): predictors of persistency in the high cost state among mental health high-cost patients (n = 365,304) in Ontario, 2010-2017

Variable	Predictor	Reference case	Ratio of relative risk of persistent vs. sporadic high-cost patient (95% CI)	Ratio of relative risk of moderate vs. sporadic high-cost patient (95% CI)
Sex	Male	Female	0.79 (0.75, 0.83)	0.82 (0.78, 0.86)
Age group	45-64	18-44	1.17 (1.11, 1.24)	1.07 (1.02, 1.13)
	65-84		1.77 (1.57, 2.00)	1.39 (1.23, 1.58)
	85-105		2.78 (1.53, 5.03)	1.08 (0.55, 2.11)
Migrant status	Immigrant	Long-term resident	0.58 (0.53, 0.64)	0.81 (0.74, 0.88)
	Refugee		0.62 (0.53, 0.72)	0.73 (0.63, 0.85)
Neighbourhood income quintile	2 – medium low	1 - low	0.85 (0.81, 0.89)	0.89 (0.85, 0.94)
	3 – medium		0.76 (0.72, 0.80)	0.87 (0.83, 0.92)
	4 – medium high		0.76 (0.72, 0.81)	0.86 (0.82, 0.91)
	5 – high		0.83 (0.78, 0.88)	0.91 (0.86, 0.97)
	Missing		1.28 (1.03, 1.60)	1.07 (0.84, 1.35)
Rural residence	Yes	No	0.60 (0.55, 0.65)	0.83 (0.77, 0.90)
	Missing		0.99 (0.69, 1.41)	0.87 (0.58, 1.30)
Rheumatoid arthritis	Yes	No	2.07	1.33

			(1.61, 2.66)	(1.02, 1.72)
Asthma	Yes	No	1.35	1.10
			(1.27, 1.43)	(1.04, 1.17)
Cancer	Yes	No	1.83	1.70
			(1.61, 2.08)	(1.50, 1.93)
COPD	Yes	No	1.77	1.33
			(1.65, 1.91)	(1.24, 1.44)
Diabetes	Yes	No	2.14	1.32
			(2.01, 2.29)	(1.23, 1.41)
HIV	Yes	No	4.37	2.44
			(3.08, 6.19)	(1.68, 3.53)
Hypertension	Yes	No	1.50	1.32
			(1.42, 1.59)	(1.24, 1.39)
Congestive heart failure	Yes	No	2.70	1.84
			(2.16, 3.36)	(1.46, 2.31)
Crohn's/colitis	Yes	No	2.26	1.62
			(1.80, 2.83)	(1.28, 2.05)
Dementia	Yes	No	3.27	1.52
			(2.77, 3.88)	(1.27, 1.82)
Psychosis	Yes	No	3.49	1.82
			(3.32, 3.67)	(1.73, 1.91)
Administrative health region	2 – South West	1 – Erie St. Clair	1.23	1.27
			(1.07, 1.42)	(1.09, 1.47)
	3 – Waterloo Wellington		0.83	0.98
			(0.71, 0.97)	(0.84, 1.15)
	4 – Hamilton Niagara Haldimand Brant		0.97	1.12
			(0.84, 1.11)	(0.97, 1.29)
	5 – Central West		0.90	1.13
			(0.77, 1.06)	(0.96, 1.34)
	6 – Mississauga Halton		0.94	1.14
			(0.81, 1.09)	(0.98, 1.33)
	7 – Toronto Central		2.08	1.59
			(1.83, 2.36)	(1.39, 182)
	8 – Central		1.21	1.23
			(1.05, 1.38)	(1.07, 1.41)

	9 – Central East		1.12 (0.98, 1.29)	1.16 (1.00, 1.33)
	10 – South East		1.25 (1.06, 1.47)	1.17 (0.98, 1.38)
	11 – Champlain		1.48 (1.30, 1.70)	1.44 (1.25, 1.65)
	12 – North Simcoe Muskoka		1.09 (0.92, 1.29)	1.20 (1.02, 1.43)
	13 – North East		1.12 (0.96, 1.31)	1.13 (0.97, 1.33)
	14 – North West		0.97 (0.78, 1.20)	1.19 (0.97, 1.46)
Year	2011	2010	0.96 (0.96, 0.96)	0.98 (0.98, 0.98)
	2012		0.92 (0.92, 0.93)	0.97 (0.96, 0.97)
	2013		0.89 (0.88, 0.89)	0.95 (0.95, 0.96)
	2014		0.85 (0.84, 0.86)	0.94 (0.93, 0.94)
	2015		0.82 (0.81, 0.83)	0.92 (0.92, 0.93)
	2016		0.79 (0.78, 0.80)	0.91 (0.90, 0.92)
	2017		0.77 (0.76, 0.78)	0.90 (0.89, 0.91)

Legend: CI – confidence interval

Source: Administrative health care data housed at ICES, Toronto Ontario

Table A5. Odds ratios of being a persistent mental health high-cost patient versus being a moderate and a sporadic mental health high-cost patient in Ontario, 2010-2017

	Persistent versus moderate high cost		Persistent versus sporadic high cost	
Variable	**Odds ratio**	**95 CI**	**Odds ratio**	**95% CI**
Sex (reference: male)				
Female	0.93	0.89 - 0.97	0.81	0.78 - 0.85
Age group (reference: 18-44)				
Age group 45-64	1.11	1.06 - 1.17	1.18	1.12 - 1.25
Age group 65-84	1.19	1.09 - 1.31	1.70	1.52 - 1.90
Age group 85-105	0.77	0.63 - 0.95	1.28	0.95 - 1.72
Migrant status (reference: long-term resident)				
Immigrant	0.74	0.67 - 0.81	0.58	0.53 - 0.64
Refugee	0.87	0.75 - 1.01	0.64	0.55 - 0.74
Neighbourhood income quintile (reference: low)				
Medium low	0.95	0.91 - 0.99	0.85	0.81 - 0.89
Medium	0.87	0.83 - 0.91	0.77	0.73 - 0.81
Medium high	0.88	0.83 - 0.93	0.76	0.72 - 0.81
High	0.92	0.87 - 0.97	0.83	0.78 - 0.88
Missing	1.10	0.92 -1.32	1.21	0.97- 1.50
Rural residence (reference: no)				
Yes	0.74	0.69 - 0.80	0.61	0.56 - 0.66
Missing	1.21	0.90 - 1.63	1.05	0.74 - 1.49
Chronic condition (reference: not having condition)				
Arthritis	1.53	1.26 - 1.86	2.03	1.60 - 2.58
Asthma	1.21	1.15 - 1.28	1.34	1.26 - 1.42
Cancer	1.04	0.95 - 1.13	1.81	1.61 - 2.04
COPD	1.21	1.15 - 1.29	1.70	1.59 - 1.83
Diabetes	1.54	1.46 - 1.63	2.08	1.96 - 2.22
HIV	1.73	1.34 - 2.25	4.36	3.10 - 6.15

Hypertension	1.13	1.08 - 1.19	1.48	1.40 - 1.57
Congestive heart failure	1.22	1.09 - 1.36	2.29	1.91 - 2.74
Crohn's/colitis	1.36	1.13 - 1.63	2.01	1.61 - 2.51
Psychosis	1.91	1.83 - 2.00	3.37	3.21 - 3.54
Dementia	1.60	1.46 - 1.75	3.35	2.92 - 3.85
Administrative health region (reference: region 1)				
Region 2	0.99	0.87 - 1.13	1.27	1.10 - 1.45
Region 3	0.85	0.73 - 0.99	0.86	0.74 - 1.00
Region 4	0.90	0.79 - 1.02	1.01	0.88 - 1.16
Region 5	0.83	0.72 - 0.97	0.95	0.81 - 1.12
Region 6	0.87	0.75 - 1.00	0.99	0.85 - 1.15
Region 7	1.36	1.20 - 1.53	2.12	1.87 - 2.40
Region 8	1.03	0.90 - 1.17	1.28	1.12 - 1.46
Region 9	1.01	0.89 - 1.14	1.15	1.00 - 1.31
Region 10	1.05	0.90 - 1.23	1.28	1.09 - 1.50
Region 11	1.07	0.94 - 1.21	1.47	1.29 - 1.68
Region 12	0.92	0.78 - 1.07	1.12	0.95 - 1.32
Region 13	0.99	0.86 - 1.15	1.18	1.02 -1.38
Region 14	0.82	0.67 - 1.00	0.98	0.80 - 1.20
Year (reference: 2010)				
2011	0.98	0.97 - 0.98	1.05	1.04 - 1.05
2012	1.00	0.99 - 1.00	1.05	1.04 - 1.05
2013	1.03	1.02 - 1.04	1.03	1.02 - 1.03
2014	1.06	1.05 - 1.07	0.99	0.98 - 1.00
2015	1.06	1.05 - 1.07	0.96	0.95 - 0.97
2016	1.03	1.02 - 1.05	0.92	0.91 - 0.93
2017	1.01	0.99 - 1.02	0.88	0.87 - 0.90
N	264,054		271,843	

Legend: CI – confidence interval
Source: Administrative health care data housed at ICES, Toronto Ontario