

Appendix 3 (as supplied by the authors): Detailed Results of Estimates and Projection of HF Associated Hospitalization Costs in Canada, 2004-2030

Estimates and projection of annual volume of patients with HF from 2004- 2030

We could only examine one turning point in each of the 8 studied groups by Joinpoint regression because of limited number of observations. Seven knots were statistically significant at $\alpha=0.05$ at 2006 for male/ ≤ 60 ; at 2007 for female/ ≥ 80 and male/ ≥ 80 ; at 2009 for female/60-69, female/70-79, and male/70-79; and at 2010 for male/60-69 groups. Results of the multiple linear regression model to estimate hospitalization prevalence rates are summarized in Table S3.1. Hospitalization prevalence rates from 2004 to 2030 are shown in detail in Table S3.2. In-patient HF population estimates and projection from 2004 to 2030 are presented in detail in Table S3.3.

Table S3.1: Results of the multiple linear regression model to estimate hospitalization prevalence rates

Variable	Parameter estimate	95% CI	p-value
Fiscal year	-0.047	-0.051, -0.043	<0.001
Sex			
Male	0.202	0.179, 0.224	<0.001
Female (ref)	--		--
Age group			
<60 years	-4.914	-4.937, -4.891	<0.001
60-69 years	-2.394	-2.417, -2.370	<0.001
70-79 years	-1.208	-1.231, -1.184	<0.001
≥ 80 years (ref)	--	--	--
Knot	0.038	0.032, 0.044	<0.001
Interaction			
Sex/<60 years	0.223	0.191, 0.255	<0.001
Sex/60-69 years	0.213	0.181, 0.245	<0.001
Sex/70-79 years	0.125	0.093, 0.157	0.002
Adjusted R-square=0.999; Intercept= 26.351; Model assumptions' check satisfied.			

Table S3.2: Estimated HF associated hospitalization prevalence rate per 100,000 populations by sex and age in Canada, 2004- 2030

Fiscal Year	Female				Male			
	<60	60-69	70-79	>=80	<60	60-69	70-79	>=80
2004	32	475	1,554	4,820	52	747	2,156	5,897
2005	31	453	1,483	4,599	50	712	2,057	5,627
2006	31	432	1,415	4,388	47	680	1,962	5,369
2007	31	412	1,350	4,187	47	649	1,872	5,123
2008	30	394	1,288	4,150	47	619	1,787	5,077
2009	30	376	1,229	4,113	46	591	1,705	5,032
2010	30	372	1,218	4,076	46	563	1,690	4,987
2011	30	369	1,207	4,040	45	558	1,674	4,942
2012	29	366	1,197	4,004	45	553	1,659	4,898
2013	29	362	1,186	3,968	45	549	1,645	4,854
2014	29	359	1,175	3,932	44	544	1,630	4,811
2015	29	356	1,165	3,897	44	539	1,615	4,768
2016	28	353	1,154	3,862	43	534	1,601	4,725
2017	28	350	1,144	3,828	43	529	1,587	4,683
2018	28	346	1,134	3,794	43	524	1,572	4,641
2019	28	343	1,124	3,760	42	520	1,558	4,600
2020	27	340	1,114	3,726	42	515	1,545	4,559
2021	27	337	1,104	3,693	41	511	1,531	4,518
2022	27	334	1,094	3,660	41	506	1,517	4,478
2023	27	331	1,084	3,627	41	501	1,503	4,438
2024	26	328	1,075	3,595	40	497	1,490	4,398
2025	26	325	1,065	3,563	40	493	1,477	4,359
2026	26	322	1,055	3,531	40	488	1,464	4,320
2027	26	320	1,046	3,499	39	484	1,450	4,281
2028	25	317	1,037	3,468	39	479	1,438	4,243
2029	25	314	1,027	3,437	39	475	1,425	4,205
2030	25	311	1,018	3,406	38	471	1,412	4,168

Table S3.3: In-patient HF population estimates and projection in Canada, 2004- 2030

Fiscal Year	Canadian population estimates and projection	Number of patients hospitalized with HF		
		Expected	95% CI lower bound	95% CI upper bound
2004	31,938,004	116,773	114,443	119,076
2005	32,242,364	114,542	112,455	116,594
2006	32,570,505	112,700	110,749	114,613
2007	32,887,928	110,776	108,871	112,642
2008	33,245,773	110,985	109,133	112,798
2009	33,628,571	111,196	109,318	113,036
2010	34,005,274	112,971	111,064	114,837
2011	34,342,780	115,132	113,155	117,069
2012	34,752,128	117,613	115,497	119,693
2013	35,154,279	120,134	117,818	122,417
2014	35,515,400	122,293	119,734	124,827
2015	35,872,400	124,569	121,722	127,402
2016	36,229,100	126,968	123,792	130,143
2017	36,584,200	129,718	126,173	133,278
2018	36,939,900	132,506	128,561	136,486
2019	37,294,400	135,282	130,911	139,710
2020	37,646,400	138,083	133,261	142,989
2021	37,997,700	141,094	135,791	146,513
2022	38,345,800	144,139	138,330	150,098
2023	38,693,200	147,518	141,166	154,058
2024	39,039,800	151,065	144,141	158,222
2025	39,383,200	154,616	147,097	162,417
2026	39,724,100	158,346	150,198	166,830
2027	40,062,100	162,894	154,048	172,140
2028	40,395,000	167,202	157,644	177,227
2029	40,723,200	171,245	160,967	182,065
2030	41,046,600	175,201	164,185	186,838

Estimates and projection of annual hospitalization costs per patient with HF from 2004- 2030

Results of the generalized linear model to estimate annual hospitalization costs per patient with HF are summarized in Table S3.4. Annual hospitalization costs per patient with HF are shown in Table S3.5. Total HF associated hospitalization cost estimates and projection are presented in Table S3.6.

Table S3.4: Results of the generalized linear model to estimate annual costs per patient with HF hospitalized

Variable	Parameter estimate	95% CI	p-value
Fiscal year	0.013	0.010, 0.015	<0.001
Sex			
Male	0.069	0.063, 0.075	<0.001
Female (ref)			--
Age group			
<60 years (ref)	--	--	--
60-69 years	-0.024	-0.039, -0.009	0.002
70-79 years	-0.079	-0.093, -0.065	<0.001
>=80 years	-0.209	-0.222, -0.196	<0.001
Intercept= -16.017; gamma distribution and log link were used.			

Table S3.5: Annual hospitalization cost per patient with HF by sex and age in Canada (in 2014 \$-values), 2004- 2030

Fiscal Year	Patient average	Female				Male			
		<60	60-69	70-79	>=80	<60	60-69	70-79	>=80
2004	12,302	12,800	12,498	11,824	10,388	13,714	13,391	12,668	11,130
2005	12,459	12,963	12,658	11,975	10,521	13,889	13,563	12,831	11,272
2006	12,618	13,129	12,820	12,128	10,655	14,067	13,736	12,995	11,416
2007	12,780	13,297	12,984	12,284	10,792	14,247	13,912	13,161	11,562
2008	12,943	13,467	13,150	12,441	10,930	14,429	14,090	13,329	11,710
2009	13,109	13,640	13,319	12,600	11,069	14,614	14,270	13,500	11,860
2010	13,277	13,814	13,489	12,761	11,211	14,801	14,453	13,673	12,012
2011	13,446	13,991	13,662	12,924	11,355	14,990	14,637	13,847	12,166
2012	13,618	14,170	13,836	13,090	11,500	15,182	14,825	14,025	12,321
2013	13,793	14,351	14,013	13,257	11,647	15,376	15,014	14,204	12,479
2014	13,969	14,535	14,193	13,427	11,796	15,573	15,206	14,386	12,638
2015	14,148	14,721	14,374	13,598	11,947	15,772	15,401	14,570	12,800
2016	14,329	14,909	14,558	13,772	12,100	15,974	15,598	14,756	12,964
2017	14,512	15,100	14,744	13,949	12,254	16,178	15,797	14,945	13,130
2018	14,698	15,293	14,933	14,127	12,411	16,385	16,000	15,136	13,298
2019	14,886	15,488	15,124	14,308	12,570	16,595	16,204	15,330	13,468
2020	15,076	15,687	15,317	14,491	12,731	16,807	16,412	15,526	13,640
2021	15,269	15,887	15,513	14,676	12,894	17,022	16,622	15,724	13,815
2022	15,464	16,090	15,712	14,864	13,059	17,240	16,834	15,926	13,991
2023	15,662	16,296	15,913	15,054	13,226	17,460	17,050	16,129	14,170
2024	15,863	16,505	16,116	15,247	13,395	17,684	17,268	16,336	14,352
2025	16,066	16,716	16,323	15,442	13,566	17,910	17,489	16,545	14,535
2026	16,271	16,930	16,531	15,639	13,740	18,139	17,712	16,756	14,721
2027	16,479	17,146	16,743	15,839	13,916	18,371	17,939	16,971	14,909
2028	16,690	17,366	16,957	16,042	14,094	18,606	18,168	17,188	15,100
2029	16,904	17,588	17,174	16,247	14,274	18,844	18,401	17,408	15,293
2030	17,120	17,813	17,394	16,455	14,456	19,085	18,636	17,630	15,489

Table S3.6: HF associated hospitalization cost estimates and projection in Canada (in million, 2014 \$-values), 2004- 2030

Fiscal Year	Total HF associated hospitalization costs		
	Expected	95% CI lower bound	95% CI upper bound
2004	1,370	1,342	1,397
2005	1,360	1,335	1,384
2006	1,354	1,331	1,377
2007	1,348	1,325	1,371
2008	1,367	1,344	1,389
2009	1,385	1,361	1,408
2010	1,424	1,400	1,448
2011	1,469	1,444	1,494
2012	1,520	1,493	1,547
2013	1,572	1,542	1,602
2014	1,622	1,588	1,655
2015	1,673	1,635	1,711
2016	1,728	1,685	1,771
2017	1,789	1,740	1,838
2018	1,851	1,796	1,907
2019	1,914	1,853	1,977
2020	1,979	1,910	2,049
2021	2,048	1,971	2,126
2022	2,118	2,033	2,206
2023	2,195	2,100	2,292
2024	2,275	2,171	2,382
2025	2,356	2,242	2,475
2026	2,441	2,316	2,572
2027	2,539	2,401	2,683
2028	2,635	2,485	2,793
2029	2,729	2,566	2,901
2030	2,824	2,647	3,011