

Appendix 1 (as supplied by the authors): Detailed Results of HF Hospitalization Cost Evaluation in Canada, 2004- 2013

National volume of HF patients from 2004- 2013

We could only examine one turning point in each of the 8 studied groups by Joinpoint regression because of limited number of observations. Five knots were statistically significant at $\alpha=0.05$ at 2006 for female/70-79 and male/70-79, 2008 for female/60-69 and female/ ≥ 80 , and at 2010 for male/ ≥ 80 groups. Results of the multiple linear regression model to estimate hospitalization prevalence rates are summarized in Table S1.1. Hospitalization prevalence rates from 2004 to 2013 are shown in detail in Table S1.2. In-patient HF population estimates from 2004 to 2013 are presented in detail in Table S1.3.

Table S1.1: Results of the multiple linear regression model to estimate HF hospitalization prevalence rates

Variable	Parameter estimate	95% CI	p-value
Fiscal year	-0.033	-0.043, -0.022	<0.001
Sex			
Male	0.194	0.147, 0.241	<0.001
Female (ref)	--	--	--
Age group			
<60 years	-5.061	-5.108, -5.015	<0.001
60-69 years	-2.427	-2.472, -2.382	<0.001
70-79 years	-1.215	-1.261, -1.170	<0.001
≥ 80 years (ref)	--	--	--
Knot	0.012	-0.001, 0.025	0.079
Interaction			
Sex/<60 years	0.347	0.283, 0.412	<0.001
Sex/60-69 years	0.327	0.258, 0.396	<0.001
Sex/70-79 years	0.183	0.118, 0.248	<0.001
Adjusted R-square=0.999; Intercept= 49.720; Model assumptions' check satisfied.			

Table S1.2: Estimated HF hospitalization prevalence rate per 100,000 populations by sex and age in Canada, 2004- 2013

Fiscal Year	Female				Male			
	<60	60-69	70-79	>=80	<60	60-69	70-79	>=80
2004	12	168	551	1,902	20	270	803	2,363
2005	11	163	533	1,841	19	264	778	2,287
2006	11	157	516	1,782	19	259	753	2,214
2007	11	152	506	1,725	19	253	737	2,142
2008	11	147	495	1,669	18	248	721	2,073
2009	10	144	485	1,634	18	243	706	2,007
2010	10	141	475	1,600	17	238	692	1,942
2011	10	138	465	1,567	17	233	677	1,902
2012	10	135	455	1,534	17	228	663	1,862
2013	10	133	445	1,502	16	223	649	1,823

Table S1.3: In-patient HF population estimates in Canada, 2004- 2013

Fiscal Year	Canadian population estimates	Number of HF patients hospitalized		
		Estimated average	95% CI lower bound	95% CI upper bound
2004	31,938,004	44,355	42,446	46,235
2005	32,242,364	44,184	42,492	45,827
2006	32,570,505	44,147	42,583	45,653
2007	32,887,928	44,095	42,618	45,509
2008	33,245,773	44,065	42,582	45,485
2009	33,628,571	44,196	42,709	45,620
2010	34,005,274	44,404	42,859	45,889
2011	34,342,780	44,718	43,141	46,235
2012	34,752,128	45,140	43,499	46,725
2013	35,154,279	45,562	43,830	47,244

Annual hospitalization costs per HF patient from 2004 - 2013

168,130 HF hospitalizations representing 134,257 patients from 2009 to 2012 were matched with Canadian Institute for Health Information patient cost estimate data. Costs of 2% of hospitalizations (n=3,042, containing 7 case mix groups) with no matching patient cost data were derived from the Ontario Cost Analysis Tool. Results of the generalized linear model to estimate annual hospitalization costs per a HF patient are summarized in Table S1.4. Annual hospitalization costs per a HF patient are shown in detail in Table S1.5. Total HF hospitalization cost estimates are presented in detail in Table S1.6.

Table S1.4: Results of the generalized linear model to estimate annual costs per HF patient hospitalized

Variable	Parameter estimate	95% CI	p-value
Fiscal year	0.014	0.011, 0.017	<0.001
Sex			
Male	0.028	0.022, 0.035	<0.001
Female (ref)	--	--	--
Age group			
<60 years (ref)	--	--	--
60-69 years	-0.013	-0.032, -0.006	0.190
70-79 years	-0.056	-0.074, -0.038	<0.001
>=80 years	-0.142	-0.159, -0.125	<0.001
Intercept= -18.662; gamma distribution and log link were used.			

Table S1.5: Annual hospitalization cost per a HF patient by sex and age in Canada (in 2014 \$-values), 2004- 2013

Fiscal Year	Patient average	Female				Male			
		<60	60-69	70-79	>=80	<60	60-69	70-79	>=80
2004	9,679	10,044	9,917	9,498	8,714	10,331	10,200	9,770	8,963
2005	9,815	10,185	10,055	9,631	8,836	10,476	10,343	9,907	9,088
2006	9,952	10,327	10,196	9,766	8,959	10,622	10,488	10,045	9,215
2007	10,092	10,472	10,339	9,903	9,085	10,771	10,635	10,186	9,345
2008	10,233	10,619	10,484	10,042	9,212	10,922	10,784	10,329	9,475
2009	10,377	10,767	10,631	10,182	9,341	11,075	10,935	10,473	9,608
2010	10,522	10,918	10,780	10,325	9,472	11,230	11,088	10,620	9,743
2011	10,669	11,071	10,931	10,470	9,605	11,387	11,243	10,769	9,879
2012	10,819	11,226	11,084	10,616	9,739	11,547	11,401	10,920	10,018
2013	10,970	11,383	11,239	10,765	9,876	11,709	11,560	11,073	10,158

Table S1.6: Annual HF hospitalization cost estimates in Canada (in million, 2014 \$-values), 2004- 2013

Fiscal Year	Total HF hospitalization costs		
	Estimated average	95% CI lower bound	95% CI upper bound
2004	415	397	432
2005	419	403	434
2006	424	409	438
2007	429	415	443
2008	435	421	449
2009	443	428	457
2010	451	435	466
2011	460	444	476
2012	471	454	488
2013	482	464	500