



Indicator Library: Model Specification—  
Clinical Indicators, May 2015



## Our Vision

Better data. Better decisions.  
Healthier Canadians.

## Our Mandate

To lead the development and maintenance of comprehensive and integrated health information that enables sound policy and effective health system management that improve health and health care.

## Our Values

Respect, Integrity, Collaboration,  
Excellence, Innovation

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## 1.1 Wait Time for Hip Fracture Surgery (Proportion With Surgery Within 48 Hours), 2012–2013 and 2013–2014

Risk Factor	2012–2013		2013–2014		ICD-10-CA	Qualifier
	Regression Coefficient	Pr > ChiSq (Wald)	Regression Coefficient	Pr > ChiSq (Wald)		
<b>Intercept</b>	1.9140	<0.0001	2.0539	<0.0001		
<b>Sex (Male = 1, Female = 0)</b>	-0.2784	<0.0001	-0.2780	<0.0001		
<b>Heart Failure or Pulmonary Edema</b>	-0.9079	<0.0001	-0.8412	<0.0001	I50, J81	Type 1, or [type (W), (X), (Y), but not type (2)]
<b>Chronic Obstructive Pulmonary Disease</b>	-0.5105	<0.0001	-0.5863	<0.0001	J41, J42, J43, J44, J47	Type 1, or [type (W), (X), (Y), but not type (2)]
<b>Ischemic Heart Disease (Acute)</b>	-1.6561	<0.0001	-1.4278	<0.0001	I20, I21, I22, I24,	Type 1, or [type (W), (X), (Y), but not type (2)]
<b>Cardiac Dysrhythmias</b>	-0.7853	<0.0001	-0.9171	<0.0001	I47, I48, I49	Type 1, or [type (W), (X), (Y), but not type (2)]
<b>Ischemic Heart Disease (Chronic)</b>	-0.5837	0.0192	-0.3170	0.1888	I25	Type 1, or [type (W), (X), (Y), but not type (2)]
<b>Hypertension</b>	-0.0960	0.3121	-0.1793	0.0583	I10, I11, I12, I13, I15	Type 1, or [type (W), (X), (Y), but not type (2)]
<b>Diabetes With Complications</b>	-0.2937	<0.0001	-0.3710	<0.0001	E10.0–E10.7, E11.0–E11.7, E13.0–E13.7, E14.0–E14.7	Type 1, 3 or [type (W), (X), (Y), but not type (2)]
<b>Age 75 to 84 (vs. 55 to 64)</b>	-0.1285	0.0374	-0.1301	0.0348		
<b>Age 85 to 94 (vs. 55 to 64)</b>	-0.1690	0.0053	-0.1319	0.0299		
<b>Age 95 and Older (vs. 55 to 64)</b>	-0.1509	0.1220	-0.0575	0.5615		

## 1.2 Percentage of Patients with Repeat Hospitalizations for a Mental Illness, 2011–2012 and 2012–2013

Risk Factor	2011–2012		2012–2013		ICD-10-CA; DSM-IV
	Regression Coefficient	Pr > ChiSq (Wald)	Regression Coefficient	Pr > ChiSq (Wald)	
<b>Intercept</b>	-3.3349	<0.0001	-3.1874	<0.0001	
<b>Sex (Male = 1, Female = 0)</b>	-0.0211	0.3179	-0.0331	0.1156	
<b>Age 19 and Younger (vs. 65 and Older)</b>	0.5325	<0.0001	0.4226	<0.0001	
<b>Age 20 to 49 (vs. 65 and Older)</b>	0.7308	<0.0001	0.6138	<0.0001	
<b>Age 50 to 64 (vs. 65 and Older)</b>	0.5585	<0.0001	0.4525	<0.0001	
<b>Substance Abuse–Related Disorder</b>	0.5904	<0.0001	0.6018	<0.0001	Refer to the Technical Notes for details
<b>Schizophrenia</b>	1.0242	<0.0001	0.9535	<0.0001	Refer to the Technical Notes for details
<b>Mood Disorder</b>	0.5091	<0.0001	0.4601	<0.0001	Refer to the Technical Notes for details
<b>Personality Disorder</b>	0.8812	<0.0001	0.7809	<0.0001	Refer to the Technical Notes for details
<b>Discharged Against Medical Advice (Yes = 1)</b>	0.4594	<0.0001	0.5050	<0.0001	

### 1.3 30-Day Mental Illness Readmission Rate, 2012–2013 and 2013–2014

Risk Factor	2012–2013		2013–2014		ICD-10-CA; DSM-IV
	Regression Coefficient	Pr > ChiSq (Wald)	Regression Coefficient	Pr > ChiSq (Wald)	
<b>Intercept</b>	-2.3502	<0.0001	-2.4449	<0.0001	
<b>Sex (Male = 1, Female = 0)</b>	0.0345	0.0722	0.00791	0.6779	
<b>Age 20 to 34 (vs. 19 and Younger)</b>	0.1251	0.0003	0.1751	<0.0001	
<b>Age 35 to 49 (vs. 19 and Younger)</b>	0.0114	0.7420	0.00804	0.8159	
<b>Age 50 to 64 (vs. 19 and Younger)</b>	-0.0931	0.0099	0.0238	0.4999	
<b>Age 65 and Older (vs. 19 and Younger)</b>	-0.2638	<0.0001	-0.2649	<0.0001	
<b>Multiple Previous Admissions for a Selected Mental Illness (Two and More) During the Past 12 Months</b>	1.1904	<0.0001	1.1853	<0.0001	Refer to the Technical Notes for details
<b>Discharged Against Medical Advice (Yes = 1)</b>	0.8160	<0.0001	0.8781	<0.0001	
<b>Substance Abuse–Related Disorder</b>	-0.1124	<0.0001	0.0330	0.2037	Refer to the Technical Notes for details
<b>Schizophrenia</b>	0.1615	<0.0001	0.1835	<0.0001	Refer to the Technical Notes for details
<b>Anxiety Disorder</b>	-0.2817	<0.0001	-0.2195	<0.0001	Refer to the Technical Notes for details
<b>Personality Disorder</b>	0.2821	<0.0001	0.2834	<0.0001	Refer to the Technical Notes for details

### 1.4 30-Day AMI In-Hospital Mortality Rate, 2010–2011 to 2012–2013 and 2011–2012 to 2013–2014

Risk Factor	2010–2011 to 2012–2013		2011–2012 to 2013–2014		ICD-10-CA	Qualifier
	Regression Coefficient	Pr > ChiSq (Wald)	Regression Coefficient	Pr > ChiSq (Wald)		
<b>Intercept</b>	-4.5563	<0.0001	-4.5771	<0.0001		
<b>Male (vs. Female)</b>	-0.0709	0.0019	-0.0745	0.0014		
<b>Age 45 to 64 (vs. 20 to 44)</b>	0.5106	<0.0001	0.4769	<0.0001		
<b>Age 65 to 74 (vs. 20 to 44)</b>	1.2986	<0.0001	1.2407	<0.0001		
<b>Age 75 to 84 (vs. 20 to 44)</b>	1.9548	<0.0001	1.9052	<0.0001		
<b>Age 85 and Older (vs. 20 to 44)</b>	2.6664	<0.0001	2.6296	<0.0001		
<b>Shock</b>	2.7579	<0.0001	2.8217	<0.0001	R57	Type 1, C or [type (W), (X), (Y), but not type (2)]
<b>Diabetes With Complications</b>	0.1798	<0.0001	0.1983	<0.0001	E100–E107, E110–E117, E130–E137, E140–E147	Type 1, C, 3 or [type (W), (X), (Y), but not type (2)]
<b>Heart Failure or Pulmonary Edema</b>	0.5979	<0.0001	0.6314	<0.0001	I50, J81	Type 1, C or [type (W), (X), (Y), but not type (2)]
<b>Cancer (Non-Quebec Records)*</b>	0.9997	<0.0001	0.9578	<0.0001	C00–C26, C30–C44, C45–C97, Z51.0, Z51.1	Type 1, C or [type (W), (X), (Y), but not type (2)]

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Risk Factor	2010–2011 to 2012–2013		2011–2012 to 2013–2014		ICD-10- CA	Qualifier
	Regression Coefficient	Pr > ChiSq (Wald)	Regression Coefficient	Pr > ChiSq (Wald)		
<b>Cancer (Quebec Records)*</b>	0.4708	<0.0001	0.4105	<0.0001	C00– C26, C30– C44, C45– C97, Z51.0, Z51.1	Type 1, C or [type (W), (X), (Y), but not type (2)]
<b>Cerebrovascular Disease (Non-Quebec Records)*</b>	0.9115	<0.0001	0.9373	<0.0001	I60, I61, I62, I63, I64, I65, I66, I67, I69, G45.0, G45.1, G45.2, G45.4, G45.8, G45.9	Type 1, C or [type (W), (X), (Y), but not type (2)]
<b>Cerebrovascular Disease (Quebec Records)*</b>	0.3503	<0.0001	0.3558	<0.0001	I60, I61, I62, I63, I64, I65, I66, I67, I69, G45.0, G45.1, G45.2, G45.4, G45.8, G45.9	Type 1, C or [type (W), (X), (Y), but not type (2)]
<b>Renal Failure (Non-Quebec Records)*</b>	1.0081	<0.0001	1.0093	<0.0001	N17, N18, N19	Type 1, C or [type (W), (X), (Y), but not type (2)]
<b>Renal Failure (Quebec Records)*</b>	0.3643	<0.0001	0.3686	<0.0001	N17, N18, N19	Type 1, C or [type (W), (X), (Y), but not type (2)]

**Note**

\* This risk factor has two coefficients—one for the data submitted by Quebec and one for all other jurisdictions. Quebec-specific coefficients were included in the model to address differences in data collection.

## 1.5 30-Day Stroke In-Hospital Mortality Rate, 2010–2011 to 2012–2013 and 2011–2012 to 2013–2014

Risk Factor	2010–2011 to 2012–2013		2011–2012 to 2013–2014		ICD-10-CA Codes	Qualifier
	Regression Coefficient	Pr > ChiSq (Wald)	Regression Coefficient	Pr > ChiSq (Wald)		
<b>Intercept</b>	-3.3060	<0.0001	-3.2745	<0.0001		
<b>Male (vs. Female)</b>	-0.0628	0.0013	-0.0578	0.0032		
<b>Age 45 to 64 (vs. 20 to 44)</b>	0.4329	<0.0001	0.3834	<0.0001		
<b>Age 65 to 74 (vs. 20 to 44)</b>	0.7652	<0.0001	0.7179	<0.0001		
<b>Age 75 to 84 (vs. 20 to 44)</b>	1.1909	<0.0001	1.0967	<0.0001		
<b>Age 85 and Older (vs. 20 to 44)</b>	1.7424	<0.0001	1.6459	<0.0001		
<b>Heart Failure or Pulmonary Edema</b>	0.7367	<0.0001	0.7220	<0.0001	I50, J81	Type 1, C or [type (W), (X), (Y), but not type (2)]
<b>Cancer</b>	0.7302	<0.0001	0.6430	<0.0001	C00–C26, C30–C44, C45–C97, Z51.0, Z51.1	Type 1, C or [type (W), (X), (Y), but not type (2)]
<b>Renal Failure (Non-Quebec Records)*</b>	0.4696	<0.0001	0.4795	<0.0001	N17, N18, N19	Type 1, C or [type (W), (X), (Y), but not type (2)]
<b>Renal Failure (Quebec Records)*</b>	0.1639	0.0002	0.1592	0.0004	N17, N18, N19	Type 1, C or [type (W), (X), (Y), but not type (2)]
<b>Ischemic Heart Disease (Acute) (Non-Quebec Records)*</b>	0.9650	<0.0001	0.9598	<0.0001	I20, I21, I22, I24	Type 1, or C [type (W), (X), (Y), but not type (2)]

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Risk Factor	2010–2011 to 2012–2013		2011–2012 to 2013–2014		ICD-10- CA Codes	Qualifier
	Regression Coefficient	Pr > ChiSq (Wald)	Regression Coefficient	Pr > ChiSq (Wald)		
<b>Ischemic Heart Disease (Acute) (Quebec Records)*</b>	0.6903	<0.0001	0.7513	<0.0001	I20, I21, I22, I24	Type 1, or C [type (W), (X), (Y), but not type (2)]
<b>Other Unspecified Intracranial Hemorrhage</b>	0.8522	<0.0001	0.9419	<0.0001	I62	Refer to the Technical Notes for details
<b>Intracerebral Hemorrhage</b>	1.4670	<0.0001	1.4655	<0.0001	I61	Refer to the Technical Notes for details
<b>Stroke, Not Specified as Hemorrhage or Infarction</b>	0.1399	<0.0001	0.1809	<0.0001	I64	Refer to the Technical Notes for details
<b>Subarachnoid Hemorrhage</b>	1.3792	<0.0001	1.3344	<0.0001	I60	Refer to the Technical Notes for details

**Note**

\* This risk factor has two coefficients—one for the data submitted by Quebec and one for all other jurisdictions. Quebec-specific coefficients were included in the model to address differences in data collection.

## 1.6 30-Day Obstetric Readmission Rate, 2012–2013 and 2013–2014

Risk Factor	2012–2013 and 2013–2014	
	Regression Coefficient	Pr > ChiSq (Wald)
<b>Intercept</b>	-4.4926	<0.0001
<b>Age 24 and Younger (vs. 25 to 34)</b>	0.1565	<0.0001
<b>Age 35 and Older (vs. 25 to 34)</b>	0.0458	0.1298
<b>One Acute Care Hospitalization in Previous Six Months (vs. None)</b>	0.6059	<0.0001
<b>Two or More Acute Care Hospitalizations in Previous Six Months (vs. None)</b>	1.2555	<0.0001
<b>Urgent Admission</b>	1.4483	<0.0001

## 1.7 30-Day Readmission—Patients Age 19 and Younger, 2012–2013 and 2013–2014

Risk Factor	2012–2013 and 2013–2014	
	Regression Coefficient	Pr > ChiSq (Wald)
<b>Intercept</b>	-3.4515	<0.0001
<b>Age 5 to 9 (vs. 0 to 4)</b>	-0.1347	<0.0001
<b>Age 10 to 14 (vs. 0 to 4)</b>	-0.0908	0.0034
<b>Age 15 and Older (vs. 0 to 4)</b>	-0.1339	<0.0001
<b>Male (vs. Female)</b>	-0.0229	0.2348
<b>One Acute Care Hospitalization in Previous Six Months (vs. None)</b>	0.7964	<0.0001
<b>Two or More Acute Care Hospitalizations in Previous Six Months (vs. None)</b>	1.6087	<0.0001
<b>Urgent Admission</b>	0.5391	<0.0001
<b>CMG 005</b>	1.0121	<0.0001
<b>CMG 009</b>	0.9355	<0.0001
<b>CMG 010</b>	1.8286	<0.0001
<b>CMG 011</b>	1.1358	<0.0001
<b>CMG 039</b>	0.4633	<0.0001
<b>CMG 040</b>	0.2884	<0.0001
<b>CMG 041</b>	0.2416	0.0757
<b>CMG 042</b>	0.5624	0.0008
<b>CMG 103</b>	-0.3408	0.0066
<b>CMG 104</b>	-0.0327	0.7722
<b>CMG 105</b>	-0.0317	0.7630
<b>CMG 135</b>	0.9451	<0.0001
<b>CMG 136</b>	0.2792	0.0773
<b>CMG 141</b>	-0.0333	0.4701
<b>CMG 144</b>	0.6832	0.0016
<b>CMG 147</b>	-0.5705	<0.0001
<b>CMG 149</b>	0.3948	<0.0001
<b>CMG 163</b>	0.6356	<0.0001
<b>CMG 198</b>	0.7044	0.0018
<b>CMG 202</b>	0.3767	0.0325

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Risk Factor	2012–2013 and 2013–2014	
	Regression Coefficient	Pr > ChiSq (Wald)
CMG 209	0.9509	<0.0001
CMG 221	1.3664	<0.0001
CMG 226	0.4704	0.0357
CMG 231	0.0522	0.7594
CMG 233	0.3826	<0.0001
CMG 234	-0.6876	<0.0001
CMG 237	0.5432	0.0001
CMG 249	-0.0935	0.0817
CMG 253	0.7265	<0.0001
CMG 254	0.4839	0.0075
CMG 255	0.7202	<0.0001
CMG 256	0.4404	<0.0001
CMG 257	0.3911	<0.0001
CMG 258	0.6293	<0.0001
CMG 286	0.2639	0.2794
CMG 287	0.8522	<0.0001
CMG 288	1.0464	<0.0001
CMG 359	0.00922	0.9684
CMG 361	0.7636	<0.0001
CMG 405	-0.4560	0.0033
CMG 432	0.0471	0.7357
CMG 433	0.5471	<0.0001
CMG 435	0.7795	<0.0001
CMG 436	0.9693	<0.0001
CMG 437	-0.1041	0.2307
CMG 438	0.0423	0.7721
CMG 454	0.5117	0.0016
CMG 480	0.8492	<0.0001
CMG 487	-0.0590	0.4775
CMG 488	-0.4096	0.0002
CMG 589	0.4580	0.0007
CMG 592	0.0807	0.5132
CMG 594	0.0246	0.7059
CMG 601	0.2052	0.0064

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Risk Factor	2012–2013 and 2013–2014	
	Regression Coefficient	Pr > ChiSq (Wald)
<b>CMG 610</b>	0.9436	<0.0001
<b>CMG 625</b>	1.5153	<0.0001
<b>CMG 629</b>	1.3710	<0.0001
<b>CMG 633</b>	-0.00028	0.9976
<b>CMG 634</b>	0.4978	<0.0001
<b>CMG 635</b>	0.1479	0.4533
<b>CMG 636</b>	0.9336	<0.0001
<b>CMG 637</b>	0.6775	<0.0001
<b>CMG 638</b>	0.5202	<0.0001
<b>CMG 654</b>	0.1842	0.2312
<b>CMG 661</b>	-0.2704	0.0019
<b>CMG 739</b>	-1.3423	<0.0001
<b>CMG 770</b>	-0.3691	0.0265
<b>CMG 776</b>	-0.6850	<0.0001
<b>CMG 778</b>	-1.0280	<0.0001
<b>CMG 815</b>	0.4316	0.0051
<b>CMG 993</b>	0.0709	0.6095

**Note**

CMGs included in the model are those that account for the top 80% of the total number of readmissions among patients age 19 and younger.

## 1.8 30-Day Surgical Readmission Rate, 2012–2013 and 2013–2014

Risk Factor	2012–2013 and 2013–2014	
	Regression Coefficient	Pr > ChiSq (Wald)
<b>Intercept</b>	-3.3145	<0.0001
<b>Age 45 to 64 (vs. 20 to 44)</b>	0.0578	0.0004
<b>Age 65 to 84 (vs. 20 to 44)</b>	0.2756	<0.0001
<b>Age 85 and Older (vs. 20 to 44)</b>	0.4454	<0.0001
<b>Male (vs. Female)</b>	-0.0124	0.2334
<b>One Acute Care Hospitalization in Previous Six Months (vs. None)</b>	0.3879	<0.0001

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Risk Factor	2012–2013 and 2013–2014	
	Regression Coefficient	Pr > ChiSq (Wald)
<b>Two or More Acute Care Hospitalizations in Previous Six Months (vs. None)</b>	0.8940	<0.0001
<b>Urgent Admission</b>	0.4497	<0.0001
<b>Charlson Score Group 1* (vs. 0)</b>	0.4246	<0.0001
<b>Charlson Score Group 2* (vs. 0)</b>	0.5454	<0.0001
<b>CMG 006</b>	0.6173	<0.0001
<b>CMG 009</b>	0.5646	<0.0001
<b>CMG 012</b>	-0.2424	0.0039
<b>CMG 086</b>	0.2166	0.0115
<b>CMG 121</b>	0.2132	0.0016
<b>CMG 115</b>	0.6301	<0.0001
<b>CMG 117</b>	0.5571	<0.0001
<b>CMG 162</b>	0.6849	<0.0001
<b>CMG 165</b>	0.4641	0.0004
<b>CMG 166</b>	0.3922	<0.0001
<b>CMG 168</b>	0.4974	<0.0001
<b>CMG 170</b>	0.2276	0.0044
<b>CMG 172</b>	0.3772	<0.0001
<b>CMG 187</b>	0.0516	0.1232
<b>CMG 175</b>	0.1132	<0.0001
<b>CMG 180</b>	0.2426	0.0066
<b>CMG 181</b>	0.2447	<0.0001
<b>CMG 182</b>	0.4958	<0.0001
<b>CMG 185</b>	0.3189	<0.0001
<b>CMG 194</b>	0.2023	0.0022
<b>CMG 220</b>	0.7049	<0.0001
<b>CMG 221</b>	1.0740	<0.0001
<b>CMG 222</b>	0.3128	<0.0001
<b>CMG 223</b>	0.5113	<0.0001
<b>CMG 225</b>	0.3638	<0.0001
<b>CMG 226</b>	0.5741	<0.0001
<b>CMG 227</b>	0.2861	<0.0001
<b>CMG 228</b>	-0.3966	<0.0001
<b>CMG 229</b>	-0.1335	0.0291

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Risk Factor	2012–2013 and 2013–2014	
	Regression Coefficient	Pr > ChiSq (Wald)
CMG 231	0.6227	<0.0001
CMG 232	0.3254	<0.0001
CMG 234	-0.6613	<0.0001
CMG 237	0.4129	<0.0001
CMG 274	0.6866	<0.0001
CMG 275	0.3868	<0.0001
CMG 278	-0.1967	<0.0001
CMG 280	0.6188	<0.0001
CMG 281	0.1077	0.0511
CMG 313	-0.2130	<0.0001
CMG 317	0.1479	0.0592
CMG 320	-0.3089	<0.0001
CMG 321	-0.3740	<0.0001
CMG 382	0.1682	0.0264
CMG 387	-0.5976	<0.0001
CMG 424	-0.7039	<0.0001
CMG 450	1.3415	<0.0001
CMG 452	1.2421	<0.0001
CMG 454	0.1524	0.0052
CMG 455	0.4924	<0.0001
CMG 456	0.2753	<0.0001
CMG 458	0.5221	<0.0001
CMG 462	-0.1315	0.0417
CMG 464	0.1369	<0.0001
CMG 502	-0.1734	<0.0001
CMG 503	-0.2293	0.0470
CMG 505	-0.1719	0.0722
CMG 615	0.6917	<0.0001
CMG 617	0.4278	<0.0001
CMG 650	0.5896	<0.0001
CMG 726	-0.2227	<0.0001
CMG 727	-0.3991	<0.0001
CMG 729	-0.7122	<0.0001
CMG 733	0.5797	<0.0001

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Risk Factor	2012–2013 and 2013–2014	
	Regression Coefficient	Pr > ChiSq (Wald)
<b>CMG 734</b>	0.3091	<0.0001
<b>CMG 739</b>	-0.8730	<0.0001
<b>CMG 747</b>	-1.0452	<0.0001
<b>CMG 806</b>	0.2022	<0.0001
<b>CMG 904</b>	0.6152	<0.0001
<b>CMG 905</b>	0.5387	<0.0001
<b>CMG 906</b>	0.7235	<0.0001
<b>CMG 907</b>	0.8990	<0.0001
<b>CMG 910</b>	0.4004	<0.0001

**Notes**

\* Charlson score group 1 = Charlson score 1–2 outside Quebec and 2–4 in Quebec; Charlson score group 2 = Charlson score 3 or higher outside Quebec and 5 or higher in Quebec (reference category is Charlson score group 0 = Charlson score 0 outside Quebec and 0–1 in Quebec). For further details on the Charlson Index, please refer to the General Methodology Notes document. CMGs included in the model are those that account for the top 80% of the total number of readmissions among surgical patients.

## 1.9 30-Day Medical Readmission Rate, 2012–2013 and 2013–2014

Risk Factor	2012–2013 and 2013–2014	
	Regression Coefficient	Pr > ChiSq (Wald)
<b>Intercept</b>	-3.1626	<0.0001
<b>Age 45 to 64 (vs. 20 to 44)</b>	0.0978	<0.0001
<b>Age 65 to 84 (vs. 20 to 44)</b>	0.2051	<0.0001
<b>Age 85 and Older (vs. 20 to 44)</b>	0.2384	<0.0001
<b>Male (vs. Female)</b>	0.0328	<0.0001
<b>One Acute Care Hospitalization in Previous Six Months (vs. None)</b>	0.5199	<0.0001
<b>Two or More Acute Care Hospitalizations in Previous Six Months (vs. None)</b>	1.1240	<0.0001
<b>Urgent Admission</b>	0.6257	<0.0001
<b>Charlson Score Group 1* (vs. 0)</b>	0.2825	<0.0001
<b>Charlson Score Group 2* (vs. 0)</b>	0.3999	<0.0001
<b>CMG 026</b>	-0.4240	<0.0001
<b>CMG 028</b>	-0.4571	<0.0001

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Risk Factor	2012–2013 and 2013–2014	
	Regression Coefficient	Pr > ChiSq (Wald)
CMG 029	-0.3086	<0.0001
CMG 038	0.3207	<0.0001
CMG 040	-0.1401	<0.0001
CMG 132	0.5214	<0.0001
CMG 135	0.2939	<0.0001
CMG 136	0.0849	0.0610
CMG 138	0.0335	0.0398
CMG 139	0.4213	<0.0001
CMG 142	0.3017	<0.0001
CMG 143	0.4599	<0.0001
CMG 149	0.2247	<0.0001
CMG 193	-0.0089	0.8326
CMG 194	0.3347	<0.0001
CMG 196	0.3994	<0.0001
CMG 200	-0.1950	<0.0001
CMG 202	0.1181	<0.0001
CMG 203	-0.3038	<0.0001
CMG 204	0.1262	0.0002
CMG 205	-0.3188	<0.0001
CMG 208	-0.2980	<0.0001
CMG 209	0.0728	0.0047
CMG 248	0.2603	<0.0001
CMG 250	0.4891	<0.0001
CMG 253	0.4117	<0.0001
CMG 254	0.0674	0.0054
CMG 255	0.2616	<0.0001
CMG 256	0.0416	0.2488
CMG 257	0.2804	<0.0001
CMG 258	0.3513	<0.0001
CMG 284	0.5181	<0.0001
CMG 285	0.8743	<0.0001
CMG 287	0.2320	<0.0001
CMG 288	0.3866	<0.0001
CMG 362	0.0325	0.6800
CMG 436	0.1944	<0.0001
CMG 437	0.1684	<0.0001

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Risk Factor	2012–2013 and 2013–2014	
	Regression Coefficient	Pr > ChiSq (Wald)
<b>CMG 438</b>	0.2736	<0.0001
<b>CMG 477</b>	0.2833	<0.0001
<b>CMG 484</b>	0.2316	<0.0001
<b>CMG 486</b>	0.1723	<0.0001
<b>CMG 487</b>	0.1127	<0.0001
<b>CMG 488</b>	-0.2527	<0.0001
<b>CMG 628</b>	0.8965	<0.0001
<b>CMG 633</b>	0.0186	0.6306
<b>CMG 635</b>	0.2895	<0.0001
<b>CMG 638</b>	-0.0687	0.0656
<b>CMG 654</b>	0.1262	<0.0001
<b>CMG 776</b>	-0.1608	0.0002
<b>CMG 778</b>	-0.4601	<0.0001
<b>CMG 780</b>	-0.1268	0.0001
<b>CMG 806</b>	-0.2619	<0.0001
<b>CMG 811</b>	-0.00908	0.6561
<b>CMG 815</b>	0.3973	<0.0001

**Notes**

\* Charlson score group 1 = Charlson score 1–2 outside Quebec and 2–4 in Quebec; Charlson score group 2 = Charlson score 3 or higher outside Quebec and 5 or higher in Quebec (reference category is Charlson score group 0 = Charlson score 0 outside Quebec and 0–1 in Quebec). For further details on the Charlson Index, please refer to the General Methodology Notes document. CMGs included in the model are those that account for the top 80% of the total number of readmissions among medical patients.

### 1.10 Obstetric Trauma—Vaginal Delivery With Instrument (Rate per 100), 2012–2013 and 2013–2014

Risk Factor	2012–2013		2013–2014		ICD-10-CA/ Other Codes	Qualifier
	Regression Coefficient	Pr > ChiSq (Wald)	Regression Coefficient	Pr > ChiSq (Wald)		
<b>Intercept</b>	-1.4254	<0.0001	-1.3965	<0.0001		
<b>Age 19 and Younger (vs. 25 to 29)</b>	-0.4204	<0.0001	-0.6040	<0.0001	age_years ≤ 19	
<b>Age 20 to 24 (vs. 25 to 29)</b>	-0.3110	<0.0001	-0.2921	<0.0001	20 ≤ age_years ≤ 24	
<b>Age 30 to 34 (vs. 25 to 29)</b>	-0.0404	0.2114	-0.0532	0.1032	30 ≤ age_years ≤ 34	
<b>Age 35 to 39 (vs. 25 to 29)</b>	-0.1807	<0.0001	-0.2037	<0.0001	35 ≤ age_years ≤ 39	
<b>Age 40 and Older (vs. 25 to 29)</b>	-0.3221	0.0004	-0.3226	0.0002	age_years ≥ 40	
<b>Malposition/ Malpresentation of the Fetus</b>	0.1399	0.0001	0.1806	<0.0001	O32.001, O32.201, O32.301, O32.401, O32.501, O32.601, O32.801, O32.901, O64.001, O64.201, O64.301, O64.401, O64.501, O64.801, O64.901	All diagnosis types
<b>Gestational Age at Delivery ≥ 41 Weeks</b>	0.2627	<0.0001	0.1481	<0.0001	Gestational age at delivery > 40 completed weeks	

### 1.11 30-Day In-Hospital Mortality Following Major Surgery (Rate per 100), 2012–2013 and 2013–2014

Risk Factor	2012–2013 and 2013–2014		ICD-10-CA/ Other Codes	Qualifier
	Regression Coefficient	Pr > ChiSq (Wald)		
<b>Intercept</b>	-6.9949	<0.0001		
<b>Male (vs. Female)</b>	0.2537	<0.0001	sex_code = M	
<b>Age 45 to 64 (vs. 20 to 44)</b>	0.5437	<0.0001	45 ≤ age_years ≤ 64	
<b>Age 65 to 74 (vs. 20 to 44)</b>	1.0334	<0.0001	65 ≤ age_years ≤ 74	
<b>Age 75 to 84 (vs. 20 to 44)</b>	1.5192	<0.0001	75 ≤ age_years ≤ 84	
<b>Age 85+ (vs. 20 to 44)</b>	2.2169	<0.0001	85 ≤ age_years	
<b>Emergent Surgery (vs. Elective)</b>	1.4753	<0.0001	admission_category_ code = U and major surgery within one day of admission (same day or next day)	
<b>Urgent Surgery (vs. Elective)</b>	1.5514	<0.0001	admission_category_ code = U and major surgery not within one day of admission (not same day or next day)	
<b>Transfer Patients</b>	0.4003	<0.0001	Patients who are transferred in from another acute institution	
<b>Charlson Index Score of 1 or 2 (vs. 0) (Modified for Quebec Records)*</b>	0.8209	<0.0001		
<b>Charlson Index Score of 3 or More (vs. 0) (Modified for Quebec Records)*</b>	1.2822	<0.0001		
<b>CMG 005</b>	2.5876	<0.0001		
<b>CMG 006</b>	1.3113	<0.0001		
<b>CMG 009</b>	1.3020	<0.0001		

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Risk Factor	2012–2013 and 2013–2014		ICD-10-CA/ Other Codes	Qualifier
	Regression Coefficient	Pr > ChiSq (Wald)		
<b>CMG 121</b>	0.9845	<0.0001		
<b>CMG 162</b>	1.0436	<0.0001		
<b>CMG 166</b>	0.5190	<0.0001		
<b>CMG 170</b>	0.4587	0.0002		
<b>CMG 180</b>	1.3422	<0.0001		
<b>CMG 181</b>	1.7218	<0.0001		
<b>CMG 182</b>	0.7121	<0.0001		
<b>CMG 220</b>	1.3423	<0.0001		
<b>CMG 221</b>	1.6071	<0.0001		
<b>CMG 222</b>	0.7445	<0.0001		
<b>CMG 223</b>	0.3264	0.0011		
<b>CMG 225</b>	1.2630	<0.0001		
<b>CMG 320</b>	-0.7232	<0.0001		
<b>CMG 618</b>	1.7663	<0.0001		
<b>CMG 726</b>	0.3939	<0.0001		
<b>CMG 727</b>	0.4109	<0.0001		
<b>CMG 752</b>	2.0145	<0.0001		
<b>CMG 733</b>	1.7204	<0.0001		

**Notes**

\* Charlson score group 1 = Charlson score 1–2 outside Quebec and 2–4 in Quebec; Charlson score group 2 = Charlson score 3 or higher outside Quebec and 5 or higher in Quebec (reference category is Charlson score group 0 = Charlson score 0 outside Quebec and 0–1 in Quebec). For further details on the Charlson Index, please refer to the General Methodology Notes document. CMGs included in the model are those that account for the top 80% of the total number of deaths among major surgery patients.

## 1.12 Low-Risk Caesarean Section Rate (Rate per 100), 2012–2013 and 2013–2014

Risk Factor	2012–2013		2013–2014		ICD-10-CA/ Other Codes	Qualifier (2010– 2011) (Includes Quebec Records)
	Regression Coefficient	Pr > ChiSq (Wald)	Regression Coefficient	Pr > ChiSq (Wald)		
<b>Intercept</b>	-3.498	<0.0001	-3.5488	<0.0001		
<b>Age 19 and Younger (vs. 25 to 29)</b>	-0.1769	<0.0001	-0.3533	<0.0001	age_years ≤ 19	
<b>Age 20 to 24 (vs. 25 to 29)</b>	-0.0513	0.0203	-0.0589	0.0095	20 ≤ age_years ≤ 24	
<b>Age 30 to 34 (vs. 25 to 29)</b>	0.1022	<0.0001	0.1158	<0.0001	30 ≤ age_years ≤ 34	
<b>Age 35 to 39 (vs. 25 to 29)</b>	0.3156	<0.0001	0.3196	<0.0001	35 ≤ age_years ≤ 39	
<b>Age 40 to 44 (vs. 25 to 29)</b>	0.7460	<0.0001	0.7501	<0.0001	40 ≤ age_years ≤ 44	
<b>Age 45 and Older (vs. 25 to 29)</b>	1.7423	<0.0001	1.8616	<0.0001	age_years ≥ 45	
<b>Diabetes (Pre-Existing/ Gestational)</b>	0.4490	<0.0001	0.4039	<0.0001	O24.501, O24.601, O24.701, O24.801	All diagnosis types
<b>Heart Disease</b>	0.6618	<0.0001	0.2505	0.0661	I00-I09, I11, I20-I52, O10.101, O10.301, I13	O Codes: All diagnosis types  I Codes: Type 1, 3, C or (M, W, X or Y but not 2)

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Risk Factor	2012–2013		2013–2014		ICD-10-CA/ Other Codes	Qualifier (2010– 2011) (Includes Quebec Records)
	Regression Coefficient	Pr > ChiSq (Wald)	Regression Coefficient	Pr > ChiSq (Wald)		
<b>Hypertension (Pre-Existing/ Gestational)</b>	0.5696	<0.0001	0.5890	<0.0001	O10.001, O10.101, O10.201, O10.301, O10.401, O10.901, O11.001, O13.001, O16.001	All diagnosis types
<b>Pre-Eclampsia and Eclampsia</b>	1.0812	<0.0001	1.0938	<0.0001	O14.001, O15.001, O15.101	All diagnosis types
<b>Malposition/ Malpresentation of the Fetus</b>	1.6928	<0.0001	1.7005	<0.0001	O32.001, O32.301, O32.401, O32.501, O32.601, O32.801, O32.901, O64.001, O64.201, O64.301, O64.401, O64.501, O64.801, O64.901	All diagnosis types

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Risk Factor	2012–2013		2013–2014		ICD-10-CA/ Other Codes	Qualifier (2010– 2011) (Includes Quebec Records)
	Regression Coefficient	Pr > ChiSq (Wald)	Regression Coefficient	Pr > ChiSq (Wald)		
<b>Non-Progressive Labour or Descent/ Cephalopelvic Disproportion</b>	3.0795	<0.0001	3.1123	<0.0001	O61.001, O61.101, O61.801, O61.901, O62.001, O62.101, O62.201, O62.401, O62.801, O62.901, O66.101, O66.201, O66.301, O66.401, O66.491, O66.501, O66.801, O66.901 O33.001, O33.101, O33.201, O33.301, O33.401, O33.501, O33.601, O33.701, O33.801, O33.901, O65.001, O65.101, O65.201, O65.301, O65.401, O65.501, O65.801, O65.901	All diagnosis types
<b>Placental Abruption</b>	1.2327	<0.0001	1.1580	<0.0001	O45.001, O45.011, O45.081, O45.091, O45.801, O45.901	All diagnosis types

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Risk Factor	2012–2013		2013–2014		ICD-10-CA/ Other Codes	Qualifier (2010– 2011) (Includes Quebec Records)
	Regression Coefficient	Pr > ChiSq (Wald)	Regression Coefficient	Pr > ChiSq (Wald)		
<b>Umbilical Cord Prolapse</b>	2.7138	<0.0001	2.6847	<0.0001	O69.001	All diagnosis types
<b>Non-Reassuring Fetal Status/Fetal Distress/Fetal Asphyxia</b>	1.3755	<0.0001	1.4400	<0.0001	O36.311, O36.321, O36.331, O36.391, O68.001, O68.201, O68.301	All diagnosis types
<b>Oligohydramnios</b>	0.8928	<0.0001	0.9489	<0.0001	O41.011, O41.021, O41.031, O41.091, O41.811, O41.821, O41.831, O41.891, O41.901	All diagnosis types
<b>Chorioamnionitis</b>	0.8104	<0.0001	0.7122	<0.0001	O41.121, O41.131, O41.191	All diagnosis types
<b>Obesity</b>	0.9263	<0.0001	0.8543	<0.0001	E66	Type 1, 3, C or (M, W, X or Y but not 2)
<b>Intrauterine Growth Restriction</b>	0.4897	<0.0001	0.3983	<0.0001	O36.521, O36.531, O36.591	All diagnosis types

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