**APPENDICES**

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**1.0 Canadian Classification of Intervention (CCI) Codes for Elective Surgeries**

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| Procedure | CCI codes |
| ORTHOPEDIC |  |
| Total hip replacement | 1.VA.53.LA-PN ; 1.VA.53.PN-PN |
| Total knee replacement | 1.VG.53 |
| VASCULAR |  |
| Carotid endarterectomy | 1.JE.57 without 1.IJ.76 on the same date (exclude concurrent CABG surgery) |
| Endovascular Abdominal aortic aneurysm repair | 1.KA.80.GQ-NRN or  1.KA.50.GS-BD or  1.KA.50.LA-BD or  1.KE.50.GQ-OA or  1.KE.51.GQ-GE  [must have ICD-10 code I71.4 on the same admission] |
| Open Abdominal aortic aneurysm repair | 1.KA.80.LA-XXN or  1.KA.76.NB-XXN or  1.KA.76.MZ-XXN  [must have ICD-10 code I71.4 on the same admission] |
| Peripheral arterial bypass surgery | 1.KG.76 ; 1.JM.76.MI ; 1.KT.76 ; 1.KG.80 or CCI code 1.KA.76 without ICD-10 codes I71.3 or I71.4 or I71.9 on the same admission. |
| UROLOGIC |  |
| Partial or total nephrectomy | 1.PC.87 ; 1.PC.89 ; 1.PC.91 |
| Total cystectomy | 1.PM.89 ; 1.PM.90 ; 1.PM.91 ; 1.PM.92 |
| INTRAPERITONEAL | DAD |
| Large bowel and rectal surgery | 1.NM.87 (all except 1.NM.87.BA) or 1.NM.89 ; 1.NM.91 ; 1.NQ.89 ; 1.NQ.90 or 1.NQ.87 (all except 1.NQ.87.BA) |
| Partial liver resection | 1.OA.87 |
| Pancreaticoduodenectomy | 1.OK.87 ; 1.OK.89 ; 1.OK.91 |
| Gastrectomy or esophagectomy | 1.NF.87 ; 1.NF.89 ; 1.NF.90 ; 1.NF.91 ; 1.NF.92 ; 1.NA.88 ; 1.NA.89 ; 1.NA.90 ; 1.NA.91 ; 1.NA.92 ; 1.NA.87 |
| THORACIC |  |
| Pneumonectomy and lobectomy | 1.GR.89 ; 1.GR.91 ; 1.GT.89 ; 1.GT.91 ; 1.GT.87 |

**2.0 Composition of the preoperative frailty index (pFI) and distribution of deficits**

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| --- | --- | --- | --- | --- |
| Composition of Preoperative Frailty Index (pFI) | |  |  |  |
|  |  |  | **Points** |  |
| **Variable** | **Source** | **0** | **0.5** | **1** |
| Anticholinergic risk scale | ODB\* | 0 | 1-2 | >2 |
| Arrhythmia | Elixhauser | none |  | present |
| Cancer | Elixhauser | none |  | present |
| Cerebrovascular disease | Elixhauser | none |  | present |
| Chronic obstructive pulmonary disease | COPD algorithm | none |  | present |
| Dementia | Elixhauser | none |  | present |
| Dental | ICD-10 K00-K14 | none |  | present |
| Dermatologic | ICD-10 L00-L99 | none |  | present |
| Diabetes | Diabetes algorithm | none |  | present |
| Dialysis | Elixhauser | none |  | present |
| Drug or alcohol abuse | Elixhauser | none | one | both |
| Heart failure | Heart failure algorithm | none |  | present |
| Hemiparesis | Elixhauser | none |  | present |
| History of falls | ICD-10 W0-W19 | none |  | present |
| Home oxygen | ADP | none |  | present |
| HOMR Score | Calculated | 0-21 | 22-55 | >55 |
| Hypertension | Hypertension algorithm | none |  | present |
| Injury | ICD-10 S00-T14 | none |  | present |
| Liver disease | Elixhauser | none |  | present |
| Multimorbidity | Charlson score | 0 | 1-2 | >2 |
| Myocardial Infarction | Myocardial infarction algorithm | none |  | present |
| Peripheral vascular disease | Elixhauser | none |  | present |
| Psychosocial (minor or stable) | ICD-10 R45, Z60, Z73 | none |  | present |
| Resource use | Pre-index total costs quintile | 0-1 | 2-3 | 4-5 |
| Rheumatic disease | Elixhauser | none |  | present |
| Socioeconomic status | Census | top 2 quintiles | middle quintile | bottom 2 quintiles |
| Ear, Nose, Throat | ICD-10 R44, R47, H60-H95 | none |  | present |
| Eye | ICD-10 H00-H59 | none |  | present |
| Supported living environment | CCRS/HCD/LTC |  |  |  |
| Weight loss | Elixhauser | none |  | present |
| The pFI is calculated by adding the score for each deficit measured and dividing this number by the total number of deficits measured (i.e., 30). ADP: Assistive Devices Program; CCRS: Continuing Care Reporting System; COPD: Chronic Obstructive Pulmonary Disease; HCD: Home Care Database; ICD-10: International Classification of Diseases, Tenth Edition; ODB: Ontario Drug Benefits Program; \*calculated according to methods of Rudolph et. al., Archives of Internal Medicine, 2008; 168:508-13; this score is calculated by assigning anticholinergic risk values to each prescription medication taken and then based on the total sum of all values for a given patient. Home oxygen denotes receipt of home oxygen, which is provincially funded in Ontario. Socioeconomic status is based on neighborhood income quintile, which is calculated from the median income in each forward sortation area, the smallest geographically identifiable jurisdiction in our data. Supported living status is captured from the Home Care and Continuing Care databases, that capture receipt of home-based, and non-hospital institutional care, respectively. | | | | |

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| **Deficit** | **No Frailty** | **Frailty** | **ASD** |
| n=148,357 | n=23,219 |
| Anticholinergic risk scale >2 | 34,797 (23.5%) | 12,694 (54.7%) | 0.67 |
| Anticholinergic risk scale 1-2 | 11,713 (7.9%) | 2,640 (11.4%) | 0.12 |
| Arrhythmia | 2,305 (1.6%) | 2,623 (11.3%) | 0.40 |
| Cancer | 12,846 (8.7%) | 6,633 (28.6%) | 0.53 |
| Cerebrovascular disease | 1,351 (0.9%) | 1,512 (6.5%) | 0.30 |
| Charlson score >2 | 8,143 (5.5%) | 10,587 (45.6%) | 1.04 |
| Charlson score 1-2 | 12,424 (8.4%) | 4,982 (21.5%) | 0.37 |
| Chronic obstructive pulmonary disease | 39,828 (26.8%) | 14,353 (61.8%) | 0.75 |
| Dementia | 176 (0.1%) | 724 (3.1%) | 0.24 |
| Dental | 1,418 (1.0%) | 866 (3.7%) | 0.18 |
| Dermatologic | 22,537 (15.2%) | 6,909 (29.8%) | 0.36 |
| Diabetes | 36,614 (24.7%) | 14,192 (61.1%) | 0.79 |
| Dialysis | 28 (0.0%) | 35 (0.2%) | 0.06 |
| Drug and alcohol abuse | 23 (0.0%) | 146 (0.6%) | 0.11 |
| Drug or alcohol abuse | 704 (0.5%) | 673 (2.9%) | 0.19 |
| Ear, Nose, Throat | 4,596 (3.1%) | 1,381 (5.9%) | 0.14 |
| Eye | 93,318 (62.9%) | 16,407 (70.6%) | 0.16 |
| History of falls | 244 (0.2%) | 270 (1.2%) | 0.12 |
| Heart failure | 7,047 (4.8%) | 7,533 (32.4%) | 0.76 |
| Hemiparesis | 65 (0.0%) | 211 (0.9%) | 0.13 |
| Home oxygen | 414 (0.3%) | 883 (3.8%) | 0.25 |
| HOMR Score 22-55 | 58,019 (39.1%) | 18,058 (77.8%) | 0.85 |
| Hypertension | 38,038 (25.6%) | 9,263 (39.9%) | 0.31 |
| Injury | 82,523 (72.3%) | 19,093 (82.2%) | 0.24 |
| Supported living status (institutional) | 241 (0.2%) | 722 (3.1%) | 0.23 |
| Supported living status (home care) | 21,656 (14.6%) | 6,794 (29.3%) | 0.36 |
| Myocardial infarction | 5,305 (3.6%) | 4,008 (17.3%) | 0.46 |
| Peripheral vascular disease | 1,358 (0.9%) | 1,823 (7.9%) | 0.35 |
| Liver disease | 474 (0.3%) | 355 (1.5%) | 0.13 |
| Preoperative resource utilization middle quintile | 56,493 (38.1%) | 278 (1.2%) | 1.05 |
| Preoperative resource utilization top 2 quintiles | 91,864 (61.9%) | 22,941 (98.8%) | 1.05 |
| Psychosocial (minor or stable) | 34,426 (23.2%) | 12,710 (54.8%) | 0.68 |
| Rheumatic Disease | 361 (0.2%) | 401 (1.7%) | 0.16 |
| Socioeconomic status (lowest 2 quintiles) | 55,862 (37.7%) | 10,050 (43.3%) | 0.11 |
| Socioeconomic status (middle quintile) | 30,388 (20.5%) | 4,669 (20.1%) | 0.01 |
| Weight loss | 747 (0.5%) | 807 (3.5%) | 0.22 |
| ASD: Absolute Standardized Difference; HOMR: Hospital One Year Mortality Risk; | |  |  |
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