

Appendix 2 (as supplied by the authors): Health conditions

Table A2-1. CIHI Population Grouping Methodology Health Condition List

Health Condition	Classification
A10 - Other Cerebral and Spinal Disease/Disorder	Major Acute
A41 - Stroke	Major Acute
A44 - Intracranial Injury	Major Acute
A45 - Skull Fracture	Major Acute
A47 - Infection/Inflammation Nervous System	Major Acute
A81 - Coma Unspecified	Major Acute
D01 - Pleural Disease (including Pleural Effusion)	Major Acute
D41 - Respiratory Failure	Major Acute
E41 - Acute Myocardial Infarction/Shock/Arrest	Major Acute
E43 - Unstable Angina	Major Acute
F43 - Gastrointestinal Obstruction	Major Acute
F45 - Peritoneal Disease (including Peritonitis)	Major Acute
H41 - Traumatic Amputation Arm/Hand/Leg/Foot	Major Acute
H42 - Fracture/Dislocation Vertebrae, Pelvis	Major Acute
H43 - Fracture Femur	Major Acute
H47 - Musculoskeletal Infections	Major Acute
I41 - Serious Burn/Frostbite	Major Acute
O01 - Disease of White Blood Cells (including Neutropenia)	Major Acute
O04 - Spleen Disorder	Major Acute
P41 - Sepsis	Major Acute
Q81 - Delirium	Major Acute
S41 - Transplant Complication	Major Acute
S42 - Orthopedic Complication	Major Acute
S43 - Ostomy Complication	Major Acute
S47 - Shock	Major Acute
S49 - Internal Trauma	Major Acute
A08 - Disorder of the Peripheral Nervous System (including Carpal Tunnel, Bells Palsy)	Moderate Acute
A42 - Cerebrovascular Disorder (excl. Stroke)	Moderate Acute
A43 - Transient Ischemic Attack	Moderate Acute
A82 - Seizure	Moderate Acute
F05 - Hernia	Moderate Acute
F42 - Unspecified Gastrointestinal Hemorrhage	Moderate Acute
F44 - Peptic Ulcer	Moderate Acute
F46 - Disease of Appendix	Moderate Acute
G05 - Diseases of Gallbladder and Biliary Tract	Moderate Acute
J02 - Diabetes Mellitus	Moderate Acute
J06 - Adrenal Disorder	Moderate Acute
J11 - Disorder of Electrolyte Acid Base Balance	Moderate Acute
J12 - Hypoglycemia	Moderate Acute
K41 - Acute/Other Kidney Disease/Failure	Moderate Acute
S46 - Other Complication of Medical or Surgical Care	Moderate Acute

Appendix to: Weir S, Steffler M, Li Y, et al. Use of the Population Grouping Methodology of the Canadian Institute for Health Information to predict high-cost health system users in Ontario. *CMAJ* 2020. DOI:10.1503/cmaj.191297.

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Health Condition	Classification
A46 - Concussion	Minor Acute
A48 - Nerve Injury	Minor Acute
A83 - Migraine/Other Headache	Minor Acute
A84 - Neurological, Sensory, Cognitive Signs and Symptoms	Minor Acute
B04 - Disorder of the Eyelids and Lacrimal System	Minor Acute
B41 - Retinal Break/Detachment	Minor Acute
B42 - Infection/Inflammation Eye	Minor Acute
B43 - Injury of Eye and Periocular Area	Minor Acute
C02 - Disease of Oral Cavity, Salivary Gland, or Jaw	Minor Acute
C03 - Dental Caries/Gingivitis	Minor Acute
C04 - Chronic Upper Respiratory Condition (including Tonsillitis)	Minor Acute
C06 - Disorder of External Ear	Minor Acute
C07 - Other Disease Middle/Inner Ear and Mastoid	Minor Acute
C08 - Meniere's/Dizziness/Vertigo	Minor Acute
C41 - Otitis Media	Minor Acute
C42 - Acute ENT, Upper Respiratory Condition (including Benign Neoplasm, Croup)	Minor Acute
D42 - Pneumonia	Minor Acute
D43 - Acute Infectious/Parasitic Respiratory Disease (excl. Pneumonia)	Minor Acute
D44 - Acute and Other Respiratory Diseases and Disorders	Minor Acute
D81 - Signs, Symptoms Respiratory System	Minor Acute
E08 - Uncomplicated Varicose Veins	Minor Acute
E82 - Signs, Symptoms Cardiovascular System	Minor Acute
F02 - Gastroesophageal Reflux Disease	Minor Acute
F07 - Vascular Disorder of Intestine (including Ischemic Bowel)	Minor Acute
F09 - Hemorrhoids	Minor Acute
F10 - Benign Neoplasm/Polyp Colon, Rectum, Anus	Minor Acute
F11 - Other Rectal/Anal Disorder	Minor Acute
F12 - Other Disease/Disorder of the Digestive System	Minor Acute
F41 - Acute Gastrointestinal Infection	Minor Acute
F81 - Signs, Symptoms Digestive and Hepatobiliary System	Minor Acute
F82 - Abdominal Pain	Minor Acute
G04 - Acute Liver Disease and Other Hepatic Disorders	Minor Acute
H03 - Crystal Arthropathy (including Gout)	Minor Acute
H05 - Other Bone Disease	Minor Acute
H44 - Other Fracture/Dislocation	Minor Acute
H45 - Benign/Unspecified Musculoskeletal Neoplasm	Minor Acute
H46 - Joint/Tendon Disorder and Injury (including Pain, Sprain, Strain)	Minor Acute
H81 - Neuromuscular Signs and Symptoms	Minor Acute
H82 - Back Pain	Minor Acute
I03 - Eczema/Dermatitis/Hives	Minor Acute
I04 - Acne/Rosacea	Minor Acute
I06 - Benign Skin Neoplasm	Minor Acute
I07 - Benign Disorder of Breast	Minor Acute

Health Condition	Classification
I08 - Disease of Hair/Nail/Sweat Glands	Minor Acute
I09 - Other Condition of Skin/Subcutaneous Tissue	Minor Acute
I42 - Skin Infection (including Cellulitis)	Minor Acute
I43 - Superficial Skin Injury/Contusion/Non-Serious Burn	Minor Acute
I81 - Signs, Symptoms Skin	Minor Acute
K02 - Benign/Unspecified Urinary Neoplasm	Minor Acute
K42 - Urinary Tract Infection/Cystitis	Minor Acute
K43 - Urinary Obstruction and Retention	Minor Acute
K81 - Signs, Symptoms Urinary	Minor Acute
L03 - Congenital/Other Female Reproductive Condition	Minor Acute
M42 - Unsuccessful/Ectopic Pregnancy	Minor Acute
O05 - Lymphatic System Disorder (excl. Spleen)	Minor Acute
P03 - Sexually Transmitted Disease (excl. HIV)	Minor Acute
P42 - Influenza	Minor Acute
P43 - Other Viral Infection	Minor Acute
P44 - Other Bacterial Infection	Minor Acute
P45 - Other and Unspecified Infection	Minor Acute
S44 - Poisoning/Adverse Effects	Minor Acute
S45 - Other Trauma/Injury (Not Elsewhere Classified)	Minor Acute
S48 - Open Wound	Minor Acute
S50 - Reaction to Transfusion, Medication or Anaesthesia	Minor Acute
S81 - General Signs, Symptoms (Not Elsewhere Classified)	Minor Acute
A01 - Congenital Malformation of the Nervous System (including Spina Bifida)	Major Chronic
A02 - Hereditary/Degenerative Condition of the Nervous System	Major Chronic
A03 - Muscular Dystrophy and Other Myopathy	Major Chronic
A04 - Parkinson's Disease/Parkinsonism	Major Chronic
A06 - Cerebral Palsy	Major Chronic
A07 - Paralytic Syndrome/Spinal Cord Injury	Major Chronic
A11 - Other Disease of the Nervous System	Major Chronic
D02 - Congenital Disorder of the Respiratory System	Major Chronic
D04 - Pulmonary Hypertension	Major Chronic
E01 - Heart Failure	Major Chronic
E02 - Malformation of the Cardiovascular System	Major Chronic
E03 - Cardiac Valve Disease	Major Chronic
E07 - Peripheral Venous Disease/Phlebitis/Thrombophlebitis/DVT	Major Chronic
E09 - Other Vascular System Disease	Major Chronic
E11 - Aortic Aneurysm	Major Chronic
E12 - Peripheral Artery Disease	Major Chronic
F01 - Congenital Malformation of the Digestive and Hepatobiliary System	Major Chronic
G01 - Cirrhosis	Major Chronic
G03 - Pancreatic Disease	Major Chronic
I01 - Autoimmune Skin Disorder	Major Chronic
I05 - Skin Ulcer (including Decubitus)	Major Chronic

Health Condition	Classification
J01 - Cystic Fibrosis	Major Chronic
K01 - Chronic Kidney Disease/Failure	Major Chronic
S03 - Transplant Recipient	Major Chronic
S04 - Presence of Ostomy	Major Chronic
A05 - Multiple Sclerosis and Other Demyelinating Disease of CNS	Moderate Chronic
A09 - Epilepsy	Moderate Chronic
B01 - Cataract/Lens Disorder	Moderate Chronic
B02 - Retinopathy	Moderate Chronic
C01 - Congenital/Acquired Malformation of Ear/Nose/Throat	Moderate Chronic
C05 - Hearing Loss (including Deafness)	Moderate Chronic
D03 - Chronic Obstructive Pulmonary Disease	Moderate Chronic
D05 - Other Chronic Lung Disease	Moderate Chronic
E04 - Coronary Artery Disease	Moderate Chronic
E05 - Arrhythmia	Moderate Chronic
E06 - Other Heart Disease	Moderate Chronic
F06 - Inflammatory Bowel (including Crohn's, Ulcerative Colitis)	Moderate Chronic
G02 - Chronic Liver Disease (including Hepatitis)	Moderate Chronic
H01 - Rheumatoid and Other Inflammatory Arthropathy (excl. Gout)	Moderate Chronic
H02 - Osteoarthritis	Moderate Chronic
H04 - Osteoporosis	Moderate Chronic
H07 - Systemic Connective Tissue Disorder (including Lupus, Scleroderma)	Moderate Chronic
H10 - Other Musculoskeletal and Connective Tissue Condition	Moderate Chronic
I02 - Papulosquamous Disorder/Psoriasis	Moderate Chronic
J03 - Goitre	Moderate Chronic
J04 - Hyperthyroidism	Moderate Chronic
K04 - Other Disease of the Urinary System	Moderate Chronic
K07 - Urinary Incontinence (Stress)	Moderate Chronic
L01 - Female Infertility	Moderate Chronic
L04 - Endometriosis/Pelvic Inflammatory Disease	Moderate Chronic
L05 - Other Uterine, Fallopian, Ovarian Condition (including Prolapse, Fistula)	Moderate Chronic
O02 - Anemia Disorder (excl. Nutritional)	Moderate Chronic
O03 - Coagulation and Hemorrhagic Disorder	Moderate Chronic
O06 - Disorder of Immune Mechanism	Moderate Chronic
P01 - Human Immunodeficiency Virus (HIV) Infection	Moderate Chronic
P02 - Tuberculosis Disease	Moderate Chronic
S02 - Chromosomal/Other/Unspecified Congenital Syndrome/Disorder	Moderate Chronic
B03 - Strabismus	Minor Chronic
B05 - Vision Impairment (including Blindness)	Minor Chronic
B06 - Glaucoma	Minor Chronic
B07 - Other Eye Diseases and Disorders	Minor Chronic
D06 - Asthma	Minor Chronic
E10 - Hypertension	Minor Chronic
F03 - Other Disease of the Esophagus	Minor Chronic

Health Condition	Classification
F04 - Gastritis and Duodenitis	Minor Chronic
F08 - Diverticulitis	Minor Chronic
H06 - Vertebral/Disk and Other Disease of Back	Minor Chronic
H08 - Musculoskeletal Malformation (excl. Spine)	Minor Chronic
H09 - Myositis and Soft Tissue Disorder (including Muscle Inflammation)	Minor Chronic
J05 - Hypothyroidism	Minor Chronic
J07 - Other Disease of the Endocrine System	Minor Chronic
J08 - Malnutrition and Vitamin Deficiency	Minor Chronic
J09 - Hypercholesterolaemia and other Dyslipidemia	Minor Chronic
J10 - Obesity	Minor Chronic
J13 - Other Disorders of Metabolism	Minor Chronic
K03 - Other Disease/Disorder Bladder and Urethra	Minor Chronic
K05 - Prostate Disorder	Minor Chronic
K06 - Other Disease of the Male Reproductive System	Minor Chronic
L02 - Menstruation Disorder (including Menopause)	Minor Chronic
O07 - Other Disease of Blood and Blood Forming Organs	Minor Chronic
Q01 - Dementia (including Alzheimer's)	Major Mental Health
Q02 - Delusional Disorder (including Schizophrenia)	Major Mental Health
Q03 - Mental Disorder Resulting from Brain Injury or Other Illness	Major Mental Health
Q05 - Bipolar/Manic Mood Disorder	Major Mental Health
Q08 - Eating Disorder	Major Mental Health
Q09 - Intellectual Disorder/Delay	Major Mental Health
Q04 - Depression	Other Mental Health
Q06 - Personality Disorder	Other Mental Health
Q07 - Drug/Alcohol Abuse/Dependence	Other Mental Health
Q10 - Developmental Disorder (including Autism Spectrum)	Other Mental Health
Q11 - Neurotic/Anxiety/Obsessive Compulsive Disorder	Other Mental Health
Q12 - Adjustment Reaction/Stress	Other Mental Health
Q13 - Emotional and Behavioural Disorder with Onset Generally in Childhood	Other Mental Health
Q14 - Other/Unspecified Mental Disorder/Condition	Other Mental Health
Q82 - Mental Health Signs and Symptoms	Other Mental Health
R01A - Brain Cancer	Major Cancer
R02C - Oral/Ear/Nose/Throat Cancer	Major Cancer
R03D - Lung Cancer	Major Cancer
R04F - Colorectal Cancer	Major Cancer
R05F - Other Digestive and Hepatobiliary Cancer	Major Cancer
R06H - Musculoskeletal Cancer	Major Cancer
R07K - Renal Cancer	Major Cancer
R12K - Bladder Cancer	Major Cancer
R13L - Ovarian Cancer	Major Cancer
R14L - Uterine Cancer	Major Cancer
R16O - Leukemia/Lymphoma	Major Cancer
R18 - Metastatic Cancer	Major Cancer

Health Condition	Classification
R08I - Breast Cancer	Other Cancer
R09I - Skin Cancer	Other Cancer
R10J - Thyroid Cancer	Other Cancer
R11K - Prostate Cancer	Other Cancer
R15L - Cervical Cancer	Other Cancer
R17 - Other and Unspecified Primary Cancer	Other Cancer
M41 - Antepartum Condition	Obstetrics
M43 - Completed Pregnancy	Obstetrics
N44 - Healthy Newborn	Healthy Newborn
N41 - Extremely Low Birth Weight or Immaturity	Major Newborn
N42 - Serious Perinatal Condition	Major Newborn
N43 - Complicated Neonatal Condition	Major Newborn
S01 - Palliative State	Palliative

Source: Adapted from Canadian Institute for Health Information. CIHI's Population Grouping Methodology 1.1 (compiled code): Methodology Report. Ottawa: CIHI; April 2017; Appendix A. Shading indicates the various groupings, according to the classification shown in the second column.

Table A2-2. 85 Chronic Conditions defined from subset of Health Conditions

Chronic Condition by Category	Health Condition(s)
Major Chronic	
1. Paralytic Syndrome (with or without Stroke)	A07
2. Congenital Malformation of the Nervous System (including Spina Bifida)	A01
3. Parkinson's Disease/Parkinsonism	A04
4. Cerebral Palsy	A06
5. Major Chronic Nervous System	A02, A03, A11
6. Pulmonary Hypertension	D04
7. Heart Disease (including Heart Failure without AMI, respiratory failure or CAD/Heart Failure with CAD or Arrhythmia/AMI with Heart Failure/CAD or Arrhythmia without Heart Failure)	E01 (and not E41/D41/E04), E01+E41, E04+E01, E05+E01, E06+E01, E04 (and not E01), E05 (and not E01), E06 (and not E01)
8. Cardiac Valve Disease	E03
9. PVD/Other Chronic Vascular Dx (without Diabetes Mellitus/Hypoglycemia)	E07, E09, E11, E12 (and not J02/J12)
10. Chronic Kidney Disease/Failure (without Diabetes Mellitus/Hypoglycemia)	K01 (and not J02/J12)
11. Diabetes/Hypoglycemia with PVD/Other Chronic Vascular Disease/Chronic Kidney Disease/Kidney Failure	J02+E07, J02+E09, J02+E11, J02+E12, J12+E07, J12+E09, J12+E11, J12+E12, J02+K01, J12+K01
12. Pancreatic Disease	G03
13. Cirrhosis	G01
14. Skin Ulcer (including Decubitus)	I05
15. Cystic Fibrosis	J01
16. Presence of Ostomy	S04

17. Transplant Recipient	S03
18. Other Major Chronic: Congenital Disorder of the Respiratory System	D02
19. Other Major Chronic: Malformation of the Cardiovascular System	E02
20. Other Major Chronic: Congenital Malformation of the Digestive and Hepatobiliary System	F01
21. Other Major Chronic: Autoimmune Skin Disorder	I01
Moderate Chronic	
22. Epilepsy	A09
23. Multiple Sclerosis and Other Demyelinating Disease of CNS	A05
24. Retinopathy	B02
25. Cataract/Lens Disorder	B01
26. COPD without pneumonia	D03, D05 (and not D42)
27. Inflammatory Bowel (including Crohn's, Ulcerative Colitis)	F06
28. Chronic Liver Disease (including Hepatitis)	G02
29. Rheumatoid/Osteoarthritis and Other Inflammatory Arthropathy (excluding Gout)	H01, H02 (and not H03)
30. Osteoporosis	H04
31. Systemic Connective Tissue Disorder (including Lupus/Scleroderma)	H07
32. Urinary Incontinence (Stress)	K07
33. Endometriosis/Pelvic Inflammatory Disease	L04
34. Female Infertility	L01
35. Other Uterine, Fallopian, Ovarian Condition (including Prolapse, Fistula)	L05
36. Major Chronic Blood Disorder (including Coagulation Disorders, Anemia)	O02, O03
37. Human Immunodeficiency Virus (HIV) Infection	P01
38. Chromosomal/Other/Unspecified Congenital Syndrome/Disorder	S02
39. Other Moderate Chronic: Congenital/Acquired Malformation of Ear/Nose/Throat	C01
40. Other Moderate Chronic: Hearing Loss (including Deafness)	C05
41. Other Moderate Chronic: Other Musculoskeletal and Connective Tissue Condition	H10
42. Other Moderate Chronic: Papulosquamous Disorder/Psoriasis	I02
43. Other Moderate Chronic: Goitre	J03
44. Other Moderate Chronic: Hyperthyroidism	J04
45. Other Moderate Chronic: Other Disease of the Urinary System	K04
46. Other Moderate Chronic: Disorder of Immune Mechanism	O06
47. Other Moderate Chronic: Tuberculosis Disease	P02
48. Diabetes without major comorbidities	J02, J12 (excluding major comorbidities)
Minor Chronic	
49. Other Eye Diseases and Disorders	B07
50. Chronic Vision Impairment	B03, B05, B06
51. Asthma	D06
52. Hypertension	E10
53. Other Disease of the Esophagus (including esophagitis)	F03
54. Diverticulitis	F08

55. Gastritis and Duodenitis	F04
56. Musculoskeletal Malformation (excluding Spine)	H08
57. Vertebral/Disk and Other Disease of Back	H06
58. Myositis and Soft Tissue Disorder (including Muscle Inflammation)	H09
59. Other Disease of the Endocrine System	J07
60. Other Disorders of Metabolism	J13
61. Malnutrition and Vitamin Deficiency	J08
62. Hypothyroidism	J05
63. Obesity	J10
64. Hypercholesterolaemia and Other Dyslipidemia	J09
65. Prostate Disorder	K05
66. Other Disease of the Male Reproductive System	K06
67. Other Disease/Disorder of the Bladder and Urethra	K03
68. Menstruation Disorder (including Menopause)	L02
69. Other Disease of Blood and Blood Forming Organs	O07
Major Mental Health	
70. Mental Disorder Resulting from Brain Injury or Other Illness	Q03
71. Eating Disorder	Q08
72. Dementia (including Alzheimer's)	Q01
73. Delusional Disorder (including Schizophrenia)	Q02
74. Other Major Mental Health (including Bipolar Disorder): Bipolar/Manic Mood Disorder	Q05
75. Other Major Mental Health (including Bipolar Disorder): Intellectual Disorder/Delay	Q09
Minor Mental Health	
76. Personality Disorder	Q06
77. Drug/Alcohol Abuse/Dependence	Q07
78. Depression	Q04
79. Developmental Disorder (including Autism Spectrum)	Q10
80. Neurotic/Anxiety/Obsessive Compulsive Disorder	Q11
81. Behavioural and Emotional Childhood/Adolescent Disorder	Q13
82. Other Mental Health (including adjustment reaction): Adjustment Reaction/Stress	Q12
83. Other Mental Health (including adjustment reaction): Other/Unspecified Mental Disorder/Condition	Q14
84. Mental Health Signs and Symptoms	Q82
Cancer	
85. Cancer, all types (including Brain, Oral/Ear/Nose/Throat, Lung, Colorectal, Other Digestive/Hepatobiliary, Musculoskeletal, Renal, Breast, Skin, Thyroid, Prostate, Bladder, Ovarian, Uterine, Cervical, Leukemia/Lymphoma, Other/Unspecified Primary Cancer, Metastatic Cancer)	R18, R01A, R05F, R03D, R16O, R13L, R12K, R06H, R07K, R04F, R14L, R02C, R08I, R11K, R09I, R10J, R15L, R17

Source: Adapted from Canadian Institute for Health Information. CIHI's Population Grouping Methodology 1.1 (compiled code): Methodology Report. Ottawa: CIHI; April 2017; Appendix C. Shading indicates the various groupings, according to the centred category headings.