

Methodology Report

Reclassification of ICD-9 Codes into Meaningful Categories for Oncology Survivorship Research

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Received 4 August 2010; Accepted 1 November 2010

Academic Editor: P. Vineis

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Background. The International Classification of Disease, ninth revision (ICD-9) is designed to code disease into categories which are placed into administrative databases. These databases have been used for epidemiological studies. However, the categories used in the ICD9-codes are not always the most effective for evaluating specific diseases or their outcomes, such as the outcomes of cancer treatment. Therefore a re-classification of the ICD-9 codes into new categories specific to cancer outcomes is needed. **Methods.** An expert panel comprised of two physicians created broad categories that would be most useful to researchers investigating outcomes and morbidities associated with the treatment of cancer. A Senior Data Coordinator with expertise in ICD-9 coding, then joined this panel and each code was re-classified into the new categories. **Results.** Consensus was achieved for the categories to go from the 17 categories in ICD-9 to 39 categories. The ICD-9 Codes were placed into new categories, and subcategories were also created for more specific outcomes. The results of this re-classification is available in tabular form. **Conclusions.** ICD-9 codes were re-classified by group consensus into categories that are designed for oncology survivorship research. The novel re-classification system can be used by those involved in cancer survivorship research.

1. Background

The importance of a classification system for the grouping of causes of morbidity or mortality has long been known to be crucial for the study of disease. The first attempt to classify disease systematically has been attributed to Francois Bossier de Lacroix, (1706–1777), better known as Sauvages [1] in his treatise *Nosologia Methodica*, written in the 18th century. Subsequently, many groups have made attempts to create their own classification systems to compile quantitative data about various diseases within different population groups. In these systems, individual code categories are assigned to conditions that occur frequently and are associated with significant morbidity; others are grouped together, often by anatomical site or physiologic system [2]. Since the early 1900's, international collaborations have attempted to revise and update these classification systems and this has led to the development of the International Classification of

Diseases, which is now under the direction of the World Health Organization. The first version of the International Classification of Diseases was adopted in 1900. The ninth version, known as ICD-9, was published in 1975 and uses a five-digit coding system where the categories are meaningful at the 3-digit level [3].

The ICD-9 has become a useful tool for health researchers, as the use of administrative databases in the study of diseases has flourished over the last decade. Administrative databases provide a quick and efficient method of eliciting clinical information regarding hospitalization, as compared to the historically used gold standard of chart review. These administrative databases were not intended for research but rather to collect information regarding resource utilization. However, studies have shown that clinical data extracted from hospital databases in Canada provide reliable data when compared to manual chart review [4]. There are limitations to these databases; it has been suggested that

comorbidities in these databases may be underreported for certain codes [5].

A reorganization of ICD-9 codes has been completed for four major chronic conditions (coronary artery disease, congestive heart failure, asthma, and chronic obstructive pulmonary disease) by a group of researchers for the purpose of creating a consistent research tool for the study of these health problems [6]. These researchers used the consensus of experts in the field and followed the recommendations made by Fink et al. [7]. Their recommendations stated that a group consensus should focus on a carefully defined problem that could be investigated in a timely and economical way, that consensus panel members should be representative of their profession, and that decisions on important issues should be justified by available empirically derived data as well as by judgments and experience.

The Childhood/Adolescent/Young Adult Cancer Survivor Program (CAYACS) is a research program investigating late outcomes in survivors of pediatric and young adult cancer through the linkage of administrative databases. One of the major aims of this program was to analyze hospitalizations in survivors of childhood and adolescent cancer occurring 5 years after the date of diagnosis. ICD-9 codes reported on the hospital separation forms of 5-year cancer survivors can be linked and compared with controls who did not have childhood cancer. In reviewing the ICD-9 coding book, it became clear that the categories used in this book were not ideally suited for research into cancer survivorship. Therefore, a reclassification of ICD-9 coding was needed that was specific for all cancer survivorship issues. The purpose of this paper is to develop this reclassification of the ICD-9 codes that can be used by all researchers in cancer survivorship. Specifically, this reclassification system can be used by researchers interested in iatrogenic late effects due to therapies given to patients with cancer. It can also be used to study the association of cancer with other diseases that may share etiologic determinants. Finally, it can also be used in Health Services research investigating the rates of hospitalizations or medical services use in those who had previously treated cancer.

2. Methods

The first step was to review the categories used in the ICD-9 and then to decide what categories would be useful for oncology outcome research. Two investigators (SRR and KG) decided which major categories should be included. These categories included both main categories and a few subcategories as required. It was decided to use a category called "other" to group together all codes which were not easily identifiable or did not seem as important for oncology research.

The second step was then to create an expert panel which included a radiation oncologist, a pediatric oncologist, and a data coordinator with extensive knowledge in ICD-9 coding (KG, SRR, LL). All 3 members of the panel had experience in survivorship research and were involved in a study using administrative databases to look at long-term outcomes in children treated for cancer (the CAYACS program). This

panel then systematically reviewed each code in the ICD-9 coding book and placed each code into its new category in an Excel database.

The final step was the transformation of this spreadsheet (performed by ML) into a program that reads ICD-9 codes from a data file and assigns the correct category using R code (reference), so that this new database could be easily used in future studies.

3. Results

The categories decided upon by the panel are shown in Table 1. This changed the number of major categories from the 17 found in ICD-9 to 39 categories. The categories first used the ICD-9 categories served as a backbone and then new categories were created to encompass groups of conditions that would be of interest to those involved in survivorship research. After long discussion, the 2 clinicians involved in the study determined that these were the categories of choice.

The reclassification of the ICD-9 codes into the new categories is shown in Table 2. All the codes from the ICD-9 book were able to be incorporated into the new classification groups. The group was able to achieve full consensus for all codes. The majority of codes were easy to place into the new categories, but there were many codes that did not fit easily into a specific category. However, group consensus was achieved for all the reclassification choices.

4. Discussion

The development of the ICD-9 codes has enabled health administrators and policy makers to investigate the frequency and causes for hospitalizations across jurisdictions. This coding system categorizes headings into 17 major groupings. There has been recent interest in the use of these hospital administrative databases to help answer epidemiological hypotheses. However, as the coding system is generalized to the entire spectrum of health conditions, it is not ideal for specific groups of interest. This became evident to our CAYACS program when we were attempting to use ICD-9 codes to analyze causes of hospitalizations in cancer survivors. The existing numerical groupings were not ideal for survivorship research. For instance, causes of infections were scattered throughout the ICD-9 coding groupings despite having infection as a major grouping. The hospital's data coordinator could code an infection based on the pathogen (codes 001-139.8) or could code based on the system affected by the infection (codes scattered throughout the range). For a clinical researcher who is interested in all infections in a group of individuals with a specific health condition, the ICD-9 code groupings are not suited for this type of research. This becomes even more important when considering a very specific area of research, such as the treatment of cancer and its late outcomes. The purpose of this study was to reclassify the ICD-9 codes into practical groupings that can be used by a health researcher specifically for cancer follow-up outcomes.

This study has therefore reclassified the ICD-9 codes into categories which are useful to those involved in oncology

TABLE 1: Categories created by the panel.

Infectious disorders	Infertility disorders
Neoplasms	Perinatal conditions
Endocrine disorders	Skin and subcutaneous disorders
Nutritional disorders	Musculoskeletal and connective tissue disorders
Fluid and electrolyte disorders	Congenital anomalies
Inherited metabolic, and immune disorders	Nonspecific abnormal findings
Hematologic disorders	Other and unspecified mortality and morbidity
Psychiatric disorders	Injuries
Substance abuse	Poisonings by drugs, medicaments, and biological substances
Neurological disorders	Effects of foreign body entering through orifice
ENT and eye disorders	Toxic effects of substances
Cardiovascular disorders	Other and unspecified effects of external causes
Varicose veins, haemorrhoids, and lymphatic Disorders	Certain adverse effects not elsewhere classified
Respiratory disorders	Complications from a Procedure or Device
Dental disorders	Complications of Medical Care
Digestive system disorders	Late Effects
Genitourinary disorders	External Causes (E Codes)
Gynecological disorders	Factors Influencing Health Status and Contact with Health Services (V Codes)
Breast disorders	Morphology of Neoplasms (M Codes)
Pregnancy, childbirth, and puerperium	

research using administrative databases. This reclassification system can be used by all groups looking at causes of hospitalization in those diagnosed with cancer, whether these patients are on active treatment or are in posttherapy surveillance as long-term survivors. All the codes in ICD-9 are accounted for and have been placed into specific categories. Subcategories were created that would help distinguish areas of interest within larger groups. For instance, within the cardiovascular system it is important to distinguish hypertension, myocardial infarction, arrhythmias, valvular disease and cardiomyopathy from each other, as each subcategory would likely have differing attributable factors and risks. By separating out these different conditions, we can study the long-term risk of hospitalization associated with different initial childhood cancer diagnoses and therapies. We can for example, measure the risk of hospitalization for different cardiac conditions in long-term survivors treated for childhood Hodgkin lymphoma treated with mantle radiotherapy.

A strength of this study is that consensus was easily achieved for all ICD-9 codes between the 3 members of the panel. The inclusion of a senior data coordinator who has extensive experience and expertise in coding in hospital discharges gave insight into the practicality of coding. As all 3 members of the panel are involved in survivorship research, the new classification scheme was based on experience with data derived from ICD9-coding.

The main limitation of this study is that it represents the opinion of only one group of clinicians. Certainly others may have a few subtle changes they would suggest to the classifications or the categories in general.

5. Conclusions

By our accounts this is the first reclassification of the ICD-9 codes into new diagnostic groupings that are more useful for the clinical researcher. Moreover, this new classification system is ideal for oncology-specific outcomes and can therefore be used by all researchers in the study of cancer treatment and survivorship.

Conflict of Interests

The authors declare that they have no conflict or-interests.

Authors Contributions

S. R. Rassekh conceived the study, participated in the design, was on the expert panel that performed the reclassification, and drafted the manuscript. M. Lorenzi helped design the study, created all the tables, and helped draft the manuscript. L. Lee helped design the study and was on the

TABLE 2: Full categorization of ICD-9 codes.

<i>Infectious Disorders</i>	001–136, 320–326, 370.1, 370.3–370.5, 372.0–372.1, 373.4–373.6, 377.3, 380.1, 382, 383.0–383.2, 420–422, 447.7, 460–466, 480–487, 511.1, 513, 540.1, 567.0–567.2, 573.1–573.2, 577.0–577.1, 581.8, 583.8, 590, 595.4–595.8, 597, 598.0, 601.2, 601.4, 603.1, 604, 614.2–614.4, 616.0–616.1, 616.3–616.5, 681–686, 711, 727.0, 727.3, 728.0, 730, 785.4, 790.7–790.8
Central Nervous System Infections	013, 036.0–036.1, 046–049, 053.0–053.1, 054.3, 054.7, 055.0, 056.0, 062–064, 072.1–072.2, 320–326, 331.5–331.6
Bacteremia Infections	036.2, 038, 790.7
Endocarditis and Pericarditis Infections	036.4, 420, 421
Hepatitis Infections	070, 573.1–573.2
Gastrointestinal Infections	007–009, 014, 054.2, 072.3, 120.1, 127, 129, 540.1, 567.0–567.2, 577.0–577.1
Genitourinary Infections	016, 054.1, 072.0, 078.6, 110.3, 112.1–112.2, 131, 581.8, 583.8, 590, 595.4–595.8, 597, 598.0, 601.2, 601.4, 603.1, 604, 614.2–614.4, 616.0–616.1, 616.3–616.5
Sexually Transmitted Infections	090–099, 447.7
Other Infections	001–006, 010–012, 015, 017–018, 020–027, 030–035, 037, 039–041, 045, 050–052, 053.2–053.9, 054.0, 054.4–054.9, 055, 056.7–056.9, 057, 060–061, 065–066, 071, 072.7–072.9, 073–077, 078.0–078.5, 078.7–078.8, 079–088, 100–104, 110.0–110.2, 110.4–110.9, 111, 112.0, 112.3–112.9, 114–118, 120.0, 120.2–120.9, 121–126, 128, 130, 132–136, 370.1, 370.3–370.5, 372.0–372.1, 373.4–373.6, 377.3, 380.1, 382, 383.0–383.2, 422, 460–466, 480–487, 511.1, 513, 681–686, 711, 727.0, 727.3, 728.0, 730, 785.4, 790.8
<i>Neoplasms</i>	140–239
Malignant Neoplasm of Breast	174–175
Malignant Neoplasm of CNS	191–192
Malignant Neoplasm of Thyroid Gland	193
Leukemia	204–208
Malignant Cancers of soft tissue, connective tissue and bone	170–171
Malignant Cancers of Skin	172–173
Endometrial Cancer	182
Other Malignant Neoplasms	140–169, 176–181, 183–190, 194–208
Benign Neoplasms	210–224, 225.0–225.1, 225.8–225.9, 226–229
Meningiomas	225.2–225.4
Carcinoma In Situ Tumours	230–234
Neoplasm of Uncertain Behavior	235–238
Neoplasm of Unspecified Nature	239
<i>Endocrine Disorders</i>	240–259
Thyroid Gland Disorders	240–246
Diabetes Mellitus	250
Hypothalamus/Pituitary Disorders	253
Adrenal Gland Disorders	255
Ovarian/Testicular Dysfunction Disorders	256–257
Other Endocrine Disorders	251–252, 254, 258–259
<i>Nutritional Disorders</i>	260–275, 278, 783
Malnutritional/Anorexic Disorders	260–263, 783.0, 783.2
Obesity Disorders	278.0–278.1, 783.1
Vitamin Deficiency Disorders	264–269

TABLE 2: Continued.

<i>Infectious Disorders</i>	001–136, 320–326, 370.1, 370.3–370.5, 372.0–372.1, 373.4–373.6, 377.3, 380.1, 382, 383.0–383.2, 420–422, 447.7, 460–466, 480–487, 511.1, 513, 540.1, 567.0–567.2, 573.1–573.2, 577.0–577.1, 581.8, 583.8, 590, 595.4–595.8, 597, 598.0, 601.2, 601.4, 603.1, 604, 614.2–614.4, 616.0–616.1, 616.3–616.5, 681–686, 711, 727.0, 727.3, 728.0, 730, 785.4, 790.7–790.8
Other Nutritional Disorders	270–275, 278.2–278.8, 783.3–783.9
<i>Fluid And Electrolyte Disorders</i>	276
<i>Inherited Metabolic and Immune Disorders</i>	277, 279
<i>Hematologic Disorders</i>	280, 281, 282–289, 325, 415.1, 444, 451–453, 790.0
Anaemias	280, 281, 282–285
Coagulation Defects	286–287, 325, 415.1, 444, 451–453
White Blood Cell Defects	288
Other Hematologic Disorders	289, 790.0
<i>Psychiatric Disorders</i>	293–298, 300–302, 306–309, 311–313, 314, 316
Depression Disorders	300.4, 309.0–309.1, 311, 313.1
Psychosis Disorders	293–298
Anxiety Disorders	300.0–300.3, 300.5–300.9, 308, 309.2, 313.0
Personality Disorders	301, 312
Eating Disorders	307.1–307.5
Hyperkinetic Syndrome (Attention Deficit Hyperactivity Disorders)	314
Other Psychiatric Disorders	302, 306, 307.0, 307.2–307.4, 307.6–307.9, 309.3–309.9, 313.2–313.9, 316
<i>Substance Abuse</i>	291–292, 303–305
Alcohol Abuse	291, 303
Drug Abuse	292, 304–305
<i>Neurological Disorders</i>	290, 299, 310, 315, 317–319, 327, 330, 331.0–331.5, 331.7–331.9, 332–337, 340–359, 430–437, 780–781, 784.0, 797
Cognitive Disorders	290, 299, 310, 315, 317–319, 797
Cerebral Degeneration Disorders	330, 331.0–331.2, 331.7–331.9
Hydrocephalus Disorders	331.3–331.5
Seizure Disorders	345, 780.3
Coma	780
Migraine and Headaches	346
Cerebrovascular Disorders	430–437
Spinal Cord Disorders	336, 344
Other Neurological Disorders	327, 784
<i>Ent and Eye Disorders</i>	360–369, 370.0, 370.2, 370.6–370.9, 371, 372.3–372.9, 373.0–373.3, 373.8–373.9, 374–376, 377.0–377.2, 377.4–377.9, 378–379, 380.0, 380.2–380.9, 381, 383.3–383.9, 384–389, 470–478, 526–529, 784.1–784.9
Eye and Adnexa Disorders	360–369, 370.0, 370.2, 370.6–370.9, 371, 372.3–372.9, 373.0–373.3, 373.8–373.9, 374–376, 377.0–377.2, 377.4–377.9, 378–379
Ear Disorders	380.0, 380.2–380.9, 381, 383.3–383.9, 384–387
Hearing Loss Disorders	388–389
Nasal and Oral Disorders	470–478, 526–529, 784.1–784.9
<i>Cardiovascular Disorders</i>	390–398, 401–414, 416–417, 423–429, 440–443, 446–448, 458–459, 785.0–785.3, 785.5, 785.9, 794.3
Cardiomyopathy and Heart Failure Disorders	425, 428
Arrhythmia Disorders	426–427, 785.0–785.1, 794.3

TABLE 2: Continued.

<i>Infectious Disorders</i>	001–136, 320–326, 370.1, 370.3–370.5, 372.0–372.1, 373.4–373.6, 377.3, 380.1, 382, 383.0–383.2, 420–422, 447.7, 460–466, 480–487, 511.1, 513, 540.1, 567.0–567.2, 573.1–573.2, 577.0–577.1, 581.8, 583.8, 590, 595.4–595.8, 597, 598.0, 601.2, 601.4, 603.1, 604, 614.2–614.4, 616.0–616.1, 616.3–616.5, 681–686, 711, 727.0, 727.3, 728.0, 730, 785.4, 790.7–790.8
Hypertensive Disorders	401–405
Atherosclerotic Disorders	440
Ischaemic Heart Disorders	410–414
Hypotensive Disorders	458, 785.5
Other Cardiovascular Disorders	390–398, 416–417, 423–424, 429, 441–443, 446–448, 459, 785.2–785.3, 785.9
<i>Varicose Veins, Haemorrhoids, and Lymphatic Disorders</i>	454–457, 785.6
Varicose Veins and Hemorrhoids Disorders	454–456
Lymphatic Disorders	457, 785.6
<i>Respiratory Disorders</i>	415.0, 490–496, 500–508, 510–512, 514–519
Radiation Manifestations	508.0–508.1
<i>Dental Disorders</i>	520–525
<i>Digestive System Disorders</i>	530–537, 540.0, 540.9, 541–543, 550–553, 555–558, 560, 562, 564–566, 567.8–567.9, 568–572, 573.0, 573.3–573.9, 574–576, 577.2–577.9, 578–579, 787, 789
Irritable Bowel Disorders	555–556, 558
Liver Disorders	570–572, 573.0, 573.3–573.9
Biliary Tract and Gallbladder Disorders	574–576
Stomatitis	528
Esophagitis	530
Other Digestive System Disorders	530–537, 540.0, 540.9, 541–543, 550–553, 557, 560, 562, 564–566, 567.8–567.9, 568–569, 577.2–577.9, 578–579, 787, 789
<i>Genitourinary Disorders</i>	580, 581.0–581.3, 581.9, 582, 583.0–583.7, 583.9, 584–589, 591–594, 595.0–595.3, 595.9, 596, 598.1–598.9, 599–600, 601.0–601.1, 601.3, 601.8–601.9, 602, 603.0, 603.8–603.9, 605, 607–608, 788
Renal Disorders	580, 581.0–581.3, 581.9, 582, 583.0–583.7, 583.9, 584–589, 591
Calculus Disorders	592, 594
Bladder Disorders	595.0–595.3, 595.9, 596
Urethral Disorders	598.1–598.9, 599
Other Genitourinary Disorders	600, 601.0–601.1, 601.3, 601.8–601.9, 602, 603.0, 603.8–603.9, 605, 607–608, 788
<i>Gynecological Disorders</i>	614.0–614.1, 614.5–614.9, 615, 616.2, 616.8–616.9, 617–627, 629
Menstrual Disorders	626
Menopausal Disorders	627
Other Gynecological Disorders	614.0–614.1, 614.5–614.9, 615, 616.2, 616.8–616.9, 617–625, 629
<i>Breast Disorders</i>	611
<i>Pregnancy, Childbirth, and Puerperium</i>	630–648, 650–676, V22–V24, V27
Spontaneous Abortions	630–632, 634
Therapeutic Abortions	635–638
Ectopic Pregnancy	633
Complications Following Abortion, Ectopic, and Molar Pregnancies	639

TABLE 2: Continued.

<i>Infectious Disorders</i>	001–136, 320–326, 370.1, 370.3–370.5, 372.0–372.1, 373.4–373.6, 377.3, 380.1, 382, 383.0–383.2, 420–422, 447.7, 460–466, 480–487, 511.1, 513, 540.1, 567.0–567.2, 573.1–573.2, 577.0–577.1, 581.8, 583.8, 590, 595.4–595.8, 597, 598.0, 601.2, 601.4, 603.1, 604, 614.2–614.4, 616.0–616.1, 616.3–616.5, 681–686, 711, 727.0, 727.3, 728.0, 730, 785.4, 790.7–790.8
Complications Related to Pregnancy	640–648
Indication for Care in Pregnancy, Labour and Delivery	650–659
Complications Occurring in Labour and Delivery	660–669
Complications of the Puerperium	670–676
Supervision and Pregnancy State	V22–V24
Delivery Outcome	V27
<i>Infertility Disorders</i>	606, 628, 792.2
Male Infertility	606, 792.2
Female Infertility	628
<i>Perinatal Conditions</i>	760–779, V30–V39
Perinatal Conditions	760–799
Birth Outcome	V30–V39
<i>Skin and Subcutaneous Disorders</i>	680, 690–698, 700–709, 782
Hair and Hair Follicles Disorders	704
Other Skin and Subcutaneous Disorders	680, 690–698, 700–703, 705–709, 782
<i>Musculoskeletal and Connective Tissue Disorders</i>	710, 712–726, 727.1–727.2, 727.4–727.9, 728.1–728.2, 729, 731–739
Rheumatological Disorders	710, 712–716, 725–726
Joint Disorders	717–719
Spine Disorders	720–724, 737
Other Musculoskeletal and Connective Tissue Disorders	727.1–727.2, 727.4–727.9, 728.1–728.8, 729, 731–736, 738–739
<i>Congenital Anomalies</i>	740–759
<i>Nonspecific Abnormal Findings</i>	790.1–790.6, 790.9, 790.9, 791, 792.0–792.1, 792.3–792.9, 793, 794.0–794.2, 794.4–794.9, 795–796
<i>Other and Unspecified Morbidity and Mortality</i>	798–799
<i>Injuries</i>	800–848, 850–854, 860–887, 890–897, 900–904, 910–929, 940–959
Fractures (Excluding Skull and Spinal Fractures)	807–829
Head Injuries (Including Skull Fractures)	800–804, 850–854, 870–873, 900, 910, 918, 920–921, 925, 950–951
Spinal Injuries (Including Spinal Fractures)	805–806, 839–839.5, 846–847, 952–954
Burns	940–949
Other Injuries (Excluding Fractures)	830–838, 839.6–839.9, 840–845, 848, 860–869, 874–887, 890–897, 901–904, 911–917, 919, 922–924, 926–929, 955–959
<i>Poisonings by Drugs, Medicaments, and Biological Substances</i>	960–979
<i>Effects of Foreign Body Entering Through Orifice</i>	930–939
<i>Toxic Effects of Substances</i>	980–989
<i>Other and Unspecified Effects of External Causes</i>	990–994
<i>Certain Adverse Effects Not Elsewhere Classified</i>	995
Adverse Effects Due to Drug, Medicament, or Biological Substance	995.0, 995.2, 995.4
Other Adverse Effects	995.1, 995.3, 995.5, 995.8

TABLE 2: Continued.

<i>Infectious Disorders</i>	001–136, 320–326, 370.1, 370.3–370.5, 372.0–372.1, 373.4–373.6, 377.3, 380.1, 382, 383.0–383.2, 420–422, 447.7, 460–466, 480–487, 511.1, 513, 540.1, 567.0–567.2, 573.1–573.2, 577.0–577.1, 581.8, 583.8, 590, 595.4–595.8, 597, 598.0, 601.2, 601.4, 603.1, 604, 614.2–614.4, 616.0–616.1, 616.3–616.5, 681–686, 711, 727.0, 727.3, 728.0, 730, 785.4, 790.7–790.8
<i>Complications from a Procedure or Device</i>	996–998
<i>Complications of Medical Care</i>	999
<i>Late Effects</i>	137–139, 268.1, 326, 438, 905–909, E929, E959, E969, E977, E989, E999
Late Effects of Infectious and Parasitic Diseases	137–139
Late Effects of Ricketts	268.1
Late Effects of Intracranial Abscess or Pyogenic Infection	326
Late Effects of Cerebrovascular Disease	438
Late Effect of Poisoning Due to Drug, Medicament, or Biological Substance	909.0
Late Effect of Toxic Effects of Nonmedical Substances	909.1
Late Effects of Radiation	909.2
Late Effects of Complications of Surgical and Medical Care	909.3
Late Effects of Other and Unspecified Causes	909.4–909.9
Late Effects of Injuries	905–908
Late Effects of Accidental Injury	E929
Late Effects of Self-Inflicted Injury	E959
Late Effects of Injury Purposely Inflicted by Other Person	E969
Late Effects of Injuries Due to Legal Intervention	E977
Late Effects of Injury, Undetermined Whether Accidentally or Purposely Inflicted	E989
Late Effects of Injury Due to War Operations	E999
<i>External Causes (E Code) (Supplementary Codes)</i>	
External Causes of Injury	E800–E807, E810–E838, E840–E848, E880–E888, E890–E928, E970–E976, E978, E980–E988, E990–E998
Railway Accidents	E800–E807
Motor Vehicle Accidents-Traffic and Nontraffic	E810–E825
Pedal Cycle Accidents	E826
Other Transport Accidents	E827–E838, E840–E848
All Accidental Falls	E880–E888
All Accidents Caused by Fire and Flames	E890–E899
All Other Accidents	E900–E928
All Injuries Caused by Legal Intervention	E970–E976, E978
Injury Undetermined Whether Accidentally or Purposely Inflicted	E980–E988
Injury Resulting From Operations of War	E990–E998
<i>External Causes Of Poisoning By Drugs, Medicaments, And Biologicals</i>	E850–E858
<i>External Causes Of Poisoning By Solid And Liquids, Gases And Vapours</i>	E860–E869
Accidental Poisoning by Alcohol, Not Elsewhere Classified	E860
Other Accidental Poisonings	E861–E869

TABLE 2: Continued.

<i>Infectious Disorders</i>	001–136, 320–326, 370.1, 370.3–370.5, 372.0–372.1, 373.4–373.6, 377.3, 380.1, 382, 383.0–383.2, 420–422, 447.7, 460–466, 480–487, 511.1, 513, 540.1, 567.0–567.2, 573.1–573.2, 577.0–577.1, 581.8, 583.8, 590, 595.4–595.8, 597, 598.0, 601.2, 601.4, 603.1, 604, 614.2–614.4, 616.0–616.1, 616.3–616.5, 681–686, 711, 727.0, 727.3, 728.0, 730, 785.4, 790.7–790.8
<i>Misadventures To Patients During Surgical And Medical Care</i>	E870–E876
<i>Abnormal Reaction Or Complication To Patient After Surgical Or Medical Care</i>	E878–E879
<i>Adverse Effects In Therapeutic Use Of Drugs, Medicaments, And Biologicals</i>	E930–E949
Chemotherapy Adverse Effects	E930.7–E933.1
Other Adverse Effects	E930.0–E930.6, E930.8–E930.9, E931–E932, E933.0, E933.2–E933.9, E934–E949
<i>Suicides And Self-Inflicted Injury</i>	E950–E958
<i>Homicide And Injury Purposely Inflicted By Other Persons</i>	E960–E968
<i>Factors Influencing Health Status And Contact With Health Services (V Code)</i>	V01–V21, V25–V26, V28, V40–V82
Personal History of Malignant Neoplasm	V10
Family History of Malignant Neoplasm	V16
Personal History of Mental Disorder	V11
Mental and Behavioral Problems	V40
Health Supervision of Infant or Child	V20
Constitutional States In Development	V21
Problems With Sight	V41.0–V41.1
Problems With Hearing	V41.2–V41.3
Elective Surgery for Purposes Other Than Remediating Health States	V50, V51
Fitting and Adjustment of Hearing Aid	V53.2
Fitting and Adjustment of Cardiac Pacemaker	V53.3
Radiotherapy Session	V58.0
Maintenance Chemotherapy	V58.1
Housing, Household, and Economic Circumstances	V60.0–V60.2
Other Family Circumstances	V61
Unemployment	V62.0
Observation For Suspected Malignant Neoplasm	V71.1
Special Screening For Malignant Neoplasms	V76
Other Factors Influencing Health Status and Contact With Health Services	V01–V09, V12–V15, V17–V19, V25–V26, V28, V41.4–V41.9, V42–V49, V52, V53.0–V53.1, V53.4–V53.9, V54–V57, V58.2–V58.9, V59, V60.3–V60.9, V62.1–V62.9, V63–V70, V71.0, V71.2–V71.9, V72–V75, V77–V82
<i>Morphology Of Neoplasms (M Codes)</i>	M8000–M9970

expert panel that performed the reclassification and helped draft the manuscript. S. Devji helped in the design of the study and in drafting the manuscript. M. McBride helped design the study, is the primary investigator of the CAYACS project which helped fund this study, and helped draft the manuscript. K. Goddard helped to conceive the study, participated in the design, was on the expert panel that performed

the reclassification, and helped draft the manuscript. All authors read and approved the final manuscript.

Acknowledgments

This project was jointly funded by the Canadian Institutes of Health Research (#MOP49563) and the Canadian Cancer

Society (PPG#016001) as part of their support of the CAYACS Research Program (Childhood, Adolescent, Young Adult Cancer Survivorship Program).

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