Supplementary Online Content

Dieleman JL, Cao J, Chapin A, et al. US health care spending by payer and health condition, 1996-2016. *JAMA*. doi:10.1001/jama.2020.0734

Table of Contents

1. Disease Expenditure project framework

Overview

The objective of this study is to comprehensively and rigorously measure health care spending in the United States using granular, policy-relevant and clinically-useful categories, including by payer. This project is part of the Disease Expenditure (DEX) project. For this study, we produced annual estimates for health spending from 1996 through 2016. These comprehensive estimates match the official US government estimates of US health spending as reported in the National Health Expenditure Accounts (NHEA).[1] Spending estimates were produced to reflect actual spending on health, also known as expenditure or payments, rather than charges made by medical providers. In many cases, charges are not paid in full and tracking these would be an overestimate of the resources actually spent on health care.[2–4] Spending estimates were adjusted for inflation using the economy-wide consumer price index (CPI) from the Bureau of Economic Analysis and were reported as 2016 dollars.[5]

Appendix structure

In Section 1, we provide an overview of this project's research strategy and its guiding frameworks. In Section 2, we provide more information about these data and how they were extracted and processed. In Section 3, we describe the steps necessary for assigning health conditions (also referred to as "causes," as in causes of health care spending) to each health care encounter, including adjustments needed to address data limitations. In Sections 4 and 5, we present the statistical models used when necessary to fill in missing data, combine data sources, and/or adjust the data for known biases. In Section 6, we outline how the population-weighted spending estimates derived from these encounter-level data were scaled to reflect the NHEA for each year and by type of care. In Section 7, we describe how we disaggregate spending estimates by payer. In Section 8, we summarize our process for measuring uncertainty. In Sections 9 and 10, we provide detailed tables of all causes used for the DEX project and how they relate to international classification of diseases (ICD) codes. In Section 11, we provide a high-level overview of how these results compare to prior DEX published estimates. In Section 12, we provide an extended view of our main results by all DEX causes.

Frameworks for DEX research strategy and approach

The overarching research strategy for DEX is to use microdata to inform spending and volume of care estimates at the most granular level possible. Microdata consisted of administrative records, insurance claims, or household surveys that reported health spending by cause of illness or reason for the health care event, type of good or service, along with necessary demographic information. These sources provided data at the patient, encounter, or claim level. In most cases, spending and volume estimates were disaggregated into age-, sex-, cause -, type of care-, and year-specific categories. Because data generally focuses on a single type of care (but spans age and sex groups, health conditions, and years), the analysis steps are generally distinct for each type of care. Because spending varies dramatically across different health conditions as needed sexes the analyses are independent at these levels. Generally, we used nonlinear methods draw strength across time and age.

A simplified model of the core steps in the DEX process is illustrated in Figure 1.1.

Figure 1.1: Simplified framework for DEX process to produce health expenditure estimates
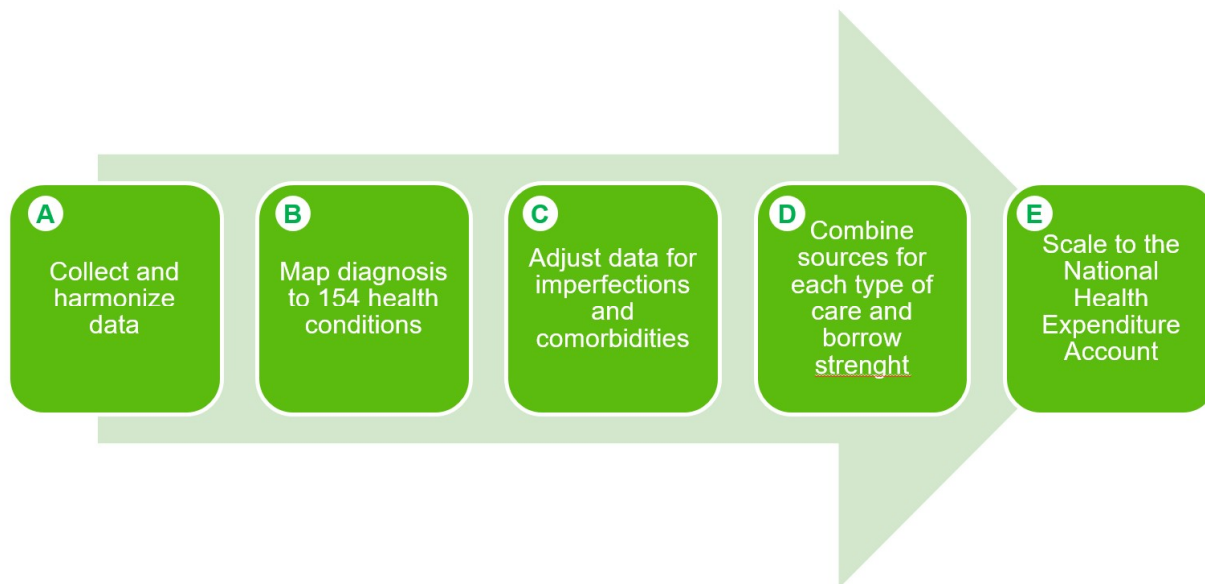
Estimation took place at two distinct levels. One level, is the encounter level, such that each observations is an individual's encounter with the health system. That could be an ambulatory care, dental, emergency department visit, an inpatient or nursing care facility admission, or a prescription. The second level of analysis aggregates encounters for a single age and sex group, single health condition, single year, single payer, and single type of care to estimate the total spending with those characteristics, taking into consideration patient weights to ensure the estimate is nationally representative. Steps (A) and (B) Figure 1.1 were conducted at the encounter level, while (D) and (E) were conducted such that the encounters were aggregated into age-, sex-, health condition-, type of care- and year-specific entities. We also report at the more aggregated level. Step (C) generally involved estimating distribution keys or probability maps based on encounter level data, and which was generally applied to aggregated data, for each age, sex, health condition, type of care, year, and payer.

To provide a comprehensive yet granular set of health spending estimates, health spending was split into categories defined by simultaneously applying four distinct frameworks. These four frameworks reflect demography, epidemiology, the type of good or service provided, and the responsible payer.

1. **Demography:** Health spending and volume of goods and services were estimated for **both sexes** and for **19 age groups**, 0, 1–4, 5–9, 10–14...80–84, and 85+.

2. **Epidemiology:** Health spending and volume of goods and services were estimated for **154 causes**. The cause list for this project was based on the Global Burden of Disease Study 2017 (GBD 2017).[6] GBD 2017 classified causes of health loss at five different levels of disaggregation. For this study, we extracted the Level III classification from GBD 2017. This resulted in a list of 140 causes based on GBD alone. An additional 14 causes were added to the DEX project to account for four risk factors and 10 health conditions associated with spending, even if not

3

accounted for by the burden-focused GBD project. Specifically, four risk factors for other underlying health causes were added since there is substantial spending due to the following risk factors, which influence many individual "causes" of illness: hypertension, hyperlipidemia, obesity, and tobacco cessation. In addition to these, 10 causes were added that were not associated with health loss (and are therefore not considered by GBD) but were associated with health spending. Examples of these 10 additional causes were routine health check-ups and uncomplicated labor and delivery. Within this group, we included three impairments that are important for tracking health spending. These impairments – heart failure, septicemia, and renal failure – are not underlying "causes" of health loss, but rather consequences of other underlying causes. Spending on these "causes" was tracked because they represent large portions of health spending and are of political interest. A description and full list of the 154 tracked "causes" and how they map to the International Classification of Disease 9th revision (ICD9) for years 1996–2015 and then to the ICD 10th revision (ICD10) for year 2016 are provided in Section 3. A detailed list and map of all causes is in Section 8.

3. **Types of goods or services:** Health care spending and volume of goods and services were estimated for **seven types of goods and services**: ambulatory care, inpatient care, emergency department care, long-term care, dental care, prescribed retail pharmaceuticals, general administration, and other. Definitions for these types of goods and services were designed to reflect the National Health Accounts (NHA) framework, which provides a taxonomy of categories (which some researchers refer to as "functions") that permit international comparisons of how health care dollars are spent.[7] The US subscribes to the NHEA framework[8], which has a slightly different taxonomy from the NHA. For disaggregating by type of goods or services, we use the NHA framework because its taxonomy more clearly matches the types of goods or services we are interested in tracking.

   - *Ambulatory care*: Ambulatory care included preventive, curative, and rehabilitative medical and psychiatric services, procedures, and medications provided in ambulatory care settings including physician's offices, freestanding clinics and hospital outpatient departments. Emergency room visits and dental visits were excluded from ambulatory care. For ambulatory care, volume was measured as the number of visits.

   - *Inpatient care*: Inpatient care included all spending in an inpatient hospital facility, whether preventive, curative, or rehabilitative, and included all medical goods, whether pharmaceuticals, diagnostics or devices, consumed by inpatients, regardless of their length of stay. For inpatient care, volume was measured as the number of days spent inpatient.

   - *Emergency department care*: Emergency department (ED) care included curative and rehabilitative medical and psychiatric care provided at hospital-based emergency departments. We leveraged the Nationwide Emergency Department Sample (NEDS), the largest all-payer emergency department database that allows for national estimates of hospital-based ED visits, to capture both volume – measured as the total number of ED

4

encounters – and spending. Emergency department care is not a distinct category in the NHEA. As a result, we leveraged the Medical Expenditure Panel Survey (MEPS) to parse out spending dollars from the NHEA categories of "physician" and "hospital" fractions to attribute to our emergency department care category. See Section 5 for more details.

- *Nursing facility care*: Nursing facility care included nursing care provided in nursing homes or other residential institutions. Home-based care and palliative or hospice care provided in inpatient settings were excluded. For nursing facility care, volume was measured as the number of days spent in a nursing facility.

- *Dental care*: Dental care included preventive and curative health care at a dental facility. For dental care, volume was measured as the number of visits to a dental facility.

- *Prescribed retail pharmaceuticals:* Prescribed retail pharmaceuticals (pharma) included all prescription medicines purchased in a retail pharmacy setting. This category excluded any medications consumed in inpatient, ambulatory, long-term, and emergency settings during a visit. It also excluded over-the-counter (non-prescribed) medications and therapeutic devices. For prescribed retail pharmaceutical, volume was measured as the number of prescriptions filled. The cause of illness was captured by the diagnoses reported by an individual who held the prescription, not by an Anatomical Therapeutic Chemical (ATC) classification system or medication code. An adjustment was made to this category to account for specialty drugs, which may be used infrequently but are expensive.

- *General administration and net cost of insurance:* Administrative costs (such as health system governance costs and administrative costs borne by public and private insurance companies) were disaggregated by age, sex, year, and cause. There were no out-of-pocket costs associated with general administration. Given the nature of this category, volume was not measured.

- *Other:* Other types of goods and services included all over-the-counter (non-prescribed) pharmaceuticals, other retail medical durables (such as eye glasses and hearing aids), and non-medical retail durables (such as bandages). This category was not disaggregated by age, sex, or cause. Volume was not measured for this category.

Payer: Payments were made by either public insurance, private insurance, or out-of-pocket (OOP). Public insurance included payments made by the government through programs such as Medicare and Medicaid; private insurance included those handled by private insurance companies, such as those provided by employers, and includes spending on insurance premiums; and OOP payments were those paid by the patients themselves. These three payer groups were mutually exclusive and collectively exhaustive. For five of the seven types of care (inpatient, outpatient, ambulatory, dental, and emergency), data used for splitting spending by payer category was from the MEPS data sets. For nursing facility care, data from the Medicare Current Beneficiaries Survey (MCBS) was used to split spending across the three payer categories.

5

2.   Data

Overview

This section of the appendix describes the data sources used for this study and highlights methods used for the extraction and processing of each data source. Many of these methods are specific to an individual data source, as they deal with extracting data and making it comparable to data from other sources. In addition, this section also summarizes the standard adjustments that are applied to each data source. These adjustments are explained in greater detail within Sections 3–5.

Table 2.1 summarizes the primary data sources used for both macro- and micro-spending and volume estimates by year. In Table 2.2, we provide additional detail regarding each data source, including total number of observations. The following text provides additional information regarding how these primary data sources were processed and adjusted. In particular, we applied several adjustments to these data for the purposes of refining estimates provided through the DEX project across each type of good and service of interest. These adjustments are outlined in Table 2.3 and described in detail in Sections 3–5.

- The **National Health Expenditure Accounts (NHEA)** is a primary data source used to provide macro-estimates of annual health spending. Produced annually by the Office of the Actuary at the US Centers for Medicare and Medicaid Services (CMS), the NHEA comprises official estimates of total health care spending in the US, dating back to 1960.[1] In addition to reporting total health spending, the NHEA reports US health spending by type of good or service, source of funding, and type of sponsor. Additionally, the NHEA "measures annual US expenditure for health care goods and services, public health activities, government administration, the net cost of health insurance, and investment related to health care."[9] This study focused on generating annual spending and volume estimates that could be scaled to reflect these type-specific spending totals. Scaling to NHEA totals was necessary because no single source of microdata fully captured the NHEA type-specific envelope, due to incomplete sampling frames and biases associated with small samples. This study assumes that the portion of NHEA directly accounted for in the microdata is proportional to the portion of NHEA not accounted for in the microdata, unless otherwise adjusted. These NHEA data were provided through the National Health Expenditures tables and extracted from the CMS website.[9]

- The **Medical Expenditure Panel Survey (MEPS)** was a primary microdata source used to estimate the distribution of annual health spending across age, sex, and disease groups.[10] MEPS is produced by the US Agency for Health care Research and Quality (AHRQ), and provides data on the frequency of health services, health status and conditions, payments, and methods of payment for health services. MEPS draws from an annual survey sample of between 21,000 and 37,000 non-institutionalized civilians. Survey weights included in the data were used throughout this study to make MEPS estimates nationally representative. For each health system encounter, MEPS reports information on both payments and causes of health system encounter based on

the International Classification of Disease 9th and 10th revisions (ICD9 and ICD10). All data up to and including the year 2015 are in ICD9, while 2016 data are in ICD10. MEPS is already disaggregated into types of goods and services, which generally correspond closely to the types of services noted in the NHEA. An important caveat of MEPS data is that AHRQ truncates the ICD codes – which are normally four to five digits long – to include only the first three digits to protect patient confidentiality. To address this truncation issue, we assigned four- or five-digit codes to the three-digit codes probabilistically for patient-level data and proportionally for aggregated data. Probabilities for this re-assignment were generated from data sources that include four- and five-digit codes. This "detruncation adjustment" process is further described in Section 3.

- **Substance Abuse and Mental Health Services Administrative (SAMHSA)** data provide estimates on health spending in mental health and substance abuse specialty clinics. Estimates for spending in these settings are often not included in other data sources, and it is important to account for this to accurately capture spending on certain causes. Data were extracted from the National Expenditure for Mental Health Services & Substance Abuse Treatment: 1986–2009, and from the Projections of National Expenditure for Mental Health Services and Substance Abuse Treatment: 2004–2014. These data were used to adjust the microdata when scaling to the NHEA totals.[11,12] Section five provides more details on how these data were used.

- The Truven Health **MarketScan©** Commercial Claims and Encounters Database provides claim-level health care information on more than 53 million commercially insured enrollees. These data were combined with the Truven Medicare Supplemental and Coordination of Benefits Database, which covers more than 4 million Medicare-eligible retirees with employer-sponsored supplemental plans in 2012. These data were used to create health system encounter profiles by age, sex, type, and cause. These profiles then served as Bayesian priors for volume and spending estimates. More details about this process can be found in Section 4.

- The **National Ambulatory Medical Care Survey (NAMCS)** is an annual survey conducted by the US Center for Disease Control and Prevention (CDC) to collect data on the utilization and provision of outpatient services. These data are collected from physicians who primarily engage in direct patient care. NAMCS covers 69,000 patients per year. These data inform age, sex, type, and cause estimates. Causes are reported using five-digit ICD9 codes. Since NAMCS does not include information on costs or spending, it was used only to inform volume estimates. Survey weights were used to make estimates nationally representative.

- The **National Inpatient Sample (NIS)** is also produced by AHRQ through its Health care Cost Utilization Project (HCUP). The NIS is the largest publicly available all-payer inpatient health care database with nationally representative US spending estimates. The NIS covers six to eight million inpatient hospital stays per year, and includes information on age, sex, cause, days spent hospitalized, and charges. Causes are reported using five-digit ICD9 codes for years 1996 through the first three quarters of 2015 (Q1-Q3) and then ICD10 is provided for the fourth

7

quarter of 2015 (Q4) and 2016 data. We provide more information about how payments were estimated based on reported charges in the NIS in Section 5.

- The **Nationwide Emergency Department Sample (NEDS)** is also produced by AHRQ HCUP and is the largest publicly available all-payer emergency department database in the US. The NEDS database started in 2006 and samples encounters collected through the State Inpatient Databases (SID) and State Emergency Department Databases (SEDD). Collectively, NEDS serves as a representative sample of hospital-based emergency department visits in the US. For 2016, the NEDS sample consists of an unweighted 31 million encounters. For each NEDS encounter, we captured information on age, sex, cause, and disposition (e.g., if the patient was treated and released from the ED or was admitted to the hospital). Importantly, it includes an ED charge for every encounter, regardless of disposition. It also includes an overall hospitalization charge, inclusive of the ED, for those patients who are admitted to the hospital through the ED. Similar to NIS, causes are reported using five-digit ICD9 codes for years 2006 through the first three quarters of 2015 (Q1-Q3) and then ICD10 for the fourth quarter of 2015 (Q4) and all of 2016. Of note, the estimates for ED rely on a 50% sample of NEDS given the large nature of the dataset and extensive processing required for cause assignments. We included every encounter on odd rows and excluded those on even rows.

- CMS provides data with information about Medicare beneficiaries, Medicaid eligibility, **Medicare claims**, Medicare providers, and clinical data. Any identifiable information regarding the beneficiary is removed from these data. Data on beneficiaries and claims for health care at skilled nursing facilities were obtained from this database. Data on payments and causes of illness, reported using five-digit ICD9 codes, were used only for beneficiaries 65 years and older. These data include between two and four million claims per year.

- The **National Nursing Home Survey (NNHS)** was used to supplement information from Medicare and Medicaid claims in skilled nursing facilities. While the Medicare and Medicaid claims only provide information on patients with public funding in skilled nursing facilities, the NNHS provides information on patients regardless of payer in both skilled and unskilled nursing facilities. NNHS is nationally representative and provides information on payments and causes, which are reported using five-digit ICD9 codes. Data were provided for between 20,000 and 36,000 current long-term care residents per year.

- The **Medicaid Analytic eXtract (MAX)** data were used in our analysis along with the NNHS to form a complete picture of nursing care, including both long-term and short-term nursing care. MAX includes both claims and enrollment data. These data are collected by the federal government from each state's Medicaid agency and converted into a single national standard format. These data have been aggregated to match our list of 154 conditions, and spending and volume has been averaged across comorbidities.

- The **Medicare Current Beneficiary Survey (MCBS)** was used to supplement information from Medicare and Medicaid claims in skilled nursing facilities and from the NNHS. The MCBS is a nationally representative sample of those on Medicare, including spending and volume in

8

nursing homes. The MCBS includes not only nursing care spending covered by Medicare, but also supplemental insurance and out-of-pocket spending. MCBS was received in an aggregated form from the Bureau of Economic Analysis. These spending and volume estimates were stratified by age, year, sex, and cause.

- For **pharmaceuticals**, we primarily relied on the aforementioned MEPS dataset. However, we also accounted for **specialty drugs** by relying on a dataset provided by the consulting firm IQVIA. This dataset with information from 2010 to 2018 tracks net spending after discounts and rebates.

Table 2.1: List of primary data sources

Type of care	Macro spending data and years	Micro spending data and years	Micro volume data and years
Ambulatory	NHEA (1996 – 2016)	MEPS (1996 – 2016; SAMHSA (1998, 2002, 2004, 2005, 2009); MarketScan (2000, 2010 – 2015)	NAMCS (1996 – 2015); MarketScan (2000, 2010 - 2015)
Inpatient	NHEA (1996 – 2016)	NIS (1996 – 2016); MEPS (1996 – 2016), SAMHSA (1998, 2002, 2004, 2005, 2009); MarketScan (2000, 2010 - 2015)	NIS (1996 – 2016); MarketScan (2000, 2010 - 2015)
Emergency department	NHEA (1996 – 2016)	NEDS (2006 – 2013; 2015-2016) MEPS (1996 – 2016);	NEDS (2006 – 2013; 2015-2016) MarketScan (2000, 2010-2015)
Nursing care	NHEA (1996 – 2016)	Medicare claims data (1999 – 2002, 2004, 2006, 2008, 2010, 2012, 2014, 2016); NNHS (1997, 1999, 2004); Medicaid (2000-2005, 2008, 2011, 2013); MarketScan (2000, 2010 - 2015); MCBS (1999 - 2012)	Medicare claims data (1999 – 2002, 2004, 2006, 2008, 2010, 2012, 2014, 2016); NNHS (1997, 1999, 2004); Medicaid (2000-2005, 2008, 2011, 2013); MarketScan (2000, 2010 - 2015);
Dental	NHEA (1996 – 2016)	MEPS (1996 – 2016)	MEPS (1996 – 2016)
Prescribed retail pharmaceuticals	NHEA (1996 – 2016)	MEPS (1996 – 2016) MarketScan (2000, 2010 - 2015)	MEPS (1996 – 2016)
Specialty drugs	NHEA (1996 – 2016)	IQVIA specialty drug list (2010-2018)	IQVIA specialty drug list (2010-2018)

Table 2.2: Primary data source details

	Years	Observations	Metric	Patient-weighted value
Ambulatory care				
MEPS	1996-2016	3,216,325	Spending ($US billions)	385
			Visits (thousands)	1,661,834
NAMCS/NHAMCS	1996-2015	1,161,203	Visits (thousands)	977,112
MarketScan	2000, 2010-2015	5,319,429,924	Treated prevalence	NA
Inpatient care				
NIS	1996-2016	163,834,026	Spending ($US billions)	1,048
			Bed days (thousands)	166,489
MEPS	1996-2016	61,222	Spending ($US billions)	372
			Bed days (thousands)	153,765
MarketScan	2000, 2010-2015	414,768,028	Treated prevalence	NA
Emergency department care				
NEDS	2006-2013, 2015-2016	145,414,874	Spending ($US billions)	251.8223
			Visits (thousands)	131341.7
MEPS	1996-2016	108,797	Spending ($US billions)	40
			Visits (thousands)	47,573
MarketScan	2000, 2010-2015	166,476,011	Treated Prevalence	NA
Nursing facility care				
CMS	1996-2002; 2004, 2006, 2008, 2010, 2012, 2014, 2016	28,236,275	Spending ($US billions)	36
			Bed days (thousands)	65,242
NNHS	1997, 1999, 2004	23,428	Spending ($US billions)	69
			Bed days (thousands)	403,564
MarketScan	2000, 2010-2015	8,071,829	Treated prevalence NA	
Medicaid	2000-2005, 2008, 2011, 2013	18,476	Spending ($US billions)	30
MCBS	1999-2012	17,597	Spending ($US billions)	969
Dental care				
MEPS	1996-2016	561,036	Spending ($US billions)	73
			Visits (thousands)	298,512
Prescribed retail pharmaceutical				
MEPS	1996-2016	5,861,651	Spending ($US billions)	245
			Visits (thousands)	2,836,265
MarketScan	2000, 2010-2015	49,785	Spending on specialty drugs ($US billions)	7

Table 2.3: Application of DEX project adjustments by type of good and service

	Type of good and service					
	Ambulatory	**Inpatient**	**Emergency department**	**Nursing care**	**Dental**	**Prescribed retail pharmaceuticals**
Detruncation (ICD 3-digit to 5-digit) adjustment. *See more detail in Section 3.*	Spending and volume	Spending and volume	Spending and volume	Spending and volume		Spending and volume
Injury (N to E code) adjustment *See more detail in Section 3.*	Spending and volume	Spending and volume	Spending and volume	Spending and volume		Spending and volume
Charge to payment adjustment *See more detail in Section 4.*		Spending	Spending			
Facility to total payment adjustment *See more detail in Section 4.*		Spending	Spending			
Physician to total adjustment *See more detail in Section 4.*	Volume					
Smoothing adjustment *See more detail in Section 5.*	Spending and volume	Spending and volume	Spending and volume	Spending and volume	Spending and volume	Spending and volume
Comorbidity adjustment *See more detail in Section 5.*	Spending	Spending	Spending	Spending		
Mental health adjustment *See more detail in Section 5.*	Spending and volume	Spending and volume				
Specialty drugs adjustment *See more detail in Section 5.*						Spending
Emergency room adjustment *See more detail in Section 5.*		Spending	Spending			

3. Assigning conditions

Overview

The DEX project aims to assign DEX health conditions (i.e., causes of health care spending) to each encounter across these various data sets. In order to complete this complex task, we use ICD information (either ICD9 or ICD10 codes depending on the source-year of the data set) to link each encounter to one of the 154 DEX health conditions. We summarize the key steps below for assigning DEX conditions to each encounter, first by addressing data deficiencies through probabilistic reassignment and second by explaining the condition mapping process, which includes a process we refer to as "redistribution."

Probabilistic reassignment for data deficiencies

In the course of data processing, DEX uses probabilistic reassignment to correct for deficiencies in the data. Data are reassigned at this stage for three purposes in the broader DEX process: completing truncated codes, injury adjustment, and adjusting "not elsewhere classified" codes.

For each of the following steps, probabilistic reassignment works by pairing an encounter row that needs adjustment with data containing information that can make the adjustment by age, sex, year, and draw. This can be done within datasets (NIS, for example, is used to detruncate and injury adjust itself) or by using data from one source to inform another (MEPS AM depends on NAMCS AM for detruncation). Where there are multiple valid replacements in the reassignment process, weights are calculated from the bootstrapping process such that higher expenditure codes are given priority (with the exception of NAMCS AM, which does not have expenditure data and thus uses volume in its place). Expenditure information is summed by year, age, sex, draw, and ICD code (detruncation) or DEX cause (injury adjustment and NEC adjustment) and weights are computed as a ratio of the total year/age/sex/draw/cause-specific spending represented by each target. The weights are normalized such that each target represents a proportion of the range between 0 and 1. A random float between 0 and 1 is generated and whichever code or cause's range that value falls into is selected and assigned to the encounter. As this is done separately for each bootstrapped draw, across all 1,000 draws this process is equivalent to mapping the spending probabilistically.

Completing truncated codes

As noted in the prior section, an important caveat of MEPS data is that AHRQ truncates the ICD codes – which are normally four to five digits long – to include only the first three digits to protect patient confidentiality. To improve the specificity of the assigned condition by addressing this truncation issue, we assigned four- or five-digit codes to the three-digit codes probabilistically for patient-level data and proportionally for aggregated data. Probabilities for this re-assignment were generated from data sources that include four- and five-digit codes. For example, the ICD9 code 054 (herpes simplex)

13

corresponds to DEX cause infectious, but the more specific code 0541 (genital herpes) corresponds to DEX cause "sexually transmitted diseases".

Injury adjustment

There are two categories of injury codes in the ICD system. One category corresponds to the nature of the injury (e.g., 861, injury to heart and lung), which we refer to as "N" codes, while the other explains the external cause of the injury (e.g., E804, fall in, on, or from railway train), which we refer to as "E" codes. When a given encounter has both a nature and external cause code, DEX uses the external cause, as that provides information that is useful to policymakers and public health practitioners looking to reduce death and disability. For encounters where there is no external cause code, an external cause code is probabilistically assigned to the encounter.

Not elsewhere classified adjustment

Some causes within the ICD hierarchy are listed as 'not elsewhere classified' (NEC). These causes act as a miscellaneous category within a larger set of diseases. When an NEC cause appears, DEX probabilistically reassigns it to a non-NEC cause within the same set of diseases. For example, ICD code 165 (malignant neoplasm of other and ill-defined sites within the respiratory system and intrathoracic organs) would be reassigned to another cause starting with 16, such as 161 (malignant neoplasm of larynx) or 162 (malignant neoplasm of trachea bronchus and lung).

Condition mapping

The ICD-DEX condition assignments are based upon the ICD-GBD condition map, with some important differences which we outline below. In assigning a DEX health condition to each ICD code, noise may be created in the process, such as due to implausible ICD codes, which may be due to clerical error, or ICD codes that do not fit squarely within a DEX health condition. In those instances, ICD codes may be mapped as a "garbage code," otherwise known as an encounter in which we are unable to attribute one of the 154 DEX health conditions. We do not drop those "garbage codes," as this could bias our results. This would occur, for example, in the plausible case that certain ICD codes that mapped to "garbage codes" were systematically different from those that mapped to non-garbage codes. Therefore, we employ a distribution process to reallocate the spending and volume associated with "garbage codes" to DEX health conditions. The distribution of specific "garbage codes" and their proportional allocation to specific non-garbage codes were borrowed from the GBD process, which is based on results from regressions and expert priors. Additional information regarding this method is described elsewhere.[13]

Differences between GBD and this DEX approach to condition assignment

The redistribution process as outlined below was adapted from a process developed through GBD. The essential difference between the redistribution process used for this DEX project and the GBD redistribution process is as follows: in GBD, redistribution is used for mortality purposes, whereas in this

14

study, redistribution is used for spending and volume purposes. The implication is that in this study, there are fewer ICD codes that are coded as garbage codes (which we describe in detail below). This is because while one may not be able to die from a cause (thus rendering that ICD code a garbage code for GBD), there can certainly be health spending associated with that same cause. To provide some concrete examples, while GBD does not estimate death due to acidosis (ICD9 code 276.2), leprosy (ICD9 code 30), or pain in or around eye (ICD9 code 379.91), each of these codes have associated spending that must be captured in the DEX estimates. The methodology in capturing and accounting for these differences is described below.

ICD code transition

As the microdata used to track health care encounters transitioned from the ICD9 to ICD10 coding version (in roughly 2015, depending on the data source), the DEX project required a separate ICD9-DEX cause map and ICD10-DEX cause map. Additionally, because the redistribution process reassigns volume and expenditure at the ICD level, redistribution of ICD codes happened by ICD version. The separate redistribution processes for ICD9 and ICD10 were both borrowed from GBD's redistribution framework.[14] The underlying engineering pipeline remains the same regardless of ICD code version; however, the specific codes being redistributed were either ICD9 codes or ICD10 codes depending on the source-year of the data set.

Deviations from GBD causes

There are a number of differences between GBD and this project that further affect the mapping between ICD codes and causes. One major distinction is that since this project measures health care spending, well-care and prevention causes are included. Another difference is that GBD reports to four level of granularity, whereas this project uses three levels of granularity. Thus, for each ICD code that was coded to the fourth GBD level of granularity, the applicable third level granularity cause was assigned. Additionally, GBD operates under a cause list set and a risk factor list set, which are largely separate processes and use different estimation methodologies. In this project, risk factors are included in our overall analyses. Specific and additional adjustments are described in Table 3.1 below.

Table 3.1: Methods for incorporating causes additional to those in the GBD

Code type	Method
Additional risk factors (hypertension, hyperlipidemia, obesity, and tobacco use)	Promoted to non-garbage status in existing packages. Removed from package garbage lists and allowed in package target lists.
Renal failure, septicemia, and heart failure	Promoted to non-garbage status in existing packages. Removed from package garbage lists and allowed in package target lists,
Adverse effect of medical treatment ("medical injury codes")	"Medical injury codes" were considered "garbage codes" and handled as such in existing packages. Allowed in package garbage lists and removed from package target lists.
Well-care and prevention causes	Promoted to non-garbage status in existing packages. Removed from package garbage lists and allowed in package target lists.

Redistribution of garbage codes

In order to create estimates compatible with the cause framework of this DEX analysis, ICD codes must be mapped to a granular cause in a many-to-one relationship, i.e., many ICD codes can be mapped to a single cause, and each ICD code must be mapped to a specific cause. For this analysis, 21,189 unique ICD9 codes and 41,892 unique ICD10 codes were mapped to each of the 154 DEX level 3 causes (or to garbage codes if no cause could be assigned). Once each ICD code is mapped to a single cause, these causes and their associated expenditure can then be processed and aggregated appropriately to produce estimates.

In many cases, an ICD code does not fit squarely into a single cause, or may present biologically implausible data, that then represent ill-defined or "garbage" causes. As examples, the following codes are classified as garbage codes: (1) young children who are coded as having Alzheimer's disease, (2) "disorders of fluid electrolyte and acid-base" (ICD9 code 276), (3) "nonspecific findings on examination of urine" (ICD9 code 79099), and (4) ICD codes that do not exist but are included in the dataset due to clerical or other errors. The table below details how many of the data map to garbage causes after the initial formatting and mapping processes.

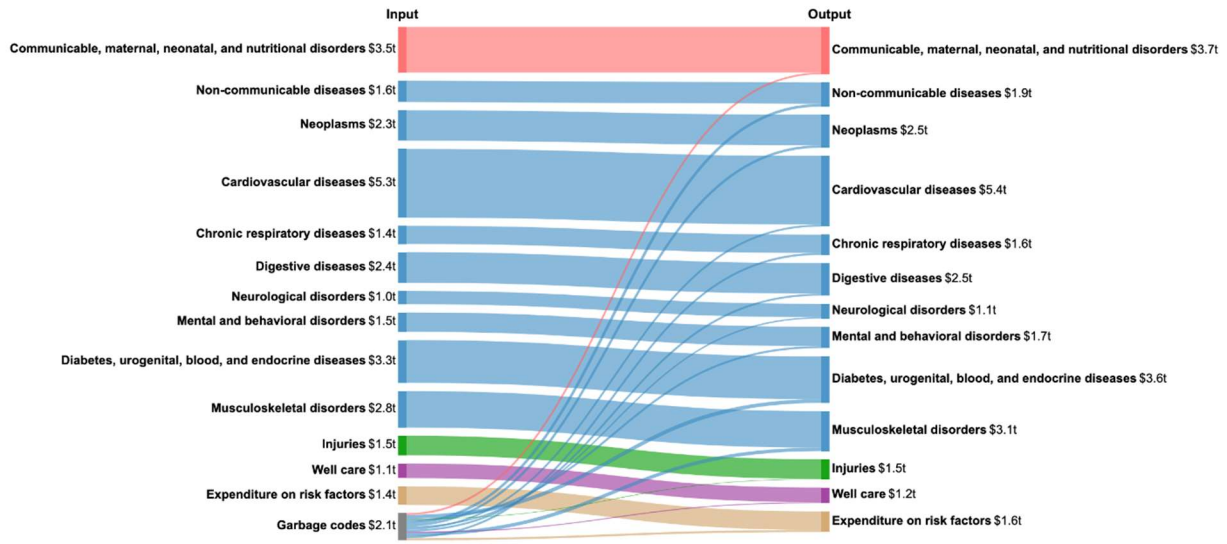**Table 3.2: Percent garbage in spending and volume by type of care**

Service type	ICD9 Percent garbage spending	ICD9 Percent garbage volume	ICD10 Percent garbage spending	ICD10 Percent garbage volume
Ambulatory	22.00	6.84	27.77	N/A
Inpatient	0.28	0.19	0.39	0.44
Emergency	4.96	4.53	5.37	4.98
Prescribed pharmaceutical	11.24	10.82	12.53	16.96
Nursing care	1.80	1.42	0.88	0.88
Dental	0.00	0.00	0.00	0.00

Redistribution

The methodology in determining these garbage-to-target proportions is based on GBD analyses. This prior work describes how the spending associated with a garbage code is redistributed to spending associated with target codes and which target codes to redistribute on. These proportions are either created proportionally based on the relationship between garbage and non-garbage data or are the regression output. These guidelines were borrowed from GBD as-is, and then re-engineered to be applicable to this project. The key conditions are (1) all garbage codes needed to be included in the garbage codes in the guidelines, and (2) garbage codes could not be a target code for the final set of guidelines. The two conditions above ensured that the output of RDP contained no expenditure or volume attributable to garbage codes. Additionally, the redistribution guidelines were created to be source-specific to ensure that no ICD codes that were not in the source-specific input data appeared in the source-specific output data. To achieve this, ICD codes that appeared in the source-specific input data set were allowed to be a target code in the source-specific guidelines.

Spending and volume data attributed to garbage codes were redistributed onto target causes by type of service, age, sex, and year according to proportions and restrictions designated in the redistribution packages.[14] After redistribution, the cause distribution of the entire dataset was shifted, with various non-garbage causes receiving more or less of the garbage. In Figure 3.1, we illustrate this shift.

17

Figure 3.1: Redistribution of garbage codes

Input	Output
Communicable, maternal, neonatal, and nutritional disorders $3.5t	Communicable, maternal, neonatal, and nutritional disorders $3.7t
Non-communicable diseases $1.6t	Non-communicable diseases $1.9t
Neoplasms $2.3t	Neoplasms $2.5t
Cardiovascular diseases $5.3t	Cardiovascular diseases $5.4t
Chronic respiratory diseases $1.4t	Chronic respiratory diseases $1.6t
Digestive diseases $2.4t	Digestive diseases $2.5t
Neurological disorders $1.0t	Neurological disorders $1.1t
Mental and behavioral disorders $1.5t	Mental and behavioral disorders $1.7t
Diabetes, urogenital, blood, and endocrine diseases $3.3t	Diabetes, urogenital, blood, and endocrine diseases $3.6t
Musculoskeletal disorders $2.8t	Musculoskeletal disorders $3.1t
Injuries $1.5t	Injuries $1.5t
Well care $1.1t	Well care $1.2t
Expenditure on risk factors $1.4t	Expenditure on risk factors $1.6t
Garbage codes $2.1t	

Limitations

The proportions used in GBD for the redistribution packages were derived from mortality data. By using the GBD redistribution packages largely as-is for this study, it was assumed that the relationship between causes coded to garbage and non-garbage was similar for deaths and our metrics: health care spending and volume. This, however, may not be a valid assumption, as entities responsible for cause coding are different for health care than for mortality, and may have varied coding practices that affect the correspondence between garbage coding and the underlying non-garbage diagnoses. These limitations were partially addressed by the alterations described above.

18

4.   Addressing data gaps and limitations

Overview

Though a strength of this project is that it relies on a wealth of data sources across numerous years, there are important limitations that must be addressed by using such diverse data with variable inputs. A systematic model of the relationship between spending, volume, and price data was used to address issues of incompleteness and irregularity in the data, fill in missing data (including years where no microdata exists), and leverage multiple datasets to produce the best possible spending estimates. Our approach to "smoothing" the data hinges on the following hierarchical equation

$$\textbf{Equation 4-1}: Expenditure = Volume * Price.$$

In the case of inpatient and nursing care facility data, this equation becomes

$$\textbf{Equation 4-2}: Expenditure = Volume * Price * Beddays.$$

In equations 4-1 and 4-2 expenditure is measured in millions of dollars. Volume is measured in admissions or visits. Price is derived from the expenditure and volume data, and is measured in expenditure units per volume units. Beddays is measured in average length of stay in inpatient care. We use a penalized cubic spline model to simultaneously estimate all three variables while preserving this fundamental identity.[15] Our model leverages data from across years, ages, and data sources, and produces credible spending estimates for each year, age, sex, condition, and type of care, with different sources of data for each equation. This means that this estimation was completed at the aggregated level, rather than encounter level (meaning the unit of analysis was spending for each age-, sex-, health condition-, type of care-, and year-combination) and leverages the best possible data for each variable, while also leveraging the relationships represented in equation 4-1 and 4-2 to estimate expenditure as precisely as possible.

The advantage to modeling expenditure (i.e. spending) as the product of volume of care and price of care using a hierarchical model is that different data sources and different assumptions about the covariates can be used for each of these three variables. This is particularly important when some high-quality data (such as NHAMCS and NAMCS) track volume, but not expenditure or price, or when data with relatively low sample size (such as MEPS) tracks average price relatively well, but can have outlier that push the counts (volume and expenditure). In addition, we believe that price is relatively flat over time, without sudden increases or decreases, and is relatively constant across ages, although, of course, does vary in important non-linear way. Volume of care also varies some over time, but varies dramatically across age. By using 2-demensional splines (capturing age and time), price and volume we estimated.

Data

Prices were generated by merging together spending and volume data by unique year, age, sex, condition, and type, and taking the quotient of expenditure and volume. The two components needed for this calculation were drawn from the same data source. For example, for our ambulatory estimates, we used expenditure data from MEPS and then NAMCS data for volume; however, when we wanted to use ambulatory price data for the model, we relied on MEPS for the volume data, as opposed to NAMCS as was used for the expenditure calculation (see Table 4.1). Prices calculated to be zero or infinity were set to missing. In the case of inpatient data, prices were calculated as the quotient of expenditure and beddays. For fitting the model, beddays were then replaced by the quotient of beddays and volume, effectively making it the average length of stay per admission. Another important element of the smoothing function is "Volume Profile," which stems from MarketScan data. Essentially, Volume Profile is the volume of encounters across age and time for each health condition, sex, age, and year. For years in which we did not have access to MarketScan data, the Volume Profile was projected backwards or forwards based on the volume per capita rates and population size (for each age, sex, and year).

Table 4.1: Data sources by smoothing function metric and type of care

	Ambulatory	Inpatient	Prescribed pharmaceutical	Nursing care	Dental	Emergency department
Expenditure	MEPS	NIS	MEPS, IQVIA (for specialty drug estimates)	CMS-SNF and NNHS and Medicaid	MEPS	NEDS
Volume	NAMCS	NIS	MEPS	CMS-SNF and NNHS and Medicaid	MEPS	NEDS
Price	MEPS	NIS	MEPS	CMS-SNF and NNHS and Medicaid	MEPS	NEDS
Beddays	-	NIS	-	-	-	-
Volume Profile	MarketScan	MarketScan	-	MarketScan	-	MarketScan

Once prices were generated (and beddays, if relevant), those data were merged together with volume and expenditure data and logical constraints were applied (See Table 4.2). This table illustrates possible combinations of expenditure, volume, price, and beddays data that arise once this merge is performed. In order to improve model quality. Table 4.2 displays the possible combinations of data, as well as how they are transformed to improve data quality.

Table 4.2: Enforced logical constraints

Before Changes:

Expenditure	Volume	Price	Beddays
+	+	+	Any
+	+	Missing	Any
+	0	+	Any
+	0	Missing	Any
+	Missing	+	Any
+	Missing	Missing	Any
0	+	0	Any
0	+	Missing	Any
0	0	0	Any
0	0	Missing	Any
0	Missing	0	Any
0	Missing	Missing	Any
Missing	Missing	Missing	Any
Missing	+	Missing	Any
Missing	0	Missing	Any

Change:

Leave values
Leave Missing
Replace with Missing
Replace with zero

Legend

+ is an observed value that is greater than zero.
0 is an observed value that is zero.
Missing means there is no observed value.

Next, the domain was extended to encompass all years and ages for which a fitted values were desired. For ages, this was condition-specific and determined by the same restrictions as previously outlined in this paper. In regard to years, the time period of interest was 1996–2016 (see exceptions below).

Once these adjustments had been made, outliers were detected among the volume and price data using median absolute deviation (MAD) as shown below, with a moving window (determining outliers based on a local subset of the data, not the entire dataset).

Equation 4-3: $MAD = median(|x_i - median(X)|)$ $\qquad Z_{modified} = 0.6745 * \frac{(x_i - median)}{MAD}$

In the case of prescribed pharmaceutical, outliers were not removed from the price data, as it was reasonable to expect sharp changes in prescription costs. The modified Z-score threshold for identifying an outlier was 10, inclusive, with a window size of 3.

Exceptions to 1996–2016 time horizon – missing years of data
We did not have complete data for the entire time horizon of interest (1996–2016) across all data sources. A number of data sources need extrapolation before the smoothing model was applied. The National Nursing Home Survey (NNHS) dataset, which was not modeled for any years other than those present in the data (1999, 2000, and 2004). For the case of specialty drugs, we only had data starting in 2010; we thus backcasted to the first year that the known drug entered the market (see Section 5.8 for

more details). Volume and spending data from the Skilled Nursing Facilities survey (CMS-SNF) were extended backward from the year 1999 by taking the observed expenditure, price, and volume data at 1999 for a specific age and sex and extending them for the data from 1996-1998. Volume and spending data from the Nationwide Emergency Department Sample (NEDS) backcasted for years 1996–2005 since the NEDS database did not begin until 2006. For this backcasting, the NEDS expenditure and volume data was regressed on the MEPS data on emergency department spending and volume – which exist across all years of the study– was used between years 1996–2005 to inform the model. This regression took place at the aggregated level for each age, sex, and health condition. For Medicaid data, these data were aggregated in age bins that were larger than desired, so we used US population data to split them into the standard age bins before filling in the missingness. Because there were only nine years of data (2000–2005, 2008, 2011, 2013), the 1996 and 2016 estimates were backcasted and forecasted first before running the smoothing model on the data.

Model overview

The model was fit using Adadelta Optimizer object with a staircase-decaying learning rate in the TensorFlow package (version 1.4) for Python (version 3.5).[16,17] The model was fit at the aggregate level, so each sex, health condition, type of care combination was run independently, and the units of analysis were age- and year-specific aggregates (for a specific sex, health condition and type of care).

Covariates

The backbone of the smoothing model are the penalized basis splines which measure across time and age. For the MEPS data, indicators for years before 2007 were used to mark changes in survey design. The volume model included these as well as indicators for zero- and 85-year-olds and treated prevalence data extracted from MarketScan. In the year dimension, 20 spline basis terms were used (except for CMS-SNF, where only 15 were used) and in the age dimension, 25 were used; in both cases, the splines were cubic and constructed via the Cox – De Boor algorithm.[14, 15] To simulate an interaction term, 2-dimensional splines were constructed by taking the outer products of all possible pairs of age and year splines.

As noted above, the fundamental constraint of the smoothing model is that

$$\textbf{Equation 4-4}: Exp = Volume * Price,$$

And in the case of inpatient data

$$\textbf{Equation 4-5}: Exp = Volume * Price * Beddays.$$

However, since we model in offset-log space to prevent negative estimates, the fitted equation is

$$\textbf{Equation 4-6}: \log(Exp + \varepsilon_{Exp}) = \log(Vol + \varepsilon_{Vol}) + \log(Price) + \log(Beddays).$$

No offset was used for price or beddays, as neither should be negative or zero values (as taken care of by the logical constraints).

The primary covariates for volume and price (each a "metric") was the 2-d panelized basis splines, such that each follow equation 4-7.

$$\text{Equation 4-7}: metric = \beta_0 s_0 + \sum_{\substack{1 \le a \le A \\ 1 \le y \le Y}} \beta_{a,y}\, s_{a,y}.$$

The $s_{a,y}$ are the 2-dimensional splines, $\beta_{a,y}$ are their corresponding coefficients, s_0 is the intercept, β_0 is the coefficient for the intercept, A is the number of age splines, and Y is the number of year splines.. In the case of a neonatal cause, for which only the 0-year-old age group is relevant, the process of creating 2-dimensional splines is foregone and the 20 year splines are used. The model for expenditure is then explicitly defined as the sum (since it is done in log-space) of the price and volume models (also the length-of-stay model in the case of inpatient data) to enforce the constraint.

The following indicator variables were included in the model:

$$i_{MEPS} = \begin{cases} 1, & year < 2007 \\ 0.5, & year = 2007 \\ 0, & year > 2007 \end{cases}$$

$$i_{85} = \begin{cases} 1, & age = 85, \\ 0, & else \end{cases}$$

$$i_0 = \begin{cases} 1, & age = 0, \\ 0, & else \end{cases}$$

Every variable, both for splines and indicator coefficients, is initialized from a random normal distribution given by:

$$\text{Equation 4-8}: \beta \sim N(0.0, 0.001)$$

with the exception of the treated prevalence, which is forced to be positive by applying the absolute value to the variable before adding it to the model.

For each type of care, health condition, sex, and metric (volume and price) there are two penalties used for the splines – one across age and one across time. These are computed based on the sparsity of the data, and a hand-tuned upper and lower bound. The specific penalties are each then calculated as a convex combination of the sparsity:

$$\text{Equation 4-9}: penalty = lower\ bound * (1 - sparsity) + upper\ bound * (sparsity).$$

Table 4.3: Penalty ranges by metric, covariate, and type of care

	Age			Year		
	Volume	Price	Beddays	Volume	Price	Beddays
Ambulatory	1.5 - 6.5	1.8 - 7.0	-	2.5 - 8.5	3.0 - 10.0	-
Inpatient	1.0 - 2.5	1.5 - 7.0	0.5 - 5.0	1.5 - 2.5	2.0 - 10.0	1.0 - 5.5
Prescribed pharmaceutical	1.5 - 6.5	1.8 - 7.0	-	2.5 - 10	3.0 - 10.0	-
Nursing Care (CMS)	1.0 - 5.5	2.0 - 5.5	-	1.5 - 6.5	2.5 - 7.0	-
Dental	0.2 - 2.5	0.2 - 3.0	-	0.5 - 2.7	0.28 - 3.5	-
Emergency department	1.5 - 8.5	1.8 - 7.0	-	2.5 - 10.0	3.0 - 10.0	-
NNHS	1.5 - 3.0	2.5 - 6.0	-	2.0 - 3.5	2.5 - 8.0	-
Medicaid	0.5 - 3.0	1.5 - 8.0	-	2.0 - 4.0	2.0 - 10.0	-

In Figures 4.1 through 4.5, we illustrate the results of applying the smoothing model across a number of populations, which demonstrate the function's performance across various disease and age groups.

Figure 4.1: Inpatient expenditure across time for 35-, 55-, and 75-year-olds

Diabetes in Males amongst 35 year olds

Diabetes in Males amongst 55 year olds

Diabetes in Males amongst 75 year olds
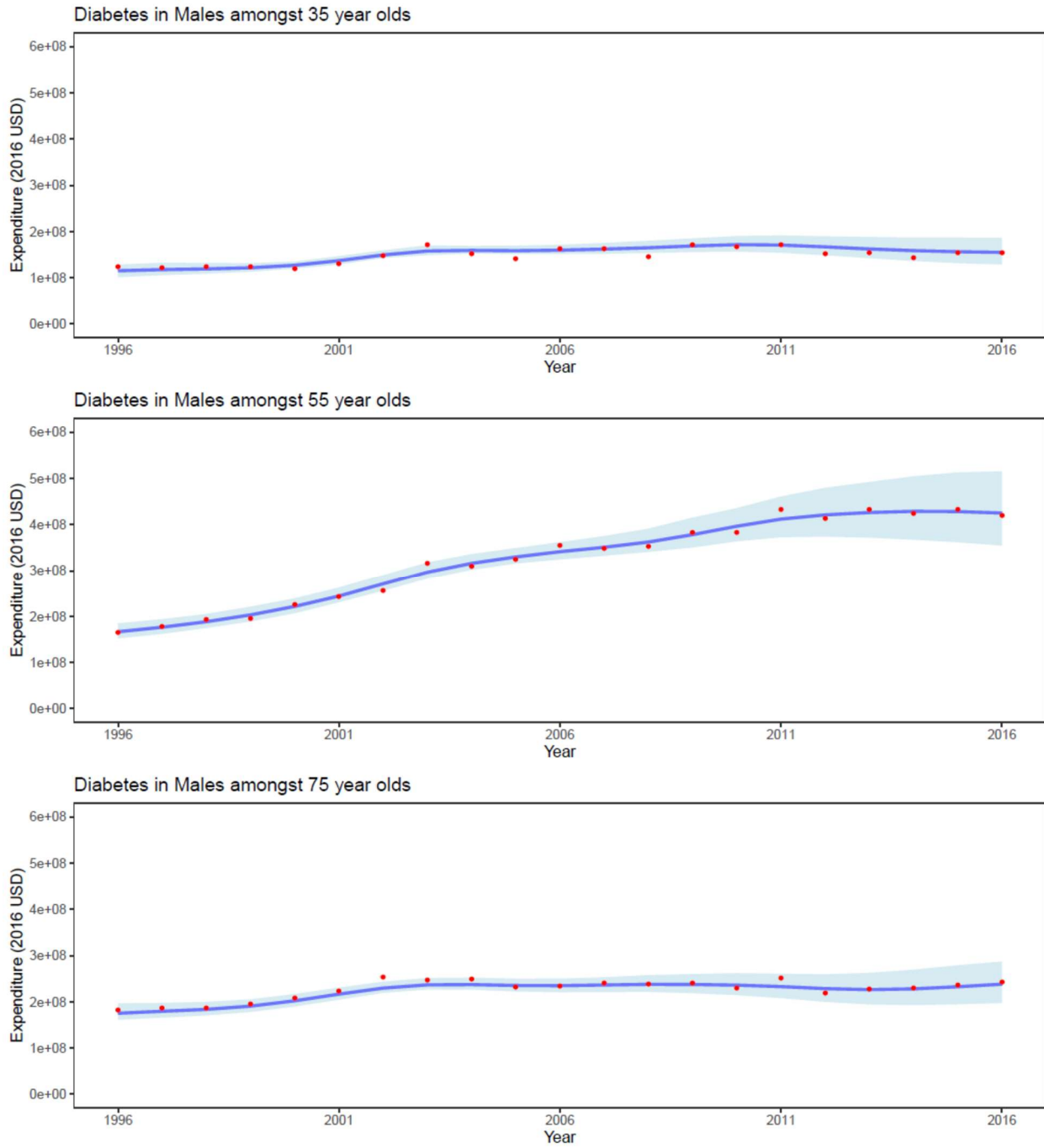
Figure 4.2: Inpatient expenditure across age

Diabetes in Males in 1998

Diabetes in Males in 2004

Diabetes in Males in 2012

26
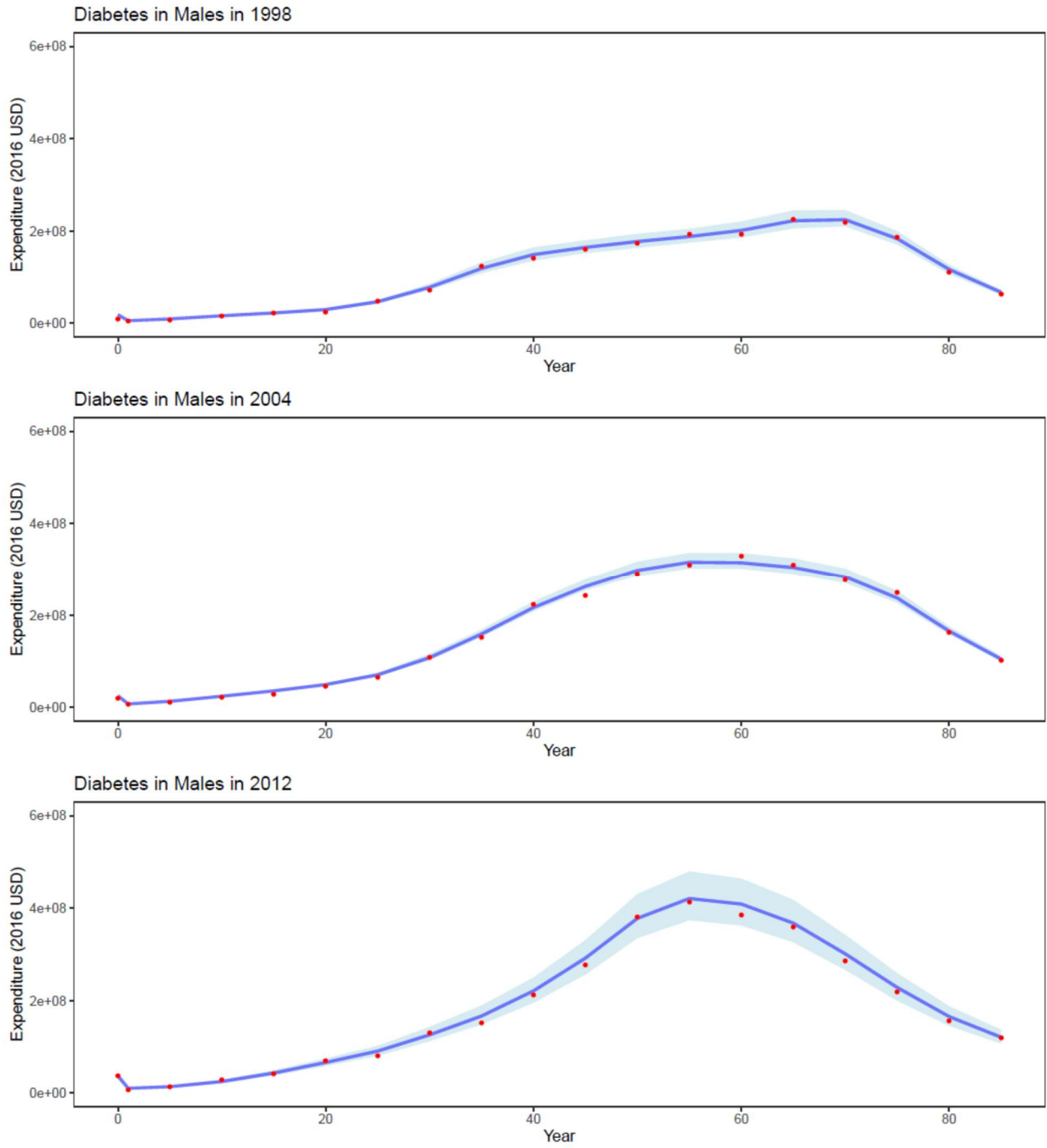
Figure 4.3: All inpatient metrics across age for 2014 – Diabetes
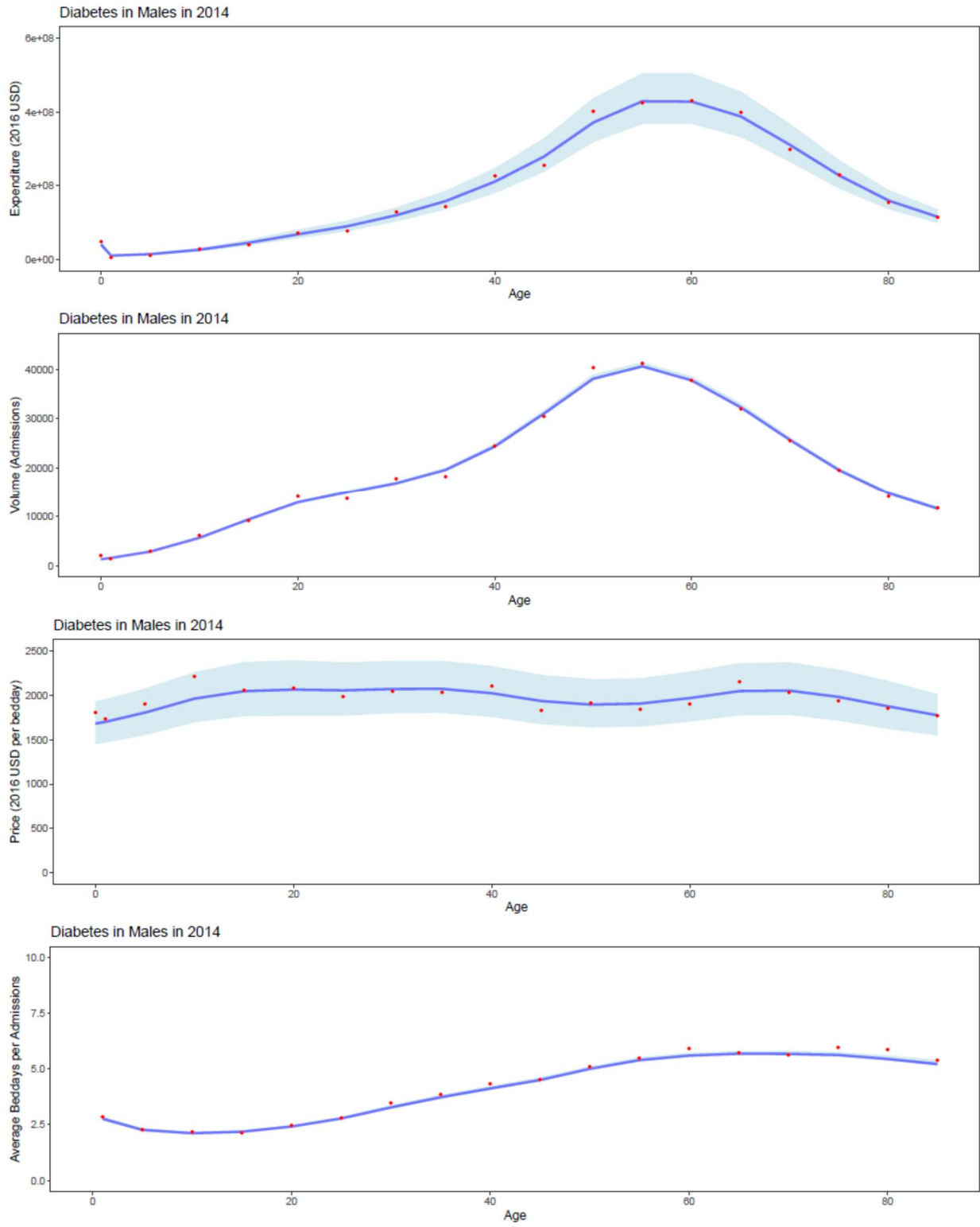
Figure 4.4: All inpatient metrics across age for 2014 – Dementia

Dementia in Males in 2014

Dementia in Males in 2014

Dementia in Males in 2014

Dementia in Males in 2014
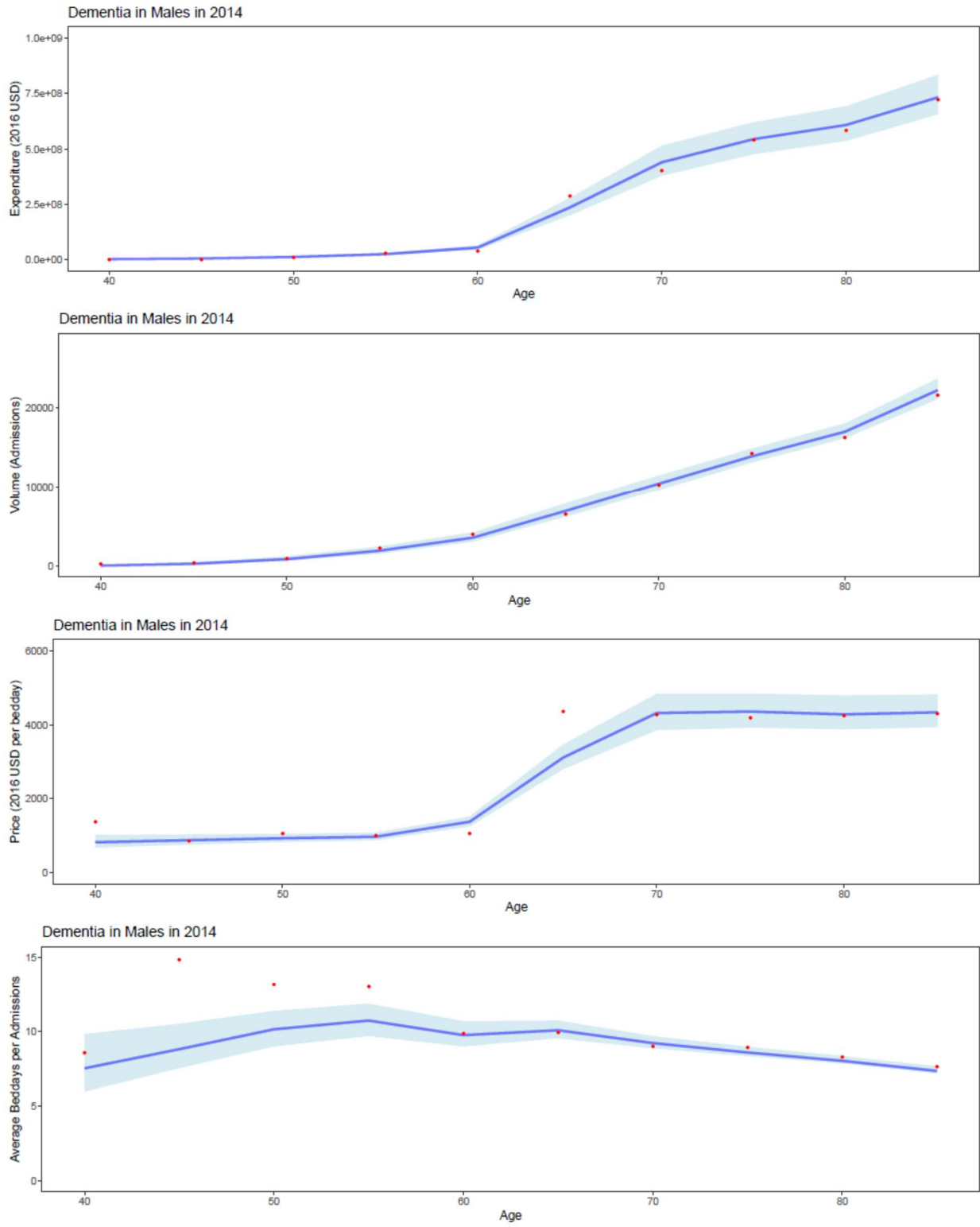
Figure 4.5: All inpatient metrics across age for 2014 – Neglected Tropical Diseases (NTDs)

Neglected Tropical Diseases in Males in 2014

Neglected Tropical Diseases in Males in 2014

Neglected Tropical Diseases in Males in 2014

Neglected Tropical Diseases in Males in 2014
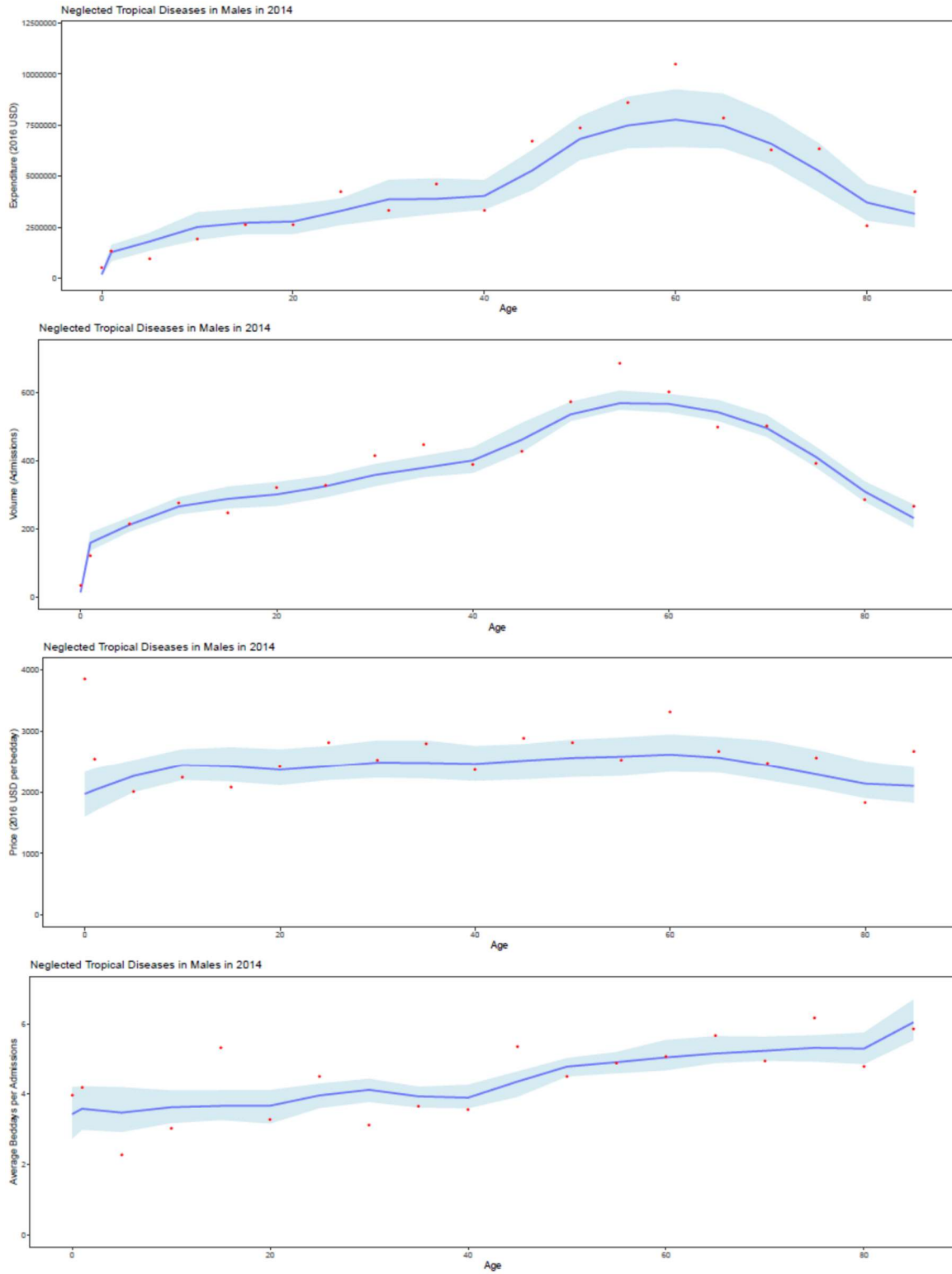
5.   Adjusting for imperfect data

In the following section, we provide further detail regarding the additional adjustments (as previewed in the above Table 2.3) that are employed through the DEX project to address data limitations and to improve spending estimates across the goods and services of interest. For example, since some datasets only provide facility charges (e.g., NIS), it is necessary to describe how we transform charge data into actual payments that also account for professional/physician fees, which are important to consider for overall health care spending. In the following section, we describe the following adjustments in detail: comorbidity, charges to payments, facility to total, visits to total, emergency, mental health, nursing facility, and specialty drugs.

5.1. Comorbidity adjustment

A penalized regression-based framework was used for modeling excess spending due to comorbidities. This regression was based on observed patterns of spending and comorbidity diagnoses in the data. In this model, spending was redistributed across all conditions to more accurately reflect the true cost of treating each condition. The unit of analysis of the model estimation for the comorbidity adjustment was the encounter, although the redistribution was applied to the aggregated data. The methods below are explained and explored in more detail elsewhere.[20]

Input data

We based the comorbidity adjustment on two datasets: the National Inpatient Sample Survey (NIS) and the Center for Medicare and Medicaid Services' (CMS) Skilled Nursing Facility survey. These datasets were chosen because they contain information on multiple secondary diagnoses, in addition to the primary diagnosis. The NIS and CMS datasets list, on average, 5.7 and 5.9 secondary diagnoses per encounter, respectively (Table 5.1-1). These datasets were analyzed at the encounter level, where each observation in the data corresponds to a single hospital stay (NIS) or a single long-term health care event (CMS).

30

Table 5.1-1: Number of diagnoses per encounter by data source and year in the raw data

Year	NIS	CMS
1996	3.6	-
1997	3.7	-
1998	3.8	-
1999	3.8	5.0
2000	3.9	5.1
2001	4.1	5.3
2002	4.4	4.7
2003	4.4	-
2004	4.7	5.0
2005	4.9	-
2006	5.3	5.4
2007	5.6	-
2008	6.1	5.8
2009	6.7	-
2010	7.1	6.3
2011	7.8	-
2012	8.0	7.6
2013	8.3	-
2014	8.8	8.6
2015	9.2	-

The data included demographic information associated with each encounter: namely the sex and age of the patient, with ages binned into 5-year groups. The comorbidity analysis was performed using data from all age groups for NIS. For CMS, the analysis was restricted to ages 65 years and older, due to data sparseness in the younger age groups.

Encounters were divided into four age categories and all analysis was done at the source-age category level. The four age categories were (i) 0–14 years, (ii) 15–44 years, (iii) 45–64 years, and (iv) 65 years and above. These age groupings were chosen to reflect the observed age-delineations in patterns of disease burden and in the distribution of comorbidities. Because burden and comorbidity distributions differ across these age categories, four age category-specific lists of primary diagnoses and comorbidities were used in the analysis. Although the analysis was only conducted at the age category level, the sex and year variables were retained to inform the regression.

Even after pooling the data across all years and both sexes, several conditions still appeared as a primary diagnosis on only a relatively small number of encounters. These conditions, such as leprosy, were conditions with low prevalence in the US. Because these conditions accounted for a negligible share of the total sample size, a lower bound on the reported number of encounters necessary for inclusion of a

condition in analysis was set. Conditions with fewer than 1,000 reported encounters across all years and both sexes within an age category were excluded from analysis. The final lists of conditions considered for this analysis, by age category, are listed in Table 5.1-2. The age categories were determined by experts and researchers working on GBD. The main factor dictating differences between conditions included in each age group were restrictions imposed according to the pathology of each condition. For example, maternal complications such as sepsis were only considered for childbearing ages.

Table 5.1-2: Causes included in analysis by age category

Condition	0–14 years	15–44 years	45–64 years	65 years and older
Acute glomerulonephritis	Included	Restricted	Restricted	Included
Acute renal failure	Included	Included	Included	Included
Alcohol use disorders	Included	Included	Included	Included
Alzheimer disease and other dementias	Restricted	Included	Included	Included
Animal contact	Included	Included	Included	Included
Anxiety disorders	Included	Included	Included	Included
Aortic aneurysm	Restricted	Included	Included	Included
Appendicitis	Included	Included	Included	Included
Asthma	Included	Included	Included	Included
Atrial fibrillation and flutter	Restricted	Included	Included	Included
Attention-deficit/hyperactivity disorder	Included	Included	Restricted	Restricted
Autistic spectrum disorders	Included	Included	Restricted	Restricted
Bipolar disorder	Included	Included	Included	Included
Bladder cancer	Restricted	Included	Included	Included
Brain and nervous system cancers	Included	Included	Included	Included
Breast cancer	Restricted	Included	Included	Included
Cardiomyopathy and myocarditis	Included	Included	Included	Included
Cerebrovascular disease	Included	Included	Included	Included
Cervical cancer	Restricted	Included	Included	Included
Chronic kidney diseases	Included	Included	Included	Included
Chronic obstructive pulmonary disease	Included	Included	Included	Included
Cirrhosis of the liver	Included	Included	Included	Included

Condition	0–14 years	15–44 years	45–64 years	65 years and older
Collective violence and legal intervention	Restricted	Included	Included	Included
Colon and rectum cancers	Restricted	Included	Included	Included
Complications of abortion	Restricted	Included	Restricted	Restricted
Conduct disorder	Included	Included	Restricted	Restricted
Congenital anomalies	Included	Included	Included	Included
Depressive disorders	Included	Included	Included	Included
Diabetes mellitus	Included	Included	Included	Included
Diarrheal diseases	Included	Included	Included	Included
Drowning	Included	Included	Included	Included
Drug use disorders	Included	Included	Included	Included
Eating disorders	Included	Included	Restricted	Restricted
Encephalitis	Included	Included	Included	Included
Endocarditis	Included	Included	Included	Included
Endocrine, metabolic, blood, and immune disorders	Included	Included	Included	Included
Epilepsy	Included	Included	Included	Included
Esophageal cancer	Restricted	Included	Included	Included
Exposure to forces of nature	Restricted	Included	Included	Included
Exposure to mechanical forces	Included	Included	Included	Included
Falls	Included	Included	Included	Included
Fire, heat and hot substances	Included	Included	Included	Included
Foreign body	Included	Included	Included	Included
Gallbladder and biliary diseases	Included	Included	Included	Included
Gallbladder and biliary tract cancer	Restricted	Restricted	Included	Included
Gastritis and duodenitis	Included	Included	Included	Included
Gout	Restricted	Included	Included	Included
Gynecological diseases	Included	Included	Included	Included
Heart Failure	Included	Included	Included	Included
Hemoglobinopathies and hemolytic anemias	Included	Included	Included	Included

33

Condition	0–14 years	15–44 years	45–64 years	65 years and older
Hemolytic disease in fetus and newborn and other neonatal jaundice	Included	Restricted	Restricted	Restricted
Hepatitis	Included	Included	Included	Included
HIV/AIDS	Included	Included	Included	Included
Hodgkin lymphoma	Restricted	Included	Included	Included
Hypertensive disorders of pregnancy	Included	Included	Included	Restricted
Hypertensive heart disease	Restricted	Included	Included	Included
Idiopathic intellectual disability	Included	Included	Included	Included
Inflammatory bowel disease	Included	Included	Included	Included
Inguinal or femoral hernia	Included	Included	Included	Included
Interpersonal violence	Included	Included	Included	Included
Interstitial lung disease and pulmonary sarcoidosis	Included	Included	Included	Included
Intestinal infectious diseases	Included	Included	Included	Included
Iron-deficiency anemia	Included	Included	Included	Included
Ischemic heart disease	Restricted	Included	Included	Included
Kidney cancer	Included	Included	Included	Included
Larynx cancer	Restricted	Included	Included	Included
Leukemia	Included	Included	Included	Included
Liver cancer	Restricted	Included	Included	Included
Low back and neck pain	Included	Included	Included	Included
Lower respiratory tract infections	Included	Included	Included	Included
Malignant skin melanoma	Restricted	Included	Included	Included
Maternal hemorrhage	Restricted	Included	Restricted	Restricted
Maternal sepsis and other pregnancy related infection	Restricted	Included	Restricted	Restricted
Meningitis	Included	Included	Included	Included
Mesothelioma	Restricted	Restricted	Included	Included
Migraine	Included	Included	Included	Included

Condition	0–14 years	15–44 years	45–64 years	65 years and older
Mouth cancer	Restricted	Included	Included	Included
Multiple myeloma	Restricted	Included	Included	Included
Multiple sclerosis	Restricted	Included	Included	Included
Nasopharynx cancer	Restricted	Included	Included	Included
Neglected tropical diseases and malaria	Included	Included	Included	Included
Neonatal encephalopathy (birth asphyxia and birth trauma)	Included	Restricted	Restricted	Restricted
Non-Hodgkin lymphoma	Included	Included	Included	Included
Non-melanoma skin cancer	Restricted	Included	Included	Included
Obstructed labor	Included	Included	Included	Restricted
Oral disorders	Included	Included	Included	Included
Osteoarthritis	Restricted	Included	Included	Included
Other cardiovascular and circulatory diseases	Included	Included	Included	Included
Other chronic respiratory diseases	Included	Included	Included	Included
Other digestive diseases	Included	Included	Included	Included
Other infectious diseases	Included	Included	Included	Included
Other maternal disorders	Included	Included	Included	Restricted
Other mental and behavioral disorders	Included	Included	Included	Included
Other musculoskeletal disorders	Included	Included	Included	Included
Other neonatal disorders	Included	Restricted	Restricted	Restricted
Other neoplasms	Included	Included	Included	Included
Other neurological disorders	Included	Included	Included	Included
Other nutritional deficiencies	Restricted	Included	Included	Included
Other pharynx cancer	Restricted	Included	Included	Included
Other transport injuries	Included	Included	Included	Included
Other unintentional injuries	Included	Included	Included	Included

Condition	0–14 years	15–44 years	45–64 years	65 years and older
Otitis media	Included	Included	Included	Included
Ovarian cancer	Restricted	Included	Included	Included
Pancreatic cancer	Restricted	Included	Included	Included
Pancreatitis	Included	Included	Included	Included
Paralytic ileus and intestinal obstruction	Included	Included	Included	Included
Parkinson's disease	Restricted	Included	Included	Included
Peptic ulcer disease	Included	Included	Included	Included
Pre-existing medical condition complicating pregnancy or childbirth	Included	Included	Included	Restricted
Peripheral vascular disease	Restricted	Included	Included	Included
Pneumoconiosis	Restricted	Restricted	Restricted	Included
Poisonings	Included	Included	Included	Included
Preterm birth complications	Included	Restricted	Restricted	Restricted
Prostate cancer	Restricted	Included	Included	Included
Protein-energy malnutrition	Included	Included	Included	Included
Rheumatic heart disease	Included	Included	Included	Included
Rheumatoid arthritis	Included	Included	Included	Included
Road injuries	Included	Included	Included	Included
Schizophrenia	Included	Included	Included	Included
Self-harm	Included	Included	Included	Included
Sense organ diseases	Included	Included	Included	Included
Sepsis and other infectious disorders of the newborn baby	Included	Restricted	Restricted	Restricted
Septicemia	Included	Included	Included	Included
Sexually transmitted diseases excluding HIV	Included	Included	Included	Included
Skin and subcutaneous diseases	Included	Included	Included	Included
Stomach cancer	Restricted	Included	Included	Included
Tension-type headache	Restricted	Included	Included	Included
Testicular cancer	Restricted	Included	Restricted	Restricted
Thyroid cancer	Restricted	Included	Included	Included
Trachea, bronchus, and lung cancers	Restricted	Included	Included	Included

Condition	0–14 years	15–44 years	45–64 years	65 years and older
Tuberculosis	Included	Included	Included	Included
Upper respiratory tract infections	Included	Included	Included	Included
Urinary diseases and male infertility	Included	Included	Included	Included
Uterine cancer	Restricted	Included	Included	Included
Varicella	Included	Included	Included	Included
Vascular intestinal disorders	Restricted	Included	Included	Included
Whooping cough	Included	Restricted	Restricted	Restricted
Total Included Conditions	**94**	**127**	**121**	**119**

Comorbidity selection

To maintain the comprehensive nature of the analysis, nearly all conditions present in the data as primary diagnoses and as comorbidities were included. However, the list of comorbidities allowed for a given primary diagnosis was restricted because of the aims of the research and data availability.

Several secondary diagnoses were not viable comorbidities. These secondary diagnoses were manifestations of underlying conditions rather than true comorbidities. To account for these false comorbidities, the following were excluded as comorbidities:

1. All intermediate conditions, such as skin and subcutaneous disease as a comorbidity for diabetes and heart failure as a comorbidity for cardiovascular disease (CVD).
2. All residual "other" categories, such as other indirect maternal conditions and other infectious diseases.
3. All risk factors, impairments, and well care conditions, such as hyperlipidemia, renal failure, and well pregnancies.

These restrictions were set in consultation with medical professionals who have an understanding of ICD coding in clinical settings. The full list of restrictions is outlined in Table 5.1-3.

Table 5.1-3: Comorbidity restrictions

Primary diagnosis	Comorbidity
All conditions	Indirect maternal conditions
	Protein-energy malnutrition
	Iron-deficiency anemia
	Iodine deficiency
	Vitamin A deficiency
	Other infectious diseases
	Septicemia
	Hypertension
	Hyperlipidemia
	Treatment of obesity
	Tobacco intervention
	Endocrine, metabolic, blood, and immune disorders
	Acute renal failure
	Adverse effects of medical treatment
	All "other" residual conditions
Preterm birth complications	All comorbidities
Neonatal encephalopathy (birth asphyxia and birth trauma)	
All cancers	
All cardiovascular diseases	Atrial fibrillation and flutter
	Heart failure
Otitis media	All conditions *except* lower and upper respiratory infections
Diabetes	Skin and subcutaneous diseases
Alzheimer disease and other dementias	Falls
	Lower respiratory tract infections
All injuries	Skin and subcutaneous diseases
	Sense organ diseases
	All injuries

Note: This table summarizes the restrictions placed on flows of expenditure between primary diagnoses and comorbidities. Funds were not permitted to flow from the primary diagnoses in the left column to the comorbidities in the right column.

Modeling risk of excess spending

A log-linear regression model was used to generate estimates of the risk of excess spending due to comorbidities. Log-linear regression is one of the most commonly used methods for modeling health care spending data. A log-linear regression was estimated separately for each primary condition and age category, with the expenditure for a health system encounter as the dependent variable and all of the

relevant comorbidities as binary independent variables, indicating whether a patient was co-diagnosed with these comorbidities. The simplest form of the model is illustrated by Equation 5.1-1:

$$\textbf{Equation 5.1-1 } \log(expenditure_i) = \beta_{i0} + \sum_{j=1}^{J} \beta_{ij} comorbidity_{ij} + \varepsilon_i$$

In this equation, excess spending was estimated independently for each primary diagnosis i, using age category-specific encounter-level data, and included the set of comorbidities that spanned from j to J. Binary indicators were included to control for the effects of heterogeneity between sexes and in spending across time. The relative risk of excess spending for i induced by comorbidity j was given by the coefficient on the respective primary diagnosis-comorbidity pair (βij). The regression was constrained by the L1 norm, $\sum_{j=1}^{J}|\beta_{ij}| < c$, where $0 < c < c_0$ and $c_0 = \sum_{j=1}^{J}|\hat{\beta}_{least\ squares\ estimates\ j}|$. We calibrated the optimal c by using Adaptive Validation.[21]

The presence of a comorbidity generally led to increased health spending for a given primary diagnosis. In these cases, $\beta ij > 0$ and, on average, the comorbid condition raised the cost of managing the primary condition. However, a relative risk less than zero was a possible regression outcome. This result implied that the costs of managing the primary condition were lowered due to the coexistence of a given comorbid condition. While empirically rare, this would occur when a comorbid condition rendered standard treatment for the primary condition ineffective, unsafe, or poorly tolerated, necessitating less aggressive, intensive, or complex, and therefore less expensive treatment.

> **BOX 5.1-4: Understanding regression results**
>
> **Among 45- to 64-year-olds, chronic kidney disease (CKD) appeared as both a primary diagnosis and comorbidity with urinary diseases and male infertility. After applying our regression model, the CKD-urinary disease pair had a coefficient of 0.028. The presence of urinary disease as a comorbidity made CKD more expensive to treat. The urinary disease-CKD pair had a coefficient of 0.070. The presence of CKD as a comorbidity made urinary disease more expensive to treat, but more so than the opposite pairing.**

Adjusting the relative risk of excess spending for falls and pneumonia induced by comorbidity dementia for the seniors

For patients with the comorbid condition of dementia, we aimed to account for this condition when seeing evidence of the following primary conditions: falls and a particular type of pneumonia (bronchopneumonia), both of which have been shown to be associated with dementia among those age 65 or older. Specifically, the comorbid condition dementia would raise the cost of managing the primary conditions falls and pneumonia. To ensure this, the natural log of the relative risk of falls[22] and the natural log of the relative risk of pneumonia[23] from literature were used in place of the coefficient on the respective primary diagnosis-comorbidity pair – βfalls-dementia and βpneumonia-dementia.

Calculating attributable fractions

The relative risk of excess spending due to comorbidities was then used to calculate the attributable fraction for each primary diagnosis-comorbidity pair. Attributable fractions are the proportions of disease expenditure attributable from the primary diagnosis to each comorbidity. The share of total expenditure for primary condition *i* attributable to comorbidity *j* is the product of the pair-specific relative risk of excess expenditure and the conditional probability of *i* and *j* co-occurring. This is illustrated by Equation 5.1-2:

$$\textbf{Equation 5.1-2 } AF_{ij} = p_{ij}\left(e^{\beta_{ij}} - 1\right)$$

BOX 5.1-5: Calculating attributable fractions

As seen in previous examples, the CKD-urinary disease pair for 45- to 64-year-olds has a probability of occurrence of 0.226 and a regression coefficient of 0.028. The attributable fraction for this pair is as follows:

$$AF_{CKD-urinary} = 0.226\,(e^{0.028} - 1)$$

or

$$AF_{CKD-urinary} = 0.006$$

Thus 0.6% of the total expenditure for CKD among 45- to 64-year-olds should be redistributed to urinary diseases.

Generating flows and adjustment scalars

The attributable fractions for all primary diagnosis-comorbidity pairs were then used to reallocate spending from primary diagnoses to comorbidities. The comorbidity adjustment was applied to spending data that had been mapped from ICD codes to GBD conditions and had undergone both redistribution as well as post-redistribution cleaning. However, the data had not yet been smoothed over age and sex (the process described in Section 4). The spending data were disaggregated by five-year age groups, sex, year, condition, and source. Conversely, attributable fractions were calculated at the age category-condition-source level. Expenditure fractions for condition *i,* age group a_5, sex *s*, and time *t* within condition *i*, age category a_{cat} were calculated as shown in Equation 5.1-3:

$$\textbf{Equation 5.1-3 } expenditure\ fraction_{ia_5st} = \frac{expenditure_{ia_5st}}{expenditure_{ia_{cat}}}$$

After calculating expenditure fractions, the total spending was collapsed down to the age category-condition level. This aggregated expenditure was used to calculate the comorbidity-adjusted spending. After adjustment, the expenditure fractions were used to disaggregate the age category-condition-specific expenditure to the age group-sex-year-condition level.

The outflows are the resources transferred away from the primary condition to comorbidities. The outflow from primary diagnosis i to comorbidity j is the product of the attributable fraction AF_{ij} and the total spending of i. The total outflow of resources from primary condition i due to all comorbidities is the sum of the outflows from i to all comorbidities under consideration (vector of j), illustrated in Equation 5.1-4:

$$\textbf{Equation 5.1-4 } outflow_i = \ total\ expenditure_i * \sum_j AF_{ij}$$

Within this framework, a primary diagnosis for one health system encounter can be, and generally is, a comorbidity for another primary diagnosis for a different health system encounter. Thus, it was important to not only calculate the share of primary diagnosis i attributable to comorbidity j, but also to calculate the share of primary diagnosis j attributable to comorbidity i. These funds are inflows, or the resources transferred to i when it is listed as a comorbidity for each of the j other conditions. The total inflow of resources from all comorbidities to primary diagnosis i is the sum of the product of the total spending for j and the attributable fractions. Equation 5.1-5 illustrates the calculation of inflows:

$$\textbf{Equation 5.1-5 } inflow_i = \ \sum_j(total\ expenditure_j * AF_{ij})$$

Because the comorbidity adjustment was a true redistribution of resources, the total outflows across all conditions in an age category should have been equal to the total inflows in that age category. That is, the same amount of money should have been flowing out of the primary diagnoses as was flowing into the comorbidities. This assumption was used to check the calculations of outflows and inflows by age category.

The netflow of resources for a primary condition is the net transfer of resources to and from that condition. That is, the netflow for condition i is the difference between the total inflows and total outflows for i, as illustrated in Equation 5.1-6. The netflow can be positive or negative. A positive netflow meant that the given condition had more inflow than outflow. Conditions with positive netflows generally appeared often as comorbidities and saw increases in spending as a result of comorbidity adjustment. A negative netflow indicated that the given condition had less inflow than outflow.

Conditions that appeared often as primary diagnoses, but rarely as comorbidities, often had negative netflows. These conditions saw decreases in spending after comorbidity adjustment, relative to their pre-adjustment spending.

$$\textbf{Equation 5.1-6 } netflow_i = inflow_i - outflow_i$$

The final, comorbidity-adjusted expenditure for condition *i* was the sum of the pre-comorbidity adjusted expenditure for *i* and its corresponding netflow, as shown in Equation 5.1-7:

$$\textbf{Equation 5.1-7 } adjusted\ expenditure_i = total\ expenditure_i + netflow_i$$

Relative increases and decreases in spending are described using comorbidity adjustment scalars. The scalar for condition *i* is defined as the netflow for *i* as a percentage of the total spending on *i*. This is shown by Equation 5.1-8:

$$\textbf{Equation 5.1-8 } scalar_i = \frac{netflow_i}{total\ expenditure_i} + 1$$

For a given condition, a scalar greater than 1 represented an increase in spending, while a scalar less than 1 represented a decrease in spending. The value of the scalar represented the percentage change in expenditure for that condition. The scalars provided a common metric for comparing comorbidity adjustments between conditions and across age categories and sources.

Box 5.1-6: Calculating outflows, inflows, netflows, and adjusted spending

The attributable fractions for 45- to 64-year-olds with a primary diagnosis of CKD were:

Comorbidity	Attributable fraction
Falls	0.00003
Road injuries	0.02702
Urinary diseases and male infertility	0.00649

Total pre-comorbidity adjustment for this group was $68.1 billion. The pair-specific outflow for each comorbidity was:

Comorbidity		Outflow
Falls	$68.1 billion * 0.0003 =	$0.002 billion
Road injuries	$68.1 billion * 0.02702 =	$1.840 billion
Urinary diseases and male infertility	$68.1 billion * 0.00649 =	$0.442 billion

Thus, the total outflow from CKD to other conditions was the sum of these three outflows, or approximately $2.3 billion.

The inflow for CKD was the sum of the outflows from the 59 diseases for which CKD was a comorbidity. The inflow to CKD was $39.8 billion.

Thus, the netflow for CKD was $39.8 billion - $2.3 billion, or $37.5 billion. The final spending for CKD among 45- to 64-year-olds was $105.6 billion, after adjusting for all comorbidities. There was a slight increase in spending on CKD in this age group after comorbidity adjustment of about 55%:

$$scalar_{IHD} = \frac{37.5}{68.1} + 1 = 1.55$$

Because CKD occurred frequently as a comorbidity, it had a net increase in spending due to comorbidity adjustment.

In two instances comorbidity pairs did not have associated attributable fractions and therefore were not adjusted for comorbidities. These cases were for:

1. Encounters for individuals under 65 years old that appeared in the CMS data; these encounters were not included due to data sparseness; and
2. Conditions that were restricted so they did not appear as comorbidities (intermediate conditions, "other" residual conditions, risk factors, etc.).

For comorbidity pairs that did not have associated attributable fractions, it was assumed that the netflows were zero and that the pre- and post-comorbidity spending values were the same. That is, if there were missing attributable fractions, the conditions were considered to have no associated comorbidities and therefore no adjustment.

Applying attributable fractions to other spending sources

Attributable fractions were only calculated for the NIS and the CMS datasets because these were the only two sources of health spending that included a large enough set of multiple diagnoses. However, this methodology is flexible enough to be applied to any health spending data for age-condition-specific spending estimates. Although the attributable fractions are dependent on the observed patterns of comorbidities in the test data, the final comorbidity adjustment is a function of both these comorbidity patterns and the pre-adjustment spending. Therefore, by assuming that the comorbidity patterns observed in the NIS and the CMS reflect the patterns in other health spending sources, the attributable fractions from those two sources can be applied to spending estimates from other sources that lack multiple diagnoses. This assumption was utilized to adjust most spending sources used in the wider study for the effects of comorbidities.

Because the presence of comorbidities differs across health care settings, each of the sources was matched with the attributable fractions with underlying comorbidity patterns that most accurately reflected the given health care study. The attributable fractions used to adjust each source are given in Table 5.1-7.

Table 5.1-7: Application of attributable fractions for comorbidity adjustment

Attributable fractions from …	Were used in the comorbidity adjustment of…
NIS	NIS
	MEPS (AM, IP, ER)
	NEDS
CMS	CMS
	NNHS
	MCBS

In order to assess the sensitivity of the comorbidity adjustment, the entire series of adjustments and modeling used to produce estimates was performed without the comorbidity adjustment in order to compare to our baseline spending results. The largest absolute decreases were in the conditions lower respiratory tract infections (144 billion), falls (120 billion), and septicemia (64.2 billion). The largest absolute increases were in the conditions Alzheimer disease and other dementias (251.3 billion), chronic kidney diseases (77.5 billion), and urinary diseases and male infertility (60.7 billion). The full results are listed in table 5.1-8.

Table 5.1-8: Differences in modeled spending with and without comorbidity adjustment

Condition	2015 spending with comorbidity adjust	2015 spending w/o comorbidity adjust	Difference
Alzheimer disease and other dementias	335.5	84.2	251.3
Chronic kidney diseases	164.9	87.4	77.5
Urinary diseases and male infertility	285.1	224.4	60.7
Heart failure	590.5	534.5	56
Road injuries	214.6	175.3	39.4
Atrial fibrillation and flutter	227.5	197	30.5
Chronic obstructive pulmonary disease	236	220.7	15.3
Gallbladder and biliary diseases	130.5	121.9	8.6
Cirrhosis of the liver	169.4	161.6	7.8
Cardiomyopathy and myocarditis	21	15.8	5.2
Peripheral vascular disease	120.8	117.6	3.2
Diarrheal diseases	48.2	46.6	1.6
Osteoarthritis	412.3	410.8	1.5
Gastritis and duodenitis	25.8	25.4	0.4
Congenital anomalies	12.5	12.3	0.3
Colon and rectum cancers	130.8	130.6	0.2
Diphtheria	0	0	0
Exposure to forces of nature	0.1	0.1	0
Drowning	0.3	0.3	0
Collective violence and legal intervention	0.5	0.5	0
Intestinal infectious diseases	0	0	0
Leprosy	0	0	0
Measles	0	0	0
Attention-deficit/hyperactivity disorder	0	0	0
Conduct disorder	0	0	0
Eating disorders	0	0	0
Idiopathic intellectual disability	0.2	0.2	0
Other mental and behavioral disorders	0.7	0.7	0
Autistic spectrum disorders	0	0	0
Bladder cancer	25.3	25.3	0
Brain and nervous system cancers	26.3	26.3	0
Breast cancer	18.7	18.7	0
Cervical cancer	2.4	2.4	0
Esophageal cancer	9.7	9.7	0
Gallbladder and biliary tract cancer	7.1	7.1	0
Hodgkin lymphoma	1.2	1.2	0

Condition	2015 spending with comorbidity adjust	2015 spending w/o comorbidity adjust	Difference
Kidney cancer	20.3	20.3	0
Larynx cancer	4.8	4.8	0
Leukemia	26.9	26.9	0
Liver cancer	9.3	9.3	0
Trachea, bronchus, and lung cancers	91.6	91.6	0
Non-Hodgkin lymphoma	30.3	30.3	0
Malignant skin melanoma	1.1	1.1	0
Mouth cancer	8.4	8.4	0
Multiple myeloma	12.4	12.4	0
Nasopharynx cancer	0.3	0.3	0
Non-melanoma skin cancer	4	4	0
Ovarian cancer	11.8	11.8	0
Pancreatic cancer	24.7	24.7	0
Prostate cancer	27.3	27.3	0
Stomach cancer	22.6	22.6	0
Testicular cancer	0.1	0.1	0
Thyroid cancer	2.6	2.6	0
Uterine cancer	11.6	11.6	0
Neonatal encephalopathy (birth asphyxia and birth trauma)	0	0	0
Preterm birth complications	0	0	0
Tension-type headache	0.3	0.3	0
Otitis media	0.7	0.7	0
Pneumoconiosis	0.6	0.6	0
Sexually transmitted diseases excluding HIV	1.7	1.8	0
Tetanus	0.1	0.1	0
Whooping cough	0	0	0
Neglected tropical diseases and malaria	1.6	1.6	-0.1
Encephalitis	1.4	1.5	-0.1
Acute glomerulonephritis	0.4	0.5	-0.1
Other transport injuries	2.4	2.5	-0.1
Migraine	2.1	2.2	-0.1
Multiple sclerosis	1.5	1.7	-0.1
Oral disorders	5.2	5.3	-0.2
Hemoglobinopathies and hemolytic anemias	8.7	8.9	-0.2
HIV/AIDS	1.6	1.8	-0.2
Rheumatoid arthritis	6.4	6.6	-0.2

Condition	2015 spending with comorbidity adjust	2015 spending w/o comorbidity adjust	Difference
Other nutritional deficiencies	2.2	2.4	-0.2
Upper respiratory tract infections	3.4	3.6	-0.2
Animal contact	2.9	3.2	-0.3
Tuberculosis	3	3.3	-0.3
Interpersonal violence	8.5	8.9	-0.4
Self-harm	6.3	6.7	-0.4
Gout	5.5	5.9	-0.4
Other chronic respiratory diseases	12.4	12.9	-0.4
Varicella	4.2	4.6	-0.4
Hepatitis	3.2	3.8	-0.5
Parkinson's disease	11.5	12	-0.5
Gynecological diseases	36.9	37.5	-0.6
Fire, heat, and hot substances	9.4	10	-0.6
Poisonings	10.4	11	-0.6
Schizophrenia	12.6	13.1	-0.6
Interstitial lung disease and pulmonary sarcoidosis	22	22.6	-0.6
Meningitis	7.5	8.2	-0.7
Anxiety disorders	7.3	7.9	-0.7
Bipolar disorder	12	12.8	-0.8
Drug use disorders	7.3	8.1	-0.8
Endocarditis	10.2	11.1	-0.9
Inflammatory bowel disease	33.9	34.8	-0.9
Exposure to mechanical forces	18.9	20	-1.1
Alcohol use disorders	10.2	11.4	-1.1
Sense organ diseases	17.4	18.6	-1.2
Appendicitis	15.7	16.9	-1.2
Foreign body	20	21.4	-1.4
Epilepsy	21.4	22.8	-1.4
Protein-energy malnutrition	11.2	12.8	-1.6
Hypertensive heart disease	23.4	25	-1.7
Vascular intestinal disorders	42.6	44.5	-1.9
Inguinal or femoral hernia	34.9	36.9	-2
Other unintentional injuries	31.7	33.7	-2
Low back and neck pain	187.6	189.8	-2.2
Depressive disorders	33.8	36.1	-2.3
Other neurological disorders	57.5	61.6	-4.1

Condition	2015 spending with comorbidity adjust	2015 spending w/o comorbidity adjust	Difference
Rheumatic heart disease	55.9	60.2	-4.3
Other musculoskeletal disorders	113.8	118.8	-5
Asthma	41.5	46.7	-5.2
Peptic ulcer disease	61	66.4	-5.4
Other infectious diseases	33.7	39.3	-5.7
Other digestive diseases	187.8	193.6	-5.8
Endocrine, metabolic, blood, and immune disorders	64	70	-6
Ischemic heart disease	1118	1125.1	-7.1
Paralytic ileus and intestinal obstruction	116.2	123.6	-7.5
Pancreatitis	41.9	50.3	-8.4
Iron-deficiency anemia	64.7	73.1	-8.4
Skin and subcutaneous diseases	112.3	120.9	-8.6
Aortic aneurysm	99.4	111.7	-12.3
Cerebrovascular disease	387.9	401.3	-13.4
Diabetes mellitus	113.4	127.4	-14
Acute renal failure	109.6	144.4	-34.8
Other cardiovascular and circulatory diseases	196.6	237.7	-41
Septicemia	413.5	477.7	-64.2
Falls	500.2	620.2	-120
Lower respiratory tract infections	205.8	349.8	-144

5.2. Charges to payments adjustment

Much of the microdata used in this study reports on the charges for an encounter. In order to fully understand the landscape of US health care spending, charge data need to be adjusted into payment data. An adjustment was developed to enable the use of the National Inpatient Sample (NIS) dataset over the MEPS Inpatient dataset, and a similar process was used for emergency department data in this study, which relies on the Nationwide Emergency Department Sample (NEDS). Both NIS and NEDS are very large datasets relative to the much smaller MEPS, but are limited in that they contain only charge data. However, MEPS Inpatient (MEPS IP) and MEPS Emergency Room (MEPS ER) provides information on both payments and charges. A regression-based framework was used to model total charge to total payment ratios in both the inpatient and emergency department settings. A similar regression was used to model facility charge to total charge ratios. The unit of analysis for these regression was encounter level data, and the estimated adjustments were applied to aggregated data for each age, sex, health condition, type of year and year. regressions were applied on MEPS IP data for inpatient estimates and then MEPS ED for emergency department estimates. These ratios were combined to create facility charge to total payment conversion factors. The conversion factors were applied to facility charge data

in NIS to produce nationally representative inpatient spending estimates. This charges to payments adjustment is documented in greater detail in other research.[4] Similarly, we used these conversion factors to use facility charge data in NEDS to produce nationally representative emergency department spending estimates for patients who were "treated and released" from the emergency room as well as for those who were admitted to the inpatient setting.

Data processing

MEPS IP, MEPS ER, NIS, and NEDS data were processed before making these adjustments. Both NIS and NEDS were processed according to the methodology described previously in this appendix. However, MEPS IP and MEPS ED were processed differently, because the regression used for this adjustment requires encounter-level data. For both MEPS datasets, ages were aggregated into five5-year bins, and ICD codes were mapped to GBD causes (see Section 3), but the data did not go through redistribution. Consequently, the MEPS IP and MEPS ED data still contained N-codes for injuries, as well as garbage codes. N-codes were removed using the probabilistic replacement method described in section 5. Garbage codes were dropped.

MEPS data were categorized by three payer strata: public insurance, private insurance, and out-of-pocket. This strata variable was defined to be the primary payer. For example, if Medicare paid 75% of a patient's total payment and the other 25% was out-of-pocket, the observation was assigned to the public insurance stratum. In addition, facility charges were taken from NIS and NEDS, and both spending and charge information were taken from the corresponding MEPS data. These MEPS spending and charge data were then disaggregated into facility spending, doctor spending, facility charges, and doctor charges for both inpatient and emergency department services. For example, when a patient receives treatment at an inpatient facility, they receive two bills: a facility bill and a doctor bill. Facility charges and spending cover basic hospital expenses and most professional fees. Doctor charges and spending cover services for certain doctors who bill separately. These bills generally come from anesthesiologists, radiologists, and pathologists.[24]

Total charges to total payments regression

The ratio of payments to charges was calculated for each encounter. Observations in which payments were greater than charges (<2% of all observations) were considered to be errors, and charges were re-coded to be equal to payments. By inspection, the ratios were found to be invariant by age and sex, as seen in Figures 5.2-1 and 5.2-2. Data were grouped by broader causes (GBD cause Level 2), in order to increase the number of observations for each cause and payer combination. A model of the charge to payment ratio was run separately for each cause and bootstrap draw, with a binary indicator for payer and an interaction term for payer and year, as shown in Equation 5.9:

Equation 5.2-1 $\left(\frac{payments}{charges}\right)_i = \beta_0 \cdot public + \beta_1 \cdot private + \beta_2 \cdot oop + \beta_3 \cdot public \cdot year + \beta_4 \cdot private \cdot year + \beta_5 \cdot oop \cdot year$

The above equation defines the payment to charge ratio as a function of cause, payer, and time. However, inspecting trends in the underlying data suggested that total charge itself also has an important influence on the payment to charge ratio, as a person is more likely to pay a smaller proportion of a large charge. In this analysis, conversion factors were applied to data that were aggregated to the age and sex level and had garbage codes redistributed. Consequently, there was no longer information on the amount an individual was charged. To incorporate the effect of charges on the payment to charge ratio at the population level, the total weighted charge was assigned to be the regression weight using the frequency weight option in Stata. The decision to use frequency weights was motivated by the fact that the regression applied found the percentage paid for each dollar charged. Under this conceptualization, a charge of $100 with a ratio of 0.80 would be equivalent to a ratio of 0.80 for 100 separate $1 charges. By definition, a frequency weight of 100 is treated as if an observation occurred 100 times, so this weighting choice is valid.

Figure 5.2-1. The average payment to charge ratio was taken for every age, sex, year, payer, and cause combination.

Averages that had the same age, year, payer, and cause but different sex were then paired. The difference between the payment to charge ratio was taken for each pairing. This figure shows the distribution of these differences and suggests sex is unimportant in determining payment to charge ratios.

Difference between payment ratios by sex
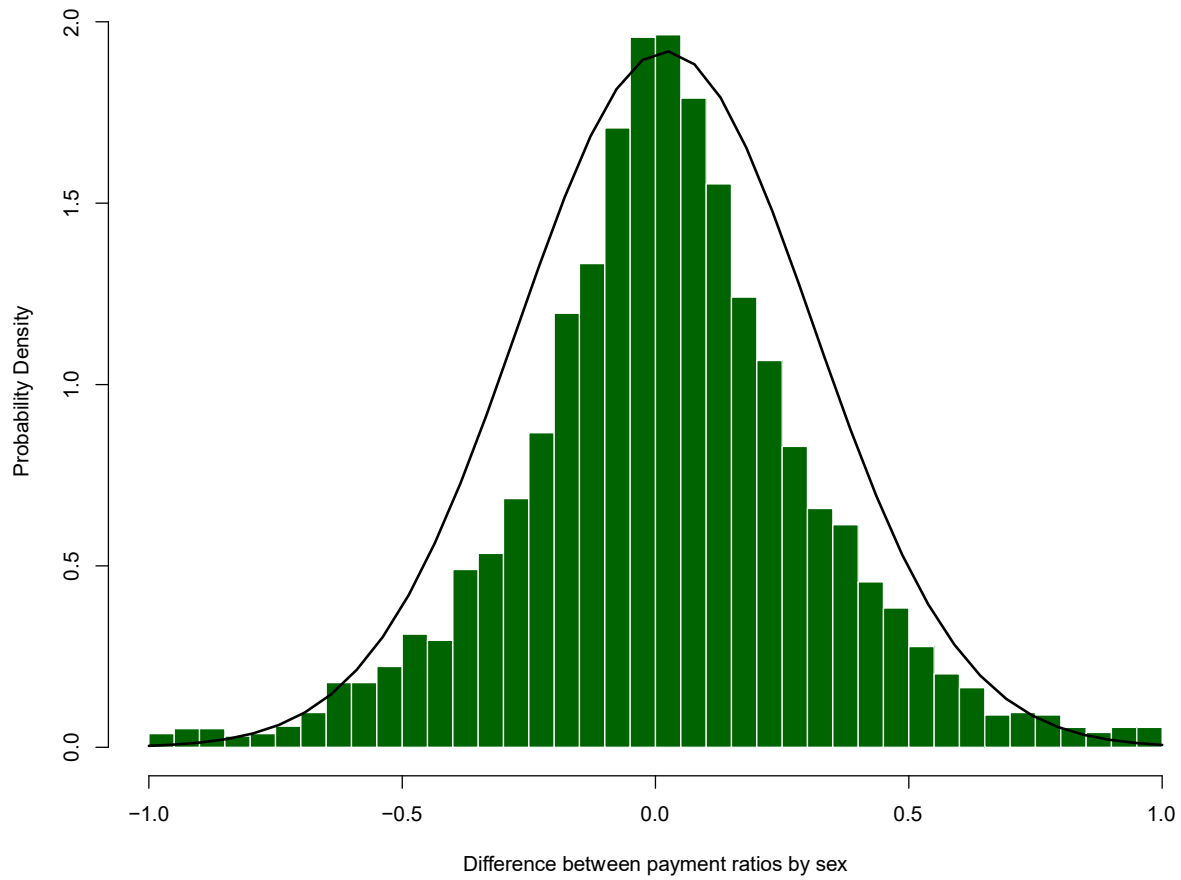
Figure 5.2-2. Mean payment to charge ratios for public payer were plotted by age for three causes.

This figure shows the average payment to charge ratio for people with cardiovascular diseases, diabetes, urogenital, blood, and endocrine diseases (DUBE), and digestive diseases across age.
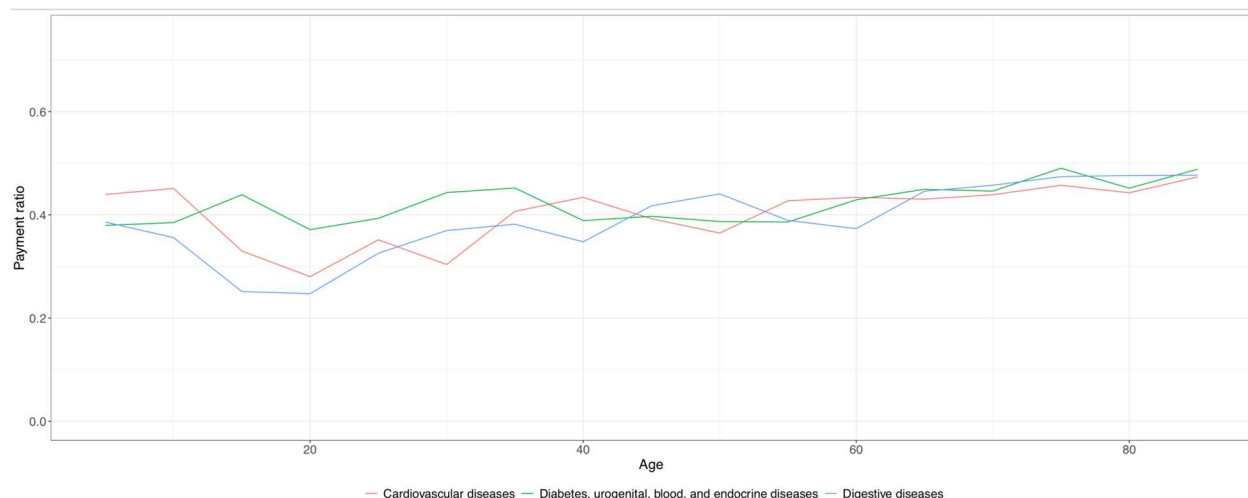
For a given cause and draw combination, the regression was applied as shown when all payers had more than 200 observations. When a cause, draw, and payer combination did not meet the 200-observation threshold, the corresponding payer-year interaction term was dropped. There are conflicting opinions concerning the number of observations needed to run a multivariate linear regression.[25,26] After applying several thresholds and evaluating the performance of the model, we decided to set the threshold at 200 as it optimized the goodness-of-fit, trust in the data, and best practices from the literature.

Running the regression produced estimates for the payment to charge ratios by year, payer, and GBD Level 2 cause. A weighted average of these ratios was calculated across payer to get year- and cause-specific estimates. The weights were year-specific proportions of spending on a given GBD Level 3 cause from each payer. These proportions were calculated using data from NIS. The averaging resulted in a single payment to charge ratio for each year and cause combination.

5.3. Facility to total adjustment

An additional regression was needed to apply the estimated payment to charge ratios to both NIS and NEDS. Hospital charges as reported in these datasets are often split into two components: facility charges and professional charges. MEPS IP and MEPS ED report both types of charges, whereas NIS and NEDS report facility charges only. This paper addresses the cost of receiving inpatient and emergency department care from the perspective of the patient, so total charges and total payments are the metrics of interest. These totals are equivalent to the sum of facility charges and professional charges,

52

or the sum of facility payments and professional payments, respectively. The payment to charge regression detailed above estimates the ratio of *total* payments to *total* charges. Therefore, a facility charge to total charge conversion was needed in order to estimate the total payments in both NIS and NEDS. This second conversion follows a similar form, meaning the regressions were estimated on encounter level data and the adjustments were applied to aggregated data for each age, sex, health condition, type of care and year. The ratio of facility charges to total charges was the dependent variable. This ratio was considered to be a function of cause and time. Inspection of the data showed that this ratio was unrelated to age, sex, or payer. Further, the listed price for a given treatment – what are considered "charges" in this study – are known to be independent of payer within a hospital. The regression was run for each cause-draw combination, with weighted total charges as the regression weight.

$$\textbf{Equation 5.3-1} \left(\frac{facility\ cha}{total\ charges} \right)_i = \beta_0 + \beta_1 year$$

The accuracy of the second model is limited by differences in how the two data sources define facility charges. MEPS IP and MEPS ED define facility charges as the amount a hospital charges a patient. This number often includes fees for a physician's work, in addition to those for the use of the facility, such as bedding or cleaning. However, some physicians charge separately from the hospital, and these separate charges are labeled as professional charges. In contrast, NIS and NEDS separate all physician charges from hospital charges when possible, even if they were both billed through the hospital.[27] This definitional difference means that "facility charges" in MEPS should tend to be a higher proportion of total charges than they would in NIS or NEDS. Consequently, our model most likely overestimates the ratio of facility charge to total charge.

Adjusting NIS and NEDS facility charges

Finally, a cause- and payer-specific facility-charge to total-expenditure conversion factor was calculated using the following conversion factor equation:

$$\textbf{Equation 5.3-2}\ \text{Conversion factor} = \left(\frac{total\ charg}{facility\ charges} \right) \left(\frac{total\ payment}{total\ charg} \right)$$

Conversion factors are cause- and payer-specific. A weighted average across payer was taken in order to obtain a single conversion factor for each cause-draw combination. The weights were calculated as the draw- and cause-specific proportions of facility charges for each payer at GBD cause Level 3. The weighted average resulted in the final conversion factor, which was applied to both NIS and NEDS.

Adjusting National Health Expenditure Account estimate for comparison

One way to evaluate the validity of the adjustment is by comparing the adjusted NIS spending data to the National Health Expenditure Accounts (NHEA) envelope. The reported charges from NIS are shown adjacent to the adjusted payment estimates in each year. To align the NHEA hospital spending with our definition of inpatient care, we applied an adjustment used in previous research.[1] We subtracted out spending attributed to "garbage causes" from this NHEA estimate. The proximity of the NHEA estimate to the adjusted NIS estimates serves as an external validation of our methods. Further, the gap between these two estimates is readily explained by the fact that the NHEA estimate includes non-operating

53

revenue, which is out of scope of NIS. Therefore, we expect our adjusted NIS spending estimates to be below the NHEA values, as has been done in prior work.[28]

5.4. Physician visits to total visits adjustment

An adjustment was required to allow the use of the MEPS dataset in conjunction with the NAMCS dataset, to enable estimates for expenditure, volume, and price for ambulatory care. The MEPS ambulatory dataset includes both physician and non-physician visits, while the NAMCS ambulatory dataset includes only physician visits and does not include non-physician visits. In order to develop estimates for price, total volume, including both physician and non-physician estimates, is necessary. Because the two datasets do not naturally line up, and because the MEPS dataset includes both physician and non-physician visits, while the NAMCS dataset includes only physician visits, a proportion framework was used to model the ratio of physician visits to total visits for the NAMCS ambulatory dataset. The unit of analysis for these were regressions was encounter level data, and the adjustments were applied to the aggregated categories for each age, sex, health condition, and year.

The NAMCS dataset does not include data on total volume, and thus strength is borrowed from the MEPS dataset using a ratio framework.

Analysis
The first ratio is the MEPS ratio:

Equation 5.4-1 $MEPS\ ratio_{age,year,sex,cause} = (\frac{physician\ visits}{total\ visits})_{age,year,sex,cause}$

Physician visits to total visits regression
A penalized spline regression model of the physician visit to total visit ratio was run separately for each cause and bootstrapped draw, with a binary indicator for sex. The equation was as follows:

Equation 5.4-2

$$\left(\frac{physician}{total}\right)_i = \beta_0 + \sum\beta_1\ year_{spline} + \sum\beta_2\ age_{spline} + \beta_3\ sex$$

This ratio is then applied to the NAMCS data:

Equation 5.4-3 $NAMCS\ total\ visits_{age,year,sex,cause} = (\frac{NAMCS\ physician\ visits}{MEPS\ ratio})_{age,year,sex,cause}$

Applying the ratio inflates the number of physician visits for NAMCS to be the number of total visits for NAMCS. In Figure 5.4-1, we illustrate this concept with an example that shows the physician visits to total regression fit for men with diabetes by age (1996, 2005, and 2015).

Figure 5.4-1. Physician visits to total visits model for men with diabetes by age (1996, 2005, 2015)

Diabetes mellitus
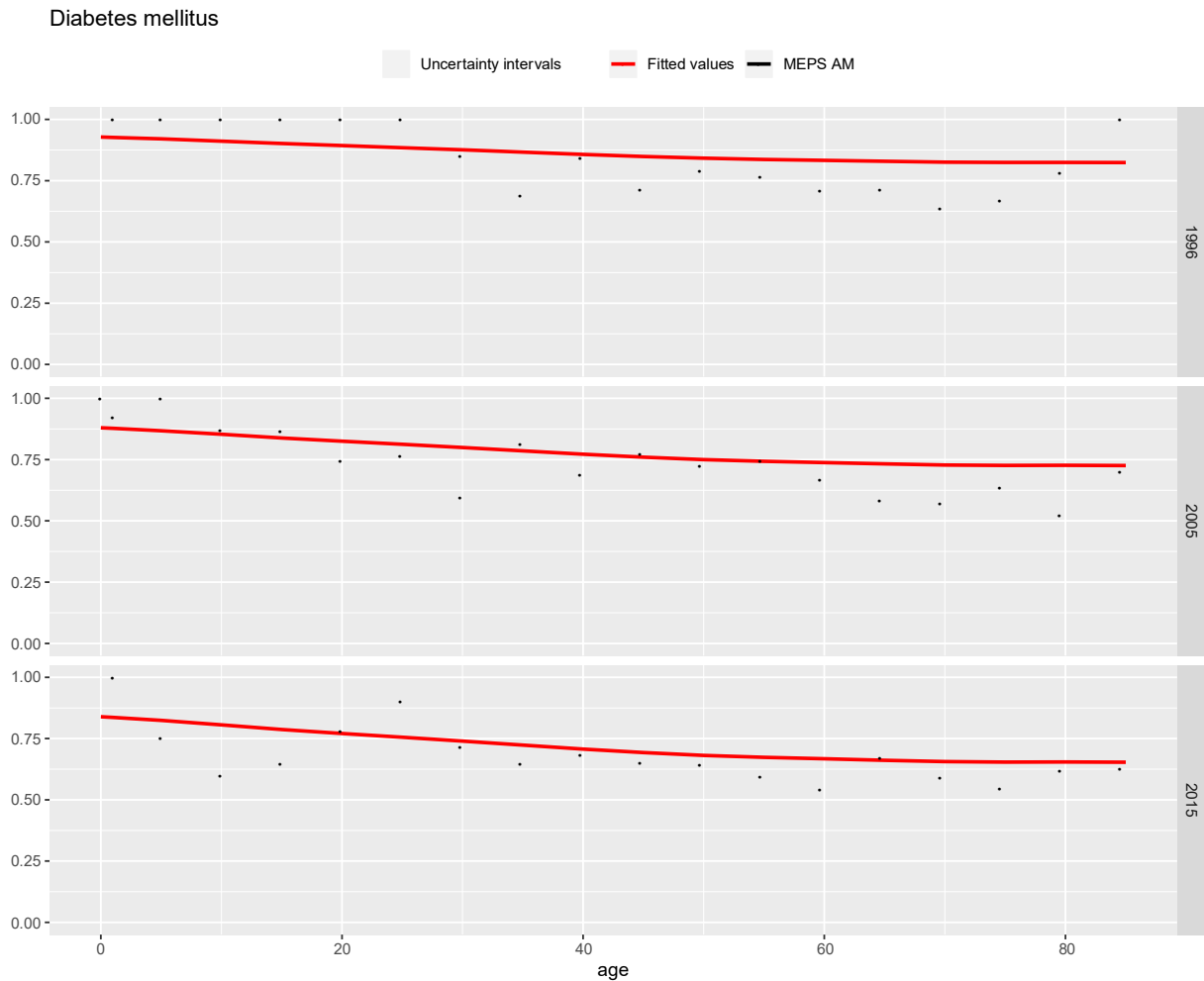
5.5. Emergency department hospitalization adjustment

The disposition of patients who arrive in the emergency department (ED) for care has important implications for the DEX project estimates for ED versus inpatient (IP) spending. In a forthcoming analysis, we provide greater detail regarding this nuance, but outline key aspects of how we handle ER estimates in the following section.

Patients who arrive in the ED can be treated and released or potentially admitted to the hospital. It was difficult in prior DEX estimates – which relied on the much smaller MEPS Emergency Room panel – to delineate which health care dollars should be assigned to the ED or the IP settings. As such, prior DEX estimates for ED spending were limited to only those encounters that were treated and released through the ED (i.e., outpatient ED). In other words, all those ED encounters with a subsequent hospitalization would have all health care spending assigned to the IP setting. As such, prior estimates

55

knowingly underestimated ED spending among those patients who were hospitalized through the ED and equivalently overestimated IP spending for those patients.

In this project, we aim to address this limitation by incorporating a new dataset to inform the ED estimates: NEDS (see Section 2 for more detail). Specifically, we leverage the fact that NEDS offers a variable that is an ED charge for every ED encounter (TOTCHG) while also providing a second variable (TOTCHG_IP) for those encounters with a linked hospitalization. This latter variable can be likened to a total hospitalization charge, inclusive of the ED charges, as payers typically request only a single bundled charge as opposed to separate charges from the ED and subsequent inpatient stay.

We rely on these two variables to help refine both our ED and IP estimates for the DEX project. Specifically, we use NEDS data to provide an overall ED estimate for all encounters, regardless of their disposition (treat and release encounters or those who are admitted through the hospital). Among those encounters who are hospitalized, we then create a fraction of the total ED charges (ED only) over total bundled charges (ED+IP). These fractions were calculated by age, sex, cause, and draw, and across time. To calculate the sum of money that should be removed from IP spending, we multiplied that fraction by total IP spending, again by cause, age, sex, draw, and year. Though these charge variables are limited and will not perfectly capture every health care dollar that should likely be attributable to the ER, it represents a useful step forward to better approximating how to extract health care dollars away from the IP setting that actually should be assigned to the ED setting among those patients who are hospitalized through the ED.

As noted above, prior DEX work relied on MEPS, which is much smaller as compared to NEDS but has the benefit of providing both charges and payments for ED patients. Since NEDS is limited to only facility charges, similar to the NIS, we continue to rely on MEPS data to help inform the subsequent adjustments that allow us to estimate actual payments from the charge data provided in NEDS.

5.6. Nursing facility adjustment

Data from NNHS, CMS-SNF, and Medicaid were used to estimate spending and volume for the nursing care type of service. All three data sources have limitations. NNHS is nationally representative, but it is sparse and only covers three years between 1996 and 2016. CMS-SNF is more comprehensive for short-term nursing home visits but not nationally representative, as it only tracks patients at skilled-nursing facilities (SNFs) who are Medicare-eligible. Medicaid tracks Medicaid beneficiaries, but it is still not nationally representative of all nursing home spending and volume. The goal of combining these three data sources is to apply the time trends found in CMS-SNF and Medicaid to the sparse yet nationally representative estimates of NNHS. Short-term and long-term stays are known to have different disease profiles, and they are also known to have changed differently over the past 15 years. Consequently, nursing care spending was estimated separately for short-term and long-term stays.[21] The results were then aggregated to estimate all health spending in nursing homes from 1996 to 2016.

Short-term stays at nursing facilities

Most nursing home care covers people with chronic illnesses that need treatment for the indefinite future.[29] The NNHS finds that 95.5% of all nursing home spending in 2004 was for long-term visits, where people had been in the facility for more than 100 days.[30] This number may be an exaggeration of reality, since the NNHS is known to under-sample short visits, but it confirms the current understanding about who spends the most in nursing homes. While long-term care makes up a significant majority of nursing care spending, nursing home care for acute conditions in SNFs has become more common in recent years.[31] These SNFs often aim to have a person leave the nursing home within 100 days, as Medicare coverage only contributes to SNF stays of 100 days or fewer.[32]

In this study, short-term stays at nursing facilities were defined as stays of fewer than 100 days. This threshold was chosen to align with that of Medicare's funding policy. Additionally, in tracking nursing care spending, it was assumed that care received at SNFs and captured by CMS-SNF is comprehensive of all nursing care stays shorter than 100 days. The 2004 NNHS finds that 2.8% of all nursing home spending was for stays shorter than 100 days and for which Medicare did not contribute. Consequently, this 2.8% of spending was not accounted for in this study. Additionally, Medicare does not cover all spending for short-term stays at SNFs.[32] However, CMS-SNF provides charge data rather than spending so all charges for this population will be captured, even if Medicare does not cover the entirety of every claim. In other words, the entire charge of a service in a skilled-nursing facility will be included in CMS-SNF, even if Medicare only covers a portion of the cost and the rest must be paid out-of-pocket. However, the fact that CMS-SNF tracks charges itself is a limitation, as charges represent pre-negotiated prices, which are known not to be equal to actual spending.

To properly estimate short-term spending and volume from CMS-SNF, the data were processed similarly to all other data sources as discussed in detail in previous sections. However, placing patients into the five-year age bins used in this study required additional methodology. For those aged 65 and older, CMS-SNF data files categorize patients into the same five-year age bins used in this study. However, due to privacy concerns, CMS-SNF places younger patients into broader age bins. For years 1999 to 2001, all patients in CMS-SNF data under 65 are aggregated into one age bin. Starting in 2002, CMS-SNF files changed the format. These files have more granular estimates, with three age bins for those under 65 years old: ages less than 25, ages 25 to 44, and ages 45 to 64. The assumption was made that, for a given sex and cause, the breakdown of spending and volume across ages is similar for all payers. Therefore, spending and volume for these younger ages were disaggregated into five-year age bins using age-specific proportions of treated prevalence in the long-term health care setting, which was estimated by MarketScan.

Data on the number of treated cases in each age, sex, and cause were extracted from MarketScan for the years 2010 to 2014. These data were available for all of the five-year age bins of interest. The number of people within an age and sex group who were treated for a specific cause was summed over the two years. Next, proportions were calculated that described the age distribution of these treated-case data within the wider age bins found in CMS-SNF. The CMS-SNF spending and volume estimates for the wide, younger age bins were then broken out into more granular age groups using these age-specific proportions. Each proportion was also matched by cause and sex.

In review, CMS-SNF is a robust source to use for estimating spending in short-term nursing care visits, as it is a census of all claims received by Medicare beneficiaries at SNFs, and it covers many years. However, CMS-SNF is not perfect. It requires the assumption that Medicare beneficiaries at SNFs constitute the entirety of nursing care visits of fewer than 100 days. CMS-SNF tracks charges and not spending, and the assumption that they are equal is known not to be true.[28] Additionally, CMS-SNF requires an extra step of processing, in which younger aggregate age bins are split into the five-year bins used in this study.

Long-term stays at nursing facilities

Medicaid and NNHS were used to estimate long-term stays at nursing facilities. NNHS is nationally representative of all nursing home visits. However, this analysis included only three years of NNHS data: 1997, 1999, and 2004. Consequently, long-term stays in NNHS were regressed on long-term stays in Medicaid to estimate all long-term nursing care spending and volume for the entire period of this study.

NNHS was processed similarly to all other data sources, except that it was not smoothed across time, as noted in Section 4. It was not smoothed across time because the only years available are 1997, 1999, and 2004, which meant there were not enough data available for the smoothing model to make valid predictions.

Medicaid had the same processing steps as the other data sources. It was tabulated by age, sex, year, and cause. Ages were aggregated to the five-year age bins used in this study. The tabulated Medicaid spending and volume estimates were processed with the same smoothing machinery as the other data sources and as described in section four.

A sex- and cause-specific mixed effects regression was applied on NNHS to estimate nationally representative spending and volume for long-term nursing care visits across the entire time period of interest. The regression model is illustrated as follows:

$$\text{Equation 5.6-1} \quad NNHS_{age,sex,i} = \beta_0 + \beta_1 Medicaid_{sex,j} + \mu_{age} Medicaid_{sex,j} + \mu_{age} + \varepsilon_i$$

where *i* is a cause. If the regression did not converge after 200 iterations, a linear regression was used. In this linear regression, cause- and sex-specific NNHS spending was regressed on Medicaid spending and fixed effects on age. Figure 5.6-1 shows the results for spending on diabetes among 80-year-old men to provide an example of how the fitted mean compares with inputs from the two long-term nursing stay sources used in this project.

Figure 5.6-1. Spending estimates for same population (80-year-old men with diabetes) across long-term nursing stay data inputs and comparison to fitted model
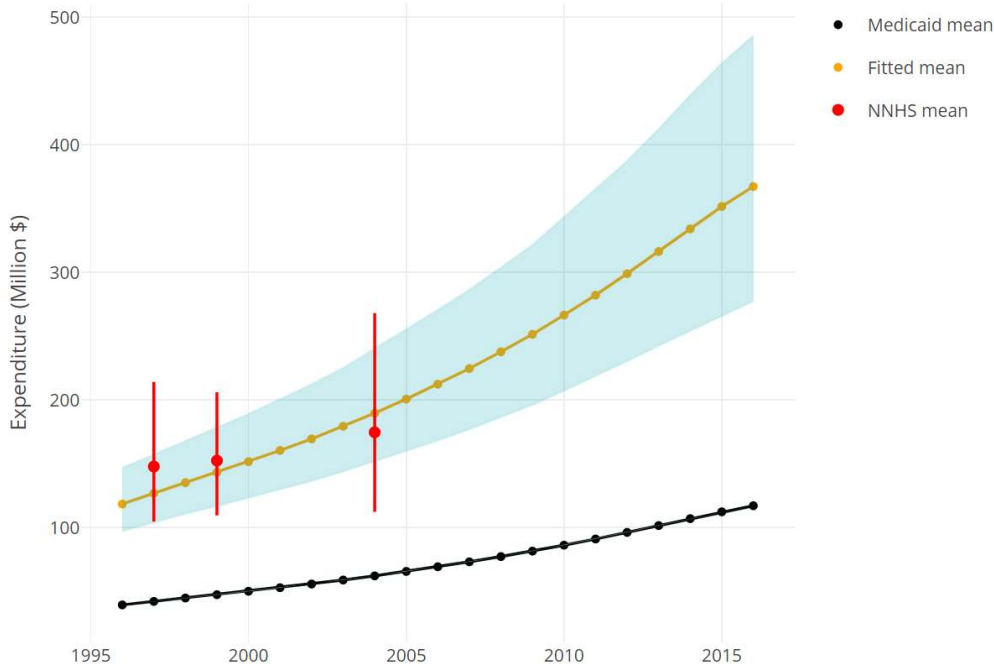
5.7. Mental health adjustment

Spending data from the Substance Abuse and Mental Health Services Administration (SAMHSA) were used to adjust our estimates for populations and care settings that are included in the NHEA estimates but out of scope of the surveys used. Specifically, goods and services provided at specialty mental health and substance abuse clinics are not accounted for in the sampling schemes of NIS and MEPS. To correct for this, two documents from the Substance Abuse and Mental Health Services Administration (SAMHSA) were used to account for the spending on visits to specialty clinics, both of which include payer data: (1) National Expenditures for Mental Health (MH) Services and Substance Abuse (SA) Treatment, 1986–2005; and (2) National Expenditures for Mental Health Services and Substance Abuse Treatment, 1986–2009. This aggregation took place at the aggregated level, meaning the spending was combined for each age, sex, health condition and year.

SAMHSA reports spending at specialty mental health centers (MHCs) and specialty substance abuse centers (SACs), which are further delineated by the setting of care: inpatient, outpatient, and residential. The SAMHSA reports provide spending estimates by MHCs and SACs across inpatient, outpatient, and residential settings for the following years: 1986, 1992, 1998, 2002, 2004, 2005, and 2009. As the NHEA

nursing care type excludes MHCs and SACs, only the inpatient and outpatient estimates from SAMHSA were included in the adjustment.

In regard to payer data, which we drew from the aforementioned reports, we took the following steps:

I. We first extracted public insurance spending, private insurance spending, and out-of-pocket (OOP) spending from specialty hospitals, specialty mental health centers, and specialty substance abuse centers, and calculated their corresponding proportions.

II. We then assumed outpatient and inpatient under the same specialty clinics (e.g., specialty hospitals) have the same payer distribution as captured above. For instance, if the proportions of public, private, and OOP of outpatient from specialty hospitals are 0.6, 0.2, 0.2, then we assumed that the proportions of public, private, and OOP of inpatient from specialty hospitals were the same – 0.6, 0.2, 0.2. This assumption was necessary since we only had payer data at the clinic level, and not at other care settings such as inpatient and outpatient.

SAMHSA expenditures were converted to 2016 USD in millions. Spending was imputed using linear regression to fill in estimates for all years from 1996 to 2016. SAMHSA estimates are reported scaled to correspond to the NHEA envelopes, so no adjustment was necessary to line up SAMHSA and the NHEA.

Applying the mental health adjustment

The SAMHSA expenditures were first subtracted from the total NHEA envelope for each given type and year. For example, the inpatient expenditure was parsed out into "inpatient expenditure excluding specialty mental health and substance abuse expenditure" and "inpatient specialty mental health and substance abuse expenditure." The ambulatory type was divided in the same manner. Microdata estimates were scaled to the "inpatient expenditure excluding specialty mental health and substance abuse expenditure."

In order to disaggregate the specialty envelopes, cause-, year-, age-, sex-, type-proportions were created from the scaled data. First, scaled spending data were summed by year, type, and whether or not the care was for mental health or substance abuse to mirror the breakdown of the SAMHSA estimates. Then individual scaled spending estimates by payer were divided by them to create scalars. These scalars were used to disaggregate the SAMHSA envelopes to arrive at age, sex, and cause Level 3-specific spending estimates proportional to the distribution of mental health and substance abuse causes in non-specialty settings.

Volume of care is not reported in SAMHSA by specialty status. In order to account for the volume of care in specialty settings, volume was back-calculated from the newly disaggregated specialty expenditure. First, age-, sex-, year-, type-, and cause-specific ratios of spending to volume were created using scaled data. After specialty spending was disaggregated, these ratios were used to back-calculate specialty volume.

To complete this adjustment, it was necessary to make the following assumptions. We assumed that the distribution of causes, ages, and sexes treated at specialty clinics is the same as the distribution treated at non-specialty settings and captured in our microdata. We also assumed that expenditure per visit or

60

bed-day at specialty and non-specialty clinics were the same in order to back-calculate volume. It is difficult to know the direction of the bias introduced by these assumptions. Assuming an equal distribution of causes, ages, and sexes in specialty clinics and non-specialty clinics most likely leads to underestimates of spending on illnesses that more often cause hospitalizations, such as schizophrenia.

5.8. Specialty drug adjustment

In recent years, specialty drugs (e.g., generally high-cost medications for complex, chronic diseases that typically require infusion and/or special handling) have accounted for a significant proportion of pharmaceutical spending. Though used relatively infrequently, specialty drugs are generally very expensive and thus important to account for when considering health expenditures for pharmaceuticals in the US. However, since specialty drugs are still relatively uncommon, our analysis relying on datasets that draw from various national samples (such as MEPS) can miss capturing the expenses attributable to these drugs. In other words, since our data stem from samples and are not comprehensive as a census would be, we may be missing these infrequently used but expensive medications. To provide more refined pharmaceutical spending estimates, we completed a specific analysis to account for specialty drugs.

First, we obtained a dataset of drugs from 2010 to 2018 from the pharmaceutical consulting firm IQVIA, using all medications listed to inform our estimates. Of note, this dataset accounts for rebates provided by the drug manufacturers to payers, which can be sizeable, potentially accounting for an additional 28% from invoice pricing.[33] Prior analyses were based on allowed costs, which may include some discounts from list prices; however, they typically do not reflect rebates given by manufacturers to payers. In our dataset, we accounted for rebates by obtaining prices net of rebates from SSR Health, a pharmaceutical consulting firm that uses manufacturer-reported drug-specific US revenue from their quarterly earnings divided by same-period US sales volume data from Symphony and IQVIA.

Next, we compiled a list of specialty drugs. To do this, we combined a number of publicly available specialty drug lists provided by different health care companies:

Year	Company	PDF
2010	Accredo Health Group, Inc.	https://www.1199seiubenefits.org/wp-content/uploads/2010/12/Specialty-Drug-List.pdf
2011	CVS Caremark	https://www.caremark.com/portal/asset/BATTELLE_Specialty_List.pdf
2012	Aetna	http://myplanportal.com/pharmacy-insurance/individuals-families/document-library/ASRx-Self-Injectable-Drug-List-2012.pdf
2013	ClearScript	https://www.preferredone.com/shared/pharmacy/P1SpecialtyDrugList.pdf
2014	Labor Value	http://laborvaluerx.com/wp-content/uploads/2014/08/Labor-Value-Rx-2014-Specialty-Drug-List.pdf
2015	Moda health	https://www.modahealth.com/pdfs/oebb/oebb_specialty_medications.pdf

61

From the lists above, drug names were compiled and crosschecked for duplicates. Of this list we were able to map 136 unique specialty drugs within the dataset to a primary health condition. This was done by manually researching drug information and assigning the most applicable health condition for a given medication. In cases, where a drug had multiple clear uses, a physician advised the primary cause selection. There were five drugs (azathioprine, CellCept, Myfortic, Rapamune, and tacrolimus) that we were unable to assign a primary cause to, as they have multiple indications including helping to prevent organ rejection after transplantation, and this did not fall squarely into a DEX health condition. We therefore excluded these five medications from our analysis.

Once each specialty drug was mapped to a DEX cause by each year, we then split this by age and sex in order to generate a specialty drug spending model that was specific by year, age, sex, and DEX cause. Once we had created this time series from the existing dataset (2010–2018), the data were backcasted for the years 1996–2009 to generate a full time series for our complete study period (1996–2016). This was done using a hierarchical regression model estimating total spending per specialty drug. This is a log-linear model that has random intercepts varying by age and a fixed year coefficient. These backcasted data were combined with the proportion-modeled data from 2010–2016, and FDA approval years were used to zero-out data where no specialty drug was approved.

These specialty drug data, now a relatively complete time series of expenditure from 1996 to 2016 by cause, were incorporated into our overall process by taking the maximum of these estimates and the smoothed estimates of our pharmaceutical data, reinforcing our belief that our data sources underestimate specialty drug spending.

6. Scaling estimates to National Health Expenditure Accounts

Spending estimates derived from microdata were scaled to official estimates of yearly health spending published in the National Health Expenditure Accounts (NHEA). Before this scaling process, the NHEA estimates were adjusted to align with the types of services used in the study. This scaling took place at the aggregated level, for each age, sex, health condition, type of care, payer, and year.

The NHEA

The NHEA provide official estimates of US health care spending.[34] Published annually by the Centers for Medicare & Medicaid Services (CMS), the NHEA estimates are generally stratified by type of good or service and by source of funds. The types of service included in the NHEA are Hospital Care; Physician and Clinical Services; Other Professional Services; Dental Services; Other Health, Residential, and Personal Care; Home Health Care; Nursing Care Facilities and Continuing Care Retirement Communities; Prescription Drugs; Durable Medical Equipment; Other Non-durable Medical Products; Administrative Spending; and Public Health Activities. The sources of funds are out-of-pocket, private health insurance, Medicare, Medicaid, CHIP, Department of Defense, Department of Veterans Affairs, worksite health care, other private revenues, Indian health services, workers' compensation, general assistance, maternal/child health, vocational rehabilitation, other federal programs, SAMHSA, other state and local programs, and school health. Recent accounts have also disaggregated personal health spending by sex and age groups.[35,36]

Adjusting NHEA data for scaling

First, the NHEA spending estimates were adjusted to line up with the types of services captured by the microdata. The NHEA do not distinguish between ambulatory spending and spending on emergency department visits that do not result in inpatient expenditure. This distinction was introduced to match our microdata sources, by using yearly nationally weighted payment estimates in MEPS. MEPS-weighted spending estimates were summed by year, and the fraction of ambulatory care spending in emergency departments was calculated and smoothed over time with a lowess regression.

To determine total spending for ER, IP, and AM types of care, we needed to realign the original NHEA stratifications. Specifically, we split the "Physician and Clinical Services" and "Hospital Care" to the above three types of care. To do this, we used MEPS data, as the MEPS dataset has spending estimates across ER, IP, and AM types of care. We used the proportion of MEPS spending across each of the three types of care to split "Physician and Clinical Services" and "Hospital Care" across the three types of care. Previously, because we are unable to ascertain spending for the different types of ED encounters ("treated and released" versus "admitted") in the MEPS ED panel, we treat ED spending as those who were discharged, and all spending for an ED encounter that was admitted was attributed to IP. To account for this limitation, we used the fractions within the emergency department adjustment (as described in Section 5.5) to affect the proportions by moving money away from IP and to ED. This represents money that was spent in the ED during an encounter in the ED that was ultimately admitted to the IP setting.

The smoothed fraction was used to disaggregate the NHEA Outpatient envelope into ambulatory and emergency department care.

The figure below (Figure 6.1) illustrates the process of adjusting and parsing NHEA reported totals in 2002:

Figure 6.1: NHEA adjustments (2002 data)
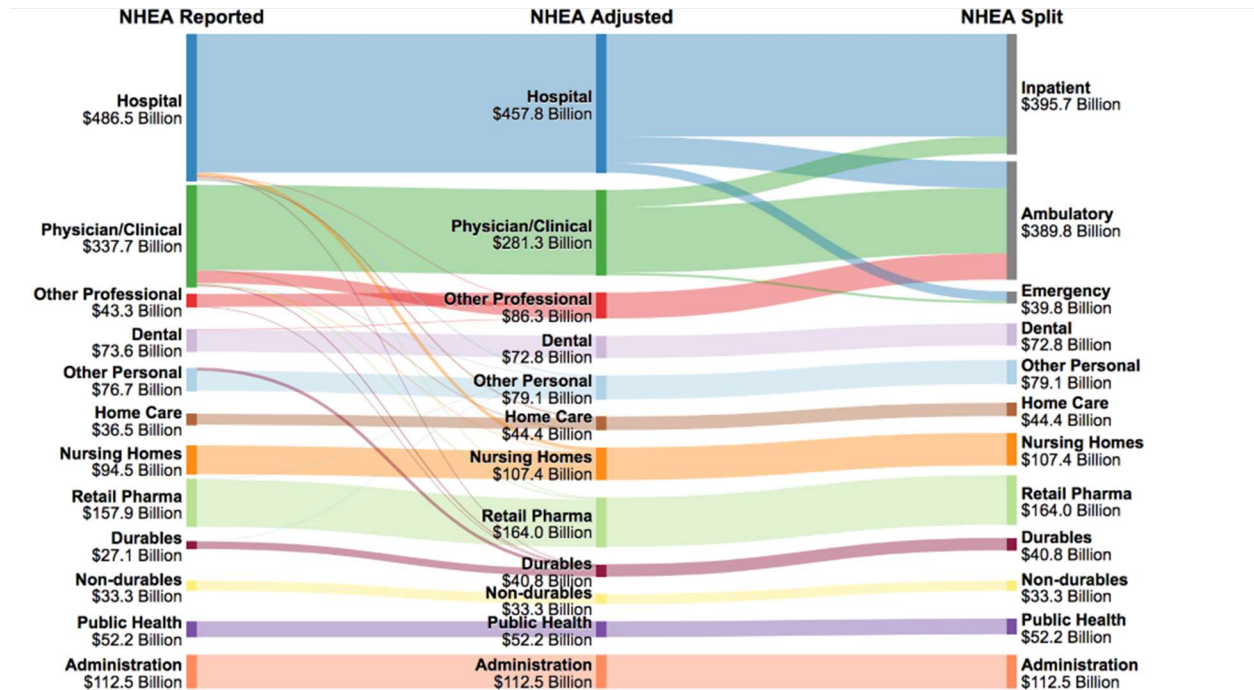
The second adjustment to the NHEA envelopes was related to the mental health adjustment (see Section 5 for details). Specialty mental health and substance abuse clinics were out-of-scope for the surveys used to derive spending and volume estimates for two types of goods and services: inpatient and ambulatory. To adjust estimates for these two types of goods and services, specialty clinic spending numbers were extracted from SAMHSA by year, type of service, and source of funds. SAMHSA reports spending already scaled to the NHEA. As such, the extracted SAMHSA amounts were subtracted from their corresponding NHEA totals to prevent double counting and produce altered spending envelopes.

Spending estimates were converted to millions of dollars to match the units of the NHEA envelopes. Age-, sex-, condition-, year-, and type-specific spending estimates were summed by year, type of good or service, and source of funds for each draw to create yearly spending totals that parallel the NHEA envelopes. These totals were then divided by the corresponding NHEA envelopes to generate year-, type-, payer-, and draw-specific scalars.

Equation 6-1 $Scalar_{type,year,payer,draw} = \dfrac{Unscaled\ spending_{type,year,payer,draw}}{NHEA\ envelope_{type,year,payer}}$

Each year-, type-, payer-, age-, sex-, condition-specific spending estimate was then divided by its type-, year-, payer-specific scalar to generate a spending estimate scaled to the NHEA.

Equation 6-2

$$Scaled\ spending_{type,year,payer,draw,age,sex,cause}$$
$$= \frac{Unscaled\ spending_{type,year.payer,draw.age.sex.cause}}{Scalar_{type,year,payer,draw}}$$

See the example box below for an illustration of these calculations.

Box 6.1. Scaling microdata to the NHEA envelope

In 2005, $191.27 billion was spent in the ambulatory care setting according to the modified NHEA envelope. The sum of spending calculated using microdata for that year in draw 1000 was $64.46 billion.

$$Scalar_{AM,2005,public,draw1000} = \frac{\$64.46\ billion}{\$191.27\ billion} = 0.3370$$

To determine scaled spending on females aged 60–64 with IHD, the microdata estimate of $38.10 million was adjusted:

$$Scaled\ spending_{AM,2005,public,draw1000,age60-64,female,IHD} = \frac{\$38.10\ million}{0.3370} = \$113.06\ million$$

7. Making payer-specific estimates

For this project, our analyses delineated spending across three main payers in the US health system. To accomplish this, we completed what we refer to as the "payer split" process. The payer groups in our analysis consist of the following three groups: private, public, and out-of-pocket (OOP). Data were largely drawn from MEPS, as it provides information on payer split relationships. Of the seven types of care included in these analyses, (inpatient, prescribed retail pharmaceuticals, ambulatory, dental, emergency, nursing care facilities, and general administration), long-term data are extracted from the MCBS dataset, and general administration data are extracted from the NHEA envelope. Payer split data are extracted from the MEPS dataset for the other five types of care. Since the aged pre-65 and post-65 data have different trends in public, private, and out-of-pocket insurance spending, we first split the data by age pre-65 and post-65. The regression analyses was estimated at the encounter level, but the adjustments were applied at the aggregate level for each age, sex, health condition, type of care, and year.

Analysis

Payer splits for a single cause are based on the results of a regression, with age and year splines integrated into the models. We require a ratio of payments split between public, private, and OOP. This means for each age, year, sex, cause group, each payer ratio must be between 0 and 1, and the three payer ratios should add up to exactly 1. To ensure this relationship holds true, centered-log transformations were used for the models.

The data are centered-log-transformed using the following **Equations 7-1**:

$$Y_{private\_prop} = \ln \left(\frac{P_{private\_prop}}{\sqrt[3]{P_{private\_prop} \times P_{oop\_prop} \times P_{public\_prop}}} \right)$$

$$Y_{oop\_prop} = \ln \left(\frac{P_{oop\_prop}}{\sqrt[3]{P_{private\_prop} \times P_{oop\_prop} \times P_{public\_prop}}} \right)$$

$$Y_{public\_prop} = \ln \left(\frac{P_{public\_prop}}{\sqrt[3]{P_{private\_prop} \times P_{oop\_prop} \times P_{public\_prop}}} \right)$$

Using the centered-log-transformed data from above, regressions are performed by payer with age and year splines. **Equations 7-2:**

$$Y_{private\_prop} = \alpha + \sum \beta_i \, age_{spline_i} + \sum \beta_j \, year_{spline_j}$$

$$Y_{oop\_prop} = \alpha + \sum \beta_i \, age_{spline_i} + \sum \beta_j \, year_{spline_j}$$

$$Y_{public\_prop} = \alpha + \sum \beta_i \, age_{spline_i} + \sum \beta_j \, year_{spline_j}$$

The data are then transformed back to normal space by performing an inverse log-transform according to the following **Equations 7-3**:

$$P_{private\_prop} = \frac{e^{Y_{private\_prop}}}{e^{Y_{private\_prop}} + e^{Y_{oop\_prop}} + e^{Y_{public\_prop}}}$$

$$P_{oop\_prop} = \frac{e^{Y_{oop\_prop}}}{e^{Y_{private\_prop}} + e^{Y_{oop\_prop}} + e^{Y_{public\_prop}}}$$

$$P_{public\_prop} = \frac{e^{Y_{public\_prop}}}{e^{Y_{private\_prop}} + e^{Y_{oop\_prop}} + e^{Y_{public\_prop}}}$$

This analysis allows us to create estimates for payers at each age, year, sex, and cause.

Figure 7.1 shows the payer split regression fit for diabetes by age for ambulatory care (1996, 2006, and 2016). The fitted line shows our estimates and the associated 95% confidence interval, while each of the black dots reports the observations for one draw.

Figure 7.1: Payer split results for diabetes, 1996, 2006, 2016
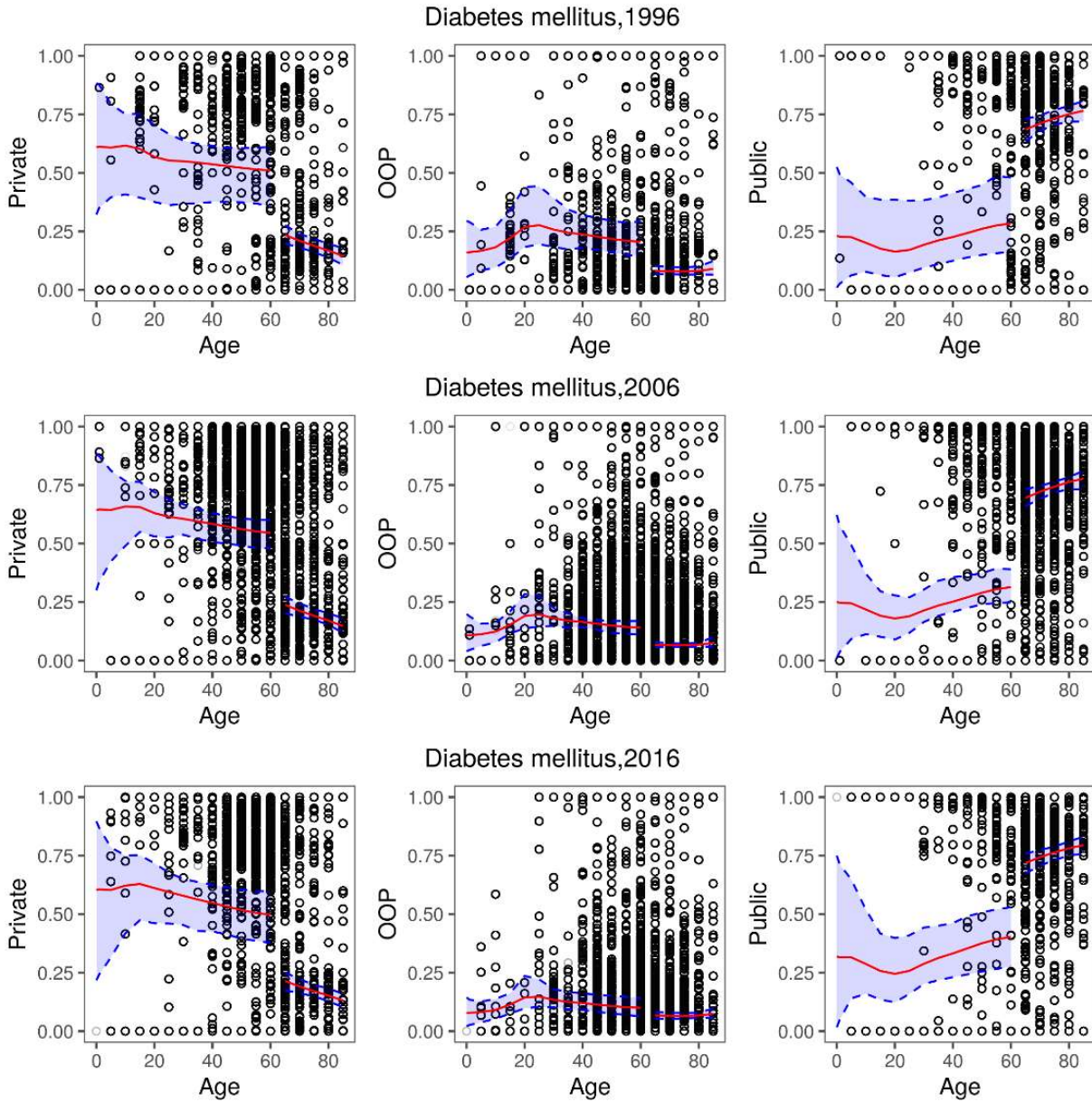
8. Measuring uncertainty

Bootstrapping

To obtain estimates of uncertainty, all data sources were bootstrapped 1,000 times after the initial formatting stages. Observations were stratified by year and data source, producing 1,000 individual sample points for each original point quantity on which to run analyses. Complex survey design was taken into consideration for bootstrapping by using the Stata user-written *bsweights*.[37] This command ensured that the bootstrapped data resembled the original sampling scheme by resampling entire primary sampling units within each strata. In other words, the patient weights were incorporated into all estimation in this research project. All statistical analyses were performed at the bootstrap draw level. This includes redistribution of garbage codes, the comorbidity regression, the charges-to-payment regression, the hierarchical smoothing model, the long-term adjustment, and scaling to the National Health Expenditure Account envelopes.

Probabilistic assignment

The probabilistic adjustments, composed of the detruncation, injury, and not-elsewhere-classified (NEC) adjustments (as described in Section 3), represent a major source of uncertainty. Each of these adjustments works by reassigning causes according to the distributions of other causes observed in the data. Only performing these assignments once is problematic because it does not reflect the uncertainty in the data around making these reassignments, particularly for rare causes. Therefore, we performed the reassignments at the bootstrap draw level as well, resulting in 1,000 causes for each observation. This means that the set of causes present in a data source for an individual can vary by draw in some instances.

Final estimates and uncertainty intervals

After the data were fully adjusted, final estimates and uncertainty intervals were calculated across the 1,000 bootstrap draws. Final estimates were the mean of spending or volume for each age, sex, condition, year, and type combination. Uncertainty intervals were taken to be the 2.5th and 97.5th percentiles. Percentile interval bootstrap was used, despite the limitation that the point estimate is not independently determined by the observed data, because the probabilistic assignment of the detruncated code, injury adjustment and NEC codes means that there is now single draw of data that reflects the observed data.

9.   Condition map

Table 9.1: Map of all DEX conditions to ICD codes

The cause "well-baby" was extracted from well-person inpatient encounters. Specifically, an encounter was classified as well-baby if it occurred in the inpatient setting and had any of the well-person ICD codes for age 0 as noted in Table 9.1.

Please note that ICD10 codes exceeded the character limit for low back and neck pain; thus these are shown on two separate rows (see cause #121 and 121.1).

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
A.1.1	Tuberculosis	010, 010.0, 010.00, 010.01, 010.02, 010.03, 010.04, 010.05, 010.06, 010.09, 010.1, 010.10, 010.11, 010.12, 010.13, 010.14, 010.15, 010.16, 010.19, 010.2, 010.3, 010.4, 010.5, 010.6, 010.8, 010.80, 010.81, 010.82, 010.83, 010.84, 010.85, 010.86, 010.89, 010.9, 010.90, 010.91, 010.92, 010.93, 010.94, 010.95, 010.96, 010.99, 011, 011.0, 011.00, 011.01, 011.02, 011.03, 011.04, 011.05, 011.06, 011.09, 011.1, 011.10, 011.11, 011.12, 011.13, 011.14, 011.15, 011.16, 011.19, 011.2, 011.20, 011.21, 011.22, 011.23, 011.24, 011.25, 011.26, 011.29, 011.3, 011.30, 011.31, 011.32, 011.33, 011.34, 011.35, 011.36, 011.39, 011.4, 011.40, 011.41, 011.42, 011.43, 011.44, 011.45, 011.46, 011.49, 011.5, 011.50, 011.51, 011.52, 011.53, 011.54, 011.55, 011.56, 011.59, 011.6, 011.60, 011.61, 011.62, 011.63, 011.64, 011.65, 011.66, 011.69, 011.7, 011.70, 011.71, 011.72, 011.73, 011.74, 011.75, 011.76, 011.79, 011.8, 011.80, 011.81, 011.82, 011.83, 011.84, 011.85, 011.86, 011.89, 011.9, 011.90, 011.91, 011.92, 011.93, 011.94, 011.95, 011.96, 011.99, 012, 012.0, 012.00,	A10, A11, A12, A13, A14, A15, A15.0, A15.1, A15.2, A15.3, A15.4, A15.5, A15.6, A15.7, A15.8, A15.9, A16, A16.0, A16.1, A16.2, A16.3, A16.4, A16.5, A16.7, A16.8, A16.9, A17, A17.0, A17.1, A17.3, A17.8, A17.81, A17.82, A17.83, A17.89, A17.9, A18, A18.0, A18.01, A18.02, A18.03, A18.09, A18.1, A18.10, A18.11, A18.12, A18.13, A18.14, A18.15, A18.16, A18.17, A18.18, A18.2, A18.3, A18.31, A18.32, A18.39, A18.4, A18.5, A18.50, A18.51, A18.52, A18.53, A18.54, A18.59, A18.6, A18.7, A18.8, A18.81, A18.82, A18.83, A18.84, A18.85, A18.89, A19, A19.0, A19.1, A19.2, A19.8, A19.9, B20.0, B90, B90.0, B90.1, B90.2, B90.8, B90.9, K67.3, K93.0, M49.0, N74.0, N74.1, U84.3, Z03.0, Z11.1, Z20.1, Z23.2	both	0-85

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
		012.01, 012.02, 012.03, 012.04, 012.05, 012.06, 012.09, 012.1, 012.10, 012.11, 012.12, 012.13, 012.14, 012.15, 012.16, 012.19, 012.2, 012.20, 012.21, 012.22, 012.23, 012.24, 012.25, 012.26, 012.29, 012.3, 012.30, 012.31, 012.32, 012.33, 012.34, 012.35, 012.36, 012.39, 012.4, 012.7, 012.8, 012.80, 012.81, 012.82, 012.83, 012.84, 012.85, 012.86, 012.89, 012.9, 013, 013.0, 013.00, 013.01, 013.02, 013.03, 013.04, 013.05, 013.06, 013.09, 013.1, 013.10, 013.11, 013.12, 013.13, 013.14, 013.15, 013.16, 013.19, 013.2, 013.20, 013.21, 013.22, 013.23, 013.24, 013.25, 013.26, 013.29, 013.3, 013.30, 013.31, 013.32, 013.33, 013.34, 013.35, 013.36, 013.39, 013.4, 013.40, 013.41, 013.42, 013.43, 013.44, 013.45, 013.46, 013.49, 013.5, 013.50, 013.51, 013.52, 013.53, 013.54, 013.55, 013.56, 013.59, 013.6, 013.60, 013.61, 013.62, 013.63, 013.64, 013.65, 013.66, 013.69, 013.8, 013.80, 013.81, 013.82, 013.83, 013.84, 013.85, 013.86, 013.89, 013.9, 013.90, 013.91, 013.92, 013.93, 013.94, 013.95, 013.96, 013.99, 014, 014.0, 014.00, 014.01, 014.02, 014.03, 014.04, 014.05, 014.06, 014.09, 014.2, 014.8, 014.80, 014.81, 014.82, 014.83, 014.84, 014.85, 014.86, 014.89, 014.9, 015, 015.0, 015.00, 015.01, 015.02, 015.03, 015.04, 015.05, 015.06, 015.09, 015.1, 015.10, 015.11, 015.12, 015.13, 015.14, 015.15, 015.16, 015.19, 015.2, 015.20, 015.21, 015.22, 015.23, 015.24, 015.25, 015.26, 015.29, 015.3, 015.4, 015.5, 015.50, 015.51, 015.52, 015.53, 015.54, 015.55, 015.56, 015.59, 015.6, 015.60, 015.61, 015.62,			

71

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
		015.63, 015.64, 015.65, 015.66, 015.69, 015.7, 015.70, 015.71, 015.72, 015.73, 015.74, 015.75, 015.76, 015.79, 015.8, 015.80, 015.81, 015.82, 015.83, 015.84, 015.85, 015.86, 015.89, 015.9, 015.90, 015.91, 015.92, 015.93, 015.94, 015.95, 015.96, 015.99, 016, 016.0, 016.00, 016.01, 016.02, 016.03, 016.04, 016.05, 016.06, 016.09, 016.1, 016.10, 016.11, 016.12, 016.13, 016.14, 016.15, 016.16, 016.19, 016.2, 016.20, 016.21, 016.22, 016.23, 016.24, 016.25, 016.26, 016.29, 016.3, 016.30, 016.31, 016.32, 016.33, 016.34, 016.35, 016.36, 016.39, 016.4, 016.40, 016.41, 016.42, 016.43, 016.44, 016.45, 016.46, 016.49, 016.5, 016.50, 016.51, 016.52, 016.53, 016.54, 016.55, 016.56, 016.59, 016.6, 016.60, 016.61, 016.62, 016.63, 016.64, 016.65, 016.66, 016.69, 016.7, 016.70, 016.71, 016.72, 016.73, 016.74, 016.75, 016.76, 016.79, 016.9, 016.90, 016.91, 016.92, 016.93, 016.94, 016.95, 016.96, 016.99, 017, 017.0, 017.00, 017.01, 017.02, 017.03, 017.04, 017.05, 017.06, 017.09, 017.1, 017.10, 017.11, 017.12, 017.13, 017.14, 017.15, 017.16, 017.19, 017.2, 017.20, 017.21, 017.22, 017.23, 017.24, 017.25, 017.26, 017.29, 017.3, 017.30, 017.31, 017.32, 017.33, 017.34, 017.35, 017.36, 017.39, 017.4, 017.40, 017.41, 017.42, 017.43, 017.44, 017.45, 017.46, 017.49, 017.5, 017.50, 017.51, 017.52, 017.53, 017.54, 017.55, 017.56, 017.59, 017.6, 017.60, 017.61, 017.62, 017.63, 017.64, 017.65, 017.66, 017.69, 017.7, 017.70, 017.71, 017.72, 017.73, 017.74, 017.75, 017.76, 017.79, 017.8, 017.80,			

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
		017.81, 017.82, 017.83, 017.84, 017.85, 017.86, 017.89, 017.9, 017.90, 017.91, 017.92, 017.93, 017.94, 017.95, 017.96, 017.99, 018, 018.0, 018.00, 018.01, 018.02, 018.03, 018.04, 018.05, 018.06, 018.09, 018.3, 018.5, 018.8, 018.80, 018.81, 018.82, 018.83, 018.84, 018.85, 018.86, 018.89, 018.9, 018.90, 018.91, 018.92, 018.93, 018.94, 018.95, 018.96, 018.99, 019, 019.3, 019.9, 137, 137.0, 137.1, 137.2, 137.3, 137.4, 137.5, 137.9, 320.4, 730.4, 730.5, 730.6, V01.1, V03.2, V12.01, V71.2, V74.1			

73

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
A.1.2	HIV/AIDS	042, 042.0, 042.1, 042.2, 042.4, 042.5, 042.7, 042.8, 042.9, 043, 043.0, 043.1, 043.2, 043.3, 043.4, 043.5, 043.6, 043.7, 043.8, 043.9, 044, 044.1, 044.4, 044.7, 044.9, 176, 176.0, 176.1, 176.2, 176.3, 176.4, 176.5, 176.8, 176.9, V08	B20, O98.7, O98.71, O98.711, O98.712, O98.713, O98.719, O98.72, O98.73, Z21, B20.1, B20.2, B20.3, B20.4, B20.5, B20.6, B20.7, B20.8, B20.9, B21, B21.0, B21.1, B21.2, B21.3, B21.7, B21.8, B21.9, B22, B22.0, B22.1, B22.2, B22.7, B23, B23.0, B23.1, B23.2, B23.8, B24, B24.0, C46, C46.0, C46.1, C46.2, C46.3, C46.4, C46.5, C46.50, C46.51, C46.52, C46.7, C46.8, C46.9, F02.4	both	0-85

74

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
A.2.1	Diarrheal diseases	001, 001.0, 001.1, 001.4, 001.6, 001.8, 001.9, 003, 003.0, 003.1, 003.2, 003.20, 003.21, 003.22, 003.23, 003.24, 003.29, 003.4, 003.5, 003.6, 003.7, 003.8, 003.9, 004, 004.0, 004.1, 004.2, 004.3, 004.8, 004.9, 005, 005.0, 005.1, 005.2, 005.3, 005.4, 005.8, 005.81, 005.89, 005.9, 006, 006.0, 006.1, 006.2, 006.3, 006.4, 006.5, 006.6, 006.7, 006.8, 006.9, 007, 007.1, 007.2, 007.3, 007.4, 007.5, 007.7, 007.8, 007.9, 008, 008.0, 008.00, 008.01, 008.02, 008.03, 008.04, 008.09, 008.1, 008.2, 008.3, 008.4, 008.41, 008.42, 008.43, 008.44, 008.45, 008.46, 008.47, 008.49, 008.5, 008.6, 008.61, 008.62, 008.63, 008.64, 008.65, 008.66, 008.67, 008.69, 008.7, 008.8, 008.9, 009, 009.0, 009.1, 009.2, 009.3, 009.4, 009.5, 009.6, 009.7, 009.8, 009.9, V01.0, V01.83, V02.0, V02.2, V02.3, V03.0, V74.0	A08.2, A06, A06.0, A06.1, A06.2, A06.3, A06.4, A06.5, A06.6, A06.7, A06.8, A06.81, A06.82, A06.89, A06.9, A04.5, A00, A00.0, A00.1, A00.9, Z11.0, Z22.1, Z23.0, A04.7, A07.2, A07.4, A04.0, A04.1, A04.3, A05, A05.0, A05.1, A05.2, A05.3, A05.4, A05.5, A05.8, A05.9, A08.1, A08.11, A04, A04.2, A04.4, A04.6, A04.8, A04.9, A07, A07.1, A07.3, A07.8, A07.9, A08, A08.19, A08.3, A08.31, A08.32, A08.39, A08.4, A08.5, A08.8, A09, A08.0, A02, A02.0, A02.1, A02.2, A02.20, A02.21, A02.22, A02.23, A02.24, A02.25, A02.29, A02.8, A02.9, A03, A03.0, A03.1, A03.2, A03.3, A03.8, A03.9	both	0-85
A.2.2	Intestinal infectious diseases	002, 002.0, 002.1, 002.2, 002.3, 002.4, 002.9, V02.1, V03.1	A01, A01.1, A01.2, A01.3, A01.4, Z20.0, Z20.01, Z20.09, A01.0, A01.00, A01.01, A01.02, A01.03, A01.04, A01.05, A01.09, Z22.0	both	0-85

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
A.2.3	Lower respiratory tract infections	079.82, 466, 466.0, 466.1, 466.11, 466.19, 466.9, 468, 469, 470.0, 480, 480.0, 480.1, 480.2, 480.3, 480.8, 480.9, 481, 481.0, 481.2, 481.9, 482, 482.0, 482.1, 482.2, 482.3, 482.30, 482.31, 482.32, 482.39, 482.4, 482.40, 482.41, 482.42, 482.49, 482.8, 482.81, 482.82, 482.83, 482.84, 482.89, 482.9, 483, 483.0, 483.1, 483.8, 483.9, 484, 484.1, 484.2, 484.3, 484.4, 484.5, 484.6, 484.7, 484.8, 485, 485.0, 485.1, 485.4, 485.6, 485.9, 486, 486.0, 486.1, 486.4, 486.9, 487, 487.0, 487.1, 487.8, 487.9, 488, 488.0, 488.01, 488.02, 488.09, 488.1, 488.11, 488.12, 488.19, 488.8, 488.81, 488.82, 488.89, 489, 490, 490.0, 490.1, 490.2, 490.9, 507, 507.0, 507.1, 507.5, 507.8, 507.9, 510, 510.0, 510.9, 511, 511.0, 511.1, 511.8, 511.81, 511.89, 511.9, 513.0, 513.1, 513.9, 770.0, V01.82, V03.81, V03.82, V04.7, V04.81, V04.82, V12.61	J09, J09.6, J10, J10.0, J10.00, J10.01, J10.08, J10.1, J10.2, J10.8, J10.81, J10.82, J10.83, J10.89, J10.9, J11, J11.0, J11.00, J11.08, J11.1, J11.2, J11.8, J11.81, J11.82, J11.83, J11.89, J12.2, J12.81, U04, U04.9, Z25.1, J14, J14.0, A48.1, J12, J12.0, J12.3, J12.8, J12.89, J12.9, J15, J15.0, J15.1, J15.2, J15.20, J15.21, J15.211, J15.212, J15.29, J15.3, J15.4, J15.5, J15.6, J15.7, J15.8, J15.9, J16, J16.0, J16.8, J16.9, J17, J17.0, J17.1, J17.2, J17.3, J17.8, J18, J18.0, J18.8, J18.9, J19.6, J20, J20.8, J20.9, J21, J21.1, J21.8, J21.9, J22.0, J22.9, J40, J85.0, J85.1, J85.2, J85.3, J86.0, J86.9, J90, J91.0, J91.8, J92.0, J92.9, J94.0, J94.1, J94.2, J94.8, J94.9, P23, P23.0, P23.1, P23.2, P23.3, P23.4, P23.5, P23.6, P23.8, P23.9, R09.1, J13, J13.0, J13.9, J18.1, J69, J69.0, J69.1, J69.8, J69.9, J12.1, J21.0	both	0-85

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
A.2.4	Upper respiratory tract infections	460, 460.0, 460.9, 461, 461.0, 461.1, 461.2, 461.3, 461.8, 461.9, 462, 462.0, 462.9, 463, 463.0, 463.9, 464, 464.0, 464.00, 464.01, 464.1, 464.10, 464.11, 464.2, 464.20, 464.21, 464.3, 464.30, 464.31, 464.4, 464.5, 464.50, 464.51, 464.8, 464.9, 465, 465.0, 465.1, 465.8, 465.9, 475, 475.0, 475.9, 476.9	J00, J00.0, J01, J01.0, J01.00, J01.01, J01.1, J01.10, J01.11, J01.2, J01.20, J01.21, J01.3, J01.30, J01.31, J01.4, J01.40, J01.41, J01.8, J01.80, J01.81, J01.9, J01.90, J01.91, J02, J02.8, J02.9, J03, J03.0, J03.00, J03.01, J03.8, J03.80, J03.81, J03.9, J03.90, J03.91, J04, J04.0, J04.1, J04.10, J04.11, J04.2, J04.3, J04.30, J04.31, J05, J05.0, J05.1, J05.10, J05.11, J06, J06.0, J06.8, J06.9, J36, J36.0	both	0-85

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
A.2.5	Otitis media	381, 381.0, 381.00, 381.01, 381.02, 381.03, 381.04, 381.05, 381.06, 381.1, 381.10, 381.19, 381.2, 381.20, 381.29, 381.3, 381.4, 381.5, 381.50, 381.51, 381.52, 381.6, 381.60, 381.61, 381.62, 381.63, 381.7, 381.8, 381.81, 381.89, 381.9, 382, 382.0, 382.00, 382.01, 382.02, 382.1, 382.2, 382.3, 382.4, 382.9, 383, 383.0, 383.00, 383.01, 383.02, 383.1, 383.2, 383.20, 383.21, 383.22, 383.3, 383.30, 383.31, 383.32, 383.33, 383.8, 383.81, 383.89, 383.9	H65, H65.0, H65.00, H65.01, H65.02, H65.03, H65.04, H65.05, H65.06, H65.07, H65.1, H65.11, H65.111, H65.112, H65.113, H65.114, H65.115, H65.116, H65.117, H65.119, H65.19, H65.191, H65.192, H65.193, H65.194, H65.195, H65.196, H65.197, H65.199, H65.2, H65.20, H65.21, H65.22, H65.23, H65.3, H65.30, H65.31, H65.32, H65.33, H65.4, H65.41, H65.411, H65.412, H65.413, H65.419, H65.49, H65.491, H65.492, H65.493, H65.499, H65.9, H65.90, H65.91, H65.92, H65.93, H66, H66.0, H66.00, H66.001, H66.002, H66.003, H66.004, H66.005, H66.006, H66.007, H66.009, H66.01, H66.011, H66.012, H66.013, H66.014, H66.015, H66.016, H66.017, H66.019, H66.1, H66.10, H66.11, H66.12, H66.13, H66.2, H66.20, H66.21, H66.22, H66.23, H66.3, H66.4, H66.40, H66.41, H66.42, H66.43, H66.9, H66.90, H66.91, H66.92, H66.93, H67, H67.0, H67.1, H67.2, H67.3, H67.8, H67.9, H68, H68.0, H68.00, H68.001, H68.002, H68.003, H68.009, H68.01, H68.011, H68.012, H68.013, H68.019, H68.02, H68.021, H68.022, H68.023, H68.029, H68.1, H68.10, H68.101, H68.102, H68.103, H68.109, H68.11, H68.111, H68.112, H68.113, H68.119, H68.12, H68.121, H68.122, H68.123, H68.129, H68.13, H68.131, H68.132, H68.133, H68.139, H69, H69.0, H69.00, H69.01, H69.02, H69.03, H69.8, H69.80, H69.81, H69.82, H69.83, H69.9, H69.90, H69.91, H69.92, H69.93, H70, H70.0, H70.00, H70.001, H70.002, H70.003,	both	0-85

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			H70.009, H70.01, H70.011, H70.012, H70.013, H70.019, H70.09, H70.091, H70.092, H70.093, H70.099, H70.1, H70.10, H70.11, H70.12, H70.13, H70.2, H70.20, H70.201, H70.202, H70.203, H70.209, H70.21, H70.211, H70.212, H70.213, H70.219, H70.22, H70.221, H70.222, H70.223, H70.229, H70.8, H70.81, H70.811, H70.812, H70.813, H70.819, H70.89, H70.891, H70.892, H70.893, H70.899, H70.9, H70.90, H70.91, H70.92, H70.93		

79

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
A.2.6	Meningitis	036, 036.0, 036.1, 036.2, 036.3, 036.4, 036.40, 036.41, 036.42, 036.43, 036.5, 036.6, 036.8, 036.81, 036.82, 036.89, 036.9, 047, 047.0, 047.1, 047.2, 047.3, 047.4, 047.8, 047.9, 048, 048.0, 048.1, 048.2, 048.5, 048.6, 048.9, 049, 049.0, 049.1, 049.2, 049.3, 049.4, 049.6, 049.8, 049.9, 054.72, 320, 320.0, 320.1, 320.2, 320.3, 320.5, 320.7, 320.8, 320.81, 320.82, 320.89, 320.9, 321, 321.0, 321.1, 321.2, 321.3, 321.4, 321.5, 321.6, 321.7, 321.8, 322, 322.0, 322.1, 322.2, 322.9, 324, 324.0, 324.1, 324.9, 325, 325.0, 325.9, 326, 326.0, 326.9, V01.84, V12.42	G00.0, A39, A39.0, A39.1, A39.2, A39.3, A39.4, A39.5, A39.50, A39.51, A39.52, A39.53, A39.8, A39.81, A39.82, A39.83, A39.84, A39.89, A39.9, A85.0, A85.1, A85.8, A86, A87, A87.0, A87.1, A87.2, A87.8, A87.9, A88.0, A88.8, A89, B00.3, G00, G00.2, G00.3, G00.8, G00.9, G01, G01.0, G02, G02.0, G02.1, G02.8, G03, G03.0, G03.1, G03.2, G03.8, G03.9, G04.2, G06, G06.0, G06.1, G06.2, G07, G07.0, G08, G08.0, G09, G09.0, G09.9, G00.1	both	0-85

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
A.2.7	Encephalitis	062, 062.0, 062.1, 062.2, 062.3, 062.4, 062.5, 062.6, 062.7, 062.8, 062.9, 063, 063.0, 063.1, 063.2, 063.3, 063.4, 063.7, 063.8, 063.9, 064, 064.0, 064.1, 064.3, 064.4, 064.9, 310.89, 323, 323.0, 323.01, 323.02, 323.1, 323.2, 323.3, 323.4, 323.41, 323.42, 323.5, 323.51, 323.52, 323.6, 323.61, 323.62, 323.63, 323.7, 323.71, 323.72, 323.8, 323.81, 323.82, 323.9, V05.0, V05.1	A83, A83.0, A83.1, A83.2, A83.3, A83.4, A83.5, A83.6, A83.8, A83.9, A84, A84.0, A84.1, A84.8, A84.9, A85, A85.2, A86.0, F07.1, G04, G04.0, G04.00, G04.01, G04.02, G04.3, G04.30, G04.31, G04.32, G04.39, G04.8, G04.81, G04.89, G04.9, G04.90, G04.91, G05, G05.0, G05.1, G05.2, G05.3, G05.4, G05.8, G37.4, G92, Z24.1	both	0-85
A.2.8	Diphtheria	032, 032.0, 032.1, 032.2, 032.3, 032.6, 032.8, 032.81, 032.82, 032.83, 032.84, 032.85, 032.89, 032.9, V02.4, V03.5, V74.3	A36, A36.0, A36.1, A36.2, A36.3, A36.8, A36.81, A36.82, A36.83, A36.84, A36.85, A36.86, A36.89, A36.9, Z22.2, Z23.6	both	0-55
A.2.9	Whooping cough	033, 033.0, 033.1, 033.3, 033.8, 033.9, V03.6	A37, A37.0, A37.00, A37.01, A37.1, A37.10, A37.11, A37.8, A37.80, A37.81, A37.9, A37.90, A37.91, Z23.7	both	0-55
A.2.10	Tetanus	037, 037.0, 037.4, 037.6, 037.8, 037.9, 771.3, V03.7	Y58.4, A33, A33.0, A34.0, A35, A35.0, Z23.5	both	0-85

81

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
A.2.11	Measles	055, 055.0, 055.1, 055.2, 055.3, 055.5, 055.6, 055.7, 055.71, 055.79, 055.8, 055.9, 484.0, V04.2, V73.2	B05, B05.0, B05.1, B05.2, B05.3, B05.4, B05.8, B05.81, B05.89, B05.9, Z24.4	both	0-55
A.2.12	Varicella	052, 052.0, 052.1, 052.2, 052.6, 052.7, 052.8, 052.9, 053, 053.0, 053.1, 053.10, 053.11, 053.12, 053.13, 053.14, 053.19, 053.2, 053.20, 053.21, 053.22, 053.29, 053.3, 053.5, 053.6, 053.7, 053.71, 053.79, 053.8, 053.9, V01.71, V05.4	B01, B01.0, B01.1, B01.11, B01.12, B01.2, B01.8, B01.81, B01.89, B01.9, B02, B02.0, B02.1, B02.2, B02.21, B02.22, B02.23, B02.24, B02.29, B02.3, B02.30, B02.31, B02.32, B02.33, B02.34, B02.39, B02.7, B02.8, B02.9	both	0-85

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
A.3.1	Neglected tropical diseases and malaria	060, 060.0, 060.1, 060.2, 060.3, 060.4, 060.5, 060.6, 060.7, 060.8, 060.9, 061, 061.0, 061.1, 061.6, 061.8, 065, 065.0, 065.1, 065.2, 065.3, 065.4, 065.6, 065.8, 065.9, 066, 066.0, 066.1, 066.2, 066.3, 066.4, 066.40, 066.41, 066.42, 066.49, 066.5, 066.8, 066.9, 071, 071.0, 071.1, 071.4, 071.5, 071.6, 071.7, 071.8, 071.9, 076, 076.0, 076.1, 076.5, 076.6, 076.8, 076.9, 080, 080.0, 080.2, 080.5, 080.7, 080.8, 081, 081.0, 081.1, 081.2, 081.3, 081.5, 081.6, 081.9, 082, 082.0, 082.1, 082.2, 082.3, 082.4, 082.40, 082.41, 082.49, 082.5, 082.7, 082.8, 082.9, 083, 083.0, 083.1, 083.2, 083.3, 083.6, 083.8, 083.9, 084, 084.0, 084.1, 084.2, 084.3, 084.4, 084.5, 084.6, 084.7, 084.8, 084.9, 085, 085.0, 085.1, 085.2, 085.3, 085.4, 085.5, 085.9, 086, 086.0, 086.1, 086.2, 086.3, 086.4, 086.5, 086.9, 087, 087.0, 087.1, 087.3, 087.9, 088, 088.0, 088.2, 088.3, 088.5, 088.7, 088.8, 088.81, 088.82, 088.89, 088.9, 120, 120.0, 120.1, 120.2, 120.3, 120.4, 120.5, 120.6, 120.8, 120.9, 121, 121.0, 121.1, 121.2, 121.3, 121.4, 121.5, 121.6, 121.8, 121.9, 122, 122.0, 122.1, 122.2, 122.3, 122.4, 122.5, 122.6, 122.7, 122.8, 122.9, 123, 123.0, 123.1, 123.2, 123.3, 123.4, 123.5, 123.6, 123.8, 123.9, 124, 124.0, 124.9, 125, 125.0, 125.1, 125.2, 125.3, 125.4, 125.5, 125.6, 125.7, 125.9, 126, 126.0, 126.1, 126.2, 126.3, 126.8, 126.9, 127, 127.0, 127.1, 127.2, 127.3, 127.4, 127.5, 127.6, 127.7, 127.8, 127.9, 128, 128.0, 128.1, 128.4, 128.5, 128.8, 128.9, 129, 129.0, 425.6, V01.5, V04.4, V04.5, V05.2, V12.03, V73.4, V73.5, V73.6, V75.1, V75.2, V75.3, V75.5, V75.6, V75.7, V75.8	B50, B50.0, B50.8, B50.9, B51, B51.0, B51.8, B51.9, B52, B52.0, B52.8, B52.9, B53, B53.0, B53.1, B53.8, B54, B54.0, B56, B56.0, B56.1, B56.9, B57, B57.0, B57.1, B57.2, B57.3, B57.30, B57.31, B57.32, B57.39, B57.4, B57.40, B57.41, B57.42, B57.49, B57.5, K93.1, B69, B69.0, B69.1, B69.8, B69.81, B69.89, B69.9, A90, A90.0, A91.0, B67, B67.0, B67.1, B67.2, B67.3, B67.31, B67.32, B67.39, B67.4, B67.8, B67.9, B67.90, B67.99, B66, B66.0, B66.1, B66.2, B66.3, B66.4, B66.5, B66.8, B66.9, B72.0, B55, B55.9, Z26.0, B55.1, B55.2, B55.0, B74, B74.0, B74.1, B74.3, Z11.6, B77, B77.0, B77.8, B77.81, B77.89, B77.9, B76, B76.0, B76.1, B76.8, B76.9, B79, B73, B73.0, B73.00, B73.01, B73.02, B73.09, B73.1, A44.0, A44.1, A44.8, A44.9, A68, A68.0, A68.1, A68.9, A69.2, A69.20, A69.21, A69.22, A69.23, A69.29, A75, A75.0, A75.1, A75.2, A75.3, A75.9, A77, A77.0, A77.1, A77.2, A77.3, A77.4, A77.40, A77.41, A77.49, A77.8, A77.9, A78, A79, A79.0, A79.1, A79.8, A79.81, A79.89, A79.9, A91, A92, A92.0, A92.2, A92.3, A92.30, A92.31, A92.32, A92.39, A92.9, A93, A93.1, A93.2, A93.8, A94, A94.0, A96, A98, A98.0, A98.1, A98.2, A98.8, A99, A99.0, B60, B60.0, B60.1, B60.10, B60.11, B60.12, B60.13, B60.19, B64, B67.5, B67.6, B67.61, B67.69, B67.7, B68, B68.0, B68.1, B68.9, B70, B70.0, B70.1, B71, B71.0, B71.1, B71.8, B71.9, B72, B74.2, B74.4, B74.8, B74.9, B75, B78, B78.0, B78.7, B78.9, B80, B81, B81.0, B81.1,	both	0-85

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			B81.2, B81.3, B81.4, B81.8, B82, B82.0, B82.9, B83, B83.0, B83.1, B83.2, B83.3, B83.8, B83.9, A82, A82.0, A82.1, A82.9, Z20.3, Z24.2, B65, B65.0, B65.1, B65.2, B65.3, B65.8, B65.9, A71, A71.0, A71.1, A71.9, A95, A95.0, A95.1, A95.9, Z24.3, A92.1, A92.4, A92.8, A93.0, B33.1, U06, U06.9		

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
A.4.1	Maternal hemorrhage	640, 640.0, 640.00, 640.01, 640.03, 640.8, 640.80, 640.81, 640.83, 640.9, 640.90, 640.91, 640.93, 641, 641.0, 641.00, 641.01, 641.03, 641.1, 641.10, 641.11, 641.13, 641.2, 641.20, 641.21, 641.23, 641.3, 641.30, 641.31, 641.33, 641.8, 641.80, 641.81, 641.83, 641.9, 641.90, 641.91, 641.93, 661.2, 661.20, 661.23, 666, 666.0, 666.00, 666.02, 666.04, 666.1, 666.10, 666.12, 666.14, 666.2, 666.20, 666.22, 666.24, 666.3, 666.30, 666.32, 666.34, 666.9	O20, O20.0, O20.8, O20.9, O43.2, O43.21, O43.211, O43.212, O43.213, O43.219, O43.22, O43.221, O43.222, O43.223, O43.229, O43.23, O43.231, O43.232, O43.233, O43.239, O44, O44.0, O44.00, O44.01, O44.02, O44.03, O44.1, O44.10, O44.11, O44.12, O44.13, O45, O45.0, O45.00, O45.001, O45.002, O45.003, O45.009, O45.01, O45.011, O45.012, O45.013, O45.019, O45.02, O45.021, O45.022, O45.023, O45.029, O45.09, O45.091, O45.092, O45.093, O45.099, O45.8, O45.9, O45.90, O45.91, O45.92, O45.93, O46, O46.0, O46.00, O46.001, O46.002, O46.003, O46.009, O46.01, O46.011, O46.012, O46.013, O46.019, O46.02, O46.021, O46.022, O46.023, O46.029, O46.09, O46.091, O46.092, O46.093, O46.099, O46.8, O46.9, O46.90, O46.91, O46.92, O46.93, O67, O67.0, O67.8, O67.9, O72, O72.0, O72.1, O72.2, O72.3	female	10-45

85

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
A.4.2	Maternal sepsis and other pregnancy-related infection	646.5, 646.50, 646.51, 646.52, 646.53, 646.54, 646.6, 646.60, 646.61, 646.62, 646.63, 646.64, 658.4, 658.40, 658.43, 658.8, 658.80, 658.81, 658.83, 658.9, 658.90, 658.91, 658.93, 659.2, 659.20, 659.21, 659.23, 659.3, 659.30, 659.31, 659.33, 670, 670.0, 670.00, 670.02, 670.04, 670.1, 670.10, 670.12, 670.14, 670.2, 670.20, 670.22, 670.24, 670.3, 670.30, 670.32, 670.34, 670.8, 670.80, 670.82, 670.84, 670.9, 672, 672.0, 672.00, 672.02, 672.04, 674.1, 674.10, 674.12, 674.14, 674.2, 674.20, 674.22, 674.24, 674.3, 674.30, 674.32, 674.34, 675, 675.0, 675.00, 675.01, 675.02, 675.03, 675.04, 675.1, 675.10, 675.11, 675.12, 675.13, 675.14, 675.2, 675.20, 675.21, 675.22, 675.23, 675.24, 675.8, 675.80, 675.81, 675.82, 675.83, 675.84, 675.9, 675.90, 675.91, 675.92, 675.93, 675.94	O23, O23.0, O23.00, O23.01, O23.02, O23.03, O23.1, O23.10, O23.11, O23.12, O23.13, O23.2, O23.20, O23.21, O23.22, O23.23, O23.3, O23.30, O23.31, O23.32, O23.33, O23.4, O23.40, O23.41, O23.42, O23.43, O23.5, O23.51, O23.511, O23.512, O23.513, O23.519, O23.52, O23.521, O23.522, O23.523, O23.529, O23.59, O23.591, O23.592, O23.593, O23.599, O23.9, O23.90, O23.91, O23.92, O23.93, O41.1, O41.10, O41.101, O41.1010, O41.1011, O41.1012, O41.1013, O41.1014, O41.1015, O41.1019, O41.102, O41.1020, O41.1021, O41.1022, O41.1023, O41.1024, O41.1025, O41.1029, O41.103, O41.1030, O41.1031, O41.1032, O41.1033, O41.1034, O41.1035, O41.1039, O41.109, O41.1090, O41.1091, O41.1092, O41.1093, O41.1094, O41.1095, O41.1099, O41.12, O41.121, O41.1210, O41.1211, O41.1212, O41.1213, O41.1214, O41.1215, O41.1219, O41.122, O41.1220, O41.1221, O41.1222, O41.1223, O41.1224, O41.1225, O41.1229, O41.123, O41.1230, O41.1231, O41.1232, O41.1233, O41.1234, O41.1235, O41.1239, O41.129, O41.1290, O41.1291, O41.1292, O41.1293, O41.1294, O41.1295, O41.1299, O41.14, O41.141, O41.1410, O41.1411, O41.1412, O41.1413, O41.1414, O41.1415, O41.1419, O41.142, O41.1420, O41.1421, O41.1422, O41.1423, O41.1424, O41.1425, O41.1429, O41.143, O41.1430, O41.1431, O41.1432, O41.1433, O41.1434, O41.1435,	female	10-45

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			O41.1439, O41.149, O41.1490, O41.1491, O41.1492, O41.1493, O41.1494, O41.1495, O41.1499, O41.8, O41.9, O41.90, O41.91, O41.92, O41.93, O75.2, O75.3, O85, O85.0, O86, O86.0, O86.1, O86.11, O86.12, O86.13, O86.19, O86.2, O86.20, O86.21, O86.22, O86.29, O86.3, O86.4, O86.8, O86.81, O86.89, O90.0, O90.1, O90.2, O91, O91.0, O91.01, O91.011, O91.012, O91.013, O91.019, O91.02, O91.03, O91.1, O91.11, O91.111, O91.112, O91.113, O91.119, O91.12, O91.13, O91.2, O91.21, O91.211, O91.212, O91.213, O91.219, O91.22, O91.23		

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
A.4.3	Hypertensive disorders of pregnancy	642, 642.0, 642.00, 642.01, 642.02, 642.03, 642.04, 642.1, 642.10, 642.11, 642.12, 642.13, 642.14, 642.2, 642.20, 642.21, 642.22, 642.23, 642.24, 642.3, 642.30, 642.31, 642.32, 642.33, 642.34, 642.4, 642.40, 642.41, 642.42, 642.43, 642.44, 642.5, 642.50, 642.51, 642.52, 642.53, 642.54, 642.6, 642.60, 642.61, 642.62, 642.63, 642.64, 642.7, 642.70, 642.71, 642.72, 642.73, 642.74, 642.9, 642.90, 642.91, 642.92, 642.93, 642.94	O10, O10.0, O10.01, O10.011, O10.012, O10.013, O10.019, O10.02, O10.03, O10.1, O10.11, O10.111, O10.112, O10.113, O10.119, O10.12, O10.13, O10.2, O10.21, O10.211, O10.212, O10.213, O10.219, O10.22, O10.23, O10.3, O10.31, O10.311, O10.312, O10.313, O10.319, O10.32, O10.33, O10.4, O10.41, O10.411, O10.412, O10.413, O10.419, O10.42, O10.43, O10.9, O10.91, O10.911, O10.912, O10.913, O10.919, O10.92, O10.93, O11, O11.1, O11.2, O11.3, O11.9, O12, O12.0, O12.00, O12.01, O12.02, O12.03, O12.1, O12.10, O12.11, O12.12, O12.13, O12.2, O12.20, O12.21, O12.22, O12.23, O13, O13.1, O13.2, O13.3, O13.9, O14, O14.0, O14.00, O14.02, O14.03, O14.1, O14.10, O14.12, O14.13, O14.2, O14.20, O14.22, O14.23, O14.9, O14.90, O14.92, O14.93, O15, O15.0, O15.00, O15.02, O15.03, O15.1, O15.2, O15.9, O16, O16.1, O16.2, O16.3, O16.9	female	10-45

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
A.4.4	Obstructed labor	652.7, 652.70, 652.71, 652.73, 653, 653.0, 653.00, 653.01, 653.03, 653.1, 653.10, 653.11, 653.13, 653.2, 653.20, 653.21, 653.23, 653.3, 653.30, 653.31, 653.33, 653.4, 653.40, 653.43, 653.5, 653.50, 653.51, 653.53, 653.6, 653.60, 653.61, 653.63, 653.7, 653.70, 653.71, 653.73, 653.8, 653.80, 653.81, 653.83, 653.9, 653.90, 653.91, 653.93, 659.0, 659.00, 659.01, 659.03, 659.1, 659.10, 659.13, 660, 660.0, 660.00, 660.01, 660.03, 660.1, 660.10, 660.11, 660.13, 660.2, 660.20, 660.21, 660.23, 660.3, 660.30, 660.31, 660.33, 660.4, 660.40, 660.41, 660.43, 660.5, 660.50, 660.51, 660.53, 660.6, 660.60, 660.61, 660.63, 660.7, 660.70, 660.71, 660.73, 660.8, 660.80, 660.81, 660.83, 660.9, 660.90, 660.91, 660.93, 664, 664.0, 664.00, 664.04, 664.1, 664.10, 664.11, 664.14, 664.2, 664.20, 664.21, 664.24, 664.3, 664.30, 664.31, 664.34, 664.4, 664.40, 664.41, 664.44, 664.5, 664.50, 664.51, 664.54, 664.6, 664.60, 664.61, 664.64, 664.8, 664.80, 664.84, 664.9, 664.90, 664.91, 664.94, 665, 665.0, 665.00, 665.01, 665.03, 665.1, 665.10, 665.11, 665.2, 665.20, 665.22, 665.24, 665.3, 665.30, 665.31, 665.34, 665.4, 665.40, 665.41, 665.44, 665.5, 665.50, 665.51, 665.54, 665.6, 665.60, 665.61, 665.64, 665.7, 665.70, 665.71, 665.72, 665.74, 665.8, 665.80, 665.81, 665.82, 665.83, 665.84, 665.9, 665.90, 665.91, 665.92, 665.93, 665.94, 669.5, 669.50, 669.51, 669.6, 669.60, 669.61	O33.1, O33.2, O33.7, O33.8, O33.9, O61.1, O64, O64.0, O64.1, O64.2, O64.3, O64.4, O64.5, O64.8, O64.9, O65, O65.0, O65.1, O65.2, O65.3, O65.5, O65.9, O66, O66.0, O66.1, O66.2, O66.3, O66.4, O66.40, O66.41, O66.5, O66.8, O66.9, O70, O70.1, O70.2, O70.3, O70.4, O70.9, O71, O71.0, O71.00, O71.02, O71.03, O71.1, O71.2, O71.3, O71.4, O71.5, O71.6, O71.7, O71.8, O71.81, O71.82, O71.89, O71.9, O83, O83.0, O83.1, O83.2, O83.3, O83.4, O83.8, O83.9, O84, O84.0, O84.1, O84.2, O84.8, O84.9	female	10-85

89

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
A.4.5	Complications of abortion	630, 630.0, 630.9, 631, 631.0, 631.2, 631.8, 631.9, 632, 632.0, 632.9, 633, 633.0, 633.00, 633.01, 633.1, 633.10, 633.11, 633.2, 633.20, 633.21, 633.8, 633.80, 633.81, 633.9, 633.90, 633.91, 634, 634.0, 634.00, 634.01, 634.02, 634.1, 634.10, 634.11, 634.12, 634.2, 634.20, 634.21, 634.22, 634.3, 634.30, 634.31, 634.32, 634.4, 634.40, 634.41, 634.42, 634.5, 634.50, 634.51, 634.52, 634.6, 634.60, 634.61, 634.62, 634.7, 634.70, 634.71, 634.72, 634.8, 634.80, 634.81, 634.82, 634.9, 634.90, 634.91, 634.92, 635, 635.0, 635.00, 635.01, 635.02, 635.1, 635.10, 635.11, 635.12, 635.2, 635.20, 635.21, 635.22, 635.3, 635.30, 635.31, 635.32, 635.4, 635.40, 635.41, 635.42, 635.5, 635.50, 635.51, 635.52, 635.6, 635.60, 635.61, 635.62, 635.7, 635.70, 635.71, 635.72, 635.8, 635.80, 635.81, 635.82, 635.9, 635.90, 635.91, 635.92, 636, 636.0, 636.00, 636.01, 636.02, 636.1, 636.10, 636.11, 636.12, 636.2, 636.20, 636.21, 636.22, 636.3, 636.30, 636.31, 636.32, 636.4, 636.40, 636.41, 636.42, 636.5, 636.50, 636.51, 636.52, 636.6, 636.60, 636.61, 636.62, 636.7, 636.70, 636.71, 636.72, 636.8, 636.80, 636.81, 636.82, 636.9, 636.90, 636.91, 636.92, 637, 637.0, 637.00, 637.01, 637.02, 637.1, 637.10, 637.11, 637.12, 637.2, 637.20, 637.21, 637.22, 637.3, 637.30, 637.31, 637.32, 637.4, 637.40, 637.41, 637.42, 637.5, 637.50, 637.51, 637.52, 637.6, 637.60, 637.61, 637.62, 637.7, 637.70, 637.71, 637.72, 637.8, 637.80, 637.81, 637.82, 637.9, 637.90, 637.91, 637.92, 638, 638.0, 638.01, 638.02, 638.1, 638.11, 638.12, 638.2, 638.21, 638.22, 638.3, 638.31, 638.32, 638.4, 638.41, 638.42, 638.5, 638.51, 638.52, 638.6, 638.61,	A34, O00, O00.0, O00.1, O00.2, O00.8, O00.9, O01, O01.0, O01.1, O01.9, O02, O02.0, O02.1, O02.8, O02.81, O02.89, O02.9, O03, O03.0, O03.1, O03.2, O03.3, O03.30, O03.31, O03.32, O03.33, O03.34, O03.35, O03.36, O03.37, O03.38, O03.39, O03.4, O03.5, O03.6, O03.7, O03.8, O03.80, O03.81, O03.82, O03.83, O03.84, O03.85, O03.86, O03.87, O03.88, O03.89, O03.9, O04, O04.0, O04.1, O04.2, O04.3, O04.4, O04.5, O04.6, O04.7, O04.8, O04.80, O04.81, O04.82, O04.83, O04.84, O04.85, O04.86, O04.87, O04.88, O04.89, O04.9, O05, O05.0, O05.1, O05.2, O05.3, O05.4, O05.5, O05.6, O05.7, O05.8, O05.9, O06, O06.0, O06.1, O06.2, O06.3, O06.4, O06.5, O06.6, O06.7, O06.8, O06.9, O07, O07.0, O07.1, O07.2, O07.3, O07.30, O07.31, O07.32, O07.33, O07.34, O07.35, O07.36, O07.37, O07.38, O07.39, O07.4, O07.5, O07.6, O07.7, O07.8, O07.9, O08, O08.0, O08.1, O08.2, O08.3, O08.4, O08.5, O08.6, O08.7, O08.8, O08.81, O08.82, O08.83, O08.89, O08.9, O36.7, O36.70, O36.71, O36.72, O36.73, Z33.2	female	10-50

90

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
		638.62, 638.7, 638.71, 638.72, 638.8, 638.81, 638.82, 638.9, 638.91, 638.92, 639, 639.0, 639.1, 639.2, 639.3, 639.4, 639.5, 639.6, 639.8, 639.9, 646.3, 646.30, 646.31, 646.33, 656.4, 656.40, 656.43			

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
A.4.6	Pre-existing medical condition complicating pregnancy or childbirth	646, 646.0, 646.00, 646.01, 646.03, 646.1, 646.10, 646.11, 646.12, 646.13, 646.14, 646.2, 646.20, 646.21, 646.22, 646.23, 646.24, 646.4, 646.40, 646.41, 646.42, 646.43, 646.44, 646.7, 646.70, 646.71, 646.73, 646.8, 646.80, 646.81, 646.82, 646.83, 646.84, 646.9, 646.90, 646.91, 646.93, 647, 647.0, 647.00, 647.01, 647.02, 647.03, 647.04, 647.1, 647.10, 647.11, 647.12, 647.13, 647.14, 647.2, 647.20, 647.21, 647.22, 647.23, 647.24, 647.3, 647.30, 647.31, 647.32, 647.33, 647.34, 647.4, 647.40, 647.41, 647.42, 647.43, 647.44, 647.5, 647.50, 647.51, 647.52, 647.53, 647.54, 647.6, 647.60, 647.61, 647.62, 647.63, 647.64, 647.8, 647.80, 647.81, 647.82, 647.83, 647.84, 647.9, 647.90, 647.91, 647.92, 647.93, 647.94, 648, 648.0, 648.00, 648.01, 648.02, 648.03, 648.04, 648.1, 648.10, 648.11, 648.12, 648.13, 648.14, 648.2, 648.20, 648.21, 648.22, 648.23, 648.24, 648.3, 648.30, 648.31, 648.32, 648.33, 648.34, 648.4, 648.40, 648.41, 648.42, 648.43, 648.44, 648.5, 648.50, 648.51, 648.52, 648.53, 648.54, 648.6, 648.60, 648.61, 648.62, 648.63, 648.64, 648.7, 648.70, 648.71, 648.72, 648.73, 648.74, 648.8, 648.80, 648.81, 648.82, 648.83, 648.84, 648.9, 648.90, 648.91, 648.92, 648.93, 648.94, 649, 649.00, 649.01, 649.02, 649.03, 649.04, 649.1, 649.10, 649.11, 649.12, 649.13, 649.14, 649.2, 649.20, 649.21, 649.22, 649.23, 649.24, 649.3, 649.30, 649.31, 649.32, 649.33, 649.34, 649.4, 649.40, 649.41, 649.42, 649.43, 649.44, 649.5, 649.50, 649.51, 649.53, 649.6, 649.60, 649.61, 649.62, 649.63, 649.64, 649.7, 649.70, 649.71, 649.73, 649.8, 649.81, 649.82, 649.9, 674, 674.0, 674.00, 674.01,	O24, O24.0, O24.01, O24.011, O24.012, O24.013, O24.019, O24.02, O24.03, O24.1, O24.11, O24.111, O24.112, O24.113, O24.119, O24.12, O24.13, O24.2, O24.3, O24.31, O24.311, O24.312, O24.313, O24.319, O24.32, O24.33, O24.8, O24.81, O24.811, O24.812, O24.813, O24.819, O24.82, O24.83, O24.9, O24.91, O24.911, O24.912, O24.913, O24.919, O24.92, O24.93, O25.2, O25.3, O33.0, O90.3, O90.5, O90.6, O90.9, O98, O98.0, O98.01, O98.011, O98.012, O98.013, O98.019, O98.02, O98.03, O98.1, O98.11, O98.111, O98.112, O98.113, O98.119, O98.12, O98.13, O98.2, O98.21, O98.211, O98.212, O98.213, O98.219, O98.22, O98.23, O98.3, O98.31, O98.311, O98.312, O98.313, O98.319, O98.32, O98.33, O98.4, O98.41, O98.411, O98.412, O98.413, O98.419, O98.42, O98.43, O98.5, O98.51, O98.511, O98.512, O98.513, O98.519, O98.52, O98.53, O98.6, O98.61, O98.611, O98.612, O98.613, O98.619, O98.62, O98.63, O98.8, O98.81, O98.811, O98.812, O98.813, O98.819, O98.82, O98.83, O98.9, O98.91, O98.911, O98.912, O98.913, O98.919, O98.92, O98.93, O99, O99.0, O99.01, O99.011, O99.012, O99.013, O99.019, O99.02, O99.03, O99.1, O99.11, O99.111, O99.112, O99.113, O99.119, O99.12, O99.13, O99.2, O99.21, O99.210, O99.211, O99.212, O99.213, O99.214, O99.215, O99.28, O99.280, O99.281, O99.282, O99.283, O99.284, O99.285, O99.3, O99.31, O99.310, O99.311, O99.312, O99.313, O99.314, O99.315, O99.32, O99.320,	female	10-45

92

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
		674.02, 674.03, 674.04, 674.4, 674.40, 674.42, 674.44, 674.5, 674.50, 674.51, 674.52, 674.53, 674.54, 674.8, 674.80, 674.82, 674.84, 674.9, 674.90, 674.92, 674.94	O99.321, O99.322, O99.323, O99.324, O99.325, O99.33, O99.330, O99.331, O99.332, O99.333, O99.334, O99.335, O99.34, O99.340, O99.341, O99.342, O99.343, O99.344, O99.345, O99.35, O99.350, O99.351, O99.352, O99.353, O99.354, O99.355, O99.4, O99.41, O99.411, O99.412, O99.413, O99.419, O99.42, O99.43, O99.5, O99.51, O99.511, O99.512, O99.513, O99.519, O99.52, O99.53, O99.6, O99.61, O99.611, O99.612, O99.613, O99.619, O99.62, O99.63, O99.7, O99.71, O99.711, O99.712, O99.713, O99.719, O99.72, O99.73, O99.8, O99.81, O99.810, O99.814, O99.815, O99.82, O99.820, O99.824, O99.825, O99.83, O99.830, O99.834, O99.835, O99.84, O99.840, O99.841, O99.842, O99.843, O99.844, O99.845, O99.89, O99.9, O99.90, O99.91, O9A.111, O9A.112, O9A.113, O9A.119, O9A.12, O9A.13, O9A.1, O9A.211, O9A.212, O9A.213, O9A.219, O9A.22, O9A.23, O9A.2, O9A.311, O9A.312, O9A.313, O9A.319, O9A.3, O9A.513, O9A.5		

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
A.4.9	Other maternal disorders	643, 643.0, 643.00, 643.01, 643.03, 643.1, 643.10, 643.11, 643.13, 643.2, 643.20, 643.21, 643.23, 643.8, 643.80, 643.81, 643.83, 643.9, 643.90, 643.91, 643.93, 644, 644.0, 644.00, 644.1, 644.10, 644.13, 644.2, 644.20, 645, 645.0, 645.01, 645.03, 645.1, 645.10, 645.13, 645.2, 645.20, 645.21, 645.23, 652.0, 652.00, 652.01, 652.03, 652.1, 652.10, 652.11, 652.13, 652.2, 652.20, 652.23, 652.3, 652.30, 652.31, 652.33, 652.4, 652.40, 652.41, 652.43, 652.5, 652.50, 652.53, 652.6, 652.60, 652.63, 652.8, 652.80, 652.83, 652.9, 652.90, 652.91, 652.93, 654, 654.0, 654.00, 654.01, 654.02, 654.03, 654.04, 654.1, 654.10, 654.11, 654.12, 654.13, 654.14, 654.2, 654.20, 654.23, 654.24, 654.3, 654.30, 654.31, 654.32, 654.33, 654.34, 654.4, 654.40, 654.41, 654.42, 654.43, 654.44, 654.5, 654.50, 654.51, 654.52, 654.53, 654.54, 654.6, 654.60, 654.61, 654.62, 654.63, 654.64, 654.7, 654.70, 654.71, 654.72, 654.73, 654.74, 654.8, 654.80, 654.81, 654.82, 654.83, 654.84, 654.9, 654.90, 654.91, 654.92, 654.93, 654.94, 655, 655.0, 655.00, 655.01, 655.03, 655.1, 655.10, 655.11, 655.13, 655.2, 655.20, 655.21, 655.23, 655.7, 655.70, 655.73, 655.8, 655.80, 655.83, 655.9, 655.90, 655.91, 655.93, 656, 656.0, 656.00, 656.01, 656.03, 656.1, 656.10, 656.13, 656.2, 656.20, 656.21, 656.23, 656.3, 656.30, 656.31, 656.33, 656.5, 656.50, 656.53, 656.6, 656.60, 656.63, 656.7, 656.70, 656.71, 656.73, 656.8, 656.80, 656.83, 656.9, 656.90, 656.91, 656.93, 657, 657.0, 657.00, 657.03, 657.1, 658, 658.0, 658.00, 658.03, 658.1, 658.10, 658.13, 658.2, 658.20, 658.23, 658.3, 658.30, 658.31, 658.33, 659, 659.4,	F53.0, F53.1, F53.8, F53.9, O09, O09.0, O09.00, O09.01, O09.02, O09.03, O09.1, O09.10, O09.11, O09.12, O09.13, O09.2, O09.21, O09.211, O09.212, O09.213, O09.219, O09.29, O09.291, O09.292, O09.293, O09.299, O09.3, O09.30, O09.31, O09.32, O09.33, O09.4, O09.40, O09.41, O09.42, O09.43, O09.5, O09.51, O09.511, O09.512, O09.513, O09.519, O09.52, O09.521, O09.522, O09.523, O09.529, O09.6, O09.61, O09.611, O09.612, O09.613, O09.619, O09.62, O09.621, O09.622, O09.623, O09.629, O09.7, O09.70, O09.71, O09.72, O09.73, O09.8, O09.81, O09.811, O09.812, O09.813, O09.819, O09.82, O09.821, O09.822, O09.823, O09.829, O09.89, O09.891, O09.892, O09.893, O09.899, O09.9, O09.90, O09.91, O09.92, O09.93, O18.0, O21, O21.0, O21.1, O21.2, O21.8, O21.9, O22, O22.0, O22.00, O22.01, O22.02, O22.03, O22.1, O22.10, O22.11, O22.12, O22.13, O22.2, O22.20, O22.21, O22.22, O22.23, O22.3, O22.30, O22.31, O22.32, O22.33, O22.4, O22.40, O22.41, O22.42, O22.43, O22.5, O22.50, O22.51, O22.52, O22.53, O22.8, O22.9, O22.90, O22.91, O22.92, O22.93, O24.4, O24.41, O24.410, O24.414, O24.419, O24.42, O24.420, O24.424, O24.429, O24.43, O24.430, O24.434, O24.439, O25, O25.1, O25.10, O25.11, O25.12, O25.13, O26, O26.0, O26.00, O26.01, O26.02, O26.03, O26.1, O26.10, O26.11, O26.12, O26.13, O26.2, O26.20, O26.21, O26.22, O26.23, O26.3, O26.30, O26.31, O26.32, O26.33, O26.4, O26.40,	female	10-50

94

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
		659.40, 659.43, 659.5, 659.50, 659.53, 659.6, 659.60, 659.63, 659.7, 659.70, 659.73, 659.8, 659.80, 659.83, 659.9, 659.90, 659.91, 659.93, 661, 661.0, 661.00, 661.03, 661.1, 661.10, 661.11, 661.13, 661.3, 661.30, 661.33, 661.4, 661.40, 661.41, 661.43, 661.9, 661.90, 661.91, 661.93, 662, 662.0, 662.00, 662.01, 662.03, 662.1, 662.10, 662.11, 662.13, 662.2, 662.20, 662.21, 662.23, 662.3, 662.30, 662.31, 662.33, 662.8, 663, 663.0, 663.00, 663.01, 663.03, 663.1, 663.10, 663.13, 663.2, 663.20, 663.23, 663.3, 663.30, 663.33, 663.4, 663.40, 663.41, 663.43, 663.5, 663.50, 663.51, 663.53, 663.6, 663.60, 663.61, 663.63, 663.8, 663.80, 663.83, 663.9, 663.90, 663.91, 663.93, 667, 667.0, 667.00, 667.02, 667.04, 667.1, 667.10, 667.12, 667.14, 667.9, 668, 668.0, 668.00, 668.01, 668.02, 668.03, 668.04, 668.1, 668.10, 668.11, 668.12, 668.13, 668.14, 668.2, 668.20, 668.21, 668.22, 668.23, 668.24, 668.8, 668.80, 668.81, 668.82, 668.83, 668.84, 668.9, 668.90, 668.91, 668.92, 668.93, 668.94, 669, 669.0, 669.00, 669.01, 669.02, 669.03, 669.04, 669.1, 669.10, 669.11, 669.12, 669.13, 669.14, 669.2, 669.20, 669.21, 669.22, 669.23, 669.24, 669.3, 669.30, 669.32, 669.34, 669.4, 669.40, 669.41, 669.42, 669.43, 669.44, 669.70, 669.8, 669.80, 669.82, 669.83, 669.84, 669.9, 669.90, 669.91, 669.92, 669.93, 669.94, 671, 671.0, 671.00, 671.01, 671.02, 671.03, 671.04, 671.1, 671.10, 671.11, 671.12, 671.13, 671.14, 671.2, 671.20, 671.21, 671.22, 671.23, 671.24, 671.3, 671.30, 671.31, 671.33, 671.4, 671.40, 671.42, 671.44, 671.5, 671.50, 671.51, 671.52, 671.53, 671.54, 671.8, 671.80, 671.81,	O26.41, O26.42, O26.43, O26.5, O26.50, O26.51, O26.52, O26.53, O26.6, O26.61, O26.611, O26.612, O26.613, O26.619, O26.62, O26.63, O26.7, O26.71, O26.711, O26.712, O26.713, O26.719, O26.72, O26.73, O26.8, O26.81, O26.811, O26.812, O26.813, O26.819, O26.82, O26.821, O26.822, O26.823, O26.829, O26.83, O26.831, O26.832, O26.833, O26.839, O26.84, O26.841, O26.842, O26.843, O26.849, O26.85, O26.851, O26.852, O26.853, O26.859, O26.86, O26.87, O26.872, O26.873, O26.879, O26.89, O26.891, O26.892, O26.893, O26.899, O26.9, O26.90, O26.91, O26.92, O26.93, O28, O29, O29.0, O29.01, O29.011, O29.012, O29.013, O29.019, O29.02, O29.021, O29.022, O29.023, O29.029, O29.09, O29.091, O29.092, O29.093, O29.099, O29.1, O29.11, O29.111, O29.112, O29.113, O29.119, O29.12, O29.121, O29.122, O29.123, O29.129, O29.19, O29.191, O29.192, O29.193, O29.199, O29.2, O29.21, O29.211, O29.212, O29.213, O29.219, O29.29, O29.291, O29.292, O29.293, O29.299, O29.3, O29.4, O29.40, O29.41, O29.42, O29.43, O29.5, O29.6, O29.60, O29.61, O29.62, O29.63, O29.8, O29.9, O29.90, O29.91, O29.92, O29.93, O30.9, O30.90, O30.91, O30.92, O30.93, O31, O31.0, O31.00, O31.01, O31.02, O31.03, O31.1, O31.10, O31.11, O31.12, O31.13, O31.2, O31.20, O31.21, O31.22, O31.23, O31.3, O31.30, O31.31, O31.32, O31.33, O31.8, O32, O32.0, O32.1, O32.2, O32.3, O32.4, O32.5, O32.6, O32.8, O32.9, O33, O33.3, O33.4, O33.5, O33.6, O34, O34.0,		

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
		671.82, 671.83, 671.84, 671.9, 671.90, 671.91, 671.92, 671.93, 671.94, 673, 673.0, 673.00, 673.01, 673.02, 673.03, 673.04, 673.1, 673.10, 673.11, 673.12, 673.13, 673.14, 673.2, 673.20, 673.21, 673.22, 673.23, 673.24, 673.3, 673.30, 673.31, 673.32, 673.33, 673.34, 673.8, 673.80, 673.81, 673.82, 673.83, 673.84, 673.9, 676, 676.0, 676.00, 676.01, 676.02, 676.03, 676.04, 676.1, 676.10, 676.11, 676.12, 676.13, 676.14, 676.2, 676.20, 676.21, 676.22, 676.23, 676.24, 676.3, 676.30, 676.31, 676.32, 676.33, 676.34, 676.4, 676.40, 676.41, 676.42, 676.43, 676.44, 676.5, 676.50, 676.51, 676.52, 676.53, 676.54, 676.6, 676.60, 676.61, 676.62, 676.63, 676.64, 676.8, 676.80, 676.81, 676.82, 676.83, 676.84, 676.9, 676.90, 676.91, 676.92, 676.93, 676.94, 677, 678, 678.0, 678.00, 678.01, 678.03, 678.1, 678.10, 678.11, 678.13, 679, 679.0, 679.00, 679.01, 679.02, 679.03, 679.04, 679.1, 679.10, 679.11, 679.12, 679.13, 679.14, V13.1, V15.21, V15.22	O34.00, O34.01, O34.02, O34.03, O34.1, O34.10, O34.11, O34.12, O34.13, O34.2, O34.21, O34.29, O34.3, O34.30, O34.31, O34.32, O34.33, O34.4, O34.40, O34.41, O34.42, O34.43, O34.5, O34.51, O34.511, O34.512, O34.513, O34.519, O34.52, O34.521, O34.522, O34.523, O34.529, O34.53, O34.531, O34.532, O34.533, O34.539, O34.59, O34.591, O34.592, O34.593, O34.599, O34.6, O34.60, O34.61, O34.62, O34.63, O34.7, O34.70, O34.71, O34.72, O34.73, O34.8, O34.80, O34.81, O34.82, O34.83, O34.9, O34.90, O34.91, O34.92, O34.93, O35, O35.0, O35.1, O35.2, O35.3, O35.4, O35.5, O35.6, O35.7, O35.8, O35.9, O36, O36.0, O36.01, O36.011, O36.0110, O36.0111, O36.0112, O36.0113, O36.0114, O36.0115, O36.0119, O36.012, O36.0120, O36.0121, O36.0122, O36.0123, O36.0124, O36.0125, O36.0129, O36.013, O36.0130, O36.0131, O36.0132, O36.0133, O36.0134, O36.0135, O36.0139, O36.019, O36.0190, O36.0191, O36.0192, O36.0193, O36.0194, O36.0195, O36.0199, O36.09, O36.091, O36.0910, O36.0911, O36.0912, O36.0913, O36.0914, O36.0915, O36.0919, O36.092, O36.0920, O36.0921, O36.0922, O36.0923, O36.0924, O36.0925, O36.0929, O36.093, O36.0930, O36.0931, O36.0932, O36.0933, O36.0934, O36.0935, O36.0939, O36.099, O36.0990, O36.0991, O36.0992, O36.0993, O36.0994, O36.0995, O36.0999, O36.1, O36.11, O36.111, O36.1110, O36.1111,		

96

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			O36.1112, O36.1113, O36.1114, O36.1115, O36.1119, O36.112, O36.1120, O36.1121, O36.1122, O36.1123, O36.1124, O36.1125, O36.1129, O36.113, O36.1130, O36.1131, O36.1132, O36.1133, O36.1134, O36.1135, O36.1139, O36.119, O36.1190, O36.1191, O36.1192, O36.1193, O36.1194, O36.1195, O36.1199, O36.19, O36.191, O36.1910, O36.1911, O36.1912, O36.1913, O36.1914, O36.1915, O36.1919, O36.192, O36.1920, O36.1921, O36.1922, O36.1923, O36.1924, O36.1925, O36.1929, O36.193, O36.1930, O36.1931, O36.1932, O36.1933, O36.1934, O36.1935, O36.1939, O36.199, O36.1990, O36.1991, O36.1992, O36.1993, O36.1994, O36.1995, O36.1999, O36.2, O36.20, O36.21, O36.22, O36.23, O36.3, O36.4, O36.5, O36.51, O36.511, O36.5110, O36.5111, O36.5112, O36.5113, O36.5114, O36.5115, O36.5119, O36.512, O36.5120, O36.5121, O36.5122, O36.5123, O36.5124, O36.5125, O36.5129, O36.513, O36.5130, O36.5131, O36.5132, O36.5133, O36.5134, O36.5135, O36.5139, O36.519, O36.5190, O36.5191, O36.5192, O36.5193, O36.5194, O36.5195, O36.5199, O36.59, O36.591, O36.5910, O36.5911, O36.5912, O36.5913, O36.5914, O36.5915, O36.5919, O36.592, O36.5920, O36.5921, O36.5922, O36.5923, O36.5924, O36.5925, O36.5929, O36.593, O36.5930, O36.5931, O36.5932, O36.5933, O36.5934, O36.5935, O36.5939, O36.599,		

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			O36.5990, O36.5991, O36.5992, O36.5993, O36.5994, O36.5995, O36.5999, O36.6, O36.60, O36.61, O36.62, O36.63, O36.8, O36.80, O36.81, O36.812, O36.8120, O36.8121, O36.8122, O36.8123, O36.8124, O36.8125, O36.8129, O36.813, O36.8130, O36.8131, O36.8132, O36.8133, O36.8134, O36.8135, O36.8139, O36.819, O36.8190, O36.8191, O36.8192, O36.8193, O36.8194, O36.8195, O36.8199, O36.82, O36.821, O36.8210, O36.8211, O36.8212, O36.8213, O36.8214, O36.8215, O36.8219, O36.822, O36.8220, O36.8221, O36.8222, O36.8223, O36.8224, O36.8225, O36.8229, O36.823, O36.8230, O36.8231, O36.8232, O36.8233, O36.8234, O36.8235, O36.8239, O36.829, O36.8290, O36.8291, O36.8292, O36.8293, O36.8294, O36.8295, O36.8299, O36.89, O36.891, O36.8910, O36.8911, O36.8912, O36.8913, O36.8914, O36.8915, O36.8919, O36.892, O36.8920, O36.8921, O36.8922, O36.8923, O36.8924, O36.8925, O36.8929, O36.893, O36.8930, O36.8931, O36.8932, O36.8933, O36.8934, O36.8935, O36.8939, O36.899, O36.8990, O36.8991, O36.8992, O36.8993, O36.8994, O36.8995, O36.8999, O36.9, O36.90, O36.91, O36.92, O36.93, O38.4, O40, O40.1, O40.2, O40.3, O40.9, O41, O41.0, O41.00, O41.01, O41.02, O41.03, O42, O42.0, O42.00, O42.01, O42.011, O42.012, O42.013, O42.019, O42.02, O42.1, O42.10, O42.11, O42.111, O42.112, O42.113,		

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			O42.119, O42.12, O42.2, O42.9, O42.90, O42.91, O42.911, O42.912, O42.913, O42.919, O42.92, O43, O43.0, O43.01, O43.011, O43.012, O43.013, O43.019, O43.02, O43.021, O43.022, O43.023, O43.029, O43.1, O43.10, O43.101, O43.102, O43.103, O43.109, O43.11, O43.111, O43.112, O43.113, O43.119, O43.12, O43.121, O43.122, O43.123, O43.129, O43.19, O43.191, O43.192, O43.193, O43.199, O43.8, O43.81, O43.811, O43.812, O43.813, O43.819, O43.89, O43.891, O43.892, O43.893, O43.899, O43.9, O43.90, O43.91, O43.92, O43.93, O47, O47.0, O47.00, O47.02, O47.03, O47.1, O47.9, O48, O48.1, O60, O60.0, O60.00, O60.02, O60.03, O60.1, O60.10, O60.12, O60.13, O60.14, O60.2, O60.20, O60.22, O60.23, O61, O62, O62.1, O62.4, O62.8, O62.9, O63, O63.0, O63.1, O63.2, O63.9, O65.8, O68, O68.0, O68.1, O68.2, O68.3, O68.8, O68.9, O69, O69.0, O69.1, O69.2, O69.3, O69.4, O69.5, O69.8, O69.81, O69.82, O69.89, O69.9, O73, O73.0, O73.1, O74, O74.0, O74.1, O74.2, O74.3, O74.4, O74.5, O74.6, O74.7, O74.8, O74.9, O75, O75.0, O75.1, O75.4, O75.5, O75.6, O75.7, O75.8, O75.81, O75.82, O75.89, O75.9, O77, O80.0, O80.1, O80.8, O80.9, O81, O81.0, O81.1, O81.2, O81.3, O81.4, O81.5, O82.0, O82.1, O82.2, O82.8, O82.9, O87, O87.0, O87.1, O87.2, O87.3, O87.4, O87.8, O87.9, O88, O88.0, O88.01, O88.011, O88.012, O88.013, O88.019, O88.02, O88.03, O88.1, O88.11, O88.111, O88.112, O88.113, O88.119, O88.12, O88.13, O88.2,		

99

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			O88.21, O88.211, O88.212, O88.213, O88.219, O88.22, O88.23, O88.3, O88.31, O88.311, O88.312, O88.313, O88.319, O88.32, O88.33, O88.8, O88.81, O88.811, O88.812, O88.813, O88.819, O88.82, O88.83, O89, O89.0, O89.01, O89.09, O89.1, O89.2, O89.3, O89.4, O89.5, O89.6, O89.8, O89.9, O90, O90.4, O90.8, O90.81, O90.89, O92, O92.0, O92.01, O92.011, O92.012, O92.013, O92.019, O92.02, O92.03, O92.1, O92.11, O92.111, O92.112, O92.113, O92.119, O92.12, O92.13, O92.2, O92.20, O92.29, O92.3, O92.4, O92.5, O92.6, O92.7, O92.70, O92.79, O94, O95, O96, O96.0, O96.1, O96.9, O97, O97.0, O97.1, O97.9, Z03.7, Z03.71, Z03.72, Z03.73, Z03.74, Z03.75, Z03.79, Z32, Z32.0, Z32.00, Z32.01, Z32.02, Z32.1, Z33, Z34, Z34.0, Z34.00, Z34.01, Z34.02, Z34.03, Z34.8, Z34.80, Z34.81, Z34.82, Z34.83, Z34.9, Z34.90, Z34.91, Z34.92, Z34.93, Z35.0, Z35.1, Z35.2, Z35.3, Z35.4, Z35.5, Z35.6, Z35.7, Z35.8, Z35.9, Z36.0, Z36.1, Z36.3, Z36.4, Z36.8, Z36.9, Z37.5, Z37.50, Z37.51, Z37.52, Z37.53, Z37.54, Z37.59, Z37.6, Z37.60, Z37.61, Z37.62, Z37.63, Z37.64, Z37.69, Z39, Z64.2, Z64.3, Z87.5, Z87.51, Z87.59, Z87.6		

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
A.5.1	Preterm birth complications	761.0, 761.1, 765, 765.0, 765.00, 765.01, 765.02, 765.03, 765.04, 765.05, 765.06, 765.07, 765.08, 765.09, 765.1, 765.10, 765.11, 765.12, 765.13, 765.14, 765.15, 765.16, 765.17, 765.18, 765.19, 765.2, 765.20, 765.21, 765.22, 765.23, 765.24, 765.25, 765.26, 765.27, 765.28, 765.29, 765.5, 765.6, 765.9, 769, 769.0, 769.9, 770, 770.2, 770.3, 770.4, 770.5, 770.6, 770.7, 770.8, 770.81, 770.82, 770.83, 770.84, 770.85, 770.86, 770.87, 770.88, 770.89, 770.9, 776.6, 777.5, 777.50, 777.51, 777.52, 777.53, 777.6	P01.0, P01.1, P07.2, P07.20, P07.21, P07.22, P07.23, P07.24, P07.25, P07.26, P07.3, P07.30, P07.31, P07.32, P07.33, P07.34, P07.35, P07.36, P07.37, P07.38, P07.39, P22, P22.0, P22.1, P22.8, P22.9, P25, P25.0, P25.1, P25.2, P25.3, P25.8, P26, P26.0, P26.1, P26.8, P26.9, P27, P27.0, P27.1, P27.8, P27.9, P28, P28.0, P28.1, P28.10, P28.11, P28.19, P28.2, P28.3, P28.4, P28.5, P28.8, P28.81, P28.89, P28.9, P61.2, P77, P77.0, P77.1, P77.2, P77.3, P77.9, P78.0	both	0

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
A.5.2	Neonatal encephalopathy (birth asphyxia and birth trauma)	761.7, 761.8, 761.9, 762, 762.0, 762.1, 762.2, 762.3, 762.4, 762.5, 762.6, 762.7, 762.8, 762.9, 763, 763.0, 763.1, 763.2, 763.3, 763.4, 763.5, 763.6, 763.7, 763.8, 763.81, 763.82, 763.83, 763.84, 763.89, 763.9, 767, 767.0, 767.1, 767.11, 767.19, 767.2, 767.3, 767.4, 767.5, 767.6, 767.7, 767.8, 767.9, 768, 768.2, 768.3, 768.4, 768.5, 768.6, 768.7, 768.70, 768.71, 768.72, 768.73, 768.9, 772.1, 772.10, 772.11, 772.12, 772.13, 772.14, 772.2, 772.3, 772.4, 772.5, 772.6, 772.8, 772.9, 779.0, 779.1, 779.2	P01.7, P01.8, P01.9, P02, P02.0, P02.1, P02.2, P02.20, P02.29, P02.3, P02.4, P02.5, P02.6, P02.60, P02.69, P02.7, P02.8, P02.9, P03, P03.0, P03.1, P03.2, P03.3, P03.4, P03.5, P03.6, P03.8, P03.81, P03.810, P03.811, P03.819, P03.82, P03.89, P03.9, P04.0, P10, P10.0, P10.1, P10.2, P10.3, P10.4, P10.8, P10.9, P11, P11.0, P11.1, P11.2, P11.3, P11.4, P11.5, P11.9, P12, P12.0, P12.1, P12.2, P12.3, P12.4, P12.8, P12.81, P12.89, P12.9, P13, P13.0, P13.1, P13.2, P13.3, P13.4, P13.8, P13.9, P14, P14.0, P14.1, P14.2, P14.3, P14.8, P14.9, P15, P15.0, P15.1, P15.2, P15.3, P15.4, P15.5, P15.6, P15.8, P15.9, P19.0, P19.1, P19.2, P19.9, P20, P20.0, P20.1, P20.9, P21, P21.0, P21.1, P21.9, P24, P24.0, P24.00, P24.01, P24.1, P24.10, P24.11, P24.2, P24.20, P24.21, P24.3, P24.30, P24.31, P24.8, P24.80, P24.81, P51.0, P51.8, P51.9, P52, P52.0, P52.1, P52.2, P52.21, P52.22, P52.3, P52.4, P52.5, P52.6, P52.8, P52.9, P54.0, P54.1, P54.2, P54.3, P54.4, P54.5, P54.6, P54.8, P54.9, P84, P90, P90.0, P91, P91.0, P91.1, P91.3, P91.4, P91.5, P91.6, P91.60, P91.61, P91.62, P91.63, P91.8, P91.9	both	0
A.5.3	Sepsis and other infectious disorders of the newborn baby	771, 771.4, 771.5, 771.6, 771.7, 771.8, 771.81, 771.82, 771.83, 771.89, 771.9	P36, P36.0, P36.1, P36.10, P36.19, P36.2, P36.3, P36.30, P36.39, P36.4, P36.5, P36.8, P36.9, P37.5, P38, P38.0, P38.1, P38.9, P39, P39.0, P39.1, P39.2, P39.3, P39.4, P39.8, P39.9	both	0

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
A.5.4	Hemolytic disease in fetus and newborn and other neonatal jaundice	773, 773.0, 773.1, 773.2, 773.3, 773.4, 773.5, 773.9, 774, 774.0, 774.1, 774.2, 774.3, 774.30, 774.31, 774.39, 774.4, 774.5, 774.6, 774.7, 774.9	P55, P55.0, P55.1, P55.8, P55.9, P56, P56.0, P56.9, P56.90, P56.99, P57, P57.0, P57.8, P57.9, P58, P58.0, P58.1, P58.2, P58.3, P58.4, P58.41, P58.42, P58.5, P58.8, P58.9, P59, P59.0, P59.1, P59.2, P59.20, P59.29, P59.3, P59.8, P59.9	both	0
A.5.5	Other neonatal disorders	655.3, 655.30, 655.31, 655.33, 655.4, 655.40, 655.41, 655.43, 655.5, 655.50, 655.51, 655.53, 655.6, 655.60, 655.61, 655.63, 760, 760.0, 760.1, 760.2, 760.3, 760.4, 760.5, 760.6, 760.61, 760.62, 760.63, 760.64, 760.7, 760.70, 760.72, 760.73, 760.74, 760.75, 760.76, 760.77, 760.78, 760.79, 760.8, 760.9, 761, 761.2, 761.3, 761.4, 761.5, 761.6, 764, 764.0, 764.00, 764.01, 764.02, 764.03, 764.04, 764.05, 764.06, 764.07, 764.08, 764.09, 764.1, 764.10, 764.11, 764.12, 764.13, 764.14, 764.15, 764.16, 764.17, 764.18, 764.19, 764.2, 764.20, 764.21, 764.22, 764.23, 764.24, 764.25, 764.26, 764.27, 764.28, 764.29, 764.8, 764.9, 764.90, 764.91, 764.92, 764.93, 764.94, 764.95, 764.96, 764.97, 764.98, 764.99, 766, 766.0, 766.1, 766.2, 766.21, 766.22, 766.9, 772, 772.0, 775, 775.4, 775.5, 775.6, 775.7, 775.8, 775.81, 775.89, 775.9, 776, 776.0, 776.1, 776.2, 776.3, 776.4, 776.5, 776.7, 776.8, 776.9, 777, 777.0, 777.1, 777.2, 777.3, 777.4, 777.7, 777.8, 777.9, 778, 778.0, 778.1, 778.2, 778.3, 778.4, 778.5, 778.6, 778.7, 778.8, 778.9, 779, 779.3, 779.31, 779.32, 779.33, 779.34, 779.7, 779.8,	P00, P00.0, P00.1, P00.2, P00.3, P00.4, P00.5, P00.6, P00.7, P00.8, P00.81, P00.89, P00.9, P01, P01.2, P01.3, P01.4, P01.5, P01.6, P04, P04.1, P04.2, P04.4, P04.41, P04.49, P04.5, P04.6, P04.8, P04.9, P05, P05.0, P05.00, P05.01, P05.02, P05.03, P05.04, P05.05, P05.06, P05.07, P05.08, P05.1, P05.10, P05.11, P05.12, P05.13, P05.14, P05.15, P05.16, P05.17, P05.18, P05.2, P05.9, P07, P07.0, P07.00, P07.01, P07.02, P07.03, P07.1, P07.10, P07.14, P07.15, P07.16, P07.17, P07.18, P08, P08.0, P08.1, P08.2, P08.21, P08.22, P19, P29, P29.0, P29.1, P29.11, P29.12, P29.2, P29.4, P29.8, P29.81, P29.89, P29.9, P50, P50.0, P50.1, P50.2, P50.3, P50.4, P50.5, P50.8, P50.9, P51, P53, P53.0, P54, P60, P60.0, P61, P61.0, P61.1, P61.3, P61.4, P61.5, P61.6, P61.8, P61.9, P70, P70.3, P70.4, P70.8, P70.9, P71, P71.0, P71.1, P71.2, P71.3, P71.4, P71.8, P71.9, P72, P72.0, P72.2, P72.8, P72.9, P74, P74.0, P74.1, P74.2, P74.3, P74.4, P74.5, P74.6, P74.8, P74.9, P75.0, P76, P76.0, P76.1, P76.2, P76.8, P76.9, P78, P78.1, P78.2, P78.3, P78.8, P78.81, P78.82, P78.83,	both	0

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
		779.81, 779.82, 779.83, 779.84, 779.85, 779.89	P78.89, P78.9, P80, P80.0, P80.8, P80.9, P81, P81.0, P81.8, P81.9, P83, P83.0, P83.1, P83.2, P83.3, P83.30, P83.39, P83.4, P83.5, P83.6, P83.8, P83.9, P91.2, P92, P92.0, P92.01, P92.09, P92.1, P92.2, P92.3, P92.4, P92.5, P92.6, P92.8, P92.9, P94, P94.1, P94.2, P94.8, P94.9, P96, P96.0, P96.3, P96.4, P96.5, P96.8, P96.81, P96.82, P96.83, P96.89, P99.9, Q86.1, Q86.2, Q86.8		
A.6.1	Protein-energy malnutrition	260, 260.0, 260.9, 261, 261.0, 261.9, 262, 262.0, 262.9, 263, 263.0, 263.1, 263.2, 263.4, 263.8, 263.9	E40, E40.0, E41, E41.0, E41.9, E42, E43, E43.0, E43.9, E44, E44.0, E44.1, E45, E45.0, E46, E46.0, E46.9, E64.0	both	0-85
A.6.2	Iodine deficiency	244.2	E00, E01, E03.2	both	1-85

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
A.6.3	Vitamin A deficiency	264, 264.0, 264.1, 264.2, 264.3, 264.4, 264.5, 264.6, 264.7, 264.8, 264.9	E50, E50.0, E50.1, E50.2, E50.3, E50.4, E50.5, E50.6, E50.7, E50.8, E50.9, E64.1	both	1-85
A.6.4	Iron-deficiency anemia	280, 280.0, 280.1, 280.7, 280.8, 280.9, 281, 281.3, 281.4, 281.8, 281.9, 285, 285.0, 285.1, 285.2, 285.21, 285.22, 285.29, 285.4, 285.8, 285.9, V18.2, V78.0, V78.1	D50, D50.0, D50.1, D50.8, D50.9, D53.0, D53.1, D53.2, D53.8, D53.9, D62, D62.0, D62.9, D63, D63.0, D63.1, D63.8, D64, D64.0, D64.1, D64.2, D64.3, D64.4, D64.8, D64.81, D64.89, D64.9, Z83.2	both	0-85
A.6.5	Other nutritional deficiencies	265, 265.0, 265.1, 265.2, 265.9, 266, 266.0, 266.1, 266.2, 266.9, 267, 267.0, 267.9, 268, 268.0, 268.1, 268.2, 268.9, 269, 269.0, 269.1, 269.2, 269.3, 269.8, 269.9, 281.0, 281.1, 281.2	D51, D51.0, D51.1, D51.2, D51.3, D51.8, D51.9, D52, D52.0, D52.1, D52.8, D52.9, D53, E51, E51.1, E51.11, E51.12, E51.2, E51.8, E51.9, E52, E53, E53.0, E53.1, E53.8, E53.9, E54, E54.0, E55, E55.0, E55.9, E56, E56.0, E56.1, E56.8, E56.9, E57, E58, E59, E59.0, E60, E61, E61.0, E61.1, E61.2, E61.3, E61.4, E61.5, E61.6, E61.7, E61.8, E61.9, E63, E63.0, E63.1, E63.8, E63.9, E64, E64.2, E64.3, E64.8, E64.9, M83.0, M83.1, M83.2, M83.3, M83.4, M83.5, M83.8, M83.9	both	0-85

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
A.7.1	Sexually transmitted diseases excluding HIV	054.1, 054.11, 054.12, 054.13, 054.19, 090, 090.0, 090.1, 090.2, 090.3, 090.4, 090.40, 090.41, 090.42, 090.49, 090.5, 090.6, 090.7, 090.8, 090.9, 091, 091.0, 091.1, 091.2, 091.3, 091.4, 091.5, 091.50, 091.51, 091.52, 091.6, 091.61, 091.62, 091.69, 091.7, 091.8, 091.81, 091.82, 091.89, 091.9, 092, 092.0, 092.4, 092.5, 092.7, 092.8, 092.9, 093, 093.0, 093.1, 093.2, 093.20, 093.21, 093.22, 093.23, 093.24, 093.5, 093.8, 093.81, 093.82, 093.89, 093.9, 094, 094.0, 094.1, 094.2, 094.3, 094.8, 094.81, 094.82, 094.83, 094.84, 094.85, 094.86, 094.87, 094.89, 094.9, 095, 095.0, 095.1, 095.2, 095.3, 095.4, 095.5, 095.6, 095.7, 095.8, 095.9, 096, 096.0, 096.3, 096.4, 096.5, 096.6, 096.8, 097, 097.0, 097.1, 097.2, 097.3, 097.9, 098, 098.0, 098.1, 098.10, 098.11, 098.12, 098.13, 098.14, 098.15, 098.16, 098.17, 098.19, 098.2, 098.3, 098.30, 098.31, 098.32, 098.33, 098.34, 098.35, 098.36, 098.37, 098.39, 098.4, 098.40, 098.41, 098.42, 098.43, 098.49, 098.5, 098.50, 098.51, 098.52, 098.53, 098.59, 098.6, 098.7, 098.8, 098.81, 098.82, 098.83, 098.84, 098.85, 098.86, 098.89, 098.9, 099, 099.0, 099.1, 099.2, 099.3, 099.4, 099.40, 099.41, 099.49, 099.5, 099.50, 099.51, 099.52, 099.53, 099.54, 099.55, 099.56, 099.59, 099.6, 099.8, 099.9, 131, 131.0, 131.00, 131.01, 131.02, 131.03, 131.09, 131.3, 131.6, 131.8, 131.9, 614, 614.0, 614.1, 614.2, 614.3, 614.4, 614.5, 614.6, 614.7, 614.8, 614.9, 615, 615.0, 615.1, 615.9, V01.6, V02.7, V02.8, V02.9, V73, V73.8, V73.88, V73.9, V73.98, V74.5, V74.6	Z11.3, Z20.2, Z22.6, Z22.8, Z22.9, A56, A56.0, A56.1, K67.0, N74.4, Z11.8, A54, A54.0, A54.00, A54.01, A54.02, A54.03, A54.09, A54.1, A54.2, A54.21, A54.22, A54.23, A54.24, A54.29, A54.3, A54.30, A54.31, A54.32, A54.33, A54.39, A54.4, A54.40, A54.41, A54.42, A54.43, A54.49, A54.5, A54.6, A54.8, A54.81, A54.82, A54.83, A54.84, A54.85, A54.86, A54.89, A54.9, K67.1, M73.0, N74.3, Z22.4, A60, A60.0, A60.00, A60.01, A60.02, A60.03, A60.04, A60.09, A60.1, A55, A56.00, A56.01, A56.02, A56.09, A56.11, A56.19, A56.2, A56.3, A56.4, A56.8, A57, A57.0, A58, A63, A63.8, A64, A64.0, B63, N34.1, N70, N70.0, N70.01, N70.02, N70.03, N70.1, N70.11, N70.12, N70.13, N70.9, N70.91, N70.92, N70.93, N71, N71.0, N71.1, N71.9, N73, N73.0, N73.1, N73.2, N73.3, N73.4, N73.5, N73.6, N73.8, N73.9, N74, N74.2, N74.8, A50, A50.0, A50.01, A50.02, A50.03, A50.04, A50.05, A50.06, A50.07, A50.08, A50.09, A50.1, A50.2, A50.3, A50.30, A50.31, A50.32, A50.39, A50.4, A50.40, A50.41, A50.42, A50.43, A50.44, A50.45, A50.49, A50.5, A50.51, A50.52, A50.53, A50.54, A50.55, A50.56, A50.57, A50.59, A50.6, A50.7, A50.9, A51, A51.0, A51.1, A51.2, A51.3, A51.31, A51.32, A51.39, A51.4, A51.41, A51.42, A51.43, A51.44, A51.45, A51.46, A51.49, A51.5, A51.9, A52, A52.0, A52.00, A52.01, A52.02, A52.03, A52.04, A52.05, A52.06, A52.09, A52.1, A52.10, A52.11, A52.12, A52.13, A52.14, A52.15, A52.16,	both	0-85

106

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			A52.17, A52.19, A52.2, A52.3, A52.7, A52.71, A52.72, A52.73, A52.74, A52.75, A52.76, A52.77, A52.78, A52.79, A52.8, A52.9, A53, A53.0, A53.9, I98.0, K67.2, M73.1, M73.8, A59, A59.0, A59.00, A59.01, A59.02, A59.03, A59.09, A59.8, A59.9		

107

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
A.7.2	Hepatitis	070, 070.0, 070.1, 070.2, 070.20, 070.21, 070.22, 070.23, 070.3, 070.30, 070.31, 070.32, 070.33, 070.4, 070.41, 070.42, 070.43, 070.44, 070.49, 070.5, 070.51, 070.52, 070.53, 070.54, 070.59, 070.6, 070.7, 070.70, 070.71, 070.9, V02.6, V02.60, V02.61, V02.62, V02.69, V05.3	B17, B17.8, B17.9, B18, B18.0, B18.1, B18.2, B18.8, B18.9, B19, B19.0, B19.9, Z22.5, Z22.50, Z22.59, Z24.6, B15, B15.0, B15.9, B16, B16.0, B16.1, B16.2, B16.9, B17.0, B19.1, B19.10, B19.11, Z22.51, B17.1, B17.10, B17.11, B19.2, B19.20, B19.21, Z22.52, B17.2	both	0-85
A.7.3	Leprosy	030, 030.0, 030.1, 030.2, 030.3, 030.5, 030.6, 030.7, 030.8, 030.9, V74.2	A30, A30.0, A30.1, A30.2, A30.3, A30.4, A30.5, A30.8, A30.9, Z11.2	both	1-85

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
A.7.4	Other infectious diseases	020, 020.0, 020.1, 020.2, 020.3, 020.4, 020.5, 020.6, 020.7, 020.8, 020.9, 021, 021.0, 021.1, 021.2, 021.3, 021.5, 021.6, 021.7, 021.8, 021.9, 022, 022.0, 022.1, 022.2, 022.3, 022.6, 022.8, 022.9, 023, 023.0, 023.1, 023.2, 023.3, 023.8, 023.9, 024, 024.0, 024.1, 024.2, 024.3, 024.4, 024.5, 024.9, 025, 025.0, 025.2, 025.5, 025.6, 025.9, 026, 026.0, 026.1, 026.2, 026.9, 027, 027.0, 027.1, 027.2, 027.4, 027.6, 027.8, 027.9, 028, 028.0, 028.5, 028.6, 028.9, 029, 031, 031.0, 031.1, 031.2, 031.8, 031.9, 034, 034.0, 034.1, 034.4, 034.8, 034.9, 039, 039.0, 039.1, 039.2, 039.3, 039.4, 039.8, 039.9, 040, 040.1, 040.2, 040.3, 040.4, 040.41, 040.42, 040.5, 040.8, 040.81, 040.82, 040.89, 040.9, 041, 041.0, 041.00, 041.01, 041.02, 041.03, 041.04, 041.05, 041.09, 041.1, 041.10, 041.11, 041.12, 041.19, 041.2, 041.3, 041.4, 041.41, 041.42, 041.43, 041.49, 041.5, 041.6, 041.7, 041.8, 041.81, 041.82, 041.83, 041.84, 041.85, 041.86, 041.89, 041.9, 045, 045.0, 045.00, 045.01, 045.02, 045.03, 045.1, 045.10, 045.11, 045.12, 045.13, 045.2, 045.20, 045.21, 045.22, 045.23, 045.4, 045.5, 045.6, 045.9, 045.90, 045.91, 045.92, 045.93, 046, 046.0, 046.1, 046.11, 046.19, 046.2, 046.3, 046.6, 046.7, 046.71, 046.72, 046.79, 046.8, 046.9, 050, 050.0, 050.1, 050.2, 050.3, 050.4, 050.5, 050.6, 050.9, 051, 051.0, 051.01, 051.02, 051.1, 051.2, 051.4, 051.5, 051.8, 051.9, 054, 054.0, 054.10, 054.2, 054.3, 054.4, 054.40, 054.41, 054.42, 054.43, 054.44, 054.49, 054.5, 054.6, 054.7, 054.71, 054.73, 054.74, 054.79, 054.8, 054.9, 056, 056.0, 056.00, 056.01, 056.09, 056.2, 056.4, 056.5, 056.6, 056.7,	A20, A20.0, A20.1, A20.2, A20.3, A20.7, A20.8, A20.9, A21, A21.0, A21.1, A21.2, A21.3, A21.7, A21.8, A21.9, A22, A22.0, A22.1, A22.2, A22.7, A22.8, A22.9, A23, A23.0, A23.1, A23.2, A23.3, A23.8, A23.9, A24, A24.0, A24.1, A24.2, A24.3, A24.4, A24.9, A25, A25.0, A25.1, A25.9, A26, A26.0, A26.7, A26.8, A26.9, A27, A27.0, A27.8, A27.81, A27.89, A27.9, A28, A28.0, A28.1, A28.2, A28.8, A28.9, A31, A31.0, A31.1, A31.2, A31.8, A31.9, A32, A32.0, A32.1, A32.11, A32.12, A32.7, A32.8, A32.81, A32.82, A32.89, A32.9, A38, A38.0, A38.1, A38.8, A38.9, A42, A42.0, A42.1, A42.2, A42.8, A42.81, A42.82, A42.89, A42.9, A43, A43.0, A43.1, A43.8, A43.9, A44, A48, A48.2, A48.3, A48.4, A48.5, A48.51, A48.52, A48.8, A49, A49.0, A49.01, A49.02, A49.1, A49.2, A49.3, A49.8, A49.9, A60.9, A65, A65.0, A69, A69.0, A69.1, A69.8, A69.9, A70, A74, A74.8, A74.81, A74.89, A74.9, A80, A80.0, A80.1, A80.2, A80.3, A80.30, A80.39, A80.4, A80.9, A81, A81.0, A81.00, A81.01, A81.09, A81.1, A81.2, A81.8, A81.81, A81.82, A81.83, A81.89, A81.9, A88, A88.1, A89.0, A96.0, A96.1, A96.2, A96.8, A96.9, A98.3, A98.4, A98.5, B00, B00.0, B00.1, B00.2, B00.4, B00.5, B00.50, B00.51, B00.52, B00.53, B00.59, B00.7, B00.8, B00.81, B00.82, B00.89, B00.9, B03, B04, B06, B06.0, B06.00, B06.01, B06.02, B06.09, B06.8, B06.81, B06.82, B06.89, B06.9, B08.3, B08.4, B08.5, B08.8, B09, B10, B10.0, B10.01, B10.09, B10.8, B10.81, B10.82, B10.89, B25, B25.0,	both	0-85

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
		056.71, 056.79, 056.8, 056.9, 057, 057.0, 057.1, 057.2, 057.4, 057.5, 057.6, 057.8, 057.9, 058, 058.1, 058.10, 058.11, 058.12, 058.2, 058.21, 058.29, 058.4, 058.5, 058.6, 058.8, 058.81, 058.82, 058.89, 059, 059.0, 059.00, 059.01, 059.09, 059.1, 059.10, 059.11, 059.12, 059.19, 059.2, 059.20, 059.21, 059.22, 059.3, 059.5, 059.6, 059.8, 059.9, 072, 072.0, 072.1, 072.2, 072.3, 072.4, 072.5, 072.6, 072.7, 072.71, 072.72, 072.79, 072.8, 072.9, 073, 073.0, 073.2, 073.3, 073.5, 073.6, 073.7, 073.8, 073.9, 074, 074.0, 074.1, 074.20, 074.21, 074.3, 074.4, 074.8, 075, 075.0, 075.2, 075.3, 075.4, 075.5, 075.6, 075.7, 075.9, 078, 078.2, 078.3, 078.4, 078.5, 078.6, 078.7, 078.8, 078.81, 078.82, 078.88, 078.89, 078.9, 079, 079.0, 079.1, 079.2, 079.3, 079.4, 079.5, 079.50, 079.51, 079.52, 079.53, 079.59, 079.6, 079.7, 079.8, 079.81, 079.83, 079.88, 079.89, 079.9, 079.98, 079.99, 100, 100.0, 100.1, 100.2, 100.3, 100.4, 100.5, 100.6, 100.7, 100.8, 100.81, 100.89, 100.9, 101, 101.0, 101.3, 101.4, 101.6, 104, 104.0, 104.1, 104.2, 104.3, 104.8, 104.9, 112, 112.0, 112.3, 112.4, 112.5, 112.6, 112.8, 112.81, 112.82, 112.83, 112.84, 112.85, 112.89, 112.9, 113, 113.2, 113.4, 113.5, 113.6, 114, 114.0, 114.1, 114.2, 114.3, 114.4, 114.5, 114.6, 114.9, 115, 115.0, 115.00, 115.01, 115.02, 115.03, 115.04, 115.05, 115.09, 115.1, 115.10, 115.11, 115.12, 115.13, 115.14, 115.15, 115.19, 115.2, 115.3, 115.4, 115.5, 115.9, 115.90, 115.91, 115.92, 115.93, 115.94, 115.95, 115.99, 116, 116.0, 116.1, 116.2, 116.3, 116.4, 116.5, 116.6, 116.9, 117, 117.0, 117.1, 117.2, 117.3,	B25.1, B25.2, B25.8, B25.9, B26, B26.0, B26.1, B26.2, B26.3, B26.8, B26.81, B26.82, B26.83, B26.84, B26.85, B26.89, B26.9, B27, B27.0, B27.00, B27.01, B27.02, B27.09, B27.1, B27.10, B27.11, B27.12, B27.19, B27.8, B27.80, B27.81, B27.82, B27.89, B27.9, B27.90, B27.91, B27.92, B27.99, B33, B33.0, B33.3, B33.4, B33.8, B34, B34.0, B34.1, B34.2, B34.3, B34.4, B34.8, B37, B37.0, B37.1, B37.2, B37.5, B37.6, B37.7, B37.8, B37.81, B37.82, B37.83, B37.84, B37.89, B37.9, B38, B38.0, B38.1, B38.2, B38.3, B38.4, B38.7, B38.8, B38.81, B38.89, B38.9, B39, B39.0, B39.1, B39.2, B39.3, B39.4, B39.5, B39.9, B40, B40.0, B40.1, B40.2, B40.3, B40.7, B40.8, B40.81, B40.89, B40.9, B41, B41.0, B41.7, B41.8, B41.9, B42, B42.0, B42.1, B42.7, B42.8, B42.81, B42.82, B42.89, B42.9, B43, B43.0, B43.1, B43.2, B43.8, B43.9, B44, B44.0, B44.1, B44.2, B44.7, B44.8, B44.81, B44.89, B44.9, B45, B45.0, B45.1, B45.2, B45.3, B45.7, B45.8, B45.9, B46, B46.0, B46.1, B46.2, B46.3, B46.4, B46.5, B46.8, B46.9, B47, B47.0, B47.1, B47.9, B48, B48.0, B48.1, B48.2, B48.3, B48.4, B48.7, B48.8, B49, B58, B58.0, B58.00, B58.01, B58.09, B58.1, B58.2, B58.3, B58.8, B58.81, B58.82, B58.83, B58.89, B58.9, B59, B60.2, B60.8, B89, B91, B92, B94, B94.0, B94.1, B94.2, B94.8, B94.9, B95, B95.0, B95.1, B95.2, B95.3, B95.4, B95.5, B95.6, B95.61, B95.62, B95.7, B95.8, B96, B96.0, B96.1, B96.2, B96.20, B96.21, B96.22, B96.23, B96.29, B96.3, B96.4, B96.5, B96.6, B96.7,		

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
		117.4, 117.5, 117.6, 117.7, 117.8, 117.9, 118, 118.0, 118.1, 118.2, 118.3, 118.4, 118.5, 118.6, 118.9, 130, 130.0, 130.1, 130.2, 130.3, 130.4, 130.5, 130.6, 130.7, 130.8, 130.9, 136, 136.0, 136.2, 136.21, 136.29, 136.3, 136.4, 136.5, 136.8, 136.9, 138, 138.0, 138.9, 139, 139.0, 139.1, 139.8, 139.9, 357.0, 390, 390.0, 390.9, 392, 392.9, 572.0, 572.1, 730.7, 730.70, 730.71, 730.72, 730.73, 730.74, 730.75, 730.76, 730.77, 730.78, 730.79, 730.8, 730.80, 730.81, 730.82, 730.83, 730.84, 730.85, 730.86, 730.87, 730.88, 730.89, 730.9, 730.90, 730.91, 730.92, 730.93, 730.94, 730.95, 730.96, 730.97, 730.98, 730.99, 771.0, 771.1, 771.2, V01, V01.2, V01.3, V01.4, V01.7, V01.79, V01.8, V01.81, V01.89, V01.9, V02, V02.5, V02.51, V02.52, V02.53, V02.54, V02.59, V03, V03.3, V03.4, V03.8, V03.9, V04, V04.0, V04.1, V04.3, V04.6, V04.8, V04.89, V05, V05.8, V05.9, V06, V06.0, V06.1, V06.2, V06.3, V06.4, V06.5, V06.6, V06.8, V09, V09.0, V09.1, V09.2, V09.3, V09.4, V09.5, V09.50, V09.51, V09.6, V09.7, V09.70, V09.71, V09.8, V09.80, V09.81, V09.9, V09.90, V09.91, V12.0, V12.00, V12.02, V12.04, V12.09, V18.8, V29.0, V71.82, V71.83, V73.0, V73.1, V73.3, V73.81, V73.89, V73.99, V75.9	B96.8, B96.81, B96.82, B96.89, B97, B97.0, B97.1, B97.10, B97.11, B97.12, B97.19, B97.2, B97.21, B97.29, B97.3, B97.30, B97.31, B97.32, B97.33, B97.34, B97.35, B97.39, B97.4, B97.5, B97.6, B97.7, B97.8, B97.81, B97.89, B99, B99.0, B99.8, B99.9, F02.1, G14, G14.6, G61.0, I00, I02, I02.9, I30, I31, I32.0, I32.1, I32.8, I51, I51.8, I51.81, I51.89, I52.0, I52.1, I52.8, I62.0, I62.00, I62.01, I62.02, I62.03, I67.3, I72, I72.5, I77, I77.7, I77.71, I77.72, I77.73, I77.74, I77.79, I77.8, I77.81, I77.810, I77.811, I77.812, I77.819, I77.89, I78, I79, I79.2, I86, I87, I87.3, I87.30, I87.301, I87.302, I87.303, I87.309, I87.31, I87.311, I87.312, I87.313, I87.319, I87.32, I87.321, I87.322, I87.323, I87.329, I87.33, I87.331, I87.332, I87.333, I87.339, I87.39, I87.391, I87.392, I87.393, I87.399, I88, I89, I96.0, I96.9, I98, I98.1, I98.8, I98.9, I99, I99.0, J02.0, J20.0, J20.1, J20.2, J20.3, J20.4, J20.5, J20.6, J20.7, J85, J86, K75.0, K75.1, L08.1, L44.4, L94.6, M49.1, M89.6, M89.60, M89.61, M89.611, M89.612, M89.619, M89.62, M89.621, M89.622, M89.629, M89.63, M89.631, M89.632, M89.639, M89.64, M89.641, M89.642, M89.649, M89.65, M89.651, M89.652, M89.659, M89.66, M89.661, M89.662, M89.669, M89.67, M89.671, M89.672, M89.679, M89.68, M89.69, P35, P35.0, P35.1, P35.2, P35.3, P35.8, P35.9, P37, P37.0, P37.1, P37.2, P37.3, P37.4, P37.8, P37.9, R02, R02.0, R02.9, U82, U83, U84, U85, U86, U87, U88, U89, Z11,		

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			Z11.4, Z11.5, Z11.51, Z11.59, Z11.9, Z16, Z16.1, Z16.10, Z16.11, Z16.12, Z16.19, Z16.2, Z16.20, Z16.21, Z16.22, Z16.23, Z16.24, Z16.29, Z16.3, Z16.30, Z16.31, Z16.32, Z16.33, Z16.34, Z16.341, Z16.342, Z16.35, Z16.39, Z20, Z20.4, Z20.5, Z20.6, Z20.7, Z20.8, Z20.81, Z20.810, Z20.811, Z20.818, Z20.82, Z20.820, Z20.828, Z20.89, Z20.9, Z22, Z22.3, Z22.31, Z22.32, Z22.321, Z22.322, Z22.33, Z22.330, Z22.338, Z22.39, Z23, Z23.3, Z23.4, Z24.0, Z24.5, Z25.0, Z83.1		

112

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
A.7.5	Septicemia	038, 038.0, 038.1, 038.10, 038.11, 038.12, 038.19, 038.2, 038.3, 038.4, 038.40, 038.41, 038.42, 038.43, 038.44, 038.49, 038.5, 038.6, 038.7, 038.8, 038.9, 286.6, 995.9, 995.90, 995.91, 995.92, 995.93, 995.94	A40, A40.0, A40.1, A40.2, A40.3, A40.8, A40.9, A41, A41.0, A41.01, A41.02, A41.1, A41.2, A41.3, A41.4, A41.5, A41.50, A41.51, A41.52, A41.53, A41.59, A41.6, A41.8, A41.81, A41.89, A41.9, A42.7, D65, D65.0, D65.9, R65, R65.1, R65.10, R65.11, R65.2, R65.20, R65.21	both	0-85
B.1.1	Esophageal cancer	150, 150.0, 150.1, 150.2, 150.3, 150.4, 150.5, 150.6, 150.7, 150.8, 150.9, 211.0, 230.1, V10.03	C15, C15.0, C15.1, C15.2, C15.3, C15.4, C15.5, C15.8, C15.9, D00.1, D13.0	both	15-85
B.1.2	Stomach cancer	151, 151.0, 151.1, 151.2, 151.3, 151.4, 151.5, 151.6, 151.8, 151.9, 209.23, 209.63, 211.1, 230.2, V10.04, V55.1	C16, C16.0, C16.1, C16.2, C16.3, C16.4, C16.5, C16.6, C16.7, C16.8, C16.9, Z43.1, D00.2, D13.1, K31.7	both	15-85
B.1.3	Liver cancer	155, 155.0, 155.1, 155.2, 155.3, 155.5, 155.9, 211.5, V10.07	C22, C22.0, C22.1, C22.2, C22.3, C22.4, C22.7, C22.8, C22.9, D13.4, D13.5	both	5-85
B.1.4	Larynx cancer	161, 161.0, 161.1, 161.2, 161.3, 161.8, 161.9, 212.1, 231.0, 235.6, V10.21	C32, C32.0, C32.1, C32.2, C32.3, C32.8, C32.9, D02.0, D14.1, D38.0	both	15-85

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
B.1.5	Trachea, bronchus, and lung cancers	162, 162.0, 162.1, 162.2, 162.3, 162.4, 162.5, 162.8, 162.9, 163.5, 209.21, 209.61, 212.2, 212.3, 231.1, 231.2, 235.7, V10.1, V10.11, V10.12, V10.2, V10.20, V16.1, V16.2, V76.0	C33, C34, C34.0, C34.00, C34.01, C34.02, C34.1, C34.10, C34.11, C34.12, C34.2, C34.3, C34.30, C34.31, C34.32, C34.4, C34.7, C34.8, C34.80, C34.81, C34.82, C34.9, C34.90, C34.91, C34.92, Z12.2, Z80.1, Z80.2, Z85.1, Z85.11, Z85.110, Z85.118, Z85.12, Z85.2, Z85.20, Z85.21, Z85.22, Z85.23, Z85.230, Z85.238, Z85.29, D00, D00.0, D00.00, D00.01, D00.02, D00.03, D00.04, D00.05, D00.06, D00.07, D00.08, D02, D02.1, D02.2, D02.20, D02.21, D02.22, D02.9, D03, D03.1, D03.10, D03.11, D03.12, D03.2, D03.20, D03.21, D03.22, D03.3, D03.30, D03.39, D03.5, D03.51, D03.52, D03.59, D03.6, D03.60, D03.61, D03.62, D03.7, D03.70, D03.71, D03.72, D04, D04.1, D04.10, D04.11, D04.12, D04.2, D04.20, D04.21, D04.22, D04.3, D04.30, D04.39, D04.6, D04.60, D04.61, D04.62, D04.7, D04.70, D04.71, D04.72, D05, D05.0, D05.00, D05.01, D05.02, D05.1, D05.10, D05.11, D05.12, D05.7, D05.8, D05.80, D05.81, D05.82, D05.9, D05.90, D05.91, D05.92, D07, D07.3, D07.30, D07.39, D07.6, D07.60, D07.61, D07.69, D08, D09, D09.1, D09.10, D09.19, D09.2, D09.20, D09.21, D09.22, D09.7, D10, D10.3, D10.30, D10.39, D11, D13, D14, D14.2, D14.3, D14.30, D14.31, D14.32, D15, D16, D16.0, D16.00, D16.01, D16.02, D16.1, D16.10, D16.11, D16.12, D16.2, D16.20, D16.21, D16.22, D16.3, D16.30, D16.31, D16.32, D17, D17.2, D17.20, D17.21, D17.22, D17.23, D17.24, D17.3, D17.30, D17.39, D17.7, D17.71, D17.72,	both	15-85

114

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			D17.79, D18, D18.0, D18.00, D18.01, D18.02, D18.03, D18.09, D19, D20, D20.9, D21, D21.1, D21.10, D21.11, D21.12, D21.2, D21.20, D21.21, D21.22, D22, D22.1, D22.10, D22.11, D22.12, D22.2, D22.20, D22.21, D22.22, D22.3, D22.30, D22.39, D22.6, D22.60, D22.61, D22.62, D22.7, D22.70, D22.71, D22.72, D23, D23.1, D23.10, D23.11, D23.12, D23.2, D23.20, D23.21, D23.22, D23.3, D23.30, D23.39, D23.6, D23.60, D23.61, D23.62, D23.7, D23.70, D23.71, D23.72, D24, D24.0, D27, D28, D29, D29.2, D29.20, D29.21, D29.22, D29.3, D29.30, D29.31, D29.32, D29.7, D30, D30.0, D30.00, D30.01, D30.02, D30.1, D30.10, D30.11, D30.12, D30.2, D30.20, D30.21, D30.22, D30.7, D31, D31.0, D31.00, D31.01, D31.02, D31.1, D31.10, D31.11, D31.12, D31.2, D31.20, D31.21, D31.22, D31.3, D31.30, D31.31, D31.32, D31.4, D31.40, D31.41, D31.42, D31.5, D31.50, D31.51, D31.52, D31.6, D31.60, D31.61, D31.62, D31.9, D31.90, D31.91, D31.92, D32, D33, D34.0, D34.9, D35, D35.0, D35.00, D35.01, D35.02, D35.8, D36, D36.1, D36.10, D36.11, D36.12, D36.13, D36.14, D36.15, D36.16, D36.17, D37, D37.0, D37.01, D37.02, D37.03, D37.030, D37.031, D37.032, D37.039, D37.04, D37.05, D37.09, D37.7, D38, D38.1, D39, D39.1, D39.10, D39.11, D39.12, D39.7, D4, D40, D40.1, D40.10, D40.11, D40.12, D40.7, D41, D41.0, D41.00, D41.01, D41.02, D41.1, D41.10, D41.11, D41.12, D41.2, D41.20, D41.21, D41.22, D41.7, D42, D43, D43.7,		

115

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			D44, D44.1, D44.10, D44.11, D44.12, D44.8, D48, D48.6, D48.60, D48.61, D48.62, D49, D49.8, D49.81, D49.89, N60, N60.0, N60.01, N60.02, N60.09, N60.1, N60.11, N60.12, N60.19, N60.2, N60.21, N60.22, N60.29, N60.3, N60.31, N60.32, N60.39, N60.4, N60.41, N60.42, N60.49, N60.8, N60.81, N60.82, N60.89, N60.9, N60.91, N60.92, N60.99		

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
B.1.6	Breast cancer	174, 174.0, 174.1, 174.2, 174.3, 174.4, 174.5, 174.6, 174.8, 174.9, 175, 175.0, 175.3, 175.9, 217, 217.0, 217.8, 233.0, 238.3, 239.3, 610, 610.0, 610.1, 610.2, 610.3, 610.4, 610.8, 610.9, V10.3, V16.3, V50.41, V51.0, V52.4, V76.1, V76.10, V76.11, V76.12, V76.19	C50, C50.0, C50.01, C50.011, C50.012, C50.019, C50.02, C50.021, C50.022, C50.029, C50.1, C50.11, C50.111, C50.112, C50.119, C50.12, C50.121, C50.122, C50.129, C50.2, C50.21, C50.211, C50.212, C50.219, C50.22, C50.221, C50.222, C50.229, C50.3, C50.31, C50.311, C50.312, C50.319, C50.32, C50.321, C50.322, C50.329, C50.4, C50.41, C50.411, C50.412, C50.419, C50.42, C50.421, C50.422, C50.429, C50.5, C50.51, C50.511, C50.512, C50.519, C50.52, C50.521, C50.522, C50.529, C50.6, C50.61, C50.611, C50.612, C50.619, C50.62, C50.621, C50.622, C50.629, C50.8, C50.81, C50.811, C50.812, C50.819, C50.82, C50.821, C50.822, C50.829, C50.9, C50.91, C50.911, C50.912, C50.919, C50.92, C50.921, C50.922, C50.929, Z12.3, Z12.31, Z12.39, Z42.1, Z80.3, Z85.3, D24.1, D24.2, D24.9, D49.3	both	15-85
B.1.7	Cervical cancer	180, 180.0, 180.1, 180.2, 180.3, 180.4, 180.5, 180.6, 180.8, 180.9, V10.41, V13.22, V67.01, V72.32, V76.2, V88.0, V88.01, V88.02, V88.03	C53, C53.0, C53.1, C53.3, C53.4, C53.8, C53.9, Z12.4	female	15-85

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
B.1.8	Uterine cancer	182, 182.0, 182.1, 182.8, 182.9, 219, 219.0, 219.1, 219.8, 219.9, 233.1, 233.2, 622.1, 622.10, 622.11, 622.12, 622.2, 622.7, V10.42	C54, C54.0, C54.1, C54.2, C54.3, C54.8, C54.9, D06, D06.0, D06.1, D06.7, D06.9, D07.0, D26.0, D26.1, D26.7, D26.9, N84.1, N87, N87.0, N87.1, N87.2, N87.9, N88.0	female	15-85
B.1.9	Prostate cancer	185, 185.0, 185.9, 222.2, 236.5, V10.46, V16.42, V76.44	C61, C61.0, C61.9, Z12.5, D29.1, D40.0	male	15-85
B.1.10	Colon and rectum cancers	153, 153.0, 153.1, 153.2, 153.3, 153.4, 153.5, 153.6, 153.7, 153.8, 153.9, 154, 154.0, 154.1, 154.2, 154.3, 154.4, 154.8, 154.9, 209.1, 209.10, 209.11, 209.12, 209.13, 209.14, 209.15, 209.16, 209.17, 209.5, 209.50, 209.51, 209.52, 209.53, 209.54, 209.55, 209.56, 209.57, 211.3, 211.4, 230.3, 230.4, 230.5, 230.6, 569.0, 569.43, 569.44, V10.05, V10.06, V55.3, V76.41, V76.5, V76.50, V76.51, V76.52	C18, C18.0, C18.1, C18.2, C18.3, C18.4, C18.5, C18.6, C18.7, C18.8, C18.9, C19, C19.0, C20, C21, C21.0, C21.1, C21.2, C21.8, Z12.1, Z12.10, Z12.11, Z12.12, Z12.13, Z43.3, D01.0, D01.1, D01.2, D01.3, D12.0, D12.1, D12.2, D12.3, D12.4, D12.5, D12.6, D12.7, D12.8, D12.9, K62.0, K62.1, K63.5	both	15-85

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
B.1.11	Mouth cancer	140, 140.0, 140.1, 140.2, 140.3, 140.4, 140.5, 140.6, 140.7, 140.8, 140.9, 141, 141.0, 141.1, 141.2, 141.3, 141.4, 141.5, 141.6, 141.8, 141.9, 142, 142.0, 142.1, 142.2, 142.3, 142.8, 142.9, 143, 143.0, 143.1, 143.8, 143.9, 144, 144.0, 144.1, 144.4, 144.8, 144.9, 145, 145.0, 145.1, 145.2, 145.3, 145.4, 145.5, 145.6, 145.8, 145.9, 210.0, 210.1, 210.2, 210.3, 210.4, 210.5, 210.6, 235.0, V10.01, V10.02, V76.42	C00, C00.0, C00.1, C00.2, C00.3, C00.4, C00.5, C00.6, C00.8, C00.9, C01, C01.9, C02, C02.0, C02.1, C02.2, C02.3, C02.4, C02.8, C02.9, C03, C03.0, C03.1, C03.9, C04, C04.0, C04.1, C04.8, C04.9, C05, C05.0, C05.1, C05.2, C05.8, C05.9, C06, C06.0, C06.1, C06.2, C06.8, C06.80, C06.89, C06.9, C07, C08, C08.0, C08.1, C08.8, C08.9, D10.0, D10.1, D10.2, D10.4, D10.5, D11.0, D11.7, D11.9	both	15-85
B.1.12	Nasopharynx cancer	147, 147.0, 147.1, 147.2, 147.3, 147.8, 147.9, 210.7, 210.9	C11, C11.0, C11.1, C11.2, C11.3, C11.8, C11.9, D10.6, D10.9	both	5-85
B.1.13	Other pharynx cancer	146, 146.0, 146.1, 146.2, 146.3, 146.4, 146.5, 146.6, 146.7, 146.8, 146.9, 148, 148.0, 148.1, 148.2, 148.3, 148.4, 148.5, 148.8, 148.9	C09, C09.0, C09.1, C09.8, C09.9, C1, C10, C10.0, C10.1, C10.2, C10.3, C10.4, C10.8, C10.9, C12, C12.0, C12.9, C13, C13.0, C13.1, C13.2, C13.8, C13.9	both	15-85

119

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
B.1.14	Gallbladder and biliary tract cancer	156, 156.0, 156.1, 156.2, 156.3, 156.8, 156.9, 209.25, 209.26, 209.27, 209.65, 209.66, 209.67	C23, C24, C24.0, C24.1, C24.4, C24.8, C24.9	both	15-85
B.1.15	Pancreatic cancer	157, 157.0, 157.1, 157.2, 157.3, 157.4, 157.5, 157.7, 157.8, 157.9, 211.6, 211.7, V88.1, V88.11, V88.12	C25, C25.0, C25.1, C25.2, C25.3, C25.4, C25.7, C25.8, C25.9, D13.6, D13.7	both	15-85
B.1.16	Malignant skin melanoma	172, 172.0, 172.1, 172.2, 172.3, 172.4, 172.5, 172.6, 172.7, 172.8, 172.9	C43, C43.0, C43.1, C43.10, C43.11, C43.12, C43.2, C43.20, C43.21, C43.22, C43.3, C43.30, C43.31, C43.39, C43.4, C43.5, C43.51, C43.52, C43.59, C43.6, C43.60, C43.61, C43.62, C43.7, C43.70, C43.71, C43.72, C43.8, C43.9, D03.0, D03.4, D03.8, D03.9	both	15-85

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
B.1.17	Non-melanoma skin cancer	173, 173.0, 173.00, 173.01, 173.02, 173.09, 173.1, 173.10, 173.11, 173.12, 173.19, 173.2, 173.20, 173.21, 173.22, 173.29, 173.3, 173.30, 173.31, 173.32, 173.39, 173.4, 173.40, 173.41, 173.42, 173.49, 173.5, 173.50, 173.51, 173.52, 173.59, 173.6, 173.60, 173.61, 173.62, 173.69, 173.7, 173.70, 173.71, 173.72, 173.79, 173.8, 173.80, 173.81, 173.82, 173.89, 173.9, 173.90, 173.91, 173.92, 173.99, 209.31, 209.32, 209.33, 209.34, 209.35, 209.36, 214, 214.0, 214.1, 215, 215.0, 215.2, 215.3, 215.4, 215.5, 215.6, 215.7, 215.8, 215.9, 216, 216.0, 216.1, 216.2, 216.3, 216.4, 216.5, 216.6, 216.7, 216.8, 216.9, 222.4, 232, 232.0, 232.1, 232.2, 232.3, 232.4, 232.5, 232.6, 232.7, 232.8, 232.9, 238.2, V76.43	C44.1, C44.10, C44.11, C44.111, C44.112, C44.119, C44.12, C44.121, C44.122, C44.129, C44.19, C44.2, C44.20, C44.21, C44.211, C44.212, C44.219, C44.22, C44.221, C44.222, C44.229, C44.29, C44.3, C44.30, C44.31, C44.310, C44.311, C44.319, C44.32, C44.320, C44.321, C44.329, C44.39, C44.4, C44.41, C44.42, C44.5, C44.50, C44.51, C44.510, C44.511, C44.519, C44.52, C44.520, C44.521, C44.529, C44.59, C44.6, C44.60, C44.601, C44.602, C44.609, C44.61, C44.611, C44.612, C44.619, C44.62, C44.621, C44.622, C44.629, C44.69, C44.7, C44.70, C44.71, C44.711, C44.712, C44.719, C44.72, C44.721, C44.722, C44.729, C44.79, C44.8, C44.81, C44.82, C44.9, C44.91, C44.92, D04.0, D04.4, D04.5, D04.8, D04.9, D17.0, D17.1, D21.0, D21.3, D21.4, D21.5, D21.6, D21.9, D22.0, D22.4, D22.5, D22.9, D23.0, D23.4, D23.5, D23.9, D29.4, D48.5, C44.101, C44.102, C44.109, C44.191, C44.192, C44.199, C44.201, C44.202, C44.209, C44.291, C44.292, C44.299, C44.300, C44.301, C44.309, C44.390, C44.391, C44.399, C44.40, C44.49, C44.500, C44.501, C44.509, C44.590, C44.591, C44.599, C44.691, C44.692, C44.699, C44.701, C44.702, C44.709, C44.791, C44.792, C44.799, C44.80, C44.89, C44.90, C44.99	both	15-85
B.1.18	Ovarian cancer	183, 183.0, 183.8, 183.9, 236.2, V10.43, V16.41, V50.42, V76.46	C56, C56.0, C56.1, C56.2, C56.9, C57.4	female	15-85

121

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
B.1.19	Testicular cancer	186, 186.0, 186.9, 222.0, 222.3, 236.4, V10.47, V10.48, V16.43, V76.45	C62, C62.0, C62.00, C62.01, C62.02, C62.1, C62.10, C62.11, C62.12, C62.9, C62.90, C62.91, C62.92	male	15-85
B.1.20	Kidney cancer	189, 189.0, 189.1, 189.5, 189.6, 209.24, 209.64, 223.0, 223.1, 236.91, V10.52, V10.53, V10.59, V16.51	C64, C64.0, C64.1, C64.2, C64.9, C65, C65.0, C65.1, C65.2, C65.9	both	1-85
B.1.21	Bladder cancer	188, 188.0, 188.1, 188.2, 188.3, 188.4, 188.5, 188.6, 188.7, 188.8, 188.9, 223.3, 233.7, 236.7, 239.4, V10.51, V16.52, V43.5, V55.5, V55.6, V76.3	C67, C67.0, C67.1, C67.2, C67.3, C67.4, C67.5, C67.6, C67.7, C67.8, C67.9, Z12.6, Z12.7, Z12.71, Z12.72, Z12.73, Z12.79, Z43.5, Z43.6, Z96.0, D09.0, D30.3, D41.4, D49.4	both	15-85

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
B.1.22	Brain and nervous system cancers	191, 191.0, 191.1, 191.2, 191.3, 191.4, 191.5, 191.6, 191.7, 191.8, 191.9, 192, 192.0, 192.1, 192.2, 192.3, 192.8, 192.9, 225, 225.0, 225.1, 225.2, 225.3, 225.4, 225.8, 225.9, 237, 237.0, 237.1, 237.2, 237.3, 237.4, 237.5, 237.6, 237.70, 237.71, 237.72, 237.9, 239.6, V10.85, V10.86, V12.41	C47, C47.1, C47.10, C47.11, C47.12, C47.2, C47.20, C47.21, C47.22, C70, C71, C71.0, C71.1, C71.2, C71.3, C71.4, C71.5, C71.6, C71.7, C71.8, C71.9, C72, C72.2, C72.3, C72.4, C72.5, C72.8, D32.0, D32.1, D32.9, D33.0, D33.1, D33.2, D33.3, D33.4, D33.7, D33.9, D42.0, D42.1, D42.9, D43.0, D43.1, D43.2, D43.3, D43.4, D43.8, D43.9, D44.0, D44.2, D44.3, D44.4, D44.5, D44.6, D44.7, D44.9, D49.6, C70.0, C70.1, C70.9, C72.0, C72.1, C72.20, C72.21, C72.22, C72.30, C72.31, C72.32, C72.40, C72.41, C72.42, C72.50, C72.59, C72.9	both	1-85
B.1.23	Thyroid cancer	193, 193.0, 193.2, 193.9, 226, 226.0, 226.9, V10.87	C73, D34	both	10-85

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
B.1.24	Hodgkin lymphoma	201, 201.0, 201.00, 201.01, 201.02, 201.03, 201.04, 201.05, 201.06, 201.07, 201.08, 201.1, 201.10, 201.11, 201.12, 201.13, 201.14, 201.15, 201.16, 201.17, 201.18, 201.2, 201.20, 201.21, 201.22, 201.23, 201.24, 201.25, 201.26, 201.27, 201.28, 201.4, 201.40, 201.41, 201.42, 201.43, 201.44, 201.45, 201.46, 201.47, 201.48, 201.5, 201.50, 201.51, 201.52, 201.53, 201.54, 201.55, 201.56, 201.57, 201.58, 201.6, 201.60, 201.61, 201.62, 201.63, 201.64, 201.65, 201.66, 201.67, 201.68, 201.7, 201.70, 201.71, 201.72, 201.73, 201.74, 201.75, 201.76, 201.77, 201.78, 201.9, 201.90, 201.91, 201.92, 201.93, 201.94, 201.95, 201.96, 201.97, 201.98, V10.72	C81, C81.0, C81.00, C81.01, C81.02, C81.03, C81.04, C81.05, C81.06, C81.07, C81.08, C81.09, C81.1, C81.10, C81.11, C81.12, C81.13, C81.14, C81.15, C81.16, C81.17, C81.18, C81.19, C81.2, C81.20, C81.21, C81.22, C81.23, C81.24, C81.25, C81.26, C81.27, C81.28, C81.29, C81.3, C81.30, C81.31, C81.32, C81.33, C81.34, C81.35, C81.36, C81.37, C81.38, C81.39, C81.4, C81.40, C81.41, C81.42, C81.43, C81.44, C81.45, C81.46, C81.47, C81.48, C81.49, C81.7, C81.70, C81.71, C81.72, C81.73, C81.74, C81.75, C81.76, C81.77, C81.78, C81.79, C81.9, C81.90, C81.91, C81.92, C81.93, C81.94, C81.95, C81.96, C81.97, C81.98, C81.99	both	0-85

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
B.1.25	Non-Hodgkin lymphoma	200, 200.0, 200.00, 200.01, 200.02, 200.03, 200.04, 200.05, 200.06, 200.07, 200.08, 200.1, 200.10, 200.11, 200.12, 200.13, 200.14, 200.15, 200.16, 200.17, 200.18, 200.2, 200.20, 200.21, 200.22, 200.23, 200.24, 200.25, 200.26, 200.27, 200.28, 200.3, 200.30, 200.31, 200.32, 200.33, 200.34, 200.35, 200.36, 200.37, 200.38, 200.4, 200.40, 200.41, 200.42, 200.43, 200.44, 200.45, 200.46, 200.47, 200.48, 200.5, 200.50, 200.51, 200.52, 200.53, 200.54, 200.55, 200.56, 200.57, 200.58, 200.6, 200.60, 200.61, 200.62, 200.63, 200.64, 200.65, 200.66, 200.67, 200.68, 200.7, 200.70, 200.71, 200.72, 200.73, 200.74, 200.75, 200.76, 200.77, 200.78, 200.8, 200.80, 200.81, 200.82, 200.83, 200.84, 200.85, 200.86, 200.87, 200.88, 200.9, 202, 202.0, 202.00, 202.01, 202.02, 202.03, 202.04, 202.05, 202.06, 202.07, 202.08, 202.1, 202.10, 202.11, 202.12, 202.13, 202.14, 202.15, 202.16, 202.17, 202.18, 202.2, 202.20, 202.21, 202.22, 202.23, 202.24, 202.25, 202.26, 202.27, 202.28, 202.3, 202.30, 202.31, 202.32, 202.33, 202.34, 202.35, 202.36, 202.37, 202.38, 202.4, 202.40, 202.41, 202.42, 202.43, 202.44, 202.45, 202.46, 202.47, 202.48, 202.5, 202.50, 202.51, 202.52, 202.53, 202.54, 202.55, 202.56, 202.57, 202.58, 202.6, 202.60, 202.61, 202.62, 202.63, 202.64, 202.65, 202.66, 202.67, 202.68, 202.7, 202.70, 202.71, 202.72, 202.73, 202.74, 202.75, 202.76, 202.77, 202.78, 202.8, 202.80, 202.81, 202.82, 202.83, 202.84, 202.85, 202.86, 202.87, 202.88, 202.9, 202.90, 202.91, 202.92,	C82, C82.0, C82.00, C82.01, C82.02, C82.03, C82.04, C82.05, C82.06, C82.07, C82.08, C82.09, C82.1, C82.10, C82.11, C82.12, C82.13, C82.14, C82.15, C82.16, C82.17, C82.18, C82.19, C82.2, C82.20, C82.21, C82.22, C82.23, C82.24, C82.25, C82.26, C82.27, C82.28, C82.29, C82.3, C82.30, C82.31, C82.32, C82.33, C82.34, C82.35, C82.36, C82.37, C82.38, C82.39, C82.4, C82.40, C82.41, C82.42, C82.43, C82.44, C82.45, C82.46, C82.47, C82.48, C82.49, C82.5, C82.50, C82.51, C82.52, C82.53, C82.54, C82.55, C82.56, C82.57, C82.58, C82.59, C82.6, C82.60, C82.61, C82.62, C82.63, C82.64, C82.65, C82.66, C82.67, C82.68, C82.69, C82.7, C82.8, C82.80, C82.81, C82.82, C82.83, C82.84, C82.85, C82.86, C82.87, C82.88, C82.89, C82.9, C82.90, C82.91, C82.92, C82.93, C82.94, C82.95, C82.96, C82.97, C82.98, C82.99, C83, C83.0, C83.00, C83.01, C83.02, C83.03, C83.04, C83.05, C83.06, C83.07, C83.08, C83.09, C83.1, C83.10, C83.11, C83.12, C83.13, C83.14, C83.15, C83.16, C83.17, C83.18, C83.19, C83.2, C83.3, C83.30, C83.31, C83.32, C83.33, C83.34, C83.35, C83.36, C83.37, C83.38, C83.39, C83.4, C83.5, C83.50, C83.51, C83.52, C83.53, C83.54, C83.55, C83.56, C83.57, C83.58, C83.59, C83.6, C83.7, C83.70, C83.71, C83.72, C83.73, C83.74, C83.75, C83.76, C83.77, C83.78, C83.79, C83.8, C83.80, C83.81, C83.82, C83.83, C83.84, C83.85, C83.86, C83.87, C83.88,	both	1-85

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
		202.93, 202.94, 202.95, 202.96, 202.97, 202.98, V10.7, V10.71, V10.79, V16.7	C83.89, C83.9, C83.90, C83.91, C83.92, C83.93, C83.94, C83.95, C83.96, C83.97, C83.98, C83.99, C84, C84.0, C84.00, C84.01, C84.02, C84.03, C84.04, C84.05, C84.06, C84.07, C84.08, C84.09, C84.1, C84.10, C84.11, C84.12, C84.13, C84.14, C84.15, C84.16, C84.17, C84.18, C84.19, C84.2, C84.3, C84.4, C84.40, C84.41, C84.42, C84.43, C84.44, C84.45, C84.46, C84.47, C84.48, C84.49, C84.5, C84.6, C84.60, C84.61, C84.62, C84.63, C84.64, C84.65, C84.66, C84.67, C84.68, C84.69, C84.7, C84.70, C84.71, C84.72, C84.73, C84.74, C84.75, C84.76, C84.77, C84.78, C84.79, C84.8, C84.9, C84.90, C84.91, C84.92, C84.93, C84.94, C84.95, C84.96, C84.97, C84.98, C84.99, C85, C85.0, C85.1, C85.10, C85.11, C85.12, C85.13, C85.14, C85.15, C85.16, C85.17, C85.18, C85.19, C85.2, C85.20, C85.21, C85.22, C85.23, C85.24, C85.25, C85.26, C85.27, C85.28, C85.29, C85.7, C85.8, C85.80, C85.81, C85.82, C85.83, C85.84, C85.85, C85.86, C85.87, C85.88, C85.89, C85.9, C85.90, C85.91, C85.92, C85.93, C85.94, C85.95, C85.96, C85.97, C85.98, C85.99, C86, C86.0, C86.1, C86.2, C86.3, C86.4, C86.5, C86.6, C88.4, C96, C96.0, C96.1, C96.2, C96.3, C96.4, C96.7, C96.8, C96.9, Z80.7		

126

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
B.1.26	Multiple myeloma	203, 203.0, 203.00, 203.01, 203.02, 203.1, 203.10, 203.11, 203.12, 203.8, 203.80, 203.81, 203.82, 203.9	C88, C88.1, C88.2, C88.3, C88.7, C88.8, C88.9, C90, C90.0, C90.00, C90.01, C90.02, C90.1, C90.10, C90.11, C90.12, C90.2, C90.20, C90.21, C90.22, C90.3, C90.30, C90.31, C90.32	both	15-85
B.1.27	Leukemia	204, 204.0, 204.00, 204.01, 204.02, 204.1, 204.10, 204.11, 204.12, 204.2, 204.20, 204.21, 204.22, 204.5, 204.8, 204.80, 204.81, 204.82, 204.9, 204.90, 204.91, 204.92, 205, 205.0, 205.00, 205.01, 205.02, 205.1, 205.10, 205.11, 205.12, 205.2, 205.20, 205.21, 205.22, 205.3, 205.30, 205.31, 205.32, 205.8, 205.80, 205.81, 205.82, 205.9, 205.90, 205.91, 205.92, 206, 206.0, 206.00, 206.01, 206.02, 206.1, 206.10, 206.11, 206.12, 206.2, 206.20, 206.21, 206.22, 206.8, 206.80, 206.81, 206.82, 206.9, 206.90, 206.91, 206.92, 207, 207.0, 207.00, 207.01, 207.02, 207.1, 207.10, 207.11, 207.12, 207.2, 207.20, 207.21, 207.22, 207.8, 207.80, 207.81, 207.82, 207.9, 208, 208.0, 208.00, 208.01, 208.02, 208.1, 208.10, 208.11, 208.12, 208.2, 208.20, 208.21, 208.22, 208.4, 208.7, 208.8, 208.80, 208.81, 208.82, 208.9, 208.90, 208.91, 208.92, V10.6, V10.60, V10.61, V10.62, V10.63, V10.69, V16.6	C91, C91.0, C91.00, C91.01, C91.02, C91.1, C91.10, C91.11, C91.12, C91.2, C91.3, C91.30, C91.31, C91.32, C91.4, C91.40, C91.41, C91.42, C91.5, C91.50, C91.51, C91.52, C91.6, C91.60, C91.61, C91.62, C91.7, C91.8, C91.9, C91.90, C91.91, C91.92, C92, C92.0, C92.00, C92.01, C92.02, C92.1, C92.10, C92.11, C92.12, C92.2, C92.20, C92.21, C92.22, C92.3, C92.30, C92.31, C92.32, C92.4, C92.40, C92.41, C92.42, C92.5, C92.50, C92.51, C92.52, C92.6, C92.60, C92.61, C92.62, C92.7, C92.8, C92.9, C92.90, C92.91, C92.92, C93, C93.0, C93.00, C93.01, C93.02, C93.1, C93.10, C93.11, C93.12, C93.2, C93.3, C93.30, C93.31, C93.32, C93.5, C93.7, C93.9, C93.90, C93.91, C93.92, C94, C94.0, C94.00, C94.01, C94.02, C94.1, C94.2, C94.20, C94.21, C94.22, C94.3, C94.30, C94.31, C94.32, C94.4, C94.40, C94.41, C94.42, C94.5, C94.7, C94.8, C94.80, C94.81, C94.82, C95, C95.0, C95.00, C95.01, C95.02, C95.1, C95.10, C95.11, C95.12, C95.2, C95.7, C95.9, C95.90, C95.91, C95.92, D45, Z80.6, Z85.6	both	1-85

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
B.1.28	Other neoplasms	152, 152.0, 152.1, 152.2, 152.3, 152.4, 152.6, 152.8, 152.9, 158, 158.0, 158.3, 158.4, 158.5, 158.6, 158.8, 158.9, 160, 160.0, 160.1, 160.2, 160.3, 160.4, 160.5, 160.6, 160.8, 160.9, 163, 163.0, 163.1, 163.3, 163.8, 163.9, 164, 164.0, 164.1, 164.2, 164.3, 164.8, 164.9, 170, 170.0, 170.1, 170.2, 170.3, 170.4, 170.5, 170.6, 170.7, 170.8, 170.9, 171, 171.0, 171.2, 171.3, 171.4, 171.5, 171.6, 171.7, 171.8, 171.9, 181, 181.0, 181.9, 183.2, 183.3, 183.4, 183.5, 184.0, 184.1, 184.2, 184.3, 184.4, 184.8, 187.1, 187.2, 187.3, 187.4, 187.5, 187.6, 187.7, 187.8, 189.2, 189.3, 189.4, 189.8, 190, 190.0, 190.1, 190.2, 190.3, 190.4, 190.5, 190.6, 190.7, 190.8, 190.9, 194, 194.0, 194.1, 194.3, 194.4, 194.5, 194.6, 194.8, 209.0, 209.00, 209.01, 209.02, 209.03, 209.22, 209.4, 209.40, 209.41, 209.42, 209.43, 210.8, 211.2, 211.8, 212.0, 212.4, 212.5, 212.6, 212.7, 212.8, 213, 213.0, 213.1, 213.2, 213.3, 213.4, 213.5, 213.6, 213.7, 213.8, 213.9, 214.2, 214.3, 214.4, 214.8, 214.9, 221.0, 221.1, 221.2, 221.8, 222.1, 222.8, 223.2, 223.8, 223.81, 223.89, 224, 224.0, 224.1, 224.2, 224.3, 224.4, 224.5, 224.6, 224.7, 224.8, 224.9, 227, 227.0, 227.1, 227.3, 227.4, 227.5, 227.6, 227.8, 227.9, 228, 228.0, 228.00, 228.01, 228.02, 228.03, 228.04, 228.09, 228.1, 228.9, 229.0, 229.8, 230.7, 230.8, 233.31, 233.32, 233.4, 233.5, 234.0, 234.5, 234.8, 235.4, 235.8, 236.1, 236.99, 238.0, 238.1, 238.4, 238.5, 238.6, 238.7, 238.71, 238.72, 238.73, 238.74, 238.75, 238.76, 238.77, 238.79, 238.8, 239.2, V10.22, V10.29, V10.4, V10.40, V10.44, V10.45, V10.49, V10.5,	C57.9, C63.9, C68.9, D01.7, D01.9, D02.3, D02.4, D09.9, D13.9, D14.4, D15.9, D19.9, D28.9, D29.9, D30.9, D36.9, D36.91, D36.92, D37.1, D37.2, D37.3, D37.4, D37.5, D37.6, D37.8, D37.9, D38.5, D38.6, D39.0, D39.8, D39.9, D40.8, D40.9, D41.9, D48.9, D49.0, D49.1, D49.5, D49.7, D49.9, C17, C17.0, C17.1, C17.2, C17.3, C17.8, C17.9, C30, C30.0, C30.1, C31, C31.0, C31.1, C31.2, C31.3, C31.8, C31.9, C37, C37.0, C38, C38.0, C38.1, C38.2, C38.3, C38.4, C38.8, C40, C40.0, C40.00, C40.01, C40.02, C40.1, C40.10, C40.11, C40.12, C40.2, C40.20, C40.21, C40.22, C40.3, C40.30, C40.31, C40.32, C40.8, C40.80, C40.81, C40.82, C40.9, C40.90, C40.91, C40.92, C41, C41.0, C41.1, C41.2, C41.3, C41.4, C41.8, C41.9, C44, C44.0, C44.00, C44.01, C44.02, C44.09, C45, C45.0, C45.1, C45.2, C47.0, C47.3, C47.4, C47.5, C47.6, C47.8, C47.9, C48, C48.0, C48.1, C48.2, C48.8, C48.9, C49, C49.0, C49.1, C49.10, C49.11, C49.12, C49.2, C49.20, C49.21, C49.22, C49.3, C49.4, C49.5, C49.6, C49.8, C49.9, C4A, C51, C51.0, C51.1, C51.2, C51.8, C51.9, C52, C57, C57.0, C57.00, C57.01, C57.02, C57.1, C57.10, C57.11, C57.12, C57.2, C57.20, C57.21, C57.22, C57.3, C57.7, C57.8, C58, C58.0, C60, C60.0, C60.1, C60.2, C60.8, C60.9, C63, C63.0, C63.00, C63.01, C63.02, C63.1, C63.10, C63.11, C63.12, C63.2, C63.7, C63.8, C66, C66.0, C66.1, C66.2, C66.9, C68.0, C68.1, C68.8, C69, C69.0, C69.00, C69.01, C69.02, C69.1, C69.10, C69.11,	both	0-85

128

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
		V10.50, V10.8, V10.81, V10.82, V10.83, V10.84, V10.88, V10.89, V55.2, V67.1, V67.2, V76.4, V76.47, V76.49	C69.12, C69.2, C69.20, C69.21, C69.22, C69.3, C69.30, C69.31, C69.32, C69.4, C69.40, C69.41, C69.42, C69.5, C69.50, C69.51, C69.52, C69.6, C69.60, C69.61, C69.62, C69.7, C69.8, C69.80, C69.81, C69.82, C69.9, C69.90, C69.91, C69.92, C74, C74.0, C74.00, C74.01, C74.02, C74.1, C74.10, C74.11, C74.12, C74.9, C74.90, C74.91, C74.92, C75, C75.0, C75.1, C75.2, C75.3, C75.4, C75.5, C75.8, Z12.0, Z43.2, C94.6, D01, D01.4, D01.40, D01.49, D01.5, D07.1, D07.2, D07.4, D07.5, D09.3, D09.8, D10.7, D12, D13.2, D13.3, D13.30, D13.39, D14.0, D15.0, D15.1, D15.2, D15.7, D16.4, D16.5, D16.6, D16.7, D16.8, D16.9, D17.4, D17.5, D17.6, D17.9, D18.1, D19.0, D19.1, D19.7, D20.0, D20.1, D28.0, D28.1, D28.2, D28.7, D29.0, D29.8, D30.4, D30.8, D35.1, D35.2, D35.3, D35.4, D35.5, D35.6, D35.7, D35.9, D36.0, D36.7, D38.2, D38.3, D38.4, D39.2, D41.3, D41.8, D45.0, D45.9, D46, D46.0, D46.1, D46.2, D46.20, D46.21, D46.22, D46.3, D46.4, D46.5, D46.7, D46.9, D47, D47.0, D47.1, D47.3, D47.5, D47.7, D47.9, D48.0, D48.1, D48.2, D48.3, D48.4, D48.7, D49.2, K51.4, K51.40, K51.41, K51.411, K51.412, K51.413, K51.414, K51.418, K51.419		

129

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
B.2.1	Rheumatic heart disease	391, 391.0, 391.1, 391.2, 391.4, 391.8, 391.9, 392.0, 393, 393.0, 393.9, 394, 394.0, 394.1, 394.2, 394.5, 394.9, 395, 395.0, 395.1, 395.2, 395.9, 396, 396.0, 396.1, 396.2, 396.3, 396.8, 396.9, 397, 397.0, 397.1, 397.9, 398, 398.0, 398.8, 398.9, 398.90, 398.91, 398.99	I01, I01.0, I01.1, I01.2, I01.8, I01.9, I02.0, I05, I05.0, I05.1, I05.2, I05.8, I05.9, I06, I06.0, I06.1, I06.2, I06.8, I06.9, I07, I07.0, I07.1, I07.2, I07.8, I07.9, I08, I08.0, I08.1, I08.2, I08.3, I08.8, I08.9, I09, I09.0, I09.1, I09.2, I09.8, I09.81, I09.89, I09.9	both	1-85

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
B.2.2	Ischemic heart disease	410, 410.0, 410.00, 410.01, 410.02, 410.1, 410.10, 410.11, 410.12, 410.2, 410.20, 410.21, 410.22, 410.3, 410.30, 410.31, 410.32, 410.4, 410.40, 410.41, 410.42, 410.5, 410.50, 410.51, 410.52, 410.6, 410.60, 410.61, 410.62, 410.7, 410.70, 410.71, 410.72, 410.8, 410.80, 410.81, 410.82, 410.9, 410.90, 410.91, 410.92, 411, 411.0, 411.1, 411.8, 411.81, 411.89, 411.9, 412, 412.0, 412.9, 413, 413.0, 413.1, 413.9, 414, 414.0, 414.00, 414.01, 414.02, 414.03, 414.04, 414.05, 414.06, 414.07, 414.1, 414.10, 414.11, 414.12, 414.19, 414.2, 414.3, 414.4, 414.5, 414.8, 414.9, V17.3, V81.0	I20, I20.0, I20.1, I20.8, I20.9, I21, I21.0, I21.01, I21.02, I21.09, I21.1, I21.11, I21.19, I21.2, I21.21, I21.29, I21.3, I21.4, I21.6, I21.9, I22, I22.0, I22.1, I22.2, I22.8, I22.9, I23, I24, I24.0, I24.1, I24.8, I24.9, I25, I25.0, I25.1, I25.10, I25.11, I25.110, I25.111, I25.118, I25.119, I25.2, I25.3, I25.4, I25.41, I25.42, I25.5, I25.6, I25.7, I25.70, I25.700, I25.701, I25.708, I25.709, I25.71, I25.710, I25.711, I25.718, I25.719, I25.72, I25.720, I25.721, I25.728, I25.729, I25.73, I25.730, I25.731, I25.738, I25.739, I25.75, I25.750, I25.751, I25.758, I25.759, I25.76, I25.760, I25.761, I25.768, I25.769, I25.79, I25.790, I25.791, I25.798, I25.799, I25.8, I25.81, I25.810, I25.811, I25.812, I25.82, I25.83, I25.84, I25.89, I25.9, Z82.4, Z82.41, Z82.49	both	1-85

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
B.2.3	Cerebrovascular disease	430, 430.0, 430.1, 430.4, 430.6, 430.9, 431, 431.0, 431.1, 431.2, 431.9, 432, 432.0, 432.1, 432.4, 432.5, 432.7, 432.9, 433, 433.0, 433.00, 433.01, 433.1, 433.10, 433.11, 433.2, 433.20, 433.21, 433.3, 433.30, 433.31, 433.8, 433.80, 433.81, 433.9, 433.90, 433.91, 434, 434.0, 434.00, 434.01, 434.1, 434.10, 434.11, 434.3, 434.4, 434.6, 434.7, 434.9, 434.90, 434.91, 435, 435.0, 435.1, 435.2, 435.3, 435.8, 435.9, 436, 436.0, 436.1, 436.3, 436.8, 436.9, 437, 437.0, 437.1, 437.2, 437.3, 437.4, 437.5, 437.6, 437.7, 437.8, 437.9, 438, 438.0, 438.1, 438.10, 438.11, 438.12, 438.13, 438.14, 438.19, 438.2, 438.20, 438.21, 438.22, 438.3, 438.30, 438.31, 438.32, 438.4, 438.40, 438.41, 438.42, 438.5, 438.50, 438.51, 438.52, 438.53, 438.6, 438.7, 438.8, 438.81, 438.82, 438.83, 438.84, 438.85, 438.89, 438.9, 439, 439.6, V12.54, V17.1	I64, I64.1, I67, I68, I68.1, I69, I69.00, I69.01, I69.020, I69.021, I69.022, I69.023, I69.028, I69.031, I69.032, I69.033, I69.034, I69.039, I69.041, I69.042, I69.043, I69.044, I69.049, I69.051, I69.052, I69.053, I69.054, I69.059, I69.061, I69.062, I69.063, I69.064, I69.065, I69.069, I69.090, I69.091, I69.092, I69.093, I69.098, I69.10, I69.11, I69.120, I69.121, I69.122, I69.123, I69.128, I69.131, I69.132, I69.133, I69.134, I69.139, I69.141, I69.142, I69.143, I69.144, I69.149, I69.151, I69.152, I69.153, I69.154, I69.159, I69.161, I69.162, I69.163, I69.164, I69.165, I69.169, I69.190, I69.191, I69.192, I69.193, I69.198, I69.20, I69.21, I69.220, I69.221, I69.222, I69.223, I69.228, I69.231, I69.232, I69.233, I69.234, I69.239, I69.241, I69.242, I69.243, I69.244, I69.249, I69.251, I69.252, I69.253, I69.254, I69.259, I69.261, I69.262, I69.263, I69.264, I69.265, I69.269, I69.290, I69.291, I69.292, I69.293, I69.298, I69.30, I69.31, I69.320, I69.321, I69.322, I69.323, I69.328, I69.331, I69.332, I69.333, I69.334, I69.339, I69.341, I69.342, I69.343, I69.344, I69.349, I69.351, I69.352, I69.353, I69.354, I69.359, I69.361, I69.362, I69.363, I69.364, I69.365, I69.369, I69.390, I69.391, I69.392, I69.393, I69.398, I69.8, I69.80, I69.81, I69.82, I69.820, I69.821, I69.822, I69.823, I69.828, I69.83, I69.831, I69.832, I69.833, I69.834, I69.839, I69.84, I69.841, I69.842, I69.843, I69.844, I69.849, I69.85, I69.851, I69.852, I69.853, I69.854, I69.859, I69.86, I69.861, I69.862, I69.863, I69.864, I69.865,	both	1-85

132

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			I69.869, I69.89, I69.890, I69.891, I69.892, I69.893, I69.898, I69.9, I69.90, I69.91, I69.92, I69.920, I69.921, I69.922, I69.923, I69.928, I69.93, I69.931, I69.932, I69.933, I69.934, I69.939, I69.94, I69.941, I69.942, I69.943, I69.944, I69.949, I69.95, I69.951, I69.952, I69.953, I69.954, I69.959, I69.96, I69.961, I69.962, I69.963, I69.964, I69.965, I69.969, I69.99, I69.990, I69.991, I69.992, I69.993, I69.998, Z82.3, I60, I60.0, I60.00, I60.01, I60.02, I60.1, I60.10, I60.11, I60.12, I60.2, I60.20, I60.21, I60.22, I60.3, I60.30, I60.31, I60.32, I60.4, I60.5, I60.50, I60.51, I60.52, I60.6, I60.7, I60.8, I60.9, I61, I61.0, I61.1, I61.2, I61.3, I61.4, I61.5, I61.6, I61.8, I61.9, I62, I62.1, I62.9, I67.1, I69.0, I69.02, I69.03, I69.04, I69.05, I69.06, I69.09, I69.1, I69.12, I69.13, I69.14, I69.15, I69.16, I69.19, I69.2, I69.22, I69.23, I69.24, I69.25, I69.26, I69.29, G45, G45.0, G45.1, G45.2, G45.4, G45.8, G45.9, G46, G46.0, G46.1, G46.2, G46.3, G46.4, G46.5, G46.6, G46.7, G46.8, I63, I63.0, I63.00, I63.01, I63.011, I63.012, I63.019, I63.02, I63.03, I63.031, I63.032, I63.039, I63.09, I63.1, I63.10, I63.11, I63.111, I63.112, I63.119, I63.12, I63.13, I63.131, I63.132, I63.139, I63.19, I63.2, I63.20, I63.21, I63.211, I63.212, I63.219, I63.22, I63.23, I63.231, I63.232, I63.239, I63.29, I63.3, I63.30, I63.31, I63.311, I63.312, I63.319, I63.32, I63.321, I63.322, I63.329, I63.33, I63.331, I63.332, I63.339, I63.34, I63.341, I63.342, I63.349, I63.39, I63.4, I63.40, I63.41, I63.411, I63.412,		

133

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			I63.419, I63.42, I63.421, I63.422, I63.429, I63.43, I63.431, I63.432, I63.439, I63.44, I63.441, I63.442, I63.449, I63.49, I63.5, I63.50, I63.51, I63.511, I63.512, I63.519, I63.52, I63.521, I63.522, I63.529, I63.53, I63.531, I63.532, I63.539, I63.54, I63.541, I63.542, I63.549, I63.59, I63.6, I63.7, I63.8, I63.9, I65, I65.0, I65.01, I65.02, I65.03, I65.09, I65.1, I65.2, I65.21, I65.22, I65.23, I65.29, I65.3, I65.8, I65.9, I66, I66.0, I66.01, I66.02, I66.03, I66.09, I66.1, I66.11, I66.12, I66.13, I66.19, I66.2, I66.21, I66.22, I66.23, I66.29, I66.3, I66.4, I66.8, I66.9, I67.2, I67.4, I67.5, I67.6, I67.7, I67.8, I67.81, I67.82, I67.83, I67.84, I67.841, I67.848, I67.89, I67.9, I68.0, I68.2, I68.8, I69.3, I69.32, I69.33, I69.34, I69.35, I69.36, I69.39, I69.4		
B.2.4	Hypertensive heart disease	402, 402.0, 402.00, 402.01, 402.1, 402.10, 402.11, 402.3, 402.7, 402.9, 402.90, 402.91	I11, I11.0, I11.2, I11.9	both	1-85

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
B.2.5	Cardiomyopathy and myocarditis	074.2, 074.23, 422, 422.0, 422.4, 422.5, 422.9, 422.90, 422.91, 422.92, 422.93, 422.99, 425, 425.0, 425.1, 425.11, 425.18, 425.2, 425.3, 425.4, 425.5, 425.7, 425.8, 425.9, 429.0, 429.1	B33.2, B33.20, B33.21, B33.22, B33.23, B33.24, I40, I40.0, I40.1, I40.8, I40.9, I41, I41.0, I41.1, I41.2, I41.8, I42, I42.0, I42.1, I42.2, I42.3, I42.4, I42.5, I42.6, I42.7, I42.8, I42.9, I43, I43.0, I43.1, I43.2, I43.8, I51.4, I51.5, I51.6	both	1-85
B.2.6	Atrial fibrillation and flutter	427.3, 427.31, 427.32	I48, I48.0, I48.1, I48.2, I48.3, I48.4, I48.9, I48.91, I48.92	both	30-85
B.2.7	Aortic aneurysm	441, 441.0, 441.00, 441.01, 441.02, 441.03, 441.1, 441.2, 441.3, 441.4, 441.5, 441.6, 441.7, 441.9	I71, I71.0, I71.00, I71.01, I71.02, I71.03, I71.1, I71.2, I71.3, I71.4, I71.5, I71.6, I71.8, I71.9, I79.0	both	15-85

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
B.2.8	Peripheral vascular disease	440.2, 440.20, 440.21, 440.22, 440.23, 440.24, 440.29, 440.4, 440.8, 440.9, 443, 443.0, 443.1, 443.2, 443.21, 443.22, 443.23, 443.24, 443.29, 443.8, 443.81, 443.82, 443.89, 443.9	I67.0, I70.2, I70.20, I70.201, I70.202, I70.203, I70.208, I70.209, I70.21, I70.211, I70.212, I70.213, I70.218, I70.219, I70.22, I70.221, I70.222, I70.223, I70.228, I70.229, I70.23, I70.231, I70.232, I70.233, I70.234, I70.235, I70.238, I70.239, I70.24, I70.241, I70.242, I70.243, I70.244, I70.245, I70.248, I70.249, I70.25, I70.26, I70.261, I70.262, I70.263, I70.268, I70.269, I70.29, I70.291, I70.292, I70.293, I70.298, I70.299, I70.3, I70.30, I70.301, I70.302, I70.303, I70.308, I70.309, I70.31, I70.311, I70.312, I70.313, I70.318, I70.319, I70.32, I70.321, I70.322, I70.323, I70.328, I70.329, I70.33, I70.331, I70.332, I70.333, I70.334, I70.335, I70.338, I70.339, I70.34, I70.341, I70.342, I70.343, I70.344, I70.345, I70.348, I70.349, I70.35, I70.36, I70.361, I70.362, I70.363, I70.368, I70.369, I70.39, I70.391, I70.392, I70.393, I70.398, I70.399, I70.4, I70.40, I70.401, I70.402, I70.403, I70.408, I70.409, I70.41, I70.411, I70.412, I70.413, I70.418, I70.419, I70.42, I70.421, I70.422, I70.423, I70.428, I70.429, I70.43, I70.431, I70.432, I70.433, I70.434, I70.435, I70.438, I70.439, I70.44, I70.441, I70.442, I70.443, I70.444, I70.445, I70.448, I70.449, I70.45, I70.46, I70.461, I70.462, I70.463, I70.468, I70.469, I70.49, I70.491, I70.492, I70.493, I70.498, I70.499, I70.5, I70.50, I70.501, I70.502, I70.503, I70.508, I70.509, I70.51, I70.511, I70.512, I70.513, I70.518, I70.519, I70.52, I70.521, I70.522, I70.523, I70.528, I70.529, I70.53, I70.531, I70.532, I70.533, I70.534,	both	40-85

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			I70.535, I70.538, I70.539, I70.54, I70.541, I70.542, I70.543, I70.544, I70.545, I70.548, I70.549, I70.55, I70.56, I70.561, I70.562, I70.563, I70.568, I70.569, I70.59, I70.591, I70.592, I70.593, I70.598, I70.599, I70.6, I70.60, I70.601, I70.602, I70.603, I70.608, I70.609, I70.61, I70.611, I70.612, I70.613, I70.618, I70.619, I70.62, I70.621, I70.622, I70.623, I70.628, I70.629, I70.63, I70.631, I70.632, I70.633, I70.634, I70.635, I70.638, I70.639, I70.64, I70.641, I70.642, I70.643, I70.644, I70.645, I70.648, I70.649, I70.65, I70.66, I70.661, I70.662, I70.663, I70.668, I70.669, I70.69, I70.691, I70.692, I70.693, I70.698, I70.699, I70.7, I70.70, I70.701, I70.702, I70.703, I70.708, I70.709, I70.71, I70.711, I70.712, I70.713, I70.718, I70.719, I70.72, I70.721, I70.722, I70.723, I70.728, I70.729, I70.73, I70.731, I70.732, I70.733, I70.734, I70.735, I70.738, I70.739, I70.74, I70.741, I70.742, I70.743, I70.744, I70.745, I70.748, I70.749, I70.75, I70.76, I70.761, I70.762, I70.763, I70.768, I70.769, I70.79, I70.791, I70.792, I70.793, I70.798, I70.799, I70.8, I70.9, I70.90, I70.91, I70.92, I73, I73.0, I73.00, I73.01, I73.1, I73.8, I73.81, I73.89, I73.9, I79.1, I79.8		
B.2.9	Endocarditis	074.22, 421, 421.0, 421.1, 421.9, 424, 424.4, 424.5, 424.8, 424.9, 424.90, 424.91, 424.99	I33, I33.0, I33.9, I38, I38.0, I39, I39.0, I39.1, I39.2, I39.3, I39.4, I39.8, I39.9	both	0-85

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
B.2.10	Other cardiovascular and circulatory diseases	417, 417.0, 417.1, 417.8, 417.9, 420, 420.0, 420.1, 420.9, 420.90, 420.91, 420.99, 423, 423.1, 423.2, 423.3, 423.7, 423.8, 423.9, 424.0, 424.1, 424.2, 424.3, 442, 442.0, 442.1, 442.2, 442.3, 442.4, 442.8, 442.81, 442.82, 442.83, 442.84, 442.89, 442.9, 447, 447.0, 447.1, 447.2, 447.3, 447.4, 447.5, 447.6, 447.7, 447.70, 447.71, 447.72, 447.73, 447.8, 447.9, 448, 448.0, 448.1, 448.9, 449, 450, 451, 451.0, 451.1, 451.11, 451.19, 451.2, 451.3, 451.5, 451.7, 451.8, 451.81, 451.82, 451.83, 451.84, 451.89, 451.9, 452, 452.0, 452.3, 452.4, 452.9, 453, 453.0, 453.1, 453.2, 453.3, 453.4, 453.40, 453.41, 453.42, 453.5, 453.50, 453.51, 453.52, 453.6, 453.7, 453.71, 453.72, 453.73, 453.74, 453.75, 453.76, 453.77, 453.79, 453.8, 453.81, 453.82, 453.83, 453.84, 453.85, 453.86, 453.87, 453.89, 453.9, 454, 454.0, 454.1, 454.2, 454.8, 454.9, 456, 456.3, 456.4, 456.5, 456.6, 456.8, 456.9, 457, 457.1, 457.8, 457.9, 459, 459.1, 459.10, 459.11, 459.12, 459.13, 459.19, 459.2, 459.3, 459.30, 459.31, 459.32, 459.33, 459.39	I28.0, I28.1, I28.8, I28.9, I30.0, I30.1, I30.8, I30.9, I31.0, I31.1, I31.3, I31.4, I31.8, I31.9, I32, I34, I34.0, I34.1, I34.2, I34.8, I34.9, I35, I35.0, I35.1, I35.2, I35.8, I35.9, I36, I36.0, I36.1, I36.2, I36.8, I36.9, I37, I37.0, I37.1, I37.2, I37.8, I37.9, I72.0, I72.1, I72.2, I72.3, I72.4, I72.8, I72.9, I76, I77.0, I77.1, I77.2, I77.3, I77.4, I77.5, I77.6, I77.9, I78.0, I78.1, I78.8, I78.9, I80, I80.0, I80.00, I80.01, I80.02, I80.03, I80.1, I80.10, I80.11, I80.12, I80.13, I80.2, I80.20, I80.201, I80.202, I80.203, I80.209, I80.21, I80.211, I80.212, I80.213, I80.219, I80.22, I80.221, I80.222, I80.223, I80.229, I80.23, I80.231, I80.232, I80.233, I80.239, I80.29, I80.291, I80.292, I80.293, I80.299, I80.3, I80.8, I80.9, I81, I81.0, I82, I82.0, I82.1, I82.2, I82.21, I82.210, I82.211, I82.22, I82.220, I82.221, I82.29, I82.290, I82.291, I82.3, I82.4, I82.40, I82.401, I82.402, I82.403, I82.409, I82.41, I82.411, I82.412, I82.413, I82.419, I82.42, I82.421, I82.422, I82.423, I82.429, I82.43, I82.431, I82.432, I82.433, I82.439, I82.44, I82.441, I82.442, I82.443, I82.449, I82.49, I82.491, I82.492, I82.493, I82.499, I82.5, I82.50, I82.501, I82.502, I82.503, I82.509, I82.51, I82.511, I82.512, I82.513, I82.519, I82.52, I82.521, I82.522, I82.523, I82.529, I82.53, I82.531, I82.532, I82.533, I82.539, I82.54, I82.541, I82.542, I82.543, I82.549, I82.59, I82.591, I82.592, I82.593, I82.599, I82.6, I82.60, I82.601, I82.602, I82.603, I82.609, I82.61, I82.611, I82.612, I82.613, I82.619, I82.62, I82.621, I82.622, I82.623, I82.629, I82.7,	both	0-85

138

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			I82.70, I82.701, I82.702, I82.703, I82.709, I82.71, I82.711, I82.712, I82.713, I82.719, I82.72, I82.721, I82.722, I82.723, I82.729, I82.8, I82.81, I82.811, I82.812, I82.813, I82.819, I82.89, I82.890, I82.891, I82.9, I82.90, I82.91, I83, I83.0, I83.00, I83.001, I83.002, I83.003, I83.004, I83.005, I83.008, I83.009, I83.01, I83.011, I83.012, I83.013, I83.014, I83.015, I83.018, I83.019, I83.02, I83.021, I83.022, I83.023, I83.024, I83.025, I83.028, I83.029, I83.1, I83.10, I83.11, I83.12, I83.2, I83.20, I83.201, I83.202, I83.203, I83.204, I83.205, I83.208, I83.209, I83.21, I83.211, I83.212, I83.213, I83.214, I83.215, I83.218, I83.219, I83.22, I83.221, I83.222, I83.223, I83.224, I83.225, I83.228, I83.229, I83.8, I83.81, I83.811, I83.812, I83.813, I83.819, I83.89, I83.891, I83.892, I83.893, I83.899, I83.9, I83.90, I83.91, I83.92, I83.93, I86.0, I86.1, I86.2, I86.3, I86.4, I86.8, I87.0, I87.00, I87.001, I87.002, I87.003, I87.009, I87.01, I87.011, I87.012, I87.013, I87.019, I87.02, I87.021, I87.022, I87.023, I87.029, I87.03, I87.031, I87.032, I87.033, I87.039, I87.09, I87.091, I87.092, I87.093, I87.099, I87.1, I89.0, I89.8, I89.9, M31.8, M31.9		

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
B.2.11	Heart failure	416, 416.0, 416.2, 416.3, 416.8, 416.9, 428, 428.0, 428.1, 428.2, 428.20, 428.21, 428.22, 428.23, 428.3, 428.30, 428.31, 428.32, 428.33, 428.4, 428.40, 428.41, 428.42, 428.43, 428.6, 428.7, 428.8, 428.9	I27.0, I27.2, I27.9, I50, I50.0, I50.1, I50.2, I50.20, I50.21, I50.22, I50.23, I50.3, I50.30, I50.31, I50.32, I50.33, I50.4, I50.40, I50.41, I50.42, I50.43, I50.8, I50.9, J81	both	0-85
B.3.1	Chronic obstructive pulmonary disease	491, 491.0, 491.1, 491.2, 491.20, 491.21, 491.22, 491.8, 491.9, 492, 492.0, 492.1, 492.2, 492.8, 492.9, 494, 494.0, 494.1, 494.9, 496, 496.0, 496.1, 496.6, 496.9, 497, 497.0, 498, 499	J41, J41.0, J41.1, J41.8, J42, J42.0, J42.1, J42.4, J43, J43.0, J43.1, J43.2, J43.8, J43.9, J44, J44.0, J44.1, J44.8, J44.9, J47.0, J47.1, J47.9	both	1-85
B.3.2	Pneumoconiosis	500, 500.0, 500.9, 501, 501.0, 501.9, 502, 502.0, 502.9, 503, 503.0, 503.1, 503.9, 504, 504.0, 504.9, 505, 505.0, 505.9, V15.84	J61, J61.0, J60, J60.0, J63, J63.0, J63.1, J63.2, J63.3, J63.4, J63.5, J63.6, J63.8, J64, J64.0, J64.9, J65, J65.0, J66.0, J66.1, J66.2, J66.8, J62, J62.0, J62.8, J62.9	both	1-85

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
B.3.3	Asthma	493, 493.0, 493.00, 493.01, 493.02, 493.1, 493.10, 493.11, 493.12, 493.2, 493.20, 493.21, 493.22, 493.3, 493.4, 493.8, 493.81, 493.82, 493.9, 493.90, 493.91, 493.92, V17.5	J45, J45.0, J45.1, J45.2, J45.20, J45.21, J45.22, J45.3, J45.30, J45.31, J45.32, J45.4, J45.40, J45.41, J45.42, J45.5, J45.50, J45.51, J45.52, J45.8, J45.9, J45.90, J45.901, J45.902, J45.909, J45.99, J45.990, J45.991, J45.998, J46, J46.0, Z82.5	both	1-85
B.3.4	Interstitial lung disease and pulmonary sarcoidosis	135, 135.0, 135.2, 135.9, 515, 515.9, 516, 516.0, 516.1, 516.2, 516.3, 516.30, 516.31, 516.32, 516.33, 516.34, 516.35, 516.36, 516.37, 516.4, 516.5, 516.6, 516.61, 516.62, 516.63, 516.64, 516.69, 516.8, 516.9	D86, D86.0, D86.1, D86.2, D86.3, D86.9, J84, J84.0, J84.01, J84.02, J84.03, J84.09, J84.1, J84.10, J84.11, J84.111, J84.112, J84.113, J84.114, J84.115, J84.116, J84.117, J84.17, J84.2, J84.8, J84.81, J84.82, J84.83, J84.84, J84.841, J84.842, J84.843, J84.848, J84.89, J84.9	both	1-85

141

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
B.3.5	Other chronic respiratory diseases	470, 470.9, 471, 471.0, 471.1, 471.2, 471.5, 471.8, 471.9, 472, 472.0, 472.1, 472.2, 472.4, 472.5, 472.9, 473, 473.0, 473.1, 473.2, 473.3, 473.8, 473.9, 474, 474.0, 474.00, 474.01, 474.02, 474.1, 474.10, 474.11, 474.12, 474.2, 474.8, 474.9, 476, 476.0, 476.1, 477, 477.0, 477.1, 477.2, 477.8, 477.9, 478, 478.0, 478.1, 478.11, 478.19, 478.2, 478.20, 478.21, 478.22, 478.24, 478.25, 478.26, 478.29, 478.3, 478.30, 478.31, 478.32, 478.33, 478.34, 478.4, 478.5, 478.6, 478.7, 478.70, 478.71, 478.74, 478.75, 478.79, 478.8, 478.9, 479, 495, 495.0, 495.1, 495.2, 495.3, 495.4, 495.5, 495.6, 495.7, 495.8, 495.9, 506, 506.0, 506.1, 506.2, 506.3, 506.4, 506.9, 508, 508.0, 508.1, 508.2, 508.8, 508.9, 517, 517.0, 517.1, 517.2, 517.3, 517.8, 518.9, 519.11, 519.19, 519.2, 519.3, 519.4, 519.8, V07.1, V13.81, V14, V14.0, V14.1, V14.2, V14.3, V14.4, V14.5, V14.6, V14.7, V14.8, V14.9, V15, V15.0, V15.01, V15.02, V15.03, V15.04, V15.05, V15.06, V15.07, V15.08, V15.09, V19.6	Z91.0, Z91.01, Z91.010, Z91.011, Z91.012, Z91.013, Z91.018, Z91.02, Z91.03, Z91.030, Z91.038, Z91.04, Z91.040, Z91.041, Z91.048, Z91.09, J22, J30, J30.0, J30.1, J30.2, J30.3, J30.4, J30.5, J30.8, J30.81, J30.89, J30.9, J31, J31.0, J31.1, J31.2, J32, J32.0, J32.1, J32.2, J32.3, J32.4, J32.8, J32.9, J33, J33.0, J33.1, J33.8, J33.9, J34, J34.0, J34.1, J34.2, J34.3, J34.8, J34.81, J34.89, J34.9, J35, J35.0, J35.01, J35.02, J35.03, J35.1, J35.2, J35.3, J35.8, J35.9, J37, J37.0, J37.1, J38, J38.0, J38.00, J38.01, J38.02, J38.1, J38.2, J38.3, J38.4, J38.5, J38.6, J38.7, J39, J39.0, J39.1, J39.2, J39.3, J39.8, J39.9, J47, J66, J67, J67.0, J67.1, J67.2, J67.3, J67.4, J67.5, J67.6, J67.7, J67.8, J67.9, J68, J68.0, J68.1, J68.2, J68.3, J68.4, J68.8, J68.9, J70.0, J70.1, J70.2, J70.3, J70.4, J70.5, J70.8, J70.9, J90.0, J91, J91.9, J92, J93, J93.1, J93.11, J93.12, J93.8, J93.81, J93.82, J93.83, J94, J96.1, J96.10, J96.11, J96.12, J96.2, J96.20, J96.21, J96.22, J96.4, J96.5, J96.8, J98, J98.0, J98.01, J98.09, J98.1, J98.11, J98.19, J98.5, J98.6, J98.8, J99, J99.0, J99.1, J99.8, Z88.0, Z88.1, Z88.2, Z88.3, Z88.4, Z88.5, Z88.6, Z88.7, Z88.8, Z88.9	both	1-85

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
B.4.1	Cirrhosis of the liver	456.0, 456.1, 456.2, 456.20, 456.21, 570, 570.0, 570.9, 571, 571.2, 571.4, 571.40, 571.41, 571.42, 571.49, 571.5, 571.6, 571.8, 571.9, 572, 572.2, 572.3, 572.4, 572.5, 572.6, 572.8, 572.9, 573, 573.0, 573.1, 573.2, 573.3, 573.4, 573.5, 573.8, 573.9, 789.1, 789.2, 789.5, 789.51, 789.59, V42.7	I85, I85.0, I85.00, I85.01, I85.1, I85.10, I85.11, I85.9, I98.2, K70, K70.1, K70.10, K70.11, K70.2, K70.3, K70.30, K70.31, K70.4, K70.40, K70.41, K71, K71.0, K71.2, K71.3, K71.4, K71.5, K71.50, K71.51, K71.6, K71.7, K71.8, K71.9, K72, K72.1, K72.10, K72.11, K72.9, K72.90, K72.91, K73, K73.0, K73.1, K73.2, K73.8, K73.9, K74, K74.0, K74.1, K74.2, K74.3, K74.4, K74.5, K74.6, K74.60, K74.69, K74.7, K74.8, K74.9, K75, K75.2, K75.3, K75.4, K75.8, K75.81, K75.89, K75.9, K76, K76.0, K76.1, K76.2, K76.3, K76.4, K76.5, K76.6, K76.7, K76.8, K76.81, K76.89, K76.9, K77, K77.0, K77.8, R16, R16.0, R16.1, R16.2, R17.0, R17.9, R18, R18.0, R18.9, Z94.4	both	0-85

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
B.5.1	Peptic ulcer disease	531, 531.0, 531.00, 531.01, 531.1, 531.10, 531.11, 531.2, 531.20, 531.21, 531.3, 531.30, 531.31, 531.4, 531.40, 531.41, 531.5, 531.50, 531.51, 531.6, 531.60, 531.61, 531.7, 531.70, 531.71, 531.8, 531.9, 531.90, 531.91, 532, 532.0, 532.00, 532.01, 532.1, 532.10, 532.11, 532.2, 532.20, 532.21, 532.3, 532.30, 532.31, 532.4, 532.40, 532.41, 532.5, 532.50, 532.51, 532.6, 532.60, 532.61, 532.7, 532.70, 532.71, 532.8, 532.9, 532.90, 532.91, 533, 533.0, 533.00, 533.01, 533.1, 533.10, 533.11, 533.2, 533.20, 533.21, 533.3, 533.30, 533.31, 533.4, 533.40, 533.41, 533.5, 533.50, 533.51, 533.6, 533.60, 533.61, 533.7, 533.70, 533.71, 533.8, 533.9, 533.90, 533.91, 534, 534.0, 534.00, 534.01, 534.1, 534.10, 534.11, 534.2, 534.20, 534.21, 534.3, 534.30, 534.31, 534.4, 534.40, 534.41, 534.5, 534.50, 534.51, 534.6, 534.60, 534.61, 534.7, 534.70, 534.71, 534.9, 534.90, 534.91, V12.71	K25.0, K25.1, K25.2, K25.3, K25.4, K25.5, K25.6, K25.7, K25.9, K26.0, K26.1, K26.2, K26.3, K26.4, K26.5, K26.6, K26.7, K26.9, K27.0, K27.1, K27.2, K27.3, K27.4, K27.5, K27.6, K27.7, K27.9, K28.0, K28.1, K28.2, K28.3, K28.4, K28.5, K28.6, K28.7, K28.9	both	1-85
B.5.2	Appendicitis	540, 540.0, 540.1, 540.9, 541, 541.0, 541.1, 541.2, 541.3, 541.9, 542, 542.0, 542.1, 542.9	K35.2, K35.3, K36, K37	both	1-85

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
B.5.3	Paralytic ileus and intestinal obstruction	560, 560.0, 560.1, 560.2, 560.3, 560.30, 560.31, 560.32, 560.39, 560.8, 560.81, 560.89, 560.9, 569.87	K56.0, K56.1, K56.2, K56.3, K56.5, K56.7	both	0-85
B.5.4	Inguinal or femoral hernia	550, 550.0, 550.00, 550.01, 550.02, 550.03, 550.1, 550.10, 550.11, 550.12, 550.13, 550.3, 550.9, 550.90, 550.91, 550.92, 550.93, 551, 551.0, 551.00, 551.01, 551.02, 551.03, 551.1, 551.3, 551.8, 551.9, 552, 552.0, 552.00, 552.01, 552.02, 552.03, 552.1, 552.3, 552.4, 552.8, 552.9, 553, 553.0, 553.00, 553.01, 553.02, 553.03, 553.1, 553.3, 553.6, 553.8, 553.9	K42.0, K42.1, K42.9, K44.0, K44.1, K44.9, K45.0, K45.1, K45.8, K46.0, K46.1	both	1-85
B.5.5	Inflammatory bowel disease	555, 555.0, 555.1, 555.2, 555.3, 555.9, 556, 556.0, 556.1, 556.2, 556.3, 556.4, 556.5, 556.6, 556.8, 556.9, 558, 558.0, 558.1, 558.2, 558.3, 558.4, 558.41, 558.42, 558.9, 564.1, 569.5, V12.72	K52.0, K52.1, K52.2, K52.9, K58.0, K58.9, K63.0	both	1-85

145

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
B.5.6	Vascular intestinal disorders	557, 557.0, 557.1, 557.9, 569.84, 569.85, 569.86	K55.0, K55.1, K55.8, K55.9	both	1-85
B.5.7	Gallbladder and biliary diseases	574, 574.0, 574.00, 574.01, 574.1, 574.10, 574.11, 574.2, 574.20, 574.21, 574.3, 574.30, 574.31, 574.4, 574.40, 574.41, 574.5, 574.50, 574.51, 574.6, 574.60, 574.61, 574.7, 574.70, 574.71, 574.8, 574.80, 574.81, 574.9, 574.90, 574.91, 575, 575.0, 575.1, 575.10, 575.11, 575.12, 575.2, 575.3, 575.4, 575.5, 575.6, 575.8, 575.9, 576, 576.0, 576.1, 576.2, 576.3, 576.4, 576.5, 576.8, 576.9	K81.0, K81.1, K81.2, K81.9, K82.0, K82.1, K82.2, K82.3, K82.4, K82.8, K82.9, K83.0, K83.1, K83.2, K83.3, K83.4, K83.5, K83.8, K83.9, K87, K91.5	both	1-85
B.5.8	Pancreatitis	577, 577.0, 577.1, 577.2, 577.3, 577.8, 577.9, 579.4	K85.0, K85.1, K85.2, K85.3, K85.8, K85.9, K86.0, K86.1, K86.2, K86.3, K86.8, K86.9, K90.3	both	1-85

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
B.5.9	Gastritis and duodenitis	535, 535.0, 535.00, 535.01, 535.1, 535.10, 535.11, 535.2, 535.20, 535.21, 535.3, 535.30, 535.31, 535.4, 535.40, 535.41, 535.5, 535.50, 535.51, 535.6, 535.60, 535.61, 535.7, 535.70, 535.71, 535.9	K29, K29.0, K29.00, K29.01, K29.1, K29.2, K29.20, K29.21, K29.3, K29.30, K29.31, K29.4, K29.40, K29.41, K29.5, K29.50, K29.51, K29.6, K29.60, K29.61, K29.7, K29.70, K29.71, K29.8, K29.80, K29.81, K29.9, K29.90, K29.91	both	1-85

147

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
B.5.10	Other digestive diseases	455, 455.0, 455.1, 455.2, 455.3, 455.4, 455.5, 455.6, 455.7, 455.8, 455.9, 530, 530.0, 530.1, 530.10, 530.11, 530.12, 530.13, 530.19, 530.2, 530.20, 530.21, 530.3, 530.4, 530.5, 530.6, 530.7, 530.8, 530.81, 530.82, 530.83, 530.84, 530.85, 530.86, 530.89, 530.9, 536, 536.0, 536.1, 537, 537.0, 537.1, 537.2, 537.3, 537.4, 537.5, 537.6, 537.8, 537.81, 537.82, 537.83, 537.84, 538, 543, 543.0, 543.9, 562, 562.0, 562.00, 562.01, 562.02, 562.03, 562.1, 562.10, 562.11, 562.12, 562.13, 564, 564.0, 564.00, 564.01, 564.02, 564.09, 564.5, 564.6, 564.7, 565, 565.0, 565.1, 565.9, 566, 566.0, 566.9, 569.1, 569.2, 569.3, 569.4, 569.41, 569.42, 579, 579.0, 579.1, 579.2, 579.8, 579.9	I84, I84.0, I84.1, I84.2, I84.3, I84.4, I84.5, I84.6, I84.7, I84.8, I84.9, K20, K20.0, K20.8, K20.9, K21, K21.0, K21.9, K22, K22.0, K22.1, K22.10, K22.11, K22.2, K22.3, K22.4, K22.5, K22.6, K22.7, K22.70, K22.71, K22.710, K22.711, K22.719, K22.8, K22.9, K23, K23.0, K23.1, K23.8, K25, K25.8, K26, K27, K27.8, K28, K31, K31.0, K31.1, K31.2, K31.3, K31.4, K31.5, K31.6, K31.8, K31.81, K31.811, K31.819, K31.82, K31.83, K31.84, K31.89, K35, K35.0, K35.1, K35.8, K35.80, K35.89, K35.9, K36.0, K37.0, K37.9, K38, K38.0, K38.1, K38.2, K38.3, K38.8, K38.9, K40, K40.0, K40.00, K40.01, K40.1, K40.10, K40.11, K40.2, K40.20, K40.21, K40.3, K40.30, K40.31, K40.4, K40.40, K40.41, K40.9, K40.90, K40.91, K41, K41.0, K41.00, K41.01, K41.1, K41.10, K41.11, K41.2, K41.20, K41.21, K41.3, K41.30, K41.31, K41.4, K41.40, K41.41, K41.9, K41.90, K41.91, K42, K44, K45, K46, K50, K50.0, K50.00, K50.01, K50.011, K50.012, K50.013, K50.014, K50.018, K50.019, K50.1, K50.10, K50.11, K50.111, K50.112, K50.113, K50.114, K50.118, K50.119, K50.8, K50.80, K50.81, K50.811, K50.812, K50.813, K50.814, K50.818, K50.819, K50.9, K50.90, K50.91, K50.911, K50.912, K50.913, K50.914, K50.918, K50.919, K51, K51.0, K51.00, K51.01, K51.011, K51.012, K51.013, K51.014, K51.018, K51.019, K51.1, K51.2, K51.20, K51.21, K51.211, K51.212, K51.213, K51.214, K51.218, K51.219, K51.3, K51.30, K51.31, K51.311, K51.312, K51.313, K51.314, K51.318, K51.319, K51.5,	both	1-85

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			K51.50, K51.51, K51.511, K51.512, K51.513, K51.514, K51.518, K51.519, K51.8, K51.80, K51.81, K51.811, K51.812, K51.813, K51.814, K51.818, K51.819, K51.9, K51.90, K51.91, K51.911, K51.912, K51.913, K51.914, K51.918, K51.919, K52, K52.3, K52.8, K52.81, K52.82, K52.89, K55, K55.2, K55.20, K55.21, K55.6, K56, K56.4, K56.41, K56.49, K56.6, K56.60, K56.69, K56.8, K56.9, K57, K57.0, K57.00, K57.01, K57.1, K57.10, K57.11, K57.12, K57.13, K57.2, K57.20, K57.21, K57.3, K57.30, K57.31, K57.32, K57.33, K57.4, K57.40, K57.41, K57.5, K57.50, K57.51, K57.52, K57.53, K57.8, K57.80, K57.81, K57.9, K57.90, K57.91, K57.92, K57.93, K58, K59, K59.0, K59.00, K59.01, K59.02, K59.09, K59.1, K59.3, K59.4, K60, K60.0, K60.1, K60.2, K60.3, K60.4, K60.5, K61, K61.0, K61.1, K61.2, K61.3, K61.4, K62, K62.2, K62.3, K62.4, K62.5, K62.6, K62.8, K62.81, K62.82, K62.89, K63, K63.8, K63.81, K63.89, K64, K64.0, K64.1, K64.2, K64.3, K64.4, K64.5, K64.8, K64.9, K65, K66, K67.8, K68, K68.1, K68.11, K68.12, K68.19, K71.1, K71.10, K71.11, K72.0, K72.00, K72.01, K80, K80.0, K80.00, K80.01, K80.1, K80.10, K80.11, K80.12, K80.13, K80.18, K80.19, K80.2, K80.20, K80.21, K80.3, K80.30, K80.31, K80.32, K80.33, K80.34, K80.35, K80.36, K80.37, K80.4, K80.40, K80.41, K80.42, K80.43, K80.44, K80.45, K80.46, K80.47, K80.5, K80.50, K80.51, K80.6, K80.60, K80.61, K80.62, K80.63, K80.64, K80.65, K80.66, K80.67, K80.7,		

149

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			K80.70, K80.71, K80.8, K80.80, K80.81, K81, K81.8, K82, K83, K85, K86, K87.0, K87.1, K90, K90.0, K90.1, K90.2, K90.4, K90.8, K90.81, K90.89, K90.9, K92, K92.8, K92.81, K92.89, K93.8, Q38, Q39, Q40, Q41, Q42, Q43, Q44, Q45, Q79.5, Q79.51, Q79.59, R11, R11.1, R11.10, R11.11, R11.12, R11.13, R11.14, R11.9, R12.0, R13, R13.1, R13.10, R13.11, R13.12, R13.13, R13.14, R13.19, R13.9, R14, R15, R19, R19.0, R19.00, R19.01, R19.02, R19.03, R19.04, R19.05, R19.06, R19.07, R19.09, R19.1, R19.11, R19.12, R19.15, R19.3, R19.30, R19.31, R19.32, R19.33, R19.34, R19.35, R19.36, R19.37, R85, R85.6, R85.61, R85.610, R85.611, R85.612, R85.613, R85.614, R85.615, R85.616, R85.618, R85.619, R85.69, R85.8, R85.81, R85.82, R85.89, Z83.7, Z83.71, Z83.79, Z87.1, Z87.11, Z87.19		

150

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
B.6.1	Alzheimer disease and other dementias	290, 290.0, 290.1, 290.10, 290.11, 290.12, 290.13, 290.2, 290.20, 290.21, 290.3, 290.4, 290.40, 290.41, 290.42, 290.43, 290.8, 290.9, 294.0, 294.1, 294.10, 294.11, 294.2, 294.20, 294.21, 294.8, 294.9, 331, 331.0, 331.1, 331.11, 331.19, 331.2, 331.6, 331.7, 331.82, 331.89, 331.9	F00, F00.0, F00.1, F00.2, F00.9, F01, F01.0, F01.1, F01.2, F01.3, F01.5, F01.50, F01.51, F01.8, F01.9, F02, F02.0, F02.8, F02.80, F02.81, F03, F03.0, F03.9, F03.90, F03.91, F04, F06.8, G13.2, G13.8, G30, G30.0, G30.1, G30.8, G30.9, G31, G31.0, G31.01, G31.09, G31.1, G31.2, G31.8, G31.81, G31.82, G31.83, G31.84, G31.85, G31.89, G31.9, G32, G32.8, G32.81, G32.89, G91.4, G94	both	40-85
B.6.2	Parkinson's disease	332, 332.0, 332.1, 332.3, 332.5, 332.9	F02.3, G20, G20.0, G20.3, G20.9, G21.2, G21.3, G21.4, G21.8, G21.9	both	20-85

151

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
B.6.3	Epilepsy	345, 345.0, 345.00, 345.01, 345.1, 345.10, 345.11, 345.2, 345.3, 345.4, 345.40, 345.41, 345.5, 345.50, 345.51, 345.6, 345.60, 345.61, 345.7, 345.70, 345.71, 345.8, 345.80, 345.81, 345.9, 345.90, 345.91	G40, G40.0, G40.00, G40.001, G40.009, G40.01, G40.011, G40.019, G40.1, G40.10, G40.101, G40.109, G40.11, G40.111, G40.119, G40.2, G40.20, G40.201, G40.209, G40.21, G40.211, G40.219, G40.3, G40.30, G40.301, G40.309, G40.31, G40.311, G40.319, G40.4, G40.40, G40.401, G40.409, G40.41, G40.411, G40.419, G40.5, G40.50, G40.501, G40.509, G40.6, G40.7, G40.8, G40.80, G40.801, G40.802, G40.803, G40.804, G40.81, G40.811, G40.812, G40.813, G40.814, G40.82, G40.821, G40.822, G40.823, G40.824, G40.89, G40.9, G40.90, G40.901, G40.909, G40.91, G40.911, G40.919, G41, G41.0, G41.1, G41.2, G41.8, G41.9	both	0-85
B.6.4	Multiple sclerosis	340, 340.0, 340.9	G35, G35.0	both	5-85

152

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
B.6.5	Migraine	339, 339.0, 339.00, 339.01, 339.02, 339.03, 339.04, 339.05, 339.09, 339.2, 339.20, 339.21, 339.22, 339.4, 339.41, 339.42, 339.43, 339.44, 339.8, 339.81, 339.82, 339.83, 339.84, 339.85, 339.89, 346, 346.0, 346.00, 346.01, 346.02, 346.03, 346.1, 346.10, 346.11, 346.12, 346.13, 346.2, 346.20, 346.21, 346.22, 346.23, 346.3, 346.30, 346.31, 346.32, 346.33, 346.4, 346.40, 346.41, 346.42, 346.43, 346.5, 346.50, 346.51, 346.52, 346.53, 346.6, 346.60, 346.61, 346.62, 346.63, 346.7, 346.70, 346.71, 346.72, 346.73, 346.8, 346.80, 346.81, 346.82, 346.83, 346.9, 346.90, 346.91, 346.92, 346.93	G43, G43.0, G43.00, G43.001, G43.009, G43.01, G43.011, G43.019, G43.1, G43.10, G43.101, G43.109, G43.11, G43.111, G43.119, G43.2, G43.3, G43.4, G43.40, G43.401, G43.409, G43.41, G43.411, G43.419, G43.5, G43.50, G43.501, G43.509, G43.51, G43.511, G43.519, G43.6, G43.60, G43.601, G43.609, G43.61, G43.611, G43.619, G43.7, G43.70, G43.701, G43.709, G43.71, G43.711, G43.719, G43.8, G43.80, G43.801, G43.809, G43.81, G43.811, G43.819, G43.82, G43.821, G43.829, G43.83, G43.831, G43.839, G43.9, G43.90, G43.901, G43.909, G43.91, G43.911, G43.919, G44, G44.0, G44.00, G44.001, G44.009, G44.01, G44.011, G44.019, G44.02, G44.021, G44.029, G44.03, G44.031, G44.039, G44.04, G44.041, G44.049, G44.05, G44.051, G44.059, G44.09, G44.091, G44.099, G44.3, G44.30, G44.301, G44.309, G44.31, G44.311, G44.319, G44.32, G44.321, G44.329, G44.5, G44.51, G44.52, G44.53, G44.59, G44.8, G44.81, G44.82, G44.83, G44.84, G44.85, G44.89	both	5-85
B.6.6	Tension-type headache	307.81, 339.1, 339.10, 339.11, 339.12, 339.3	G44.2, G44.20, G44.201, G44.209, G44.21, G44.211, G44.219, G44.22, G44.221, G44.229, G44.4, G44.40, G44.41	both	5-85

153

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
B.6.7	Other neurological disorders	330, 330.0, 330.1, 330.2, 330.3, 330.4, 330.8, 330.9, 331.5, 331.8, 331.83, 333, 333.0, 333.1, 333.2, 333.3, 333.4, 333.5, 333.6, 333.7, 333.71, 333.72, 333.79, 333.8, 333.81, 333.82, 333.83, 333.84, 333.85, 333.89, 333.9, 333.90, 333.91, 333.93, 333.94, 333.99, 334, 334.0, 334.1, 334.2, 334.3, 334.4, 334.8, 334.9, 335, 335.0, 335.1, 335.10, 335.11, 335.19, 335.2, 335.20, 335.21, 335.22, 335.23, 335.24, 335.29, 335.3, 335.8, 335.9, 336, 336.0, 336.1, 336.2, 336.3, 336.8, 336.9, 337, 337.0, 337.00, 337.01, 337.09, 337.1, 337.2, 337.20, 337.21, 337.22, 337.29, 337.3, 337.9, 338, 338.0, 338.1, 338.11, 338.12, 338.18, 338.19, 338.2, 338.21, 338.22, 338.28, 338.29, 338.3, 338.4, 341, 341.0, 341.1, 341.2, 341.20, 341.21, 341.22, 341.8, 341.9, 350, 350.0, 350.1, 350.2, 350.8, 350.9, 351, 351.0, 351.1, 351.8, 351.9, 352, 352.0, 352.1, 352.2, 352.3, 352.4, 352.5, 352.6, 352.9, 353, 353.0, 353.5, 353.6, 353.8, 353.9, 354, 354.0, 354.1, 354.2, 354.3, 354.4, 354.5, 354.8, 354.9, 355, 355.1, 355.2, 355.3, 355.4, 355.5, 355.6, 355.7, 355.71, 355.79, 355.8, 355.9, 356, 356.0, 356.1, 356.2, 356.3, 356.4, 356.8, 356.9, 357.1, 357.3, 357.4, 357.7, 358, 358.0, 358.00, 358.01, 358.1, 358.2, 358.3, 358.30, 358.31, 358.39, 358.8, 358.9, 359, 359.0, 359.1, 359.2, 359.21, 359.22, 359.23, 359.29, 359.3, 359.4, 359.5, 359.6, 359.7, 359.71, 359.79, 359.8, 359.81, 359.89, 359.9, 710.3, 710.4, 725, 725.0, 725.5, 725.9, 728, 728.0, 728.1, 728.10, 728.11, 728.13, 728.19, 728.2, 728.3, 728.4, 728.5, 728.6, 728.7, 728.71, 728.79,	G56.0, G56.00, G56.01, G56.02, G80, G80.0, G80.1, G80.2, G80.4, G80.8, G80.9, M60, M60.0, M60.00, M60.000, M60.001, M60.002, M60.003, M60.004, M60.005, M60.009, M60.01, M60.011, M60.012, M60.019, M60.02, M60.021, M60.022, M60.029, M60.03, M60.031, M60.032, M60.039, M60.04, M60.041, M60.042, M60.043, M60.044, M60.045, M60.046, M60.05, M60.051, M60.052, M60.059, M60.06, M60.061, M60.062, M60.069, M60.07, M60.070, M60.071, M60.072, M60.073, M60.074, M60.075, M60.076, M60.077, M60.078, M60.08, M60.09, M60.1, M60.10, M60.11, M60.111, M60.112, M60.119, M60.12, M60.121, M60.122, M60.129, M60.13, M60.131, M60.132, M60.139, M60.14, M60.141, M60.142, M60.149, M60.15, M60.151, M60.152, M60.159, M60.16, M60.161, M60.162, M60.169, M60.17, M60.171, M60.172, M60.179, M60.18, M60.19, M60.8, M60.80, M60.81, M60.811, M60.812, M60.819, M60.82, M60.821, M60.822, M60.829, M60.83, M60.831, M60.832, M60.839, M60.84, M60.841, M60.842, M60.849, M60.85, M60.851, M60.852, M60.859, M60.86, M60.861, M60.862, M60.869, M60.87, M60.871, M60.872, M60.879, M60.88, M60.89, E75.4, F84.2, G10, G11.0, G11.1, G11.2, G11.3, G11.4, G11.8, G11.9, G12.0, G12.1, G12.8, G12.9, G13.0, G13.1,	both	0-85

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
		728.8, 728.81, 728.83, 728.84, 728.85, 728.87, 728.88, 728.89, 728.9, 775.2	G23.0, G23.1, G23.2, G23.8, G23.9, G24.1, G24.2, G24.3, G24.4, G24.5, G24.8, G24.9, G25.0, G25.1, G25.2, G25.3, G25.4, G25.5, G25.9, G26, G32.0, G36.0, G36.1, G36.8, G36.9, G37.0, G37.1, G37.2, G37.3, G37.5, G37.8, G37.9, G50.0, G50.1, G50.8, G50.9, G51.0, G51.1, G51.2, G51.3, G51.4, G51.8, G51.9, G52.0, G52.1, G52.2, G52.3, G52.7, G52.8, G52.9, G53, G54.0, G54.5, G54.6, G54.7, G54.8, G54.9, G55, G58.0, G58.7, G58.8, G58.9, G59, G60.0, G60.1, G60.2, G60.3, G60.8, G60.9, G61.1, G62.2, G63, G65.0, G65.1, G65.2, G70.1, G70.2, G70.9, G71.0, G71.2, G71.3, G71.8, G71.9, G72.0, G72.1, G72.2, G72.3, G72.9, G73.1, G73.3, G73.7, G80.3, G89.0, G89.3, G89.4, G90.2, G90.3, G90.4, G90.8, G90.9, G91.2, G95.0, G95.9, G99.0, G99.2, M33, M33.0, M33.00, M33.01, M33.02, M33.09, M33.1, M33.10, M33.11, M33.12, M33.19, M33.2, M33.20, M33.21, M33.22, M33.29, M33.9, M33.90, M33.91, M33.92, M33.99, M35.3, M35.4, M35.7, M36.0, M61.9, M62.3, M62.9, M72.0, M72.1, M72.2, M72.4, M72.8, M72.9, P94.0, R52		

155

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
B.7.1	Schizophrenia	295, 295.0, 295.00, 295.01, 295.02, 295.03, 295.04, 295.05, 295.1, 295.10, 295.11, 295.12, 295.13, 295.14, 295.15, 295.2, 295.20, 295.21, 295.22, 295.23, 295.24, 295.25, 295.3, 295.30, 295.31, 295.32, 295.33, 295.34, 295.35, 295.4, 295.40, 295.41, 295.42, 295.43, 295.44, 295.45, 295.5, 295.50, 295.51, 295.52, 295.53, 295.54, 295.55, 295.6, 295.60, 295.61, 295.62, 295.63, 295.64, 295.65, 295.7, 295.70, 295.71, 295.72, 295.73, 295.74, 295.75, 295.8, 295.80, 295.81, 295.82, 295.83, 295.84, 295.85, 295.9, 295.90, 295.91, 295.92, 295.93, 295.94, 295.95, 301.0, 301.2, 301.20, 301.21, 301.22, V11.0	F20, F20.0, F20.1, F20.2, F20.3, F20.4, F20.5, F20.6, F20.8, F20.81, F20.89, F20.9, F21, F25, F25.0, F25.1, F25.2, F25.8, F25.9, F60.0, F60.1	both	10-85

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
B.7.2	Alcohol use disorders	291, 291.0, 291.1, 291.2, 291.3, 291.4, 291.5, 291.8, 291.81, 291.82, 291.89, 291.9, 303, 303.0, 303.00, 303.01, 303.02, 303.03, 303.1, 303.2, 303.9, 303.90, 303.91, 303.92, 303.93, 305, 305.0, 305.00, 305.01, 305.02, 305.03, 357.5, 571.0, 571.1, 571.3, 760.71, 790.3, E86.0, E86.00, E86.000, E86.001, E86.002, E86.003, E86.004, E86.005, E86.006, E86.007, E86.008, E86.009, E86.01, E86.010, E86.011, E86.012, E86.013, E86.014, E86.015, E86.016, E86.017, E86.018, E86.019, V11.3, V79.1	F10, F10.0, F10.1, F10.10, F10.12, F10.120, F10.121, F10.129, F10.14, F10.15, F10.150, F10.151, F10.159, F10.18, F10.180, F10.181, F10.182, F10.188, F10.19, F10.2, F10.20, F10.21, F10.22, F10.220, F10.221, F10.229, F10.23, F10.230, F10.231, F10.232, F10.239, F10.24, F10.25, F10.250, F10.251, F10.259, F10.26, F10.27, F10.28, F10.280, F10.281, F10.282, F10.288, F10.29, F10.3, F10.4, F10.5, F10.6, F10.7, F10.8, F10.9, F10.92, F10.920, F10.921, F10.929, F10.94, F10.95, F10.950, F10.951, F10.959, F10.96, F10.97, F10.98, F10.980, F10.981, F10.982, F10.988, F10.99, G62.1, K70.0, K70.9, P04.3, Q86.0, R78.0, X45, X45.0, X45.1, X45.2, X45.3, X45.4, X45.5, X45.6, X45.7, X45.8, X45.9, X65, X65.0, X65.1, X65.2, X65.3, X65.4, X65.5, X65.6, X65.7, X65.8, X65.9, Y15, Y15.0, Y15.1, Y15.2, Y15.3, Y15.4, Y15.5, Y15.6, Y15.7, Y15.8, Y15.9	both	0-85

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
B.7.3	Drug use disorders	292, 292.0, 292.1, 292.11, 292.12, 292.2, 292.8, 292.81, 292.82, 292.83, 292.84, 292.85, 292.89, 292.9, 304, 304.0, 304.00, 304.01, 304.02, 304.03, 304.1, 304.10, 304.11, 304.12, 304.13, 304.2, 304.20, 304.21, 304.22, 304.23, 304.3, 304.30, 304.31, 304.32, 304.33, 304.4, 304.40, 304.41, 304.42, 304.43, 304.5, 304.50, 304.51, 304.52, 304.53, 304.6, 304.60, 304.61, 304.62, 304.63, 304.7, 304.70, 304.71, 304.72, 304.73, 304.8, 304.80, 304.81, 304.82, 304.83, 304.9, 304.90, 304.91, 304.92, 304.93, 305.2, 305.20, 305.21, 305.22, 305.23, 305.3, 305.30, 305.31, 305.32, 305.33, 305.4, 305.40, 305.41, 305.42, 305.43, 305.5, 305.50, 305.51, 305.52, 305.53, 305.6, 305.60, 305.61, 305.62, 305.63, 305.7, 305.70, 305.71, 305.72, 305.73, 305.8, 305.80, 305.81, 305.82, 305.83, 305.9, 305.90, 305.91, 305.92, 305.93, E85.00, E85.000, E85.001, E85.002, E85.003, E85.004, E85.005, E85.006, E85.007, E85.008, E85.009, E85.01, E85.010, E85.011, E85.012, E85.013, E85.014, E85.015, E85.016, E85.017, E85.018, E85.019, E85.02, E85.020, E85.021, E85.022, E85.023, E85.024, E85.025, E85.026, E85.027, E85.028, E85.029, V15.80, V15.81, V15.85, V15.86	F15, F15.0, F15.1, F15.10, F15.12, F15.120, F15.15, F15.18, F15.2, F15.20, F15.21, F15.22, F15.25, F15.28, F15.3, F15.4, F15.5, F15.6, F15.7, F15.8, F15.9, F15.90, F15.92, F15.95, F15.98, F12, F12.0, F12.1, F12.12, F12.15, F12.18, F12.2, F12.20, F12.21, F12.22, F12.25, F12.28, F12.3, F12.4, F12.5, F12.6, F12.7, F12.8, F12.9, F12.92, F12.95, F12.98, F12.10, F12.90, F14, F14.0, F14.1, F14.10, F14.12, F14.120, F14.15, F14.18, F14.2, F14.20, F14.21, F14.22, F14.25, F14.28, F14.3, F14.4, F14.5, F14.6, F14.7, F14.8, F14.9, F14.90, F14.92, F14.95, F14.98, F11, F11.0, F11.1, F11.10, F11.12, F11.120, F11.129, F11.15, F11.18, F11.2, F11.20, F11.21, F11.22, F11.25, F11.28, F11.3, F11.4, F11.5, F11.6, F11.7, F11.8, F11.9, F11.90, F11.92, F11.95, F11.98, F11.121, F11.122, F11.14, F11.150, F11.151, F11.159, F11.181, F11.182, F11.188, F11.19, F11.220, F11.221, F11.222, F11.229, F11.23, F11.24, F11.250, F11.251, F11.259, F11.281, F11.282, F11.288, F11.29, F11.920, F11.921, F11.922, F11.929, F11.93, F11.94, F11.950, F11.951, F11.959, F11.981, F11.982, F11.988, F11.99, F12.120, F12.121, F12.122, F12.129, F12.150, F12.151, F12.159, F12.180, F12.188, F12.19, F12.220, F12.221, F12.222, F12.229, F12.250, F12.251, F12.259, F12.280, F12.288, F12.29, F12.920, F12.921, F12.922, F12.929, F12.950, F12.951, F12.959, F12.980, F12.988, F12.99, F13, F13.0, F13.1, F13.10, F13.12, F13.120, F13.121, F13.129, F13.14, F13.15, F13.150, F13.151, F13.159, F13.18, F13.180,	both	10-85

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			F13.181, F13.182, F13.188, F13.19, F13.2, F13.20, F13.21, F13.22, F13.220, F13.221, F13.229, F13.23, F13.230, F13.231, F13.232, F13.239, F13.24, F13.25, F13.250, F13.251, F13.259, F13.26, F13.27, F13.28, F13.280, F13.281, F13.282, F13.288, F13.29, F13.3, F13.4, F13.5, F13.6, F13.7, F13.8, F13.9, F13.90, F13.92, F13.920, F13.921, F13.929, F13.93, F13.930, F13.931, F13.932, F13.939, F13.94, F13.95, F13.950, F13.951, F13.959, F13.96, F13.97, F13.98, F13.980, F13.981, F13.982, F13.988, F13.99, F14.121, F14.122, F14.129, F14.14, F14.150, F14.151, F14.159, F14.180, F14.181, F14.182, F14.188, F14.19, F14.220, F14.221, F14.222, F14.229, F14.23, F14.24, F14.250, F14.251, F14.259, F14.280, F14.281, F14.282, F14.288, F14.29, F14.920, F14.921, F14.922, F14.929, F14.94, F14.950, F14.951, F14.959, F14.980, F14.981, F14.982, F14.988, F14.99, F15.121, F15.122, F15.129, F15.14, F15.150, F15.151, F15.159, F15.180, F15.181, F15.182, F15.188, F15.19, F15.220, F15.221, F15.222, F15.229, F15.23, F15.24, F15.250, F15.251, F15.259, F15.280, F15.281, F15.282, F15.288, F15.29, F15.920, F15.921, F15.922, F15.929, F15.93, F15.94, F15.950, F15.951, F15.959, F15.980, F15.981, F15.982, F15.988, F15.99, F16, F16.0, F16.1, F16.10, F16.12, F16.120, F16.121, F16.122, F16.129, F16.14, F16.15, F16.150, F16.151, F16.159, F16.18, F16.180, F16.183, F16.188, F16.19, F16.2, F16.20, F16.21, F16.22, F16.220, F16.221, F16.229, F16.24, F16.25, F16.250, F16.251, F16.259, F16.28, F16.280,		

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			F16.283, F16.288, F16.29, F16.3, F16.4, F16.5, F16.6, F16.7, F16.8, F16.9, F16.90, F16.92, F16.920, F16.921, F16.929, F16.94, F16.95, F16.950, F16.951, F16.959, F16.98, F16.980, F16.983, F16.988, F16.99, F17, F17.0, F17.1, F17.3, F17.4, F17.5, F17.6, F17.7, F17.8, F17.9, F18, F18.0, F18.1, F18.10, F18.12, F18.120, F18.121, F18.129, F18.14, F18.15, F18.150, F18.151, F18.159, F18.17, F18.18, F18.180, F18.188, F18.19, F18.2, F18.20, F18.21, F18.22, F18.220, F18.221, F18.229, F18.24, F18.25, F18.250, F18.251, F18.259, F18.27, F18.28, F18.280, F18.288, F18.29, F18.3, F18.4, F18.5, F18.6, F18.7, F18.8, F18.9, F18.90, F18.92, F18.920, F18.921, F18.929, F18.94, F18.95, F18.950, F18.951, F18.959, F18.97, F18.98, F18.980, F18.988, F18.99, F19, F19.0, F19.1, F19.10, F19.12, F19.120, F19.121, F19.122, F19.129, F19.14, F19.15, F19.150, F19.151, F19.159, F19.16, F19.17, F19.18, F19.180, F19.181, F19.182, F19.188, F19.19, F19.2, F19.20, F19.21, F19.22, F19.220, F19.221, F19.222, F19.229, F19.23, F19.230, F19.231, F19.232, F19.239, F19.24, F19.25, F19.250, F19.251, F19.259, F19.26, F19.27, F19.28, F19.280, F19.281, F19.282, F19.288, F19.29, F19.3, F19.4, F19.5, F19.6, F19.7, F19.8, F19.9, F19.90, F19.92, F19.920, F19.921, F19.922, F19.929, F19.93, F19.930, F19.931, F19.932, F19.939, F19.94, F19.95, F19.950, F19.951, F19.959, F19.96, F19.97, F19.98, F19.980, F19.981, F19.982, F19.988, F19.99, F55.0, F55.1, F55.2,		

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			F55.3, F55.4, F55.8, R78.7, R78.71, R78.79, R78.8, R78.81, R78.89, Z57.8		

161

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
B.7.4	Depressive disorders	296.2, 296.20, 296.21, 296.22, 296.23, 296.24, 296.25, 296.26, 296.3, 296.30, 296.31, 296.32, 296.33, 296.34, 296.35, 296.36, 300.4, 311, 311.0, 311.9, V11.1, V11.2, V79.0	F34.1, F32, F32.0, F32.1, F32.2, F32.3, F32.4, F32.5, F32.9, F33, F33.0, F33.1, F33.2, F33.3, F33.4, F33.40, F33.41, F33.42, F33.9	both	1-85

162

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
B.7.5	Bipolar disorder	296, 296.0, 296.00, 296.01, 296.02, 296.03, 296.04, 296.05, 296.06, 296.1, 296.10, 296.11, 296.12, 296.13, 296.14, 296.15, 296.16, 296.4, 296.40, 296.41, 296.42, 296.43, 296.44, 296.45, 296.46, 296.5, 296.50, 296.51, 296.52, 296.53, 296.54, 296.55, 296.56, 296.6, 296.60, 296.61, 296.62, 296.63, 296.64, 296.65, 296.66, 296.7, 296.8, 296.80, 296.81, 296.82, 296.89, 296.9, 296.90, 296.99, 301.1, 301.10, 301.11, 301.12, 301.13	F30, F30.0, F30.1, F30.10, F30.11, F30.12, F30.13, F30.2, F30.3, F30.4, F30.8, F30.9, F31, F31.0, F31.1, F31.10, F31.11, F31.12, F31.13, F31.2, F31.3, F31.30, F31.31, F31.32, F31.4, F31.5, F31.6, F31.60, F31.61, F31.62, F31.63, F31.64, F31.7, F31.70, F31.71, F31.72, F31.73, F31.74, F31.75, F31.76, F31.77, F31.78, F31.8, F31.81, F31.89, F31.9, F32.8, F33.8, F34.0, F34.8, F34.9, F39	both	10-85

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
B.7.6	Anxiety disorders	300, 300.0, 300.00, 300.01, 300.02, 300.09, 300.1, 300.10, 300.11, 300.12, 300.13, 300.14, 300.15, 300.16, 300.19, 300.2, 300.20, 300.21, 300.22, 300.23, 300.29, 300.3, 301.4, 308, 308.0, 308.1, 308.2, 308.3, 308.4, 308.9, 309, 309.0, 309.1, 309.2, 309.21, 309.22, 309.23, 309.24, 309.28, 309.29, 309.3, 309.4, 309.8, 309.81, 309.82, 309.83, 309.89, 309.9, 313.0	F40, F40.0, F40.00, F40.01, F40.02, F40.1, F40.10, F40.11, F40.2, F40.21, F40.210, F40.218, F40.22, F40.220, F40.228, F40.23, F40.230, F40.231, F40.232, F40.233, F40.24, F40.240, F40.241, F40.242, F40.243, F40.248, F40.29, F40.290, F40.291, F40.298, F40.8, F40.9, F41, F41.0, F41.1, F41.2, F41.3, F41.8, F41.9, F42, F42.0, F42.1, F42.2, F42.8, F42.9, F43, F43.0, F43.1, F43.10, F43.11, F43.12, F43.2, F43.20, F43.21, F43.22, F43.23, F43.24, F43.25, F43.29, F43.8, F43.9, F44, F44.0, F44.1, F44.2, F44.3, F44.4, F44.5, F44.6, F44.7, F44.8, F44.81, F44.89, F44.9, F60.5, F68.8, F93, F93.0, F93.1, F93.2, F94.8, R45.7	both	1-85
B.7.7	Eating disorders	307.1, 307.5, 307.50, 307.51, 307.52, 307.53, 307.54, 307.59	F50.0, F50.00, F50.01, F50.02, F50.1, F50.2, F50.3, F50.4, F50.5, F50.8, F50, F50.9, F98.3	both	5-45
B.7.8	Autistic spectrum disorders	299, 299.0, 299.00, 299.01, 299.1, 299.10, 299.11, 299.8, 299.80, 299.81, 299.9, 299.90, 299.91	F84, F84.5, F84.8, F84.9, F84.0, F84.1, F84.3, F84.4	both	0-85

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
B.7.9	Attention-deficit/hyperactivity disorder	314, 314.0, 314.00, 314.01, 314.1, 314.2, 314.8, 314.9	F90, F90.0, F90.1, F90.2, F90.8, F90.9	both	1-85
B.7.10	Conduct disorder	301, 301.3, 301.5, 301.50, 301.51, 301.59, 301.6, 301.7, 301.8, 301.81, 301.82, 301.83, 301.84, 301.89, 312, 312.0, 312.00, 312.01, 312.02, 312.03, 312.1, 312.10, 312.11, 312.12, 312.13, 312.2, 312.20, 312.21, 312.22, 312.23, 312.3, 312.30, 312.31, 312.32, 312.33, 312.34, 312.35, 312.39, 312.4, 312.8, 312.81, 312.82, 312.89, 312.9, V71.02	F60.2, F60.3, F60.4, F60.6, F60.7, F63.0, F63.1, F63.2, F63.9, F91, F91.0, F91.1, F91.2, F91.8, F91.9, F92, F92.0, F92.8, F92.9	both	5-20
B.7.11	Idiopathic intellectual disability	317, 317.1, 318, 318.0, 318.1, 318.2, 318.8, 318.9, 319, 319.0, 319.9, V18.4	F70, F70.0, F70.1, F70.8, F70.9, F71, F71.0, F71.1, F71.8, F71.9, F72, F72.0, F72.1, F72.8, F72.9, F73, F73.0, F73.1, F73.8, F73.9, F74, F75, F76, F77, F78, F78.0, F78.1, F78.8, F78.9, F79, F79.0, F79.1, F79.8, F79.9, Z81.0	both	0-85

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
B.7.12	Other mental and behavioral disorders	298, 298.0, 298.1, 298.2, 298.3, 298.4, 300.5, 300.6, 300.7, 300.8, 300.81, 300.82, 300.89, 302, 302.0, 302.1, 302.2, 302.3, 302.4, 302.5, 302.50, 302.51, 302.52, 302.53, 302.6, 302.7, 302.70, 302.71, 302.72, 302.73, 302.74, 302.75, 302.76, 302.79, 302.8, 302.81, 302.82, 302.83, 302.84, 302.85, 302.89, 302.9, 306, 306.0, 306.1, 306.2, 306.3, 306.4, 306.5, 306.50, 306.51, 306.52, 306.53, 306.59, 306.6, 306.7, 306.8, 306.9, 307.0, 307.2, 307.20, 307.21, 307.22, 307.23, 307.3, 307.4, 307.40, 307.41, 307.42, 307.43, 307.44, 307.45, 307.46, 307.47, 307.48, 307.49, 307.6, 307.7, 313, 313.1, 313.2, 313.21, 313.22, 313.23, 313.3, 313.8, 313.81, 313.82, 313.83, 327, 327.0, 327.00, 327.01, 327.02, 327.09, 327.3, 327.30, 327.31, 327.32, 327.33, 327.34, 327.35, 327.36, 327.37, 327.39, 327.4, 327.40, 327.41, 327.42, 327.43, 327.44, 327.49, 327.5, 327.51, 327.52, 327.53, 327.59, 327.8, 347, 347.0, 347.00, 347.01, 347.1, 347.10, 347.11, 347.9, V71.01	G47.2, G47.20, G47.21, G47.22, G47.23, G47.24, G47.25, G47.26, G47.27, G47.29, G47.4, G47.41, G47.411, G47.419, G47.42, G47.421, G47.429, Z03.2, F23, F45.0, F45.1, F45.8, F45.9, F48.1, F48.8, F51.3, F51.4, F51.5, F51.8, F51.9, F52.0, F52.1, F52.4, F52.5, F52.6, F52.8, F52.9, F59, F64.1, F64.2, F64.8, F64.9, F65.0, F65.1, F65.2, F65.3, F65.4, F65.9, F66, F91.3, F93.8, F94.0, F95.0, F95.1, F95.2, F95.8, F95.9, F98.0, F98.1, F98.4, F98.5, G47.8, R37	both	1-85

166

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
B.8.1	Diabetes mellitus	249, 249.0, 249.00, 249.01, 249.1, 249.10, 249.11, 249.2, 249.20, 249.21, 249.3, 249.30, 249.31, 249.5, 249.50, 249.51, 249.6, 249.60, 249.61, 249.7, 249.70, 249.71, 249.8, 249.80, 249.81, 249.9, 249.90, 249.91, 250, 250.0, 250.00, 250.01, 250.02, 250.03, 250.09, 250.1, 250.10, 250.11, 250.12, 250.13, 250.19, 250.2, 250.20, 250.21, 250.22, 250.23, 250.29, 250.3, 250.30, 250.31, 250.32, 250.33, 250.39, 250.4, 250.40, 250.41, 250.42, 250.43, 250.49, 250.5, 250.50, 250.51, 250.52, 250.53, 250.59, 250.6, 250.60, 250.61, 250.62, 250.63, 250.69, 250.7, 250.70, 250.71, 250.72, 250.73, 250.79, 250.8, 250.80, 250.81, 250.82, 250.83, 250.89, 250.9, 250.90, 250.91, 250.92, 250.93, 250.99, 357.2, 362.01, 362.02, 362.03, 362.04, 362.05, 362.06, 362.07, 775.0, 775.1, 790.2, 790.21, 790.22, 790.29, V12.21, V18.0, V42.83, V45.85, V53.91, V58.67, V77.1	E08, E08.0, E08.00, E08.01, E08.1, E08.10, E08.11, E08.2, E08.21, E08.22, E08.29, E08.3, E08.31, E08.311, E08.319, E08.32, E08.321, E08.329, E08.33, E08.331, E08.339, E08.34, E08.341, E08.349, E08.35, E08.351, E08.359, E08.36, E08.39, E08.4, E08.40, E08.41, E08.42, E08.43, E08.44, E08.49, E08.5, E08.51, E08.52, E08.59, E08.6, E08.61, E08.610, E08.618, E08.62, E08.620, E08.621, E08.622, E08.628, E08.63, E08.630, E08.638, E08.64, E08.641, E08.649, E08.65, E08.69, E08.8, E08.9, E09.8, E09.9, E10, E10.0, E10.1, E10.10, E10.11, E10.2, E10.21, E10.22, E10.29, E10.3, E10.31, E10.311, E10.319, E10.32, E10.321, E10.329, E10.33, E10.331, E10.339, E10.34, E10.341, E10.349, E10.35, E10.351, E10.359, E10.36, E10.39, E10.4, E10.40, E10.41, E10.42, E10.43, E10.44, E10.49, E10.5, E10.51, E10.52, E10.59, E10.6, E10.61, E10.610, E10.618, E10.62, E10.620, E10.621, E10.622, E10.628, E10.63, E10.630, E10.638, E10.64, E10.641, E10.649, E10.65, E10.69, E10.7, E10.8, E10.9, E11, E11.0, E11.00, E11.01, E11.1, E11.2, E11.21, E11.22, E11.29, E11.3, E11.31, E11.311, E11.319, E11.32, E11.321, E11.329, E11.33, E11.331, E11.339, E11.34, E11.341, E11.349, E11.35, E11.351, E11.359, E11.36, E11.39, E11.4, E11.40, E11.41, E11.42, E11.43, E11.44, E11.49, E11.5, E11.51, E11.52, E11.59, E11.6, E11.61, E11.610, E11.618, E11.62, E11.620, E11.621, E11.622, E11.628, E11.63, E11.630, E11.638, E11.64, E11.641, E11.649, E11.65,	both	0-85

167

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			E11.69, E11.7, E11.8, E11.9, E12, E12.0, E12.1, E12.2, E12.3, E12.4, E12.5, E12.6, E12.7, E12.8, E12.9, E13, E13.0, E13.00, E13.01, E13.1, E13.10, E13.11, E13.2, E13.21, E13.22, E13.29, E13.3, E13.31, E13.311, E13.319, E13.32, E13.321, E13.329, E13.33, E13.331, E13.339, E13.34, E13.341, E13.349, E13.35, E13.351, E13.359, E13.36, E13.39, E13.4, E13.40, E13.41, E13.42, E13.43, E13.44, E13.49, E13.5, E13.51, E13.52, E13.59, E13.6, E13.61, E13.610, E13.618, E13.62, E13.620, E13.621, E13.622, E13.628, E13.63, E13.630, E13.638, E13.64, E13.641, E13.649, E13.65, E13.69, E13.7, E13.8, E13.9, E14, E14.0, E14.1, E14.2, E14.3, E14.4, E14.5, E14.6, E14.7, E14.8, E14.9, P70.0, P70.1, P70.2, R73, R73.0, R73.01, R73.02, R73.09, R73.9, Z13.1, Z79.4, Z83.3, E09, E09.0, E09.00, E09.01, E09.1, E09.10, E09.11, E09.2, E09.21, E09.22, E09.29, E09.3, E09.31, E09.311, E09.319, E09.32, E09.321, E09.329, E09.33, E09.331, E09.339, E09.34, E09.341, E09.349, E09.35, E09.351, E09.359, E09.36, E09.39, E09.4, E09.40, E09.41, E09.42, E09.43, E09.44, E09.49, E09.5, E09.51, E09.52, E09.59, E09.6, E09.61, E09.610, E09.618, E09.62, E09.620, E09.621, E09.622, E09.628, E09.63, E09.630, E09.638, E09.64, E09.641, E09.649, E09.65, E09.69		

168

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
B.8.2	Acute glomerulonephritis	580, 580.0, 580.4, 580.8, 580.81, 580.89, 580.9	N00, N00.0, N00.1, N00.2, N00.3, N00.4, N00.5, N00.6, N00.7, N00.8, N00.9, N01, N01.0, N01.1, N01.2, N01.3, N01.4, N01.5, N01.6, N01.7, N01.8, N01.9	both	0-85
B.8.3	Chronic kidney diseases	249.4, 249.40, 249.41, 403, 403.0, 403.00, 403.01, 403.1, 403.10, 403.11, 403.6, 403.9, 403.90, 403.91, 404, 404.0, 404.00, 404.01, 404.02, 404.03, 404.1, 404.10, 404.11, 404.12, 404.13, 404.9, 404.90, 404.91, 404.92, 404.93, 581, 581.0, 581.1, 581.2, 581.3, 581.8, 581.81, 581.89, 581.9, 582, 582.0, 582.1, 582.2, 582.4, 582.8, 582.81, 582.89, 582.9, 583, 583.0, 583.1, 583.2, 583.4, 583.6, 583.7, 583.8, 583.81, 583.89, 583.9, 585, 585.0, 585.1, 585.2, 585.3, 585.4, 585.5, 585.6, 585.9, 587, 587.0, 587.9, 753.0, 753.1, 753.10, 753.11, 753.12, 753.13, 753.14, 753.15, 753.16, 753.17, 753.19, 753.2, 753.20, 753.21, 753.22, 753.23, 753.29, 753.3, 753.4, 753.6, 753.7, 753.8, 753.9, V13.03, V13.09, V18.6, V18.69, V42.0, V45.1, V45.11, V45.12, V45.73, V56, V56.0, V56.1, V56.2, V56.3, V56.31, V56.32, V56.8, V81.5, V81.6	N18, N18.0, N18.1, N18.2, N18.3, N18.4, N18.5, N18.6, N18.8, N18.9, N26.1, N26.9, Z49, Z49.0, Z49.01, Z49.02, Z49.1, Z49.2, Z49.3, Z49.31, Z49.32, Z84.1, Z90.5, Z94.0, Z99.2, N02.0, N02.1, N02.2, N02.3, N02.4, N02.5, N02.6, N02.7, N02.8, N02.9, N03, N03.0, N03.1, N03.2, N03.3, N03.4, N03.5, N03.6, N03.7, N03.8, N03.9, N04, N04.0, N04.1, N04.2, N04.3, N04.4, N04.5, N04.6, N04.7, N04.8, N04.9, N05, N05.0, N05.1, N05.2, N05.3, N05.4, N05.5, N05.6, N05.7, N05.8, N05.9, N06, N06.0, N06.1, N06.2, N06.3, N06.4, N06.5, N06.6, N06.7, N06.8, N06.9, N07.0, N07.1, N07.2, N07.3, N07.4, N07.5, N07.6, N07.7, N07.8, N07.9, N08, N08.0, N08.1, N08.2, N08.3, N08.4, N08.5, N08.8, N14.0, N14.1, N14.2, N14.3, N14.4, N15.0, N15.8, N15.9, N16, N17.1, N17.2, I12, I12.0, I12.1, I12.2, I12.9, I13, I13.0, I13.1, I13.10, I13.11, I13.2, I13.9, N02, N07, Q60, Q60.0, Q60.1, Q60.2, Q60.3, Q60.4, Q60.5, Q60.6, Q61, Q61.0, Q61.00, Q61.01, Q61.02, Q61.1, Q61.11, Q61.19, Q61.2, Q61.3, Q61.4, Q61.5, Q61.8, Q61.9, Q62, Q62.0, Q62.1, Q62.10, Q62.11, Q62.12, Q62.2, Q62.3, Q62.31, Q62.32, Q62.39, Q62.4, Q62.5, Q62.6, Q62.60, Q62.61, Q62.62, Q62.63, Q62.69,	both	0-85

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			Q62.7, Q62.8, Q63, Q63.0, Q63.1, Q63.2, Q63.3, Q63.8, Q63.9, Q64.2, Q64.3, Q64.31, Q64.32, Q64.33, Q64.39, Q64.4, Q64.5, Q64.6, Q64.7, Q64.70, Q64.71, Q64.72, Q64.73, Q64.74, Q64.75, Q64.79, Q64.8, Q64.9		

170

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
B.8.4	Urinary diseases and male infertility	588, 588.0, 588.1, 588.8, 588.81, 588.89, 588.9, 589, 589.0, 589.1, 589.4, 589.9, 590, 590.0, 590.00, 590.01, 590.1, 590.10, 590.11, 590.2, 590.3, 590.8, 590.80, 590.81, 590.9, 592, 592.0, 592.1, 592.9, 593, 593.0, 593.1, 593.2, 593.3, 593.4, 593.5, 593.6, 593.70, 593.71, 593.72, 593.73, 593.8, 593.81, 593.82, 593.89, 593.9, 594, 594.0, 594.1, 594.2, 594.8, 594.9, 595, 595.0, 595.1, 595.2, 595.3, 595.4, 595.8, 595.81, 595.82, 595.89, 595.9, 596, 596.0, 596.1, 596.2, 596.3, 596.4, 596.5, 596.51, 596.52, 596.53, 596.54, 596.55, 596.59, 596.6, 596.7, 596.8, 596.89, 596.9, 597, 597.0, 597.8, 597.80, 597.81, 597.89, 597.9, 598, 598.0, 598.00, 598.01, 598.1, 598.8, 598.9, 599, 599.0, 599.1, 599.2, 599.3, 599.4, 599.5, 599.6, 599.60, 599.69, 599.7, 599.70, 599.71, 599.72, 599.8, 599.81, 599.82, 599.83, 599.84, 599.89, 599.9, 600, 600.0, 600.00, 600.01, 600.1, 600.10, 600.11, 600.2, 600.20, 600.21, 600.3, 600.9, 600.90, 600.91, 601, 601.0, 601.1, 601.2, 601.3, 601.4, 601.8, 601.9, 602, 602.0, 602.1, 602.2, 602.3, 602.8, 602.9, 603, 603.0, 603.1, 603.8, 603.9, 604, 604.0, 604.9, 604.90, 604.91, 604.99, 605, 605.0, 605.9, 606, 606.0, 606.1, 606.8, 606.9, 607, 607.0, 607.1, 607.2, 607.3, 607.8, 607.81, 607.82, 607.83, 607.84, 607.85, 607.89, 607.9, 608, 608.0, 608.1, 608.2, 608.20, 608.21, 608.22, 608.23, 608.24, 608.3, 608.4, 608.8, 608.81, 608.82, 608.83, 608.84, 608.85, 608.86, 608.87, 608.89, 608.9, 609, 788.3, 788.30, 788.31, 788.32, 788.33, 788.34, 788.35, 788.36, 788.37, 788.38, 788.39, 788.91, V13.0,	Z90.6, N40, N40.0, N40.1, N40.2, N40.3, N40.9, N42.83, N46, N46.0, N46.01, N46.02, N46.021, N46.022, N46.023, N46.024, N46.025, N46.029, N46.1, N46.11, N46.12, N46.121, N46.122, N46.123, N46.124, N46.125, N46.129, N46.8, N46.9, N10, N10.0, N10.9, N11, N11.0, N11.8, N11.9, N12, N12.0, N12.9, N13.6, N15, N15.1, N16.0, N16.1, N16.2, N16.3, N16.4, N16.5, N16.8, N28.84, N28.85, N28.86, N30, N30.0, N30.00, N30.01, N30.1, N30.10, N30.11, N30.2, N30.20, N30.21, N30.3, N30.30, N30.31, N30.8, N30.80, N30.81, N30.9, N30.90, N30.91, N34, N34.0, N34.2, N34.3, N39.0, N11.1, N13, N13.0, N13.3, N13.30, N13.39, N13.4, N13.5, N13.7, N13.70, N13.71, N13.72, N13.721, N13.722, N13.729, N13.73, N13.731, N13.732, N13.739, N13.8, N13.9, N25, N25.0, N25.1, N25.8, N25.81, N25.89, N25.9, N26, N26.0, N27, N27.0, N27.1, N27.9, N28, N28.0, N28.1, N28.8, N28.81, N28.82, N28.83, N28.89, N28.9, N29, N29.1, N29.8, N31, N31.0, N31.1, N31.2, N31.8, N31.9, N32, N32.0, N32.1, N32.2, N32.3, N32.4, N32.8, N32.81, N32.89, N32.9, N33, N33.0, N33.8, N35, N35.0, N35.01, N35.010, N35.011, N35.012, N35.013, N35.014, N35.02, N35.021, N35.028, N35.1, N35.11, N35.111, N35.112, N35.113, N35.114, N35.119, N35.12, N35.8, N35.9, N36, N36.0, N36.1, N36.2, N36.3, N36.4, N36.41, N36.42, N36.43, N36.44, N36.5, N36.8, N36.9, N37, N37.0, N37.8, N39, N39.1, N39.2, N39.4, N39.41, N39.42, N39.43,	both	0-85

171

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
		V13.00, V13.01, V13.02, V26.5, V26.52, V45.74, V47.4, V58.76	N39.44, N39.45, N39.46, N39.49, N39.490, N39.498, N39.8, N39.9, N42, N42.0, N42.1, N42.2, N42.3, N42.8, N42.81, N42.82, N42.89, N42.9, N43, N43.0, N43.1, N43.2, N43.3, N43.4, N43.40, N43.41, N43.42, N44, N44.0, N44.00, N44.01, N44.02, N44.03, N44.04, N44.1, N44.2, N44.8, N47, N47.0, N47.1, N47.2, N47.3, N47.4, N47.5, N47.6, N47.7, N47.8, N48, N48.0, N48.1, N48.2, N48.21, N48.22, N48.29, N48.3, N48.30, N48.31, N48.32, N48.33, N48.39, N48.4, N48.5, N48.6, N48.8, N48.81, N48.82, N48.83, N48.89, N48.9, N49, N49.0, N49.1, N49.2, N49.3, N49.8, N49.9, N50, N50.0, N50.1, N50.3, N50.8, N50.9, N51, N51.0, N51.1, N51.2, N51.8, N52, N52.0, N52.01, N52.02, N52.03, N52.1, N52.2, N52.8, N52.9, N53, N53.1, N53.11, N53.12, N53.13, N53.14, N53.19, N53.8, N53.9, R10.2, R31.0, R31.1, R31.2, R31.9, R32, R36.1, R80.2, R86, N41, N41.0, N41.1, N41.2, N41.3, N41.4, N41.8, N41.9, N45, N45.0, N45.1, N45.2, N45.3, N45.4, N45.9, N20, N20.0, N20.1, N20.2, N20.9, N21, N21.0, N21.1, N21.8, N21.9, N22, N22.0, N22.8, N23.0		

172

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
B.8.5	Gynecological diseases	112.1, 112.2, 218, 218.0, 218.1, 218.2, 218.9, 220, 220.0, 220.9, 256.4, 611, 611.0, 611.1, 611.2, 611.3, 611.4, 611.5, 611.6, 611.7, 611.71, 611.72, 611.79, 611.8, 611.81, 611.82, 611.83, 611.89, 611.9, 616, 616.0, 616.1, 616.10, 616.11, 616.2, 616.3, 616.4, 616.5, 616.50, 616.51, 616.8, 616.81, 616.89, 616.9, 617, 617.0, 617.1, 617.2, 617.3, 617.4, 617.5, 617.6, 617.8, 617.9, 618, 618.0, 618.00, 618.01, 618.02, 618.03, 618.04, 618.05, 618.09, 618.1, 618.2, 618.3, 618.4, 618.5, 618.6, 618.7, 618.8, 618.81, 618.82, 618.83, 618.84, 618.89, 618.9, 620, 620.0, 620.1, 620.2, 620.3, 620.4, 620.5, 620.6, 620.7, 620.8, 620.9, 621, 621.0, 621.1, 621.2, 621.3, 621.30, 621.31, 621.32, 621.33, 621.34, 621.35, 621.4, 621.5, 621.6, 621.7, 621.8, 621.9, 622, 622.0, 622.3, 622.4, 622.5, 622.6, 622.8, 622.9, 623, 623.0, 623.1, 623.2, 623.3, 623.4, 623.5, 623.6, 623.7, 623.8, 623.9, 624, 624.0, 624.01, 624.02, 624.09, 624.1, 624.2, 624.3, 624.4, 624.5, 624.6, 624.8, 624.9, 625, 625.0, 625.1, 625.2, 625.3, 625.4, 625.5, 625.6, 625.7, 625.70, 625.71, 625.79, 625.8, 625.9, 626, 626.0, 626.1, 626.2, 626.3, 626.4, 626.5, 626.6, 626.7, 626.8, 626.9, 627, 627.0, 627.1, 627.2, 627.3, 627.4, 627.8, 627.9, 628, 628.0, 628.1, 628.2, 628.3, 628.4, 628.8, 628.9, 629, 629.0, 629.1, 629.2, 629.20, 629.21, 629.22, 629.23, 629.29, 629.3, 629.31, 629.32, 629.8, 629.81, 629.89, 629.9, 788, 788.0, 788.1, 788.2, 788.20, 788.21, 788.29, 788.4, 788.41, 788.42, 788.43, 788.5, 788.6, 788.61, 788.62, 788.63, 788.64, 788.65, 788.69, 788.7, 788.8, 788.9,	Z78.0, Z84.2, N80, N80.0, N80.1, N80.2, N80.3, N80.4, N80.5, N80.6, N80.8, N80.9, N97, N97.0, N97.1, N97.2, N97.3, N97.4, N97.8, N97.9, N98, Z31, Z31.0, Z31.1, Z31.2, Z31.3, Z31.4, Z31.41, Z31.42, Z31.43, Z31.430, Z31.438, Z31.44, Z31.440, Z31.441, Z31.448, Z31.49, Z31.6, Z31.61, Z31.62, Z31.69, Z31.8, Z31.81, Z31.82, Z31.83, Z31.84, Z31.89, Z31.9, D25, D25.0, D25.1, D25.2, D25.9, D26, B37.3, B37.4, B37.41, B37.42, B37.49, N23, N39.3, N61, N61.0, N61.9, N62, N63, N63.0, N64, N64.0, N64.1, N64.2, N64.3, N64.4, N64.5, N64.51, N64.52, N64.53, N64.59, N64.8, N64.81, N64.82, N64.89, N64.9, N72, N72.0, N75, N75.0, N75.1, N75.8, N75.9, N76, N76.0, N76.1, N76.2, N76.3, N76.4, N76.5, N76.6, N76.8, N76.81, N76.89, N77, N77.0, N77.1, N77.8, N83, N83.0, N83.1, N83.2, N83.20, N83.29, N83.3, N83.31, N83.32, N83.33, N83.4, N83.5, N83.51, N83.52, N83.53, N83.6, N83.7, N83.8, N83.9, N84, N84.0, N84.2, N84.3, N84.8, N84.9, N85, N85.00, N85.02, N85.3, N85.4, N85.5, N85.6, N85.7, N85.8, N85.9, N86, N88, N88.1, N88.2, N88.3, N88.4, N88.8, N88.9, N89, N89.0, N89.1, N89.2, N89.3, N89.4, N89.5, N89.6, N89.8, N89.9, N90, N90.0, N90.1, N90.2, N90.3, N90.4, N90.5, N90.6, N90.7, N90.8, N90.81, N90.810, N90.811, N90.812, N90.813, N90.818, N90.89, N90.9, N91, N91.0, N91.1, N91.2, N91.3, N91.4, N91.5, N94, N94.0, N94.1, N94.2, N94.4, N94.5, N94.6, N94.8, N94.81, N94.810, N94.818, N94.819, N94.89, N94.9, N95,	female	10-85

173

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
		799.81, V07.4, V07.5, V07.51, V07.52, V07.59, V13.2, V13.29, V18.7, V26, V26.0, V26.1, V26.2, V26.21, V26.22, V26.29, V26.3, V26.31, V26.32, V26.34, V26.35, V26.39, V26.42, V26.49, V26.51, V26.8, V26.81, V26.82, V26.89, V26.9, V43.82, V45.71, V45.83, V47.5, V49.81, V59.70, V59.71, V59.72, V59.73, V59.74	N95.1, N95.2, N95.3, N95.8, N95.9, N96, N99.2, R30, R30.0, R30.9, R31, R33, R33.0, R33.8, R33.9, R34, R34.0, R34.9, R35, R35.0, R35.1, R35.8, R36, R36.0, R36.9, R39, R39.0, R39.1, R39.11, R39.12, R39.13, R39.14, R39.15, R39.16, R39.19, R39.8, R39.81, R39.89, R87, R87.6, R87.61, R87.610, R87.611, R87.612, R87.613, R87.614, R87.615, R87.616, R87.618, R87.619, R87.62, R87.620, R87.621, R87.622, R87.623, R87.624, R87.625, R87.628, R87.629, R87.69, R87.8, R87.81, R87.810, R87.811, R87.82, R87.820, R87.821, R87.89, Z01.4, Z01.41, Z01.411, Z01.419, Z01.42, Z01.6, Z86.1, Z86.11, Z86.12, Z86.13, Z86.14, Z86.19, Z87.4, Z87.41, Z87.410, Z87.411, Z87.412, Z87.42, Z87.43, Z87.430, Z87.438, Z87.44, Z87.440, Z87.441, Z87.442, Z87.448, D27.0, D27.1, D27.9, N85.0, N85.01, N85.1, N85.2, N89.7, N92, N92.0, N92.1, N92.2, N92.3, N92.4, N92.5, N92.6, N93, N93.0, N93.8, N93.9, N94.3, N95.0, E28.2, N81, N81.0, N81.1, N81.10, N81.11, N81.12, N81.2, N81.3, N81.4, N81.5, N81.6, N81.8, N81.81, N81.82, N81.83, N81.84, N81.85, N81.89, N81.9, N99.3		

174

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
B.8.6	Hemoglobino pathies and hemolytic anemias	282, 282.0, 282.1, 282.2, 282.3, 282.4, 282.41, 282.42, 282.49, 282.5, 282.6, 282.61, 282.62, 282.63, 282.64, 282.68, 282.69, 282.7, 282.8, 282.9, 283, 283.0, 283.1, 283.10, 283.11, 283.19, 283.2, 283.9, 284, 284.0, 284.1, 284.8, 284.9, 713.2, V12.3, V18.3, V78, V78.2, V78.3, V78.8, V78.9, V83.0, V83.01, V83.02	Z13.0, D61, D61.0, D61.01, D61.09, D61.8, D61.81, D61.810, D61.811, D61.818, D61.82, D61.89, D61.9, D55, D55.2, D55.3, D55.8, D55.9, D55.0, D55.1, D56.4, D58, D58.0, D58.1, D58.2, D58.8, D58.9, D59, D59.0, D59.1, D59.2, D59.3, D59.4, D59.5, D59.6, D59.8, D59.9, D60, M36.2, M36.3, D57, D57.0, D57.2, D57.20, D57.21, D57.211, D57.212, D57.219, D57.3, D57.8, D57.80, D57.81, D57.811, D57.812, D57.819, D56, D56.8, D57.00, D57.01, D57.02, D57.1, D57.4, D57.40, D57.41, D57.411, D57.412, D57.419	both	0-85

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
B.8.7	Endocrine, metabolic, blood, and immune disorders	240, 240.0, 240.3, 240.4, 240.9, 241, 241.0, 241.1, 241.9, 242, 242.0, 242.00, 242.01, 242.1, 242.10, 242.11, 242.2, 242.20, 242.21, 242.3, 242.30, 242.31, 242.4, 242.40, 242.41, 242.8, 242.80, 242.81, 242.9, 242.90, 242.91, 243, 243.0, 243.9, 244, 244.8, 244.9, 245, 245.0, 245.1, 245.2, 245.3, 245.4, 245.8, 245.9, 246, 246.0, 246.1, 246.2, 246.3, 246.8, 246.9, 251, 251.0, 251.1, 251.2, 251.3, 251.4, 251.5, 251.8, 251.9, 252, 252.0, 252.00, 252.01, 252.02, 252.08, 252.1, 252.8, 252.9, 253, 253.0, 253.1, 253.2, 253.3, 253.4, 253.5, 253.6, 253.7, 253.8, 253.9, 254, 254.0, 254.1, 254.4, 254.5, 254.8, 254.9, 255, 255.0, 255.1, 255.10, 255.11, 255.12, 255.13, 255.14, 255.2, 255.3, 255.4, 255.41, 255.42, 255.5, 255.6, 255.8, 255.9, 256, 256.0, 256.1, 256.2, 256.3, 256.31, 256.39, 256.8, 256.9, 257, 257.0, 257.1, 257.2, 257.8, 257.9, 258, 258.0, 258.01, 258.02, 258.03, 258.1, 258.8, 258.9, 259, 259.0, 259.1, 259.2, 259.3, 259.4, 259.5, 259.50, 259.51, 259.52, 259.8, 259.9, 270, 270.0, 270.1, 270.2, 270.3, 270.4, 270.5, 270.6, 270.7, 270.8, 270.9, 271, 271.0, 271.1, 271.2, 271.3, 271.4, 271.5, 271.8, 271.9, 273, 273.0, 273.1, 273.2, 273.3, 273.4, 273.7, 273.8, 273.9, 275, 275.0, 275.01, 275.02, 275.03, 275.09, 275.1, 275.2, 275.3, 275.4, 275.40, 275.41, 275.42, 275.49, 275.5, 275.8, 275.9, 277, 277.0, 277.00, 277.01, 277.02, 277.03, 277.09, 277.1, 277.2, 277.3, 277.30, 277.31, 277.39, 277.4, 277.5, 277.6, 277.7, 277.8, 277.81, 277.82, 277.83, 277.84, 277.85, 277.86, 277.87, 277.88, 277.89, 277.9, 278, 278.2, 278.3, 278.4, 278.5, 278.8, 279, 279.0,	E81.2, E81.4, E81.6, E81.9, E82.1, E82.5, E82.6, E82.8, E84, E84.0, E84.02, E84.03, E84.04, E84.05, E84.06, E84.07, E84.09, E84.1, E84.11, E84.12, E84.13, E84.15, E84.17, E84.19, E84.2, E84.26, E84.27, E84.29, E84.3, E84.31, E84.35, E84.36, E84.37, E84.38, E84.39, E84.4, E84.40, E84.43, E84.45, E84.47, E84.49, E84.5, E84.50, E84.59, E84.6, E84.7, E84.8, E84.9, E84.90, E84.91, E84.92, E84.93, E84.94, E84.95, E84.96, E84.97, E84.98, E84.99, E05, E05.0, E05.00, E05.01, E05.1, E05.10, E05.11, E05.2, E05.20, E05.21, E05.3, E05.30, E05.31, E05.4, E05.40, E05.41, E05.5, E05.8, E05.80, E05.81, E05.9, E05.90, E05.91, P72.1, E00.0, E00.1, E00.2, E00.9, E01.0, E01.1, E01.2, E01.8, E02, E03, E03.0, E03.1, E03.3, E03.4, E03.8, E03.9, E04, E04.0, E04.1, E04.2, E04.8, E04.9, E06, E06.0, E06.1, E06.2, E06.3, E06.4, E06.5, E06.9, E07, E07.0, E07.1, E07.8, E07.81, E07.89, E07.9, C88.0, C96.5, C96.6, D47.2, D47.4, D66, D66.0, D67, D68, D68.0, D68.1, D68.2, D68.3, D68.31, D68.311, D68.312, D68.318, D68.32, D68.4, D68.5, D68.51, D68.52, D68.59, D68.6, D68.61, D68.62, D68.69, D68.8, D68.9, D69, D69.0, D69.1, D69.2, D69.3, D69.4, D69.41, D69.42, D69.49, D69.6, D69.8, D69.9, D70, D71, D72, D72.0, D72.1, D72.8, D72.81, D72.810, D72.818, D72.819, D72.82, D72.820, D72.821, D72.822, D72.823, D72.824, D72.825, D72.828, D72.829, D72.89, D72.9, D73, D73.0, D73.1, D73.2, D73.3,	both	0-85

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
		279.00, 279.01, 279.02, 279.03, 279.04, 279.05, 279.06, 279.09, 279.1, 279.10, 279.11, 279.12, 279.13, 279.19, 279.2, 279.3, 279.4, 279.41, 279.49, 279.5, 279.50, 279.51, 279.52, 279.53, 279.6, 279.8, 279.9, 286, 286.0, 286.1, 286.2, 286.3, 286.4, 286.5, 286.7, 286.9, 287, 287.0, 287.1, 287.2, 287.3, 287.31, 287.32, 287.39, 287.4, 287.5, 287.8, 287.9, 288, 288.0, 288.1, 288.2, 288.3, 288.8, 288.9, 289, 289.0, 289.1, 289.2, 289.3, 289.4, 289.5, 289.51, 289.52, 289.59, 289.6, 289.7, 289.8, 289.81, 289.82, 289.89, 289.9, 713.0, 775.3, V12.2, V12.29, V12.4, V12.40, V18.1, V18.11, V18.19, V18.61, V29.3, V77, V77.0, V77.3, V77.4, V77.6, V77.7, V77.9, V77.99	D73.4, D73.5, D73.8, D73.81, D73.89, D74, D74.0, D74.8, D74.9, D75, D75.0, D75.1, D75.2, D75.8, D75.81, D75.82, D75.89, D75.9, D76, D76.0, D77, D80, D80.0, D80.1, D80.2, D80.3, D80.4, D80.5, D80.6, D80.7, D80.8, D80.9, D81, D81.0, D81.1, D81.2, D81.3, D81.4, D81.5, D81.6, D81.7, D81.8, D81.81, D81.810, D81.818, D81.819, D81.89, D81.9, D82, D82.0, D82.1, D82.2, D82.3, D82.4, D82.8, D82.9, D83, D83.0, D83.1, D83.2, D83.8, D83.9, D84, D84.0, D84.1, D84.8, D84.9, D86.8, D86.81, D86.82, D86.83, D86.84, D86.85, D86.86, D86.87, D86.89, D89, D89.0, D89.1, D89.2, D89.3, D89.8, D89.81, D89.810, D89.811, D89.812, D89.813, D89.82, D89.89, D89.9, E15, E15.0, E16, E16.0, E16.1, E16.2, E16.3, E16.4, E16.8, E16.9, E20, E20.0, E20.1, E20.8, E20.9, E21, E21.0, E21.1, E21.2, E21.3, E21.4, E21.5, E22, E22.0, E22.1, E22.2, E22.8, E22.9, E23, E23.0, E23.1, E23.2, E23.3, E23.6, E23.7, E24, E24.0, E24.1, E24.2, E24.3, E24.4, E24.8, E24.9, E25, E25.0, E25.8, E25.9, E26, E26.0, E26.01, E26.02, E26.09, E26.1, E26.8, E26.81, E26.89, E26.9, E27, E27.0, E27.1, E27.2, E27.3, E27.4, E27.40, E27.49, E27.5, E27.8, E27.9, E28, E28.0, E28.1, E28.3, E28.31, E28.310, E28.319, E28.39, E28.8, E28.9, E29, E29.0, E29.1, E29.8, E29.9, E30, E30.0, E30.1, E30.8, E30.9, E31, E31.0, E31.1, E31.2, E31.20, E31.21, E31.22, E31.23, E31.8, E31.9, E32, E32.0, E32.1, E32.8, E32.9, E34, E34.0, E34.1, E34.2, E34.3, E34.4, E34.5, E34.50,		

177

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			E34.51, E34.52, E34.8, E34.9, E35, E35.0, E35.1, E35.8, E67, E67.0, E67.1, E67.2, E67.3, E67.8, E68, E70, E70.0, E70.1, E70.2, E70.20, E70.21, E70.29, E70.3, E70.30, E70.31, E70.310, E70.311, E70.318, E70.319, E70.32, E70.320, E70.321, E70.328, E70.329, E70.33, E70.330, E70.331, E70.338, E70.339, E70.39, E70.4, E70.40, E70.41, E70.49, E70.5, E70.8, E70.9, E71, E71.0, E71.1, E71.11, E71.110, E71.113, E71.118, E71.12, E71.120, E71.121, E71.128, E71.19, E71.2, E71.3, E71.30, E71.31, E71.310, E71.311, E71.312, E71.313, E71.314, E71.318, E71.32, E71.39, E71.4, E71.40, E71.41, E71.42, E71.43, E71.44, E71.440, E71.448, E71.5, E71.50, E71.51, E71.510, E71.511, E71.518, E71.52, E71.520, E71.521, E71.522, E71.528, E71.529, E71.53, E71.54, E71.540, E71.541, E71.542, E71.548, E72, E72.0, E72.00, E72.01, E72.02, E72.03, E72.04, E72.09, E72.1, E72.10, E72.11, E72.12, E72.19, E72.2, E72.20, E72.21, E72.22, E72.23, E72.29, E72.3, E72.4, E72.5, E72.50, E72.51, E72.52, E72.53, E72.59, E72.8, E72.9, E73, E73.0, E73.1, E73.8, E73.9, E74, E74.0, E74.00, E74.01, E74.02, E74.03, E74.04, E74.09, E74.1, E74.10, E74.11, E74.12, E74.19, E74.2, E74.20, E74.21, E74.29, E74.3, E74.31, E74.39, E74.4, E74.8, E74.9, E75, E75.0, E75.00, E75.01, E75.02, E75.09, E75.1, E75.10, E75.11, E75.19, E75.2, E75.21, E75.22, E75.23, E75.24, E75.240, E75.241, E75.242, E75.243, E75.248, E75.249, E75.25, E75.29, E76, E76.0, E76.01,		

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			E76.02, E76.03, E76.1, E76.2, E76.21, E76.210, E76.211, E76.219, E76.22, E76.29, E76.3, E76.8, E76.9, E77, E77.1, E79, E79.1, E79.2, E79.8, E79.9, E80, E80.0, E80.00, E80.01, E80.02, E80.03, E80.08, E80.09, E80.1, E80.11, E80.12, E80.13, E80.18, E80.3, E80.4, E80.40, E80.41, E80.42, E80.43, E80.48, E80.49, E80.5, E80.50, E80.51, E80.52, E80.53, E80.58, E80.6, E80.60, E80.61, E80.62, E80.68, E80.69, E80.7, E80.70, E80.72, E80.73, E80.78, E80.79, E81, E81.20, E81.22, E81.29, E81.40, E81.46, E81.47, E81.60, E81.62, E81.90, E81.92, E81.99, E82, E82.19, E82.57, E82.61, E82.82, E83, E83.0, E83.00, E83.01, E83.09, E83.1, E83.10, E83.11, E83.110, E83.111, E83.118, E83.119, E83.12, E83.13, E83.14, E83.16, E83.18, E83.19, E83.3, E83.30, E83.31, E83.32, E83.33, E83.39, E83.4, E83.40, E83.41, E83.42, E83.43, E83.46, E83.48, E83.49, E83.5, E83.50, E83.51, E83.52, E83.53, E83.54, E83.56, E83.58, E83.59, E83.6, E83.60, E83.7, E83.71, E83.72, E83.78, E83.79, E83.8, E83.80, E83.81, E83.82, E83.84, E83.85, E83.86, E83.88, E83.89, E83.9, E85, E85.0, E85.00, E85.01, E85.02, E85.03, E85.04, E85.05, E85.06, E85.07, E85.08, E85.09, E85.1, E85.2, E85.20, E85.22, E85.25, E85.28, E85.29, E85.3, E85.30, E85.31, E85.32, E85.38, E85.39, E85.4, E85.40, E85.41, E85.42, E85.43, E85.48, E85.5, E85.50, E85.51, E85.52, E85.53, E85.54, E85.55, E85.56, E85.58, E85.59, E85.6,		

179

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			E85.7, E85.8, E85.80, E85.81, E85.82, E85.83, E85.84, E85.85, E85.86, E85.87, E85.88, E85.89, E85.9, E88, E88.0, E88.00, E88.01, E88.09, E88.3, E88.30, E88.31, E88.32, E88.39, E88.4, E88.40, E88.41, E88.42, E88.43, E88.44, E88.45, E88.46, E88.49, E88.5, E88.50, E88.51, E88.52, E88.53, E88.54, E88.59, E88.6, E88.60, E88.69, E88.7, E88.8, E88.80, E88.81, E88.88, E88.89, E88.9, E89.1, E89.10, E89.11, E89.12, E89.13, E89.18, E89.19, E89.2, E89.3, E89.30, E89.32, E89.38, E89.39, E89.5, E89.6, E90, E90.0, E90.1, E90.2, E90.3, E90.4, E90.5, E90.6, E90.7, E90.8, E90.9, E91, E91.0, E91.1, E91.2, E91.3, E91.4, E91.5, E91.6, E91.7, E91.8, E91.9, E92, E92.0, E92.1, E92.2, E92.3, E92.4, E92.5, E92.6, E92.7, E92.8, E92.9, E93, E93.0, E93.1, E93.2, E93.3, E93.4, E93.5, E93.6, E93.7, E93.8, E93.9, E94, E94.0, E94.1, E94.2, E94.3, E94.4, E94.5, E94.6, E94.7, E94.8, E94.9, E95, E95.0, E95.1, E95.2, E95.3, E95.4, E95.5, E95.6, E95.7, E95.8, E95.9, E96, E96.0, E96.1, E96.2, E96.3, E96.5, E96.6, E96.7, E96.8, E96.9, E97, E97.0, E97.1, E97.3, E97.4, E97.5, E97.6, E97.7, E97.8, E97.9, E98, E98.0, E98.1, E98.2, E98.3, E98.4, E98.5, E98.6, E98.7, E98.8, E98.9, E99, E99.0, E99.1, E99.3, E99.5, E99.6, E99.7, E99.8, E99.9, I88.0, I88.1, I88.8, I88.9, N98.1, Z83.4, Z83.41, Z83.49, Z86.2, E89, E89.0, E89.00, E89.01, E89.02, E89.03, E89.08, E89.09, E89.4, E89.40, E89.41, E89.7, E89.8, E89.80,		

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			E89.81, E89.810, E89.811, E89.89, E89.9		
B.8.8	Acute renal failure	584, 584.0, 584.5, 584.6, 584.7, 584.8, 584.9, 586, 586.0, 586.9	N17.0, N17.8, N17.9, N19	both	0-85

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
B.9.1	Rheumatoid arthritis	714, 714.0, 714.1, 714.2, 714.3, 714.30, 714.31, 714.32, 714.33, 714.4, 714.8, 714.81, 714.89, 714.9	M05, M05.0, M05.00, M05.01, M05.011, M05.012, M05.019, M05.02, M05.021, M05.022, M05.029, M05.03, M05.031, M05.032, M05.039, M05.04, M05.041, M05.042, M05.049, M05.05, M05.051, M05.052, M05.059, M05.06, M05.061, M05.062, M05.069, M05.07, M05.071, M05.072, M05.079, M05.09, M05.1, M05.10, M05.11, M05.111, M05.112, M05.119, M05.12, M05.121, M05.122, M05.129, M05.13, M05.131, M05.132, M05.139, M05.14, M05.141, M05.142, M05.149, M05.15, M05.151, M05.152, M05.159, M05.16, M05.161, M05.162, M05.169, M05.17, M05.171, M05.172, M05.179, M05.19, M05.2, M05.20, M05.21, M05.211, M05.212, M05.219, M05.22, M05.221, M05.222, M05.229, M05.23, M05.231, M05.232, M05.239, M05.24, M05.241, M05.242, M05.249, M05.25, M05.251, M05.252, M05.259, M05.26, M05.261, M05.262, M05.269, M05.27, M05.271, M05.272, M05.279, M05.29, M05.3, M05.30, M05.31, M05.311, M05.312, M05.319, M05.32, M05.321, M05.322, M05.329, M05.33, M05.331, M05.332, M05.339, M05.34, M05.341, M05.342, M05.349, M05.35, M05.351, M05.352, M05.359, M05.36, M05.361, M05.362, M05.369, M05.37, M05.371, M05.372, M05.379, M05.39, M05.4, M05.40, M05.41, M05.411, M05.412, M05.419,	both	5-85

182

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			M05.42, M05.421, M05.422, M05.429, M05.43, M05.431, M05.432, M05.439, M05.44, M05.441, M05.442, M05.449, M05.45, M05.451, M05.452, M05.459, M05.46, M05.461, M05.462, M05.469, M05.47, M05.471, M05.472, M05.479, M05.49, M05.5, M05.50, M05.51, M05.511, M05.512, M05.519, M05.52, M05.521, M05.522, M05.529, M05.53, M05.531, M05.532, M05.539, M05.54, M05.541, M05.542, M05.549, M05.55, M05.551, M05.552, M05.559, M05.56, M05.561, M05.562, M05.569, M05.57, M05.571, M05.572, M05.579, M05.59, M05.6, M05.60, M05.61, M05.611, M05.612, M05.619, M05.62, M05.621, M05.622, M05.629, M05.63, M05.631, M05.632, M05.639, M05.64, M05.641, M05.642, M05.649, M05.65, M05.651, M05.652, M05.659, M05.66, M05.661, M05.662, M05.669, M05.67, M05.671, M05.672, M05.679, M05.69, M05.7, M05.70, M05.71, M05.711, M05.712, M05.719, M05.72, M05.721, M05.722, M05.729, M05.73, M05.731, M05.732, M05.739, M05.74, M05.741, M05.742, M05.749, M05.75, M05.751, M05.752, M05.759, M05.76, M05.761, M05.762, M05.769, M05.77, M05.771, M05.772, M05.779, M05.79, M05.8, M05.80, M05.81, M05.811, M05.812, M05.819, M05.82, M05.821, M05.822, M05.829, M05.83, M05.831,		

183

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			M05.832, M05.839, M05.84, M05.841, M05.842, M05.849, M05.85, M05.851, M05.852, M05.859, M05.86, M05.861, M05.862, M05.869, M05.87, M05.871, M05.872, M05.879, M05.89, M05.9, M06.1, M06.4, M06.9, M08, M08.0, M08.00, M08.01, M08.011, M08.012, M08.019, M08.02, M08.021, M08.022, M08.029, M08.03, M08.031, M08.032, M08.039, M08.04, M08.041, M08.042, M08.049, M08.05, M08.051, M08.052, M08.059, M08.06, M08.061, M08.062, M08.069, M08.07, M08.071, M08.072, M08.079, M08.08, M08.09, M08.2, M08.20, M08.21, M08.211, M08.212, M08.219, M08.22, M08.221, M08.222, M08.229, M08.23, M08.231, M08.232, M08.239, M08.24, M08.241, M08.242, M08.249, M08.25, M08.251, M08.252, M08.259, M08.26, M08.261, M08.262, M08.269, M08.27, M08.271, M08.272, M08.279, M08.28, M08.29, M08.3, M08.4, M08.40, M08.41, M08.411, M08.412, M08.419, M08.42, M08.421, M08.422, M08.429, M08.43, M08.431, M08.432, M08.439, M08.44, M08.441, M08.442, M08.449, M08.45, M08.451, M08.452, M08.459, M08.46, M08.461, M08.462, M08.469, M08.47, M08.471, M08.472, M08.479, M08.48, M08.8, M08.80, M08.81, M08.811, M08.812, M08.819, M08.82, M08.821, M08.822, M08.829, M08.83,		

184

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			M08.831, M08.832, M08.839, M08.84, M08.841, M08.842, M08.849, M08.85, M08.851, M08.852, M08.859, M08.86, M08.861, M08.862, M08.869, M08.87, M08.871, M08.872, M08.879, M08.88, M08.89, M08.9, M08.90, M08.91, M08.911, M08.912, M08.919, M08.92, M08.921, M08.922, M08.929, M08.93, M08.931, M08.932, M08.939, M08.94, M08.941, M08.942, M08.949, M08.95, M08.951, M08.952, M08.959, M08.96, M08.961, M08.962, M08.969, M08.97, M08.971, M08.972, M08.979, M08.98, M08.99, M09, M09.0, M09.1, M09.2, M09.8		

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
B.9.2	Low back and neck pain (1 of 2)	353.1, 353.2, 353.3, 353.4, 355.0, 720, 720.0, 720.1, 720.2, 720.8, 720.81, 720.89, 720.9, 721, 721.0, 721.1, 721.3, 721.42, 721.5, 721.6, 721.8, 721.9, 721.90, 721.91, 722, 722.0, 722.1, 722.10, 722.11, 722.2, 722.3, 722.30, 722.31, 722.32, 722.39, 722.4, 722.5, 722.51, 722.52, 722.6, 722.7, 722.70, 722.71, 722.72, 722.73, 722.8, 722.80, 722.81, 722.82, 722.83, 722.9, 722.90, 722.91, 722.92, 722.93, 723, 723.0, 723.1, 723.2, 723.3, 723.4, 723.5, 723.6, 723.7, 723.8, 723.9, 724, 724.0, 724.00, 724.01, 724.02, 724.03, 724.09, 724.1, 724.2, 724.3, 724.4, 724.5, 724.6, 724.7, 724.70, 724.71, 724.79, 724.8, 724.9, 737, 737.0, 737.1, 737.10, 737.11, 737.12, 737.19, 737.2, 737.20, 737.21, 737.22, 737.29, 737.3, 737.30, 737.31, 737.32, 737.33, 737.34, 737.39, 737.4, 737.40, 737.41, 737.42, 737.43, 737.8, 737.9	G54.1, G54.3, G54.4, M06, M06.0, M06.00, M06.01, M06.011, M06.012, M06.019, M06.02, M06.021, M06.022, M06.029, M06.03, M06.031, M06.032, M06.039, M06.04, M06.041, M06.042, M06.049, M06.05, M06.051, M06.052, M06.059, M06.06, M06.061, M06.062, M06.069, M06.07, M06.071, M06.072, M06.079, M06.08, M06.09, M06.2, M06.20, M06.21, M06.211, M06.212, M06.219, M06.22, M06.221, M06.222, M06.229, M06.23, M06.231, M06.232, M06.239, M06.24, M06.241, M06.242, M06.249, M06.25, M06.251, M06.252, M06.259, M06.26, M06.261, M06.262, M06.269, M06.27, M06.271, M06.272, M06.279, M06.28, M06.29, M06.3, M06.30, M06.31, M06.311, M06.312, M06.319, M06.32, M06.321, M06.322, M06.329, M06.33, M06.331, M06.332, M06.339, M06.34, M06.341, M06.342, M06.349, M06.35, M06.351, M06.352, M06.359, M06.36, M06.361, M06.362, M06.369, M06.37, M06.371, M06.372, M06.379, M06.38, M06.39, M06.8, M06.80, M06.81, M06.811, M06.812, M06.819, M06.82, M06.821, M06.822, M06.829, M06.83, M06.831, M06.832, M06.839, M06.84, M06.841, M06.842, M06.849, M06.85, M06.851, M06.852, M06.859, M06.86, M06.861, M06.862, M06.869, M06.87, M06.871, M06.872, M06.879, M06.88,	both	5-85

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			M06.89, M07, M07.0, M07.1, M07.2, M07.3, M07.4, M07.5, M07.6, M07.60, M07.61, M07.611, M07.612, M07.619, M07.62, M07.621, M07.622, M07.629, M07.63, M07.631, M07.632, M07.639, M07.64, M07.641, M07.642, M07.649, M07.65, M07.651, M07.652, M07.659, M07.66, M07.661, M07.662, M07.669, M07.67, M07.671, M07.672, M07.679, M07.68, M07.69, M08.1, M11, M11.0, M11.00, M11.01, M11.011, M11.012, M11.019, M11.02, M11.021, M11.022, M11.029, M11.03, M11.031, M11.032, M11.039, M11.04, M11.041, M11.042, M11.049, M11.05, M11.051, M11.052, M11.059, M11.06, M11.061, M11.062, M11.069, M11.07, M11.071, M11.072, M11.079, M11.08, M11.09, M11.1, M11.10, M11.11, M11.111, M11.112, M11.119, M11.12, M11.121, M11.122, M11.129, M11.13, M11.131, M11.132, M11.139, M11.14, M11.141, M11.142, M11.149, M11.15, M11.151, M11.152, M11.159, M11.16, M11.161, M11.162, M11.169, M11.17, M11.171, M11.172, M11.179, M11.18, M11.19, M11.2, M11.20, M11.21, M11.211, M11.212, M11.219, M11.22, M11.221, M11.222, M11.229, M11.23, M11.231, M11.232, M11.239, M11.24, M11.241, M11.242, M11.249, M11.25, M11.251, M11.252, M11.259, M11.26, M11.261, M11.262, M11.269,		

187

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			M11.27, M11.271, M11.272, M11.279, M11.28, M11.29, M11.8, M11.80, M11.81, M11.811, M11.812, M11.819, M11.82, M11.821, M11.822, M11.829, M11.83, M11.831, M11.832, M11.839, M11.84, M11.841, M11.842, M11.849, M11.85, M11.851, M11.852, M11.859, M11.86, M11.861, M11.862, M11.869, M11.87, M11.871, M11.872, M11.879, M11.88, M11.89, M12.1, M12.10, M12.11, M12.111, M12.112, M12.119, M12.12, M12.121, M12.122, M12.129, M12.13, M12.131, M12.132, M12.139, M12.14, M12.141, M12.142, M12.149, M12.15, M12.151, M12.152, M12.159, M12.16, M12.161, M12.162, M12.169, M12.17, M12.171, M12.172, M12.179, M12.18, M12.19, M12.2, M12.20, M12.21, M12.211, M12.212, M12.219, M12.22, M12.221, M12.222, M12.229, M12.23, M12.231, M12.232, M12.239, M12.24, M12.241, M12.242, M12.249, M12.25, M12.251, M12.252, M12.259, M12.26, M12.261, M12.262, M12.269, M12.27, M12.271, M12.272, M12.279, M12.28, M12.29, M12.3, M12.30, M12.31, M12.311, M12.312, M12.319, M12.32, M12.321, M12.322, M12.329, M12.33, M12.331, M12.332, M12.339, M12.34, M12.341, M12.342, M12.349, M12.35, M12.351, M12.352, M12.359, M12.36, M12.361, M12.362, M12.369, M12.37, M12.371,		

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			M12.372, M12.379, M12.38, M12.39, M12.4, M12.40, M12.41, M12.411, M12.412, M12.419, M12.42, M12.421, M12.422, M12.429, M12.43, M12.431, M12.432, M12.439, M12.44, M12.441, M12.442, M12.449, M12.45, M12.451, M12.452, M12.459, M12.46, M12.461, M12.462, M12.469, M12.47, M12.471, M12.472, M12.479, M12.48, M12.49, M12.5, M12.50, M12.51, M12.511, M12.512, M12.519, M12.52, M12.521, M12.522, M12.529, M12.53, M12.531, M12.532, M12.539, M12.54, M12.541, M12.542, M12.549, M12.55, M12.551, M12.552, M12.559, M12.56, M12.561, M12.562, M12.569, M12.57, M12.571, M12.572, M12.579, M12.58, M12.59, M12.8, M12.80, M12.81, M12.811, M12.812, M12.819, M12.82, M12.821, M12.822, M12.829, M12.83, M12.831, M12.832, M12.839, M12.84, M12.841, M12.842, M12.849, M12.85, M12.851, M12.852, M12.859, M12.86, M12.861, M12.862, M12.869, M12.87, M12.871, M12.872, M12.879, M12.88, M12.89, M13, M13.1, M13.10, M13.11, M13.111, M13.112, M13.119, M13.12, M13.121, M13.122, M13.129, M13.13, M13.131, M13.132, M13.139, M13.14, M13.141, M13.142, M13.149, M13.15, M13.151, M13.152, M13.159, M13.16, M13.161, M13.162, M13.169, M13.17, M13.171, M13.172,		

189

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			M13.179, M13.8, M13.80, M13.81, M13.811, M13.812, M13.819, M13.82, M13.821, M13.822, M13.829, M13.83, M13.831, M13.832, M13.839, M13.84, M13.841, M13.842, M13.849, M13.85, M13.851, M13.852, M13.859, M13.86, M13.861, M13.862, M13.869, M13.87, M13.871, M13.872, M13.879, M13.88, M13.89, M13.9, M14, M14.0, M14.1, M14.2, M14.3, M14.4, M14.5, M14.6, M14.60, M14.61, M14.611, M14.612, M14.619, M14.62, M14.621, M14.622, M14.629, M14.63, M14.631, M14.632, M14.639, M14.64, M14.641, M14.642, M14.649, M14.65, M14.651, M14.652, M14.659, M14.66, M14.661, M14.662, M14.669, M14.67, M14.671, M14.672, M14.679, M14.68, M14.69, M14.8, M14.80, M14.81, M14.811, M14.812, M14.819, M14.82, M14.821, M14.822, M14.829, M14.83, M14.831, M14.832, M14.839, M14.84, M14.841, M14.842, M14.849, M14.85, M14.851, M14.852, M14.859, M14.86, M14.861, M14.862, M14.869, M14.87, M14.871, M14.872, M14.879, M14.88, M14.89, M15, M19, M19.0, M19.01, M19.011, M19.012, M19.019, M19.02, M19.021, M19.022, M19.029, M19.03, M19.031, M19.032, M19.039, M19.04, M19.041, M19.042, M19.049, M19.07, M19.071, M19.072, M19.079, M19.1, M19.11, M19.111, M19.112, M19.119, M19.12,		

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			M19.121, M19.122, M19.129, M19.13, M19.131, M19.132, M19.139, M19.14, M19.141, M19.142, M19.149, M19.17, M19.171, M19.172, M19.179, M19.2, M19.21, M19.211, M19.212, M19.219, M19.22, M19.221, M19.222, M19.229, M19.23, M19.231, M19.232, M19.239, M19.24, M19.241, M19.242, M19.249, M19.27, M19.271, M19.272, M19.279, M19.8, M19.9, M19.90, M19.91, M19.92, M19.93, M20, M20.0, M20.00, M20.001, M20.002, M20.009, M20.01, M20.011, M20.012, M20.019, M20.02, M20.021, M20.022, M20.029, M20.03, M20.031, M20.032, M20.039, M20.09, M20.091, M20.092, M20.099, M20.1, M20.10, M20.11, M20.12, M20.2, M20.20, M20.21, M20.22, M20.3, M20.30, M20.31, M20.32, M20.4, M20.40, M20.41, M20.42, M20.5, M20.6, M20.60, M20.61, M20.62, M21, M21.0, M21.00, M21.02, M21.021, M21.022, M21.029, M21.05, M21.051, M21.052, M21.059, M21.06, M21.061, M21.062, M21.069, M21.07, M21.071, M21.072, M21.079, M21.1, M21.10, M21.12, M21.121, M21.122, M21.129, M21.15, M21.151, M21.152, M21.159, M21.16, M21.161, M21.162, M21.169, M21.17, M21.171, M21.172, M21.179, M21.2, M21.20, M21.21, M21.211, M21.212, M21.219, M21.22, M21.221, M21.222, M21.229, M21.23, M21.231, M21.232, M21.239, M21.24, M21.241,		

191

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			M21.242, M21.249, M21.25, M21.251, M21.252, M21.259, M21.26, M21.261, M21.262, M21.269, M21.27, M21.271, M21.272, M21.279, M21.3, M21.33, M21.331, M21.332, M21.339, M21.37, M21.371, M21.372, M21.379, M21.4, M21.40, M21.41, M21.42, M21.5, M21.51, M21.511, M21.512, M21.519, M21.52, M21.521, M21.522, M21.529, M21.53, M21.531, M21.532, M21.539, M21.54, M21.541, M21.542, M21.549, M21.6, M21.7, M21.70, M21.72, M21.721, M21.722, M21.729, M21.73, M21.731, M21.732, M21.733, M21.734, M21.739, M21.75, M21.751, M21.752, M21.759, M21.76, M21.761, M21.762, M21.763, M21.764, M21.769, M21.8, M21.80, M21.82, M21.821, M21.822, M21.829, M21.83, M21.831, M21.832, M21.839, M21.85, M21.851, M21.852, M21.859, M21.86, M21.861, M21.862, M21.869, M21.9, M21.90, M21.92, M21.921, M21.922, M21.929, M21.93, M21.931, M21.932, M21.939, M21.94, M21.941, M21.942, M21.949, M21.95, M21.951, M21.952, M21.959, M21.96, M21.961, M21.962, M21.969, M22, M22.0, M22.00, M22.01, M22.02, M22.1, M22.10, M22.11, M22.12, M22.2, M22.3, M22.4, M22.40, M22.41, M22.42, M22.8, M22.9, M22.90, M22.91, M22.92, M23, M23.0, M23.00, M23.000, M23.001, M23.002, M23.003, M23.004, M23.005, M23.006, M23.007,		

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			M23.009, M23.01, M23.011, M23.012, M23.019, M23.02, M23.021, M23.022, M23.029, M23.03, M23.031, M23.032, M23.039, M23.04, M23.041, M23.042, M23.049, M23.05, M23.051, M23.052, M23.059, M23.06, M23.061, M23.062, M23.069, M23.1, M23.2, M23.20, M23.200, M23.201, M23.202, M23.203, M23.204, M23.205, M23.206, M23.207, M23.209, M23.21, M23.211, M23.212, M23.219, M23.22, M23.221, M23.222, M23.229, M23.23, M23.231, M23.232, M23.239, M23.24, M23.241, M23.242, M23.249, M23.25, M23.251, M23.252, M23.259, M23.26, M23.261, M23.262, M23.269, M23.3, M23.30, M23.300, M23.301, M23.302, M23.303, M23.304, M23.305, M23.306, M23.307, M23.309, M23.31, M23.311, M23.312, M23.319, M23.32, M23.321, M23.322, M23.329, M23.33, M23.331, M23.332, M23.339, M23.34, M23.341, M23.342, M23.349, M23.35, M23.351, M23.352, M23.359, M23.36, M23.361, M23.362, M23.369, M23.4, M23.40, M23.41, M23.42, M23.5, M23.50, M23.51, M23.52, M23.6, M23.60, M23.601, M23.602, M23.609, M23.61, M23.611, M23.612, M23.619, M23.62, M23.621, M23.622, M23.629, M23.63, M23.631, M23.632, M23.639, M23.64, M23.641, M23.642, M23.649, M23.67, M23.671, M23.672, M23.679, M23.8, M23.9, M23.90,		

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			M23.91, M23.92, M24, M24.0, M24.00, M24.01, M24.011, M24.012, M24.019, M24.02, M24.021, M24.022, M24.029, M24.03, M24.031, M24.032, M24.039, M24.04, M24.041, M24.042, M24.049, M24.05, M24.051, M24.052, M24.059, M24.07, M24.071, M24.072, M24.073, M24.074, M24.075, M24.076, M24.08, M24.1, M24.10, M24.11, M24.111, M24.112, M24.119, M24.12, M24.121, M24.122, M24.129, M24.13, M24.131, M24.132, M24.139, M24.14, M24.141, M24.142, M24.149, M24.15, M24.151, M24.152, M24.159, M24.17, M24.171, M24.172, M24.173, M24.174, M24.175, M24.176, M24.2, M24.20, M24.21, M24.211, M24.212, M24.219, M24.22, M24.221, M24.222, M24.229, M24.23, M24.231, M24.232, M24.239, M24.24, M24.241, M24.242, M24.249, M24.25, M24.251, M24.252, M24.259, M24.27, M24.271, M24.272, M24.273, M24.274, M24.275, M24.276, M24.28, M24.3, M24.30, M24.31, M24.311, M24.312, M24.319, M24.32, M24.321, M24.322, M24.329, M24.33, M24.331, M24.332, M24.339, M24.34, M24.341, M24.342, M24.349, M24.35, M24.351, M24.352, M24.359, M24.36, M24.361, M24.362, M24.369, M24.37, M24.371, M24.372, M24.373, M24.374, M24.375, M24.376, M24.4, M24.40, M24.41, M24.411, M24.412, M24.419,		

194

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			M24.42, M24.421, M24.422, M24.429, M24.43, M24.431, M24.432, M24.439, M24.44, M24.441, M24.442, M24.443, M24.444, M24.445, M24.446, M24.45, M24.451, M24.452, M24.459, M24.46, M24.461, M24.462, M24.469, M24.47, M24.471, M24.472, M24.473, M24.474, M24.475, M24.476, M24.477, M24.478, M24.479, M24.5, M24.50, M24.51, M24.511, M24.512, M24.519, M24.52, M24.521, M24.522, M24.529, M24.53, M24.531, M24.532, M24.539, M24.54, M24.541, M24.542, M24.549, M24.55, M24.551, M24.552, M24.559, M24.56, M24.561, M24.562, M24.569, M24.57, M24.571, M24.572, M24.573, M24.574, M24.575, M24.576, M24.6, M24.60, M24.61, M24.611, M24.612, M24.619, M24.62, M24.621, M24.622, M24.629, M24.63, M24.631, M24.632, M24.639, M24.64, M24.641, M24.642, M24.649, M24.65, M24.651, M24.652, M24.659, M24.66, M24.661, M24.662, M24.669, M24.67, M24.671, M24.672, M24.673, M24.674, M24.675, M24.676, M24.8, M24.80, M24.81, M24.811, M24.812, M24.819, M24.82, M24.821, M24.822, M24.829, M24.83, M24.831, M24.832, M24.839, M24.84, M24.841, M24.842, M24.849, M24.85, M24.851, M24.852, M24.859, M24.87, M24.871, M24.872, M24.873, M24.874, M24.875, M24.876, M25, M25.0,		

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			M25.00, M25.01, M25.011, M25.012, M25.019, M25.02, M25.021, M25.022, M25.029, M25.03, M25.031, M25.032, M25.039, M25.04, M25.041, M25.042, M25.049, M25.05, M25.051, M25.052, M25.059, M25.06, M25.061, M25.062, M25.069, M25.07, M25.071, M25.072, M25.073, M25.074, M25.075, M25.076, M25.08, M25.1, M25.10, M25.11, M25.111, M25.112, M25.119, M25.12, M25.121, M25.122, M25.129, M25.13, M25.131, M25.132, M25.139, M25.14, M25.141, M25.142, M25.149, M25.15, M25.151, M25.152, M25.159, M25.16, M25.161, M25.162, M25.169, M25.17, M25.171, M25.172, M25.173, M25.174, M25.175, M25.176, M25.18, M25.2, M25.20, M25.21, M25.211, M25.212, M25.219, M25.22, M25.221, M25.222, M25.229, M25.23, M25.231, M25.232, M25.239, M25.24, M25.241, M25.242, M25.249, M25.25, M25.251, M25.252, M25.259, M25.26, M25.261, M25.262, M25.269, M25.27, M25.271, M25.272, M25.279, M25.28, M25.3, M25.30, M25.31, M25.311, M25.312, M25.319, M25.32, M25.321, M25.322, M25.329, M25.33, M25.331, M25.332, M25.339, M25.34, M25.341, M25.342, M25.349, M25.35, M25.351, M25.352, M25.359, M25.36, M25.361, M25.362, M25.369, M25.37, M25.371, M25.372, M25.373, M25.374,		

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			M25.375, M25.376, M25.4, M25.40, M25.41, M25.411, M25.412, M25.419, M25.42, M25.421, M25.422, M25.429, M25.43, M25.431, M25.432, M25.439, M25.44, M25.441, M25.442, M25.449, M25.45, M25.451, M25.452, M25.459, M25.46, M25.461, M25.462, M25.469, M25.47, M25.471, M25.472, M25.473, M25.474, M25.475, M25.476, M25.48, M25.5, M25.50, M25.51, M25.511, M25.512, M25.519, M25.52, M25.521, M25.522, M25.529, M25.53, M25.531, M25.532, M25.539, M25.55, M25.551, M25.552, M25.559, M25.56, M25.561, M25.562, M25.569, M25.57, M25.571, M25.572, M25.579, M25.6, M25.60, M25.61, M25.611, M25.612, M25.619, M25.62, M25.621, M25.622, M25.629, M25.63, M25.631, M25.632, M25.639, M25.64, M25.641, M25.642, M25.649, M25.65, M25.651, M25.652, M25.659, M25.66, M25.661, M25.662, M25.669, M25.67, M25.671, M25.672, M25.673, M25.674, M25.675, M25.676, M25.7, M25.70, M25.71, M25.711, M25.712, M25.719, M25.72, M25.721, M25.722, M25.729, M25.73, M25.731, M25.732, M25.739, M25.74, M25.741, M25.742, M25.749, M25.75, M25.751, M25.752, M25.759, M25.76, M25.761, M25.762, M25.769, M25.77, M25.771, M25.772, M25.773, M25.774, M25.775, M25.776, M25.78, M25.8, M25.80,		

197

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			M25.81, M25.811, M25.812, M25.819, M25.82, M25.821, M25.822, M25.829, M25.83, M25.831, M25.832, M25.839, M25.84, M25.841, M25.842, M25.849, M25.85, M25.851, M25.852, M25.859, M25.86, M25.861, M25.862, M25.869, M25.87, M25.871, M25.872, M25.879, M30, M31, M31.3, M31.30, M31.31, M34, M34.8, M34.81, M34.82, M34.83, M34.89, M35, M35.0, M35.00, M35.01, M35.02, M35.03, M35.04, M35.09, M36, M40, M40.0, M40.00, M40.03, M40.04, M40.05, M40.1, M40.10, M40.12, M40.13, M40.14, M40.15, M40.2, M40.20, M40.202, M40.203, M40.204, M40.205, M40.209, M40.29, M40.292, M40.293, M40.294, M40.295, M40.299, M40.3, M40.30, M40.35, M40.36, M40.37, M40.4, M40.40, M40.45, M40.46, M40.47, M40.5, M40.50, M40.55, M40.56, M40.57, M41, M41.0, M41.00, M41.02, M41.03, M41.04, M41.05, M41.06, M41.07, M41.08, M41.1, M41.11, M41.112, M41.113, M41.114, M41.115, M41.116, M41.117, M41.119, M41.12, M41.122, M41.123, M41.124, M41.125, M41.126, M41.127, M41.129, M41.2, M41.20, M41.22, M41.23, M41.24, M41.25, M41.26, M41.27, M41.3, M41.30, M41.34, M41.35, M41.4, M41.40, M41.41, M41.42, M41.43, M41.44, M41.45, M41.46, M41.47, M41.5, M41.50, M41.52, M41.53, M41.54, M41.55, M41.56, M41.57, M41.8, M41.80, M41.82, M41.83, M41.84, M41.85, M41.86, M41.87, M41.9,		

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			M42, M42.0, M42.00, M42.01, M42.02, M42.03, M42.04, M42.05, M42.06, M42.07, M42.08, M42.09, M42.1, M42.10, M42.11, M42.12, M42.13, M42.14, M42.15, M42.16, M42.17, M42.18, M42.19, M43, M43.0, M43.00, M43.01, M43.02, M43.03, M43.04, M43.05, M43.06, M43.07, M43.08, M43.09, M43.1, M43.10, M43.11, M43.12, M43.13, M43.14, M43.15, M43.16, M43.17, M43.18, M43.19, M43.2, M43.20, M43.21, M43.22, M43.23, M43.24, M43.25, M43.26, M43.27, M43.28, M43.5, M43.8, M43.9, M45, M45.0, M45.1, M45.2, M45.3, M45.4, M45.5, M45.6, M45.7, M45.8, M45.9, M46, M46.0, M46.00, M46.01, M46.02, M46.03, M46.04, M46.05, M46.06, M46.07, M46.08, M46.09, M46.1, M46.2, M46.20, M46.21, M46.22, M46.23, M46.24, M46.25, M46.26, M46.27, M46.28, M46.3, M46.30, M46.31, M46.32, M46.33, M46.34, M46.35, M46.36, M46.37, M46.38, M46.39, M46.4, M46.40, M46.44, M46.45, M46.46, M46.47, M46.48, M46.49, M46.5, M46.50, M46.51, M46.52, M46.53, M46.54, M46.55, M46.56, M46.57, M46.58, M46.59, M46.8, M46.80, M46.81, M46.82, M46.83, M46.84, M46.85, M46.86, M46.87, M46.88, M46.89, M46.9, M46.90, M46.91, M46.92, M46.93, M46.94, M46.95, M46.96, M46.97, M46.98, M46.99, M47, M47.0, M47.01, M47.02, M47.1, M47.10, M47.11, M47.12, M47.13, M47.14, M47.15, M47.16, M47.17, M47.18, M47.2, M47.20, M47.21, M47.22, M47.23, M47.24, M47.25, M47.26, M47.27, M47.28,		

199

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			M47.8, M47.81, M47.811, M47.812, M47.813, M47.814, M47.815, M47.816, M47.817, M47.818, M47.819, M47.89, M47.891, M47.892, M47.893, M47.894, M47.895, M47.896, M47.897, M47.898, M47.899, M47.9, M48, M48.0, M48.00, M48.04, M48.05, M48.06, M48.07, M48.08, M48.1, M48.10, M48.11, M48.12, M48.13, M48.14, M48.15, M48.16, M48.17, M48.18, M48.19, M48.2, M48.20, M48.21, M48.22, M48.23, M48.24, M48.25, M48.26, M48.27, M48.3, M48.30, M48.31, M48.32, M48.33, M48.34, M48.35, M48.36, M48.37, M48.38, M48.4, M48.40, M48.44, M48.45, M48.46, M48.47, M48.48, M48.5, M48.50, M48.54, M48.55, M48.56, M48.57, M48.58, M48.8, M48.9, M49, M49.2, M49.3, M49.4, M49.5, M49.8, M49.80, M49.81, M49.82, M49.83, M49.84, M49.85, M49.86, M49.87, M49.88, M49.89, M51, M51.0, M51.04, M51.05, M51.06, M51.07, M51.1, M51.14, M51.15, M51.16, M51.17, M51.2, M51.24, M51.25, M51.26, M51.27, M51.3, M51.34, M51.35, M51.36, M51.37, M51.4, M51.44, M51.45, M51.46, M51.47, M51.8, M51.84, M51.85, M51.86, M51.87, M51.9, M53, M53.2, M53.3, M53.8, M53.80, M53.84, M53.85, M53.86, M53.87, M53.88, M53.9, M54, M54.0, M54.03, M54.04, M54.05, M54.06, M54.07, M54.08, M54.09, M54.1, M54.10, M54.11, M54.12, M54.13, M54.14, M54.15, M54.16, M54.17, M54.18, M54.3, M54.30, M54.31, M54.32, M54.4, M54.40, M54.41, M54.42, M54.5, M54.6,		

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			M54.8, M54.89, M54.9, M61, M61.0, M61.00, M61.01, M61.011, M61.012, M61.019, M61.02, M61.021, M61.022, M61.029, M61.03, M61.031, M61.032, M61.039, M61.04, M61.041, M61.042, M61.049, M61.05, M61.051, M61.052, M61.059, M61.06, M61.061, M61.062, M61.069, M61.07, M61.071, M61.072, M61.079, M61.08, M61.09, M61.1, M61.10, M61.11, M61.111, M61.112, M61.119, M61.12, M61.121, M61.122, M61.129, M61.13, M61.131, M61.132, M61.139, M61.14, M61.141, M61.142, M61.143, M61.144, M61.145, M61.146, M61.15, M61.151, M61.152, M61.159, M61.16, M61.161, M61.162, M61.169, M61.17, M61.171, M61.172, M61.173, M61.174, M61.175, M61.176, M61.177, M61.178, M61.179, M61.18, M61.19, M61.2, M61.20, M61.21, M61.211, M61.212, M61.219, M61.22, M61.221, M61.222, M61.229, M61.23, M61.231, M61.232, M61.239, M61.24, M61.241, M61.242, M61.249, M61.25, M61.251, M61.252, M61.259, M61.26, M61.261, M61.262, M61.269, M61.27, M61.271, M61.272, M61.279, M61.28, M61.29, M61.3, M61.30, M61.31, M61.311, M61.312, M61.319, M61.32, M61.321, M61.322, M61.329, M61.33, M61.331, M61.332, M61.339, M61.34, M61.341, M61.342, M61.349, M61.35, M61.351, M61.352, M61.359,		

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			M61.36, M61.361, M61.362, M61.369, M61.37, M61.371, M61.372, M61.379, M61.38, M61.39, M61.4, M61.40, M61.41, M61.411, M61.412, M61.419, M61.42, M61.421, M61.422, M61.429, M61.43, M61.431, M61.432, M61.439, M61.44, M61.441, M61.442, M61.449, M61.45, M61.451, M61.452, M61.459, M61.46, M61.461, M61.462, M61.469, M61.47, M61.471, M61.472, M61.479, M61.48, M61.49, M61.5, M61.50, M61.51, M61.511, M61.512, M61.519, M61.52, M61.521, M61.522, M61.529, M61.53, M61.531, M61.532, M61.539, M61.54, M61.541, M61.542, M61.549, M61.55, M61.551, M61.552, M61.559, M61.56, M61.561, M61.562, M61.569, M61.57, M61.571, M61.572, M61.579, M61.58, M61.59, M62, M62.0, M62.00, M62.01, M62.011, M62.012, M62.019, M62.02, M62.021, M62.022, M62.029, M62.03, M62.031, M62.032, M62.039, M62.04, M62.041, M62.042, M62.049, M62.05, M62.051, M62.052, M62.059, M62.06, M62.061, M62.062, M62.069, M62.07, M62.071, M62.072, M62.079, M62.08, M62.1, M62.10, M62.11, M62.111, M62.112, M62.119, M62.12, M62.121, M62.122, M62.129, M62.13, M62.131, M62.132, M62.139, M62.14, M62.141, M62.142, M62.149, M62.15, M62.151, M62.152, M62.159, M62.16, M62.161, M62.162,		

202

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			M62.169, M62.17, M62.171, M62.172, M62.179, M62.18, M62.2, M62.20, M62.21, M62.211, M62.212, M62.219, M62.22, M62.221, M62.222, M62.229, M62.23, M62.231, M62.232, M62.239, M62.24, M62.241, M62.242, M62.249, M62.25, M62.251, M62.252, M62.259, M62.26, M62.261, M62.262, M62.269, M62.27, M62.271, M62.272, M62.279, M62.28, M62.4, M62.40, M62.41, M62.411, M62.412, M62.419, M62.42, M62.421, M62.422, M62.429, M62.43, M62.431, M62.432, M62.439, M62.44, M62.441, M62.442, M62.449, M62.45, M62.451, M62.452, M62.459, M62.46, M62.461, M62.462, M62.469, M62.47, M62.471, M62.472, M62.479, M62.48, M62.49, M62.5, M62.50, M62.51, M62.511, M62.512, M62.519, M62.52, M62.521, M62.522, M62.529, M62.53, M62.531, M62.532, M62.539, M62.54		

203

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
B.9.2	Low back and neck pain (2 of 2)	n/a	M62.541, M62.542, M62.549, M62.55, M62.551, M62.552, M62.559, M62.56, M62.561, M62.562, M62.569, M62.57, M62.571, M62.572, M62.579, M62.58, M62.59, M62.6, M62.8, M62.81, M62.82, M62.83, M62.830, M62.831, M62.838, M62.89, M63, M63.0, M63.1, M63.2, M63.3, M63.8, M63.80, M63.81, M63.811, M63.812, M63.819, M63.82, M63.821, M63.822, M63.829, M63.83, M63.831, M63.832, M63.839, M63.84, M63.841, M63.842, M63.849, M63.85, M63.851, M63.852, M63.859, M63.86, M63.861, M63.862, M63.869, M63.87, M63.871, M63.872, M63.879, M63.88, M63.89, M65, M65.0, M65.00, M65.01, M65.011, M65.012, M65.019, M65.02, M65.021, M65.022, M65.029, M65.03, M65.031, M65.032, M65.039, M65.04, M65.041, M65.042, M65.049, M65.05, M65.051, M65.052, M65.059, M65.06, M65.061, M65.062, M65.069, M65.07, M65.071, M65.072, M65.079, M65.08, M65.1, M65.10, M65.11, M65.111, M65.112, M65.119, M65.12, M65.121, M65.122, M65.129, M65.13, M65.131, M65.132, M65.139, M65.14, M65.141, M65.142, M65.149, M65.15, M65.151, M65.152, M65.159, M65.16, M65.161, M65.162, M65.169, M65.17, M65.171, M65.172, M65.179, M65.18, M65.19, M65.2, M65.20, M65.22, M65.221, M65.222, M65.229, M65.23,	both	5-85

204

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			M65.231, M65.232, M65.239, M65.24, M65.241, M65.242, M65.249, M65.25, M65.251, M65.252, M65.259, M65.26, M65.261, M65.262, M65.269, M65.27, M65.271, M65.272, M65.279, M65.28, M65.29, M65.3, M65.30, M65.31, M65.311, M65.312, M65.319, M65.32, M65.321, M65.322, M65.329, M65.33, M65.331, M65.332, M65.339, M65.34, M65.341, M65.342, M65.349, M65.35, M65.351, M65.352, M65.359, M65.8, M65.80, M65.81, M65.811, M65.812, M65.819, M65.82, M65.821, M65.822, M65.829, M65.83, M65.831, M65.832, M65.839, M65.84, M65.841, M65.842, M65.849, M65.85, M65.851, M65.852, M65.859, M65.86, M65.861, M65.862, M65.869, M65.87, M65.871, M65.872, M65.879, M65.88, M65.89, M66, M66.1, M66.10, M66.11, M66.111, M66.112, M66.119, M66.12, M66.121, M66.122, M66.129, M66.13, M66.131, M66.132, M66.139, M66.14, M66.141, M66.142, M66.143, M66.144, M66.145, M66.146, M66.15, M66.151, M66.152, M66.159, M66.17, M66.171, M66.172, M66.173, M66.174, M66.175, M66.176, M66.177, M66.178, M66.179, M66.18, M66.2, M66.20, M66.21, M66.211, M66.212, M66.219, M66.22, M66.221, M66.222, M66.229, M66.23, M66.231, M66.232, M66.239, M66.24, M66.241, M66.242, M66.249,		

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			M66.25, M66.251, M66.252, M66.259, M66.26, M66.261, M66.262, M66.269, M66.27, M66.271, M66.272, M66.279, M66.28, M66.29, M66.3, M66.30, M66.31, M66.311, M66.312, M66.319, M66.32, M66.321, M66.322, M66.329, M66.33, M66.331, M66.332, M66.339, M66.34, M66.341, M66.342, M66.349, M66.35, M66.351, M66.352, M66.359, M66.36, M66.361, M66.362, M66.369, M66.37, M66.371, M66.372, M66.379, M66.38, M66.39, M66.4, M66.5, M66.8, M66.80, M66.81, M66.811, M66.812, M66.819, M66.82, M66.821, M66.822, M66.829, M66.83, M66.831, M66.832, M66.839, M66.84, M66.841, M66.842, M66.849, M66.85, M66.851, M66.852, M66.859, M66.86, M66.861, M66.862, M66.869, M66.87, M66.871, M66.872, M66.879, M66.88, M66.89, M67, M67.0, M67.00, M67.01, M67.02, M67.1, M67.2, M67.20, M67.21, M67.211, M67.212, M67.219, M67.22, M67.221, M67.222, M67.229, M67.23, M67.231, M67.232, M67.239, M67.24, M67.241, M67.242, M67.249, M67.25, M67.251, M67.252, M67.259, M67.26, M67.261, M67.262, M67.269, M67.27, M67.271, M67.272, M67.279, M67.28, M67.29, M67.3, M67.30, M67.31, M67.311, M67.312, M67.319, M67.32, M67.321, M67.322, M67.329, M67.33, M67.331, M67.332, M67.339, M67.34,		

206

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			M67.341, M67.342, M67.349, M67.35, M67.351, M67.352, M67.359, M67.36, M67.361, M67.362, M67.369, M67.37, M67.371, M67.372, M67.379, M67.38, M67.39, M67.4, M67.40, M67.41, M67.411, M67.412, M67.419, M67.42, M67.421, M67.422, M67.429, M67.43, M67.431, M67.432, M67.439, M67.44, M67.441, M67.442, M67.449, M67.45, M67.451, M67.452, M67.459, M67.46, M67.461, M67.462, M67.469, M67.47, M67.471, M67.472, M67.479, M67.48, M67.49, M67.5, M67.50, M67.51, M67.52, M67.8, M67.80, M67.81, M67.811, M67.812, M67.813, M67.814, M67.819, M67.82, M67.821, M67.822, M67.823, M67.824, M67.829, M67.83, M67.831, M67.832, M67.833, M67.834, M67.839, M67.84, M67.841, M67.842, M67.843, M67.844, M67.849, M67.85, M67.851, M67.852, M67.853, M67.854, M67.859, M67.86, M67.861, M67.862, M67.863, M67.864, M67.869, M67.87, M67.871, M67.872, M67.873, M67.874, M67.879, M67.88, M67.89, M67.9, M67.90, M67.91, M67.911, M67.912, M67.919, M67.92, M67.921, M67.922, M67.929, M67.93, M67.931, M67.932, M67.939, M67.94, M67.941, M67.942, M67.949, M67.95, M67.951, M67.952, M67.959, M67.96, M67.961, M67.962, M67.969, M67.97, M67.971, M67.972, M67.979, M67.98,		

207

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			M67.99, M68, M68.0, M68.8, M70, M70.0, M70.03, M70.031, M70.032, M70.039, M70.04, M70.041, M70.042, M70.049, M70.1, M70.10, M70.11, M70.12, M70.2, M70.20, M70.21, M70.22, M70.3, M70.30, M70.31, M70.32, M70.4, M70.40, M70.41, M70.42, M70.5, M70.50, M70.51, M70.52, M70.6, M70.60, M70.61, M70.62, M70.7, M70.70, M70.71, M70.72, M70.8, M70.80, M70.81, M70.811, M70.812, M70.819, M70.82, M70.821, M70.822, M70.829, M70.83, M70.831, M70.832, M70.839, M70.84, M70.841, M70.842, M70.849, M70.85, M70.851, M70.852, M70.859, M70.86, M70.861, M70.862, M70.869, M70.87, M70.871, M70.872, M70.879, M70.88, M70.89, M70.9, M70.90, M70.91, M70.911, M70.912, M70.919, M70.92, M70.921, M70.922, M70.929, M70.93, M70.931, M70.932, M70.939, M70.94, M70.941, M70.942, M70.949, M70.95, M70.951, M70.952, M70.959, M70.96, M70.961, M70.962, M70.969, M70.97, M70.971, M70.972, M70.979, M70.98, M70.99, M71, M71.0, M71.00, M71.01, M71.011, M71.012, M71.019, M71.02, M71.021, M71.022, M71.029, M71.03, M71.031, M71.032, M71.039, M71.04, M71.041, M71.042, M71.049, M71.05, M71.051, M71.052, M71.059, M71.06, M71.061, M71.062, M71.069, M71.07, M71.071, M71.072, M71.079, M71.08, M71.09, M71.1,		

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			M71.10, M71.11, M71.111, M71.112, M71.119, M71.12, M71.121, M71.122, M71.129, M71.13, M71.131, M71.132, M71.139, M71.14, M71.141, M71.142, M71.149, M71.15, M71.151, M71.152, M71.159, M71.16, M71.161, M71.162, M71.169, M71.17, M71.171, M71.172, M71.179, M71.18, M71.19, M71.2, M71.20, M71.21, M71.22, M71.3, M71.30, M71.31, M71.311, M71.312, M71.319, M71.32, M71.321, M71.322, M71.329, M71.33, M71.331, M71.332, M71.339, M71.34, M71.341, M71.342, M71.349, M71.35, M71.351, M71.352, M71.359, M71.37, M71.371, M71.372, M71.379, M71.38, M71.39, M71.4, M71.40, M71.42, M71.421, M71.422, M71.429, M71.43, M71.431, M71.432, M71.439, M71.44, M71.441, M71.442, M71.449, M71.45, M71.451, M71.452, M71.459, M71.46, M71.461, M71.462, M71.469, M71.47, M71.471, M71.472, M71.479, M71.48, M71.49, M71.5, M71.50, M71.52, M71.521, M71.522, M71.529, M71.53, M71.531, M71.532, M71.539, M71.54, M71.541, M71.542, M71.549, M71.55, M71.551, M71.552, M71.559, M71.56, M71.561, M71.562, M71.569, M71.57, M71.571, M71.572, M71.579, M71.58, M71.8, M71.80, M71.81, M71.811, M71.812, M71.819, M71.82, M71.821, M71.822, M71.829, M71.83, M71.831, M71.832,		

209

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			M71.839, M71.84, M71.841, M71.842, M71.849, M71.85, M71.851, M71.852, M71.859, M71.86, M71.861, M71.862, M71.869, M71.87, M71.871, M71.872, M71.879, M71.88, M71.89, M72, M72.3, M73, M75, M75.0, M75.00, M75.01, M75.02, M75.1, M75.10, M75.100, M75.101, M75.102, M75.11, M75.110, M75.111, M75.112, M75.12, M75.120, M75.121, M75.122, M75.2, M75.20, M75.21, M75.22, M75.3, M75.30, M75.31, M75.32, M75.4, M75.40, M75.41, M75.42, M75.5, M75.50, M75.51, M75.52, M75.8, M75.80, M75.81, M75.82, M75.9, M75.90, M75.91, M75.92, M76, M76.0, M76.00, M76.01, M76.02, M76.1, M76.10, M76.11, M76.12, M76.2, M76.20, M76.21, M76.22, M76.3, M76.30, M76.31, M76.32, M76.4, M76.40, M76.41, M76.42, M76.5, M76.50, M76.51, M76.52, M76.6, M76.60, M76.61, M76.62, M76.7, M76.70, M76.71, M76.72, M76.8, M76.81, M76.811, M76.812, M76.819, M76.82, M76.821, M76.822, M76.829, M76.89, M76.891, M76.892, M76.899, M77, M77.0, M77.00, M77.01, M77.02, M77.1, M77.10, M77.11, M77.12, M77.2, M77.20, M77.21, M77.22, M77.3, M77.30, M77.31, M77.32, M77.4, M77.40, M77.41, M77.42, M77.5, M77.50, M77.51, M77.52, M79, M79.6, M79.60, M79.601, M79.602, M79.603, M79.604, M79.605, M79.606, M79.609, M79.62, M79.621, M79.622, M79.629, M79.63, M79.631, M79.632,		

210

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			M79.639, M79.64, M79.641, M79.642, M79.643, M79.644, M79.645, M79.646, M79.65, M79.651, M79.652, M79.659, M79.66, M79.661, M79.662, M79.669, M79.67, M79.671, M79.672, M79.673, M79.674, M79.675, M79.676, M79.8, M79.81, M79.89, M83, M84, M84.0, M84.1, M84.2, M84.3, M84.4, M84.5, M84.6, M84.8, M85, M85.0, M85.00, M85.01, M85.011, M85.012, M85.019, M85.02, M85.021, M85.022, M85.029, M85.03, M85.031, M85.032, M85.039, M85.04, M85.041, M85.042, M85.049, M85.05, M85.051, M85.052, M85.059, M85.06, M85.061, M85.062, M85.069, M85.07, M85.071, M85.072, M85.079, M85.08, M85.09, M85.1, M85.10, M85.11, M85.111, M85.112, M85.119, M85.12, M85.121, M85.122, M85.129, M85.13, M85.131, M85.132, M85.139, M85.14, M85.141, M85.142, M85.149, M85.15, M85.151, M85.152, M85.159, M85.16, M85.161, M85.162, M85.169, M85.17, M85.171, M85.172, M85.179, M85.18, M85.19, M85.3, M85.30, M85.31, M85.311, M85.312, M85.319, M85.32, M85.321, M85.322, M85.329, M85.33, M85.331, M85.332, M85.339, M85.34, M85.341, M85.342, M85.349, M85.35, M85.351, M85.352, M85.359, M85.36, M85.361, M85.362, M85.369, M85.37, M85.371, M85.372, M85.379, M85.38, M85.39, M85.4,		

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			M85.40, M85.41, M85.411, M85.412, M85.419, M85.42, M85.421, M85.422, M85.429, M85.43, M85.431, M85.432, M85.439, M85.44, M85.441, M85.442, M85.449, M85.45, M85.451, M85.452, M85.459, M85.46, M85.461, M85.462, M85.469, M85.47, M85.471, M85.472, M85.479, M85.48, M85.5, M85.50, M85.51, M85.511, M85.512, M85.519, M85.52, M85.521, M85.522, M85.529, M85.53, M85.531, M85.532, M85.539, M85.54, M85.541, M85.542, M85.549, M85.55, M85.551, M85.552, M85.559, M85.56, M85.561, M85.562, M85.569, M85.57, M85.571, M85.572, M85.579, M85.58, M85.59, M85.6, M85.60, M85.61, M85.611, M85.612, M85.619, M85.62, M85.621, M85.622, M85.629, M85.63, M85.631, M85.632, M85.639, M85.64, M85.641, M85.642, M85.649, M85.65, M85.651, M85.652, M85.659, M85.66, M85.661, M85.662, M85.669, M85.67, M85.671, M85.672, M85.679, M85.68, M85.69, M85.8, M85.80, M85.81, M85.811, M85.812, M85.819, M85.82, M85.821, M85.822, M85.829, M85.83, M85.831, M85.832, M85.839, M85.84, M85.841, M85.842, M85.849, M85.85, M85.851, M85.852, M85.859, M85.86, M85.861, M85.862, M85.869, M85.87, M85.871, M85.872, M85.879, M85.88, M85.89, M86, M86.0, M86.00, M86.01, M86.011,		

212

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			M86.012, M86.019, M86.02, M86.021, M86.022, M86.029, M86.03, M86.031, M86.032, M86.039, M86.04, M86.041, M86.042, M86.049, M86.05, M86.051, M86.052, M86.059, M86.06, M86.061, M86.062, M86.069, M86.07, M86.071, M86.072, M86.079, M86.08, M86.09, M86.1, M86.10, M86.11, M86.111, M86.112, M86.119, M86.12, M86.121, M86.122, M86.129, M86.13, M86.131, M86.132, M86.139, M86.14, M86.141, M86.142, M86.149, M86.15, M86.151, M86.152, M86.159, M86.16, M86.161, M86.162, M86.169, M86.17, M86.171, M86.172, M86.179, M86.18, M86.19, M86.2, M86.20, M86.21, M86.211, M86.212, M86.219, M86.22, M86.221, M86.222, M86.229, M86.23, M86.231, M86.232, M86.239, M86.24, M86.241, M86.242, M86.249, M86.25, M86.251, M86.252, M86.259, M86.26, M86.261, M86.262, M86.269, M86.27, M86.271, M86.272, M86.279, M86.28, M86.29, M86.3, M86.30, M86.31, M86.311, M86.312, M86.319, M86.32, M86.321, M86.322, M86.329, M86.33, M86.331, M86.332, M86.339, M86.34, M86.341, M86.342, M86.349, M86.35, M86.351, M86.352, M86.359, M86.36, M86.361, M86.362, M86.369, M86.37, M86.371, M86.372, M86.379, M86.38, M86.39, M86.4, M86.40, M86.41, M86.411, M86.412, M86.419,		

213

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			M86.42, M86.421, M86.422, M86.429, M86.43, M86.431, M86.432, M86.439, M86.44, M86.441, M86.442, M86.449, M86.45, M86.451, M86.452, M86.459, M86.46, M86.461, M86.462, M86.469, M86.47, M86.471, M86.472, M86.479, M86.48, M86.49, M86.5, M86.50, M86.51, M86.511, M86.512, M86.519, M86.52, M86.521, M86.522, M86.529, M86.53, M86.531, M86.532, M86.539, M86.54, M86.541, M86.542, M86.549, M86.55, M86.551, M86.552, M86.559, M86.56, M86.561, M86.562, M86.569, M86.57, M86.571, M86.572, M86.579, M86.58, M86.59, M86.6, M86.60, M86.61, M86.611, M86.612, M86.619, M86.62, M86.621, M86.622, M86.629, M86.63, M86.631, M86.632, M86.639, M86.64, M86.641, M86.642, M86.649, M86.65, M86.651, M86.652, M86.659, M86.66, M86.661, M86.662, M86.669, M86.67, M86.671, M86.672, M86.679, M86.68, M86.69, M86.7, M86.8, M87, M87.0, M87.00, M87.01, M87.011, M87.012, M87.019, M87.02, M87.021, M87.022, M87.029, M87.03, M87.031, M87.032, M87.033, M87.034, M87.035, M87.036, M87.037, M87.038, M87.039, M87.04, M87.041, M87.042, M87.043, M87.044, M87.045, M87.046, M87.05, M87.050, M87.051, M87.052, M87.059, M87.06, M87.061, M87.062, M87.063, M87.064,		

214

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			M87.065, M87.066, M87.07, M87.071, M87.072, M87.073, M87.074, M87.075, M87.076, M87.077, M87.078, M87.079, M87.08, M87.09, M87.2, M87.20, M87.21, M87.211, M87.212, M87.219, M87.22, M87.221, M87.222, M87.229, M87.23, M87.231, M87.232, M87.233, M87.234, M87.235, M87.236, M87.237, M87.238, M87.239, M87.24, M87.241, M87.242, M87.243, M87.244, M87.245, M87.246, M87.25, M87.250, M87.251, M87.252, M87.256, M87.26, M87.261, M87.262, M87.263, M87.264, M87.265, M87.266, M87.27, M87.271, M87.272, M87.273, M87.274, M87.275, M87.276, M87.277, M87.278, M87.279, M87.28, M87.29, M87.3, M87.30, M87.31, M87.311, M87.312, M87.319, M87.32, M87.321, M87.322, M87.329, M87.33, M87.331, M87.332, M87.333, M87.334, M87.335, M87.336, M87.337, M87.338, M87.339, M87.34, M87.341, M87.342, M87.343, M87.344, M87.345, M87.346, M87.35, M87.350, M87.351, M87.352, M87.353, M87.36, M87.361, M87.362, M87.363, M87.364, M87.365, M87.366, M87.37, M87.371, M87.372, M87.373, M87.374, M87.375, M87.376, M87.377, M87.378, M87.379, M87.38, M87.39, M87.8, M87.80, M87.81, M87.811, M87.812, M87.819, M87.82, M87.821, M87.822, M87.829, M87.83, M87.831, M87.832,		

215

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			M87.833, M87.834, M87.835, M87.836, M87.837, M87.838, M87.839, M87.84, M87.841, M87.842, M87.843, M87.844, M87.845, M87.849, M87.85, M87.850, M87.851, M87.852, M87.859, M87.86, M87.861, M87.862, M87.863, M87.864, M87.865, M87.869, M87.87, M87.871, M87.872, M87.873, M87.874, M87.875, M87.876, M87.877, M87.878, M87.879, M87.88, M87.89, M88, M88.8, M88.81, M88.811, M88.812, M88.819, M88.82, M88.821, M88.822, M88.829, M88.83, M88.831, M88.832, M88.839, M88.84, M88.841, M88.842, M88.849, M88.85, M88.851, M88.852, M88.859, M88.86, M88.861, M88.862, M88.869, M88.87, M88.871, M88.872, M88.879, M88.88, M88.89, M89, M89.0, M89.00, M89.01, M89.011, M89.012, M89.019, M89.02, M89.021, M89.022, M89.029, M89.03, M89.031, M89.032, M89.039, M89.04, M89.041, M89.042, M89.049, M89.05, M89.051, M89.052, M89.059, M89.06, M89.061, M89.062, M89.069, M89.07, M89.071, M89.072, M89.079, M89.08, M89.09, M89.1, M89.12, M89.121, M89.122, M89.123, M89.124, M89.125, M89.126, M89.127, M89.128, M89.129, M89.13, M89.131, M89.132, M89.133, M89.134, M89.138, M89.139, M89.15, M89.151, M89.152, M89.153, M89.154, M89.155, M89.156, M89.157, M89.158,		

216

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			M89.159, M89.16, M89.160, M89.161, M89.162, M89.163, M89.164, M89.165, M89.166, M89.167, M89.168, M89.169, M89.18, M89.2, M89.20, M89.21, M89.211, M89.212, M89.219, M89.22, M89.221, M89.222, M89.229, M89.23, M89.231, M89.232, M89.233, M89.234, M89.239, M89.24, M89.241, M89.242, M89.249, M89.25, M89.251, M89.252, M89.259, M89.26, M89.261, M89.262, M89.263, M89.264, M89.269, M89.27, M89.271, M89.272, M89.279, M89.28, M89.29, M89.3, M89.30, M89.31, M89.311, M89.312, M89.319, M89.32, M89.321, M89.322, M89.329, M89.33, M89.331, M89.332, M89.333, M89.334, M89.339, M89.34, M89.341, M89.342, M89.349, M89.35, M89.351, M89.352, M89.359, M89.36, M89.361, M89.362, M89.363, M89.364, M89.369, M89.37, M89.371, M89.372, M89.379, M89.38, M89.39, M89.4, M89.40, M89.41, M89.411, M89.412, M89.419, M89.42, M89.421, M89.422, M89.429, M89.43, M89.431, M89.432, M89.439, M89.44, M89.441, M89.442, M89.449, M89.45, M89.451, M89.452, M89.459, M89.46, M89.461, M89.462, M89.469, M89.47, M89.471, M89.472, M89.479, M89.48, M89.49, M89.5, M89.50, M89.51, M89.511, M89.512, M89.519, M89.52, M89.521, M89.522, M89.529, M89.53, M89.531, M89.532,		

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			M89.539, M89.54, M89.541, M89.542, M89.549, M89.55, M89.551, M89.552, M89.559, M89.56, M89.561, M89.562, M89.569, M89.57, M89.571, M89.572, M89.579, M89.58, M89.59, M89.7, M89.70, M89.71, M89.711, M89.712, M89.719, M89.72, M89.721, M89.722, M89.729, M89.73, M89.731, M89.732, M89.739, M89.74, M89.741, M89.742, M89.749, M89.75, M89.751, M89.752, M89.759, M89.76, M89.761, M89.762, M89.769, M89.77, M89.771, M89.772, M89.779, M89.78, M89.79, M89.8, M90, M90.0, M90.1, M90.2, M90.3, M90.4, M90.5, M90.50, M90.51, M90.511, M90.512, M90.519, M90.52, M90.521, M90.522, M90.529, M90.53, M90.531, M90.532, M90.539, M90.54, M90.541, M90.542, M90.549, M90.55, M90.551, M90.552, M90.559, M90.56, M90.561, M90.562, M90.569, M90.57, M90.571, M90.572, M90.579, M90.58, M90.59, M90.6, M90.60, M90.61, M90.611, M90.612, M90.619, M90.62, M90.621, M90.622, M90.629, M90.63, M90.631, M90.632, M90.639, M90.64, M90.641, M90.642, M90.649, M90.65, M90.651, M90.652, M90.659, M90.66, M90.661, M90.662, M90.669, M90.67, M90.671, M90.672, M90.679, M90.68, M90.69, M90.7, M90.8, M90.80, M90.81, M90.811, M90.812, M90.819, M90.82, M90.821, M90.822, M90.829,		

218

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			M90.83, M90.831, M90.832, M90.839, M90.84, M90.841, M90.842, M90.849, M90.85, M90.851, M90.852, M90.859, M90.86, M90.861, M90.862, M90.869, M90.87, M90.871, M90.872, M90.879, M90.88, M90.89, M91, M91.1, M91.10, M91.11, M91.12, M91.2, M91.20, M91.21, M91.22, M91.3, M91.30, M91.31, M91.32, M91.4, M91.40, M91.41, M91.42, M91.8, M91.80, M91.81, M91.82, M91.9, M91.90, M91.91, M91.92, M92, M92.0, M92.00, M92.01, M92.02, M92.1, M92.10, M92.11, M92.12, M92.2, M92.20, M92.201, M92.202, M92.209, M92.21, M92.211, M92.212, M92.219, M92.22, M92.221, M92.222, M92.229, M92.29, M92.291, M92.292, M92.299, M92.3, M92.30, M92.31, M92.32, M92.4, M92.40, M92.41, M92.42, M92.5, M92.50, M92.51, M92.52, M92.6, M92.60, M92.61, M92.62, M92.7, M92.70, M92.71, M92.72, M93, M93.0, M93.00, M93.001, M93.002, M93.003, M93.01, M93.011, M93.012, M93.013, M93.02, M93.021, M93.022, M93.023, M93.03, M93.031, M93.032, M93.033, M93.2, M93.20, M93.21, M93.211, M93.212, M93.219, M93.22, M93.221, M93.222, M93.229, M93.23, M93.231, M93.232, M93.239, M93.24, M93.241, M93.242, M93.249, M93.25, M93.251, M93.252, M93.259, M93.26, M93.261, M93.262, M93.269, M93.27, M93.271, M93.272, M93.279, M93.28,		

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			M93.29, M93.8, M93.80, M93.81, M93.811, M93.812, M93.819, M93.82, M93.821, M93.822, M93.829, M93.83, M93.831, M93.832, M93.839, M93.84, M93.841, M93.842, M93.849, M93.85, M93.851, M93.852, M93.859, M93.86, M93.861, M93.862, M93.869, M93.87, M93.871, M93.872, M93.879, M93.88, M93.89, M93.9, M93.90, M93.91, M93.911, M93.912, M93.919, M93.92, M93.921, M93.922, M93.929, M93.93, M93.931, M93.932, M93.939, M93.94, M93.941, M93.942, M93.949, M93.95, M93.951, M93.952, M93.959, M93.96, M93.961, M93.962, M93.969, M93.97, M93.971, M93.972, M93.979, M93.98, M93.99, M94, M94.2, M94.20, M94.21, M94.211, M94.212, M94.219, M94.22, M94.221, M94.222, M94.229, M94.23, M94.231, M94.232, M94.239, M94.24, M94.241, M94.242, M94.249, M94.25, M94.251, M94.252, M94.259, M94.26, M94.261, M94.262, M94.269, M94.27, M94.271, M94.272, M94.279, M94.28, M94.29, M94.3, M94.35, M94.351, M94.352, M94.359, M94.8, M95, M95.1, M95.10, M95.11, M95.12, M96.1, M96.2, M96.3, M96.4, M96.5, M99, M99.0, M99.00, M99.01, M99.02, M99.03, M99.04, M99.05, M99.06, M99.07, M99.08, M99.09, M99.1, M99.10, M99.11, M99.12, M99.13, M99.14, M99.15, M99.16, M99.17, M99.18, M99.19, M99.2, M99.22, M99.23, M99.24,		

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			M99.25, M99.26, M99.27, M99.28, M99.29, M99.3, M99.32, M99.33, M99.34, M99.35, M99.36, M99.37, M99.38, M99.39, M99.4, M99.42, M99.43, M99.44, M99.45, M99.46, M99.47, M99.48, M99.49, M99.5, M99.52, M99.53, M99.54, M99.55, M99.56, M99.57, M99.58, M99.59, M99.6, M99.62, M99.63, M99.64, M99.65, M99.66, M99.67, M99.68, M99.69, M99.7, M99.72, M99.73, M99.74, M99.75, M99.76, M99.77, M99.78, M99.79, M99.8, M99.80, M99.81, M99.82, M99.83, M99.84, M99.85, M99.86, M99.87, M99.88, M99.89, G54.2, M43.6, M46.41, M46.42, M46.43, M47.011, M47.012, M47.013, M47.014, M47.015, M47.016, M47.019, M47.021, M47.022, M47.029, M48.01, M48.02, M48.03, M48.41, M48.42, M48.43, M48.51, M48.52, M48.53, M50, M50.0, M50.00, M50.01, M50.02, M50.03, M50.1, M50.10, M50.11, M50.12, M50.13, M50.2, M50.20, M50.21, M50.22, M50.23, M50.3, M50.30, M50.31, M50.32, M50.33, M50.8, M50.80, M50.81, M50.82, M50.83, M50.9, M50.90, M50.91, M50.92, M50.93, M53.0, M53.1, M53.81, M53.82, M53.83, M54.00, M54.01, M54.02, M54.2, M54.81, M99.20, M99.21, M99.30, M99.31, M99.40, M99.41, M99.50, M99.51, M99.60, M99.61, M99.70, M99.71		

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
B.9.3	Gout	274, 274.0, 274.00, 274.01, 274.02, 274.03, 274.1, 274.10, 274.11, 274.19, 274.8, 274.81, 274.82, 274.89, 274.9, 712.0, 712.00, 712.01, 712.02, 712.03, 712.04, 712.05, 712.06, 712.07, 712.08, 712.09	M10.2, M10.20, M10.21, M10.211, M10.212, M10.219, M10.22, M10.221, M10.222, M10.229, M10.23, M10.231, M10.232, M10.239, M10.24, M10.241, M10.242, M10.249, M10.25, M10.251, M10.252, M10.259, M10.26, M10.261, M10.262, M10.269, M10.27, M10.271, M10.272, M10.279, M10.28, M10.29, M10, M10.0, M10.00, M10.01, M10.011, M10.012, M10.019, M10.02, M10.021, M10.022, M10.029, M10.03, M10.031, M10.032, M10.039, M10.04, M10.041, M10.042, M10.049, M10.05, M10.051, M10.052, M10.059, M10.06, M10.061, M10.062, M10.069, M10.07, M10.071, M10.072, M10.079, M10.08, M10.09, M10.1, M10.10, M10.11, M10.111, M10.112, M10.119, M10.12, M10.121, M10.122, M10.129, M10.13, M10.131, M10.132, M10.139, M10.14, M10.141, M10.142, M10.149, M10.15, M10.151, M10.152, M10.159, M10.16, M10.161, M10.162, M10.169, M10.17, M10.171, M10.172, M10.179, M10.18, M10.19, M10.3, M10.30, M10.31, M10.311, M10.312, M10.319, M10.32, M10.321, M10.322, M10.329, M10.33, M10.331, M10.332, M10.339, M10.34, M10.341, M10.342, M10.349, M10.35, M10.351, M10.352, M10.359, M10.36, M10.361, M10.362, M10.369, M10.37, M10.371, M10.372, M10.379, M10.38, M10.39, M10.4, M10.40,	both	15-85

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			M10.41, M10.411, M10.412, M10.419, M10.42, M10.421, M10.422, M10.429, M10.43, M10.431, M10.432, M10.439, M10.44, M10.441, M10.442, M10.449, M10.45, M10.451, M10.452, M10.459, M10.46, M10.461, M10.462, M10.469, M10.47, M10.471, M10.472, M10.479, M10.48, M10.49, M10.9, M1A.00X0, M1A.00X1, M1A.0220, M1A.0221, M1A.0310, M1A.0311, M1A.0320, M1A.0321, M1A.0411, M1A.0421, M1A.0511, M1A.0610, M1A.0611, M1A.0620, M1A.0690, M1A.0710, M1A.0711, M1A.0720, M1A.0790, M1A.0791, M1A.09X0, M1A.09X1, M1A.0, M1A.30X1, M1A.3710, M1A.3721, M1A.39X0, M1A.3, M1A.40X0, M1A.4, M1A.9XX0, M1A.9XX1, M1A.9		

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
B.9.4	Osteoarthritis	715, 715.0, 715.00, 715.04, 715.09, 715.1, 715.10, 715.11, 715.12, 715.13, 715.14, 715.15, 715.16, 715.17, 715.18, 715.2, 715.20, 715.21, 715.22, 715.23, 715.24, 715.25, 715.26, 715.27, 715.28, 715.3, 715.30, 715.31, 715.32, 715.33, 715.34, 715.35, 715.36, 715.37, 715.38, 715.6, 715.8, 715.80, 715.81, 715.82, 715.83, 715.84, 715.85, 715.86, 715.87, 715.88, 715.89, 715.9, 715.90, 715.91, 715.92, 715.93, 715.94, 715.95, 715.96, 715.97, 715.98, 717, 717.0, 717.1, 717.2, 717.3, 717.4, 717.40, 717.41, 717.42, 717.43, 717.49, 717.5, 717.6, 717.7, 717.8, 717.81, 717.82, 717.83, 717.84, 717.85, 717.89, 717.9, 718, 718.0, 718.00, 718.01, 718.02, 718.03, 718.04, 718.05, 718.07, 718.08, 718.09, 718.1, 718.10, 718.11, 718.12, 718.13, 718.14, 718.15, 718.17, 718.18, 718.19, 718.2, 718.20, 718.21, 718.22, 718.23, 718.24, 718.25, 718.26, 718.27, 718.28, 718.29, 718.3, 718.30, 718.31, 718.32, 718.33, 718.34, 718.35, 718.36, 718.37, 718.38, 718.39, 718.4, 718.40, 718.41, 718.42, 718.43, 718.44, 718.45, 718.46, 718.47, 718.48, 718.49, 718.5, 718.50, 718.51, 718.52, 718.53, 718.54, 718.55, 718.56, 718.57, 718.58, 718.59, 718.6, 718.60, 718.65, 718.7, 718.70, 718.71, 718.72, 718.73, 718.74, 718.75, 718.76, 718.77, 718.78, 718.79, 718.8, 718.80, 718.81, 718.82, 718.83, 718.84, 718.85, 718.86, 718.87, 718.88, 718.89, 718.9, 718.90, 718.91, 718.92, 718.93, 718.94, 718.95, 718.97, 718.98, 718.99, 731, 731.0, 731.1, 731.2, 731.3, 731.8, 731.9	M15.0, M15.1, M15.2, M15.3, M15.4, M15.8, M15.9, M16, M16.0, M16.1, M16.10, M16.11, M16.12, M16.2, M16.3, M16.30, M16.31, M16.32, M16.4, M16.5, M16.50, M16.51, M16.52, M16.6, M16.7, M16.9, M17, M17.0, M17.1, M17.10, M17.11, M17.12, M17.2, M17.3, M17.30, M17.31, M17.32, M17.4, M17.5, M17.9, M18, M18.0, M18.1, M18.10, M18.11, M18.12, M18.2, M18.3, M18.30, M18.31, M18.32, M18.4, M18.5, M18.50, M18.51, M18.52, M18.9, M24.7, M24.9, M43.3, M43.4, M88.0, M88.1, M88.9, Q68.6	both	30-85

224

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
B.9.5	Other musculoskeletal disorders	416.1, 446, 446.0, 446.1, 446.2, 446.20, 446.21, 446.29, 446.3, 446.4, 446.5, 446.6, 446.7, 446.9, 710, 710.0, 710.1, 710.2, 710.5, 710.8, 710.9, 711, 711.0, 711.00, 711.01, 711.02, 711.03, 711.04, 711.05, 711.06, 711.07, 711.08, 711.09, 711.1, 711.10, 711.11, 711.12, 711.13, 711.14, 711.15, 711.16, 711.17, 711.18, 711.19, 711.2, 711.20, 711.21, 711.22, 711.23, 711.24, 711.25, 711.26, 711.27, 711.28, 711.29, 711.3, 711.30, 711.31, 711.32, 711.33, 711.34, 711.35, 711.36, 711.37, 711.38, 711.39, 711.4, 711.40, 711.41, 711.42, 711.43, 711.44, 711.45, 711.46, 711.47, 711.48, 711.49, 711.5, 711.50, 711.51, 711.52, 711.53, 711.54, 711.55, 711.56, 711.57, 711.58, 711.59, 711.6, 711.60, 711.61, 711.62, 711.63, 711.64, 711.65, 711.66, 711.67, 711.68, 711.69, 711.7, 711.70, 711.71, 711.72, 711.73, 711.74, 711.75, 711.76, 711.77, 711.78, 711.79, 711.8, 711.80, 711.81, 711.82, 711.83, 711.84, 711.85, 711.86, 711.87, 711.88, 711.89, 711.9, 711.90, 711.91, 711.92, 711.93, 711.94, 711.95, 711.96, 711.97, 711.98, 711.99, 712, 712.1, 712.10, 712.11, 712.12, 712.13, 712.14, 712.15, 712.16, 712.17, 712.18, 712.19, 712.2, 712.20, 712.21, 712.22, 712.23, 712.24, 712.25, 712.26, 712.27, 712.28, 712.29, 712.3, 712.30, 712.31, 712.32, 712.33, 712.34, 712.35, 712.36, 712.37, 712.38, 712.39, 712.8, 712.80, 712.81, 712.82, 712.83, 712.84, 712.85, 712.86, 712.87, 712.88, 712.89, 712.9, 712.90, 712.91, 712.92, 712.93, 712.94, 712.95, 712.96, 712.97, 712.98, 712.99, 713.1, 713.4, 713.5,	M12.9, M13.0, M25.9, M36.1, M36.4, M80, M80.0, M80.00, M80.01, M80.011, M80.012, M80.019, M80.02, M80.021, M80.022, M80.029, M80.03, M80.031, M80.032, M80.039, M80.04, M80.041, M80.042, M80.049, M80.05, M80.051, M80.052, M80.059, M80.06, M80.061, M80.062, M80.069, M80.07, M80.071, M80.072, M80.079, M80.08, M80.1, M80.2, M80.3, M80.4, M80.5, M80.8, M80.80, M80.81, M80.811, M80.812, M80.819, M80.82, M80.821, M80.822, M80.829, M80.83, M80.831, M80.832, M80.839, M80.84, M80.841, M80.842, M80.849, M80.85, M80.851, M80.852, M80.859, M80.86, M80.861, M80.862, M80.869, M80.87, M80.871, M80.872, M80.879, M80.88, M80.9, M81, M81.0, M81.1, M81.2, M81.3, M81.4, M81.5, M81.6, M81.8, M81.9, M82, M82.0, M82.1, M82.8, I27.1, L93, M00, M00.0, M00.00, M00.01, M00.011, M00.012, M00.019, M00.02, M00.021, M00.022, M00.029, M00.03, M00.031, M00.032, M00.039, M00.04, M00.041, M00.042, M00.049, M00.05, M00.051, M00.052, M00.059, M00.06, M00.061, M00.062, M00.069, M00.07, M00.071, M00.072, M00.079, M00.08, M00.09, M00.1, M00.10, M00.11, M00.111, M00.112, M00.119, M00.12, M00.121, M00.122, M00.129, M00.13, M00.131, M00.132, M00.139, M00.14, M00.141,	both	0-85

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
		716.0, 716.00, 716.01, 716.02, 716.03, 716.04, 716.05, 716.06, 716.07, 716.08, 716.09, 716.2, 716.20, 716.21, 716.22, 716.23, 716.24, 716.25, 716.26, 716.27, 716.28, 716.29, 716.3, 716.30, 716.31, 716.32, 716.33, 716.34, 716.35, 716.36, 716.37, 716.38, 716.39, 719.2, 719.20, 719.21, 719.22, 719.23, 719.24, 719.25, 719.26, 719.27, 719.28, 719.29, 719.3, 719.30, 719.31, 719.32, 719.33, 719.34, 719.35, 719.36, 719.37, 719.38, 719.39, 719.8, 719.80, 719.81, 719.82, 719.83, 719.84, 719.85, 719.86, 719.87, 719.88, 719.89, 721.2, 721.4, 721.41, 726, 726.0, 726.1, 726.10, 726.11, 726.12, 726.13, 726.19, 726.2, 726.3, 726.30, 726.31, 726.32, 726.33, 726.39, 726.4, 726.5, 726.6, 726.60, 726.61, 726.62, 726.63, 726.64, 726.65, 726.69, 726.7, 726.70, 726.71, 726.72, 726.73, 726.79, 726.8, 726.9, 726.90, 726.91, 727, 727.0, 727.00, 727.01, 727.02, 727.03, 727.04, 727.05, 727.06, 727.09, 727.1, 727.2, 727.3, 727.4, 727.40, 727.41, 727.42, 727.43, 727.49, 727.5, 727.50, 727.51, 727.59, 727.6, 727.60, 727.61, 727.62, 727.63, 727.64, 727.65, 727.66, 727.67, 727.68, 727.69, 727.8, 727.81, 727.82, 727.83, 727.89, 727.9, 729, 729.0, 729.1, 729.2, 729.3, 729.30, 729.31, 729.39, 729.4, 729.5, 729.7, 729.71, 729.72, 729.73, 729.79, 729.8, 729.81, 729.82, 729.89, 729.9, 729.90, 729.92, 729.99, 730, 730.0, 730.00, 730.01, 730.02, 730.03, 730.04, 730.05, 730.06, 730.07, 730.08, 730.09, 730.1, 730.10, 730.11, 730.12, 730.13, 730.14, 730.15, 730.16, 730.17, 730.18, 730.19, 730.2, 730.20, 730.21, 730.22, 730.23,	M00.142, M00.149, M00.15, M00.151, M00.152, M00.159, M00.16, M00.161, M00.162, M00.169, M00.17, M00.171, M00.172, M00.179, M00.18, M00.19, M00.2, M00.20, M00.21, M00.211, M00.212, M00.219, M00.22, M00.221, M00.222, M00.229, M00.23, M00.231, M00.232, M00.239, M00.24, M00.241, M00.242, M00.249, M00.25, M00.251, M00.252, M00.259, M00.26, M00.261, M00.262, M00.269, M00.27, M00.271, M00.272, M00.279, M00.28, M00.29, M00.8, M00.80, M00.81, M00.811, M00.812, M00.819, M00.82, M00.821, M00.822, M00.829, M00.83, M00.831, M00.832, M00.839, M00.84, M00.841, M00.842, M00.849, M00.85, M00.851, M00.852, M00.859, M00.86, M00.861, M00.862, M00.869, M00.87, M00.871, M00.872, M00.879, M00.88, M00.89, M00.9, M01, M01.0, M01.1, M01.2, M01.3, M01.4, M01.5, M01.6, M01.8, M02, M02.0, M02.00, M02.01, M02.011, M02.012, M02.019, M02.02, M02.021, M02.022, M02.029, M02.03, M02.031, M02.032, M02.039, M02.04, M02.041, M02.042, M02.049, M02.05, M02.051, M02.052, M02.059, M02.06, M02.061, M02.062, M02.069, M02.07, M02.071, M02.072, M02.079, M02.08, M02.09, M02.1, M02.10, M02.11, M02.111, M02.112, M02.119, M02.12, M02.121, M02.122, M02.129, M02.13, M02.131,		

226

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
		730.24, 730.25, 730.26, 730.27, 730.28, 730.29, 730.3, 730.30, 730.31, 730.32, 730.33, 730.34, 730.35, 730.36, 730.37, 730.38, 730.39, 732, 732.0, 732.1, 732.2, 732.3, 732.4, 732.5, 732.6, 732.7, 732.8, 732.9, 733, 733.0, 733.00, 733.01, 733.02, 733.03, 733.09, 733.1, 733.10, 733.11, 733.12, 733.13, 733.14, 733.15, 733.16, 733.19, 733.2, 733.20, 733.21, 733.22, 733.29, 733.3, 733.4, 733.40, 733.41, 733.42, 733.43, 733.44, 733.45, 733.49, 733.5, 733.6, 733.7, 733.8, 733.81, 733.82, 733.9, 733.90, 733.91, 733.92, 733.93, 733.94, 733.95, 733.96, 733.97, 733.98, 733.99, 734, 734.0, 734.2, 735, 735.0, 735.1, 735.2, 735.3, 735.4, 735.5, 735.8, 735.9, 736, 736.0, 736.00, 736.01, 736.02, 736.03, 736.04, 736.05, 736.06, 736.07, 736.09, 736.1, 736.2, 736.20, 736.21, 736.22, 736.29, 736.3, 736.30, 736.31, 736.32, 736.39, 736.4, 736.41, 736.42, 736.5, 736.6, 736.7, 736.70, 736.71, 736.72, 736.73, 736.74, 736.75, 736.76, 736.79, 736.8, 736.81, 736.89, 736.9, 738.0, 738.1, 738.10, 739, 739.0, 739.1, 739.2, 739.3, 739.4, 739.5, 739.6, 739.7, 739.8, 739.9, V82.81	M02.132, M02.139, M02.14, M02.141, M02.142, M02.149, M02.15, M02.151, M02.152, M02.159, M02.16, M02.161, M02.162, M02.169, M02.17, M02.171, M02.172, M02.179, M02.18, M02.19, M02.2, M02.20, M02.21, M02.211, M02.212, M02.219, M02.22, M02.221, M02.222, M02.229, M02.23, M02.231, M02.232, M02.239, M02.24, M02.241, M02.242, M02.249, M02.25, M02.251, M02.252, M02.259, M02.26, M02.261, M02.262, M02.269, M02.27, M02.271, M02.272, M02.279, M02.28, M02.29, M02.3, M02.30, M02.31, M02.311, M02.312, M02.319, M02.32, M02.321, M02.322, M02.329, M02.33, M02.331, M02.332, M02.339, M02.34, M02.341, M02.342, M02.349, M02.35, M02.351, M02.352, M02.359, M02.36, M02.361, M02.362, M02.369, M02.37, M02.371, M02.372, M02.379, M02.38, M02.39, M02.8, M02.80, M02.81, M02.811, M02.812, M02.819, M02.82, M02.821, M02.822, M02.829, M02.83, M02.831, M02.832, M02.839, M02.84, M02.841, M02.842, M02.849, M02.85, M02.851, M02.852, M02.859, M02.86, M02.861, M02.862, M02.869, M02.87, M02.871, M02.872, M02.879, M02.88, M02.89, M03, M03.0, M03.1, M03.2, M03.6, M11.9, M12, M12.0, M12.00, M12.01, M12.011, M12.012, M12.019, M12.02, M12.021, M12.022, M12.029,		

227

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			M12.03, M12.031, M12.032, M12.039, M12.04, M12.041, M12.042, M12.049, M12.05, M12.051, M12.052, M12.059, M12.06, M12.061, M12.062, M12.069, M12.07, M12.071, M12.072, M12.079, M12.08, M12.09, M30.0, M30.1, M30.2, M30.3, M30.8, M31.0, M31.1, M31.2, M31.4, M31.5, M31.6, M31.7, M32, M32.0, M32.1, M32.10, M32.11, M32.12, M32.13, M32.14, M32.15, M32.19, M32.2, M32.8, M32.9, M34.0, M34.1, M34.2, M34.9, M35.1, M35.5, M35.6, M35.8, M35.9, M36.8, M42.9, M60.9, M65.4, M65.9, M66.0, M66.9, M71.9, M76.9, M77.8, M77.9, M79.0, M79.1, M79.2, M79.3, M79.4, M79.7, M79.9, M84.9, M85.2, M85.9, M86.9, M87.9, M89.9, M91.0, M92.8, M92.9, M93.1, M94.0, M94.1, M94.9, M95.0, R25.2		

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
B.10.1	Congenital anomalies	237.7, 237.73, 237.79, 740, 740.0, 740.1, 740.2, 740.4, 740.9, 741, 741.0, 741.01, 741.02, 741.03, 741.9, 741.91, 741.92, 741.93, 742, 742.0, 742.1, 742.2, 742.3, 742.4, 742.5, 742.51, 742.53, 742.59, 742.8, 742.9, 743, 743.0, 743.00, 743.03, 743.06, 743.1, 743.10, 743.11, 743.12, 743.2, 743.20, 743.21, 743.22, 743.3, 743.30, 743.31, 743.32, 743.33, 743.34, 743.35, 743.36, 743.37, 743.39, 743.4, 743.41, 743.42, 743.43, 743.44, 743.45, 743.46, 743.47, 743.48, 743.49, 743.5, 743.51, 743.52, 743.53, 743.54, 743.55, 743.56, 743.57, 743.58, 743.59, 743.6, 743.61, 743.62, 743.63, 743.64, 743.65, 743.66, 743.69, 743.8, 743.9, 744, 744.00, 744.01, 744.02, 744.03, 744.04, 744.05, 744.09, 744.1, 744.2, 744.21, 744.22, 744.23, 744.24, 744.29, 744.3, 744.4, 744.41, 744.42, 744.43, 744.46, 744.47, 744.49, 744.5, 744.8, 744.81, 744.82, 744.83, 744.84, 744.89, 744.9, 745, 745.0, 745.1, 745.10, 745.11, 745.12, 745.19, 745.2, 745.3, 745.4, 745.5, 745.6, 745.60, 745.61, 745.69, 745.7, 745.8, 745.9, 746, 746.0, 746.00, 746.01, 746.02, 746.09, 746.1, 746.2, 746.3, 746.4, 746.5, 746.6, 746.7, 746.8, 746.81, 746.82, 746.83, 746.84, 746.85, 746.86, 746.87, 746.89, 746.9, 747, 747.0, 747.1, 747.10, 747.11, 747.2, 747.20, 747.21, 747.22, 747.29, 747.3, 747.4, 747.40, 747.41, 747.42, 747.49, 747.5, 747.6, 747.60, 747.61, 747.62, 747.63, 747.64, 747.69, 747.8, 747.81, 747.82, 747.83, 747.89, 747.9, 748, 748.0, 748.1, 748.2, 748.3, 748.4, 748.5, 748.6, 748.60, 748.61, 748.69, 748.7, 748.8, 748.9, 749, 749.0, 749.00, 749.01, 749.02, 749.03,	Z13.7, Z13.71, Z13.79, Z14, Z14.0, Z14.01, Z14.02, Z81.1, Z81.2, Z81.3, Z81.4, Z82.7, Z82.71, Z82.79, Z82.8, Z83.0, Z84.3, Z87.7, Z87.71, Z87.72, Z87.73, Z87.79, Q87, Q87.1, Q87.2, Q87.3, Q87.4, Q87.40, Q87.41, Q87.410, Q87.418, Q87.42, Q87.43, Q87.5, Q87.8, Q87.81, Q87.89, Q89.7, Q89.8, Q91, Q91.0, Q91.1, Q91.2, Q91.3, Q91.4, Q91.5, Q91.6, Q91.7, Q92, Q92.0, Q92.1, Q92.2, Q92.3, Q92.4, Q92.5, Q92.6, Q92.61, Q92.62, Q92.7, Q92.8, Q92.9, Q93, Q93.0, Q93.1, Q93.2, Q93.3, Q93.5, Q93.6, Q93.7, Q93.8, Q93.81, Q93.88, Q93.89, Q93.9, Q95, Q95.0, Q95.1, Q95.2, Q95.3, Q95.4, Q95.5, Q95.8, Q95.9, Q97, Q97.0, Q97.1, Q97.2, Q97.3, Q97.8, Q97.9, Q98.5, Q98.6, Q98.7, Q98.8, Q98.9, Q99, Q99.0, Q99.1, Q99.146, Q99.2, Q99.8, Q99.9, Q35, Q35.0, Q35.1, Q35.2, Q35.3, Q35.4, Q35.5, Q35.6, Q35.7, Q35.8, Q35.9, Q36, Q36.0, Q36.1, Q36.9, Q37, Q37.0, Q37.1, Q37.2, Q37.3, Q37.4, Q37.5, Q37.8, Q37.9, Q90, Q90.0, Q90.1, Q90.2, Q90.9, P29.3, Q20, Q20.0, Q20.1, Q20.2, Q20.3, Q20.4, Q20.5, Q20.6, Q20.8, Q20.9, Q21, Q21.0, Q21.1, Q21.2, Q21.3, Q21.4, Q21.8, Q21.9, Q22, Q22.0, Q22.1, Q22.2, Q22.3, Q22.4, Q22.5, Q22.6, Q22.8, Q22.9, Q23, Q23.0, Q23.1, Q23.2, Q23.3, Q23.4, Q23.8, Q23.9, Q24, Q24.0, Q24.1, Q24.2, Q24.3, Q24.4, Q24.5, Q24.6, Q24.8, Q24.9, Q25, Q25.0, Q25.1, Q25.2, Q25.3, Q25.4, Q25.7, Q25.71, Q25.72, Q25.79, Q25.8, Q25.9, Q26, Q26.0, Q26.1, Q26.2, Q26.3, Q26.4, Q26.5, Q26.6, Q26.8, Q26.9, Q27, Q27.0, Q27.1, Q27.2,	both	0-85

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
		749.04, 749.1, 749.10, 749.11, 749.12, 749.13, 749.14, 749.2, 749.20, 749.21, 749.22, 749.23, 749.24, 749.25, 749.6, 749.9, 750, 750.0, 750.1, 750.10, 750.11, 750.12, 750.13, 750.15, 750.16, 750.19, 750.2, 750.21, 750.22, 750.23, 750.24, 750.25, 750.26, 750.27, 750.29, 750.3, 750.4, 750.5, 750.6, 750.7, 750.8, 750.9, 751, 751.0, 751.1, 751.2, 751.3, 751.4, 751.5, 751.6, 751.60, 751.61, 751.62, 751.69, 751.7, 751.8, 751.9, 752, 752.0, 752.1, 752.10, 752.11, 752.19, 752.2, 752.3, 752.4, 752.40, 752.41, 752.42, 752.49, 752.5, 752.51, 752.52, 752.6, 752.61, 752.62, 752.63, 752.65, 752.69, 752.7, 752.8, 752.89, 752.9, 753, 753.5, 754, 754.0, 754.1, 754.2, 754.3, 754.30, 754.31, 754.32, 754.33, 754.35, 754.4, 754.40, 754.41, 754.42, 754.43, 754.44, 754.5, 754.50, 754.51, 754.52, 754.53, 754.59, 754.6, 754.60, 754.61, 754.62, 754.69, 754.7, 754.70, 754.71, 754.79, 754.8, 754.81, 754.82, 754.89, 754.9, 755, 755.0, 755.00, 755.01, 755.02, 755.1, 755.10, 755.11, 755.12, 755.13, 755.14, 755.2, 755.20, 755.21, 755.22, 755.23, 755.24, 755.25, 755.26, 755.27, 755.28, 755.29, 755.3, 755.30, 755.31, 755.32, 755.33, 755.34, 755.35, 755.36, 755.37, 755.38, 755.39, 755.4, 755.5, 755.50, 755.51, 755.52, 755.53, 755.54, 755.55, 755.56, 755.57, 755.58, 755.59, 755.6, 755.60, 755.61, 755.62, 755.63, 755.64, 755.65, 755.66, 755.67, 755.69, 755.8, 755.9, 756, 756.0, 756.1, 756.10, 756.11, 756.12, 756.13, 756.14, 756.15, 756.16, 756.17, 756.19, 756.2, 756.3, 756.4, 756.5, 756.50, 756.51, 756.52, 756.53, 756.54, 756.55, 756.56, 756.59, 756.6,	Q27.3, Q27.30, Q27.31, Q27.32, Q27.33, Q27.34, Q27.39, Q27.4, Q27.8, Q27.9, Q28, Q28.0, Q28.1, Q28.2, Q28.3, Q28.8, Q28.9, Z87.74, Q98, Q98.0, Q98.1, Q98.2, Q98.3, Q98.4, Q00, Q00.0, Q00.1, Q00.2, Q01, Q01.0, Q01.1, Q01.2, Q01.8, Q01.9, Q05, Q05.0, Q05.1, Q05.2, Q05.3, Q05.5, Q05.6, Q05.7, Z87.728, G90.1, Q02, Q02.0, Q02.8, Q02.9, Q03, Q03.0, Q03.1, Q03.8, Q03.9, Q04, Q04.0, Q04.1, Q04.2, Q04.3, Q04.4, Q04.5, Q04.6, Q04.8, Q04.9, Q06, Q06.0, Q06.1, Q06.2, Q06.3, Q06.4, Q06.8, Q06.9, Q07, Q07.0, Q07.00, Q07.01, Q07.02, Q07.03, Q07.8, Q07.9, Q10, Q10.0, Q10.1, Q10.2, Q10.3, Q10.4, Q10.5, Q10.6, Q10.7, Q11, Q11.0, Q11.1, Q11.2, Q11.3, Q12, Q12.0, Q12.1, Q12.2, Q12.3, Q12.4, Q12.8, Q12.9, Q13, Q13.0, Q13.1, Q13.2, Q13.3, Q13.4, Q13.5, Q13.8, Q13.81, Q13.89, Q13.9, Q14, Q14.0, Q14.1, Q14.2, Q14.3, Q14.8, Q14.9, Q15, Q15.0, Q15.8, Q15.9, Q16.0, Q16.1, Q16.2, Q16.3, Q16.4, Q16.5, Q16.9, Q17, Q17.0, Q17.1, Q17.2, Q17.3, Q17.4, Q17.5, Q17.8, Q17.9, Q18, Q18.0, Q18.1, Q18.2, Q18.3, Q18.4, Q18.5, Q18.6, Q18.7, Q18.8, Q18.9, Q30, Q30.0, Q30.1, Q30.2, Q30.3, Q30.8, Q30.9, Q31, Q31.0, Q31.1, Q31.2, Q31.3, Q31.4, Q31.5, Q31.8, Q31.9, Q32, Q32.0, Q32.1, Q32.2, Q32.3, Q32.4, Q32.9, Q33, Q33.0, Q33.1, Q33.2, Q33.3, Q33.4, Q33.5, Q33.6, Q33.8, Q33.9, Q34, Q34.0, Q34.1, Q34.8, Q34.9, Q38.0, Q38.1, Q38.2, Q38.3, Q38.4, Q38.5, Q38.6, Q38.7, Q38.8, Q39.0, Q39.1, Q39.2, Q39.3, Q39.4, Q39.5, Q39.6, Q39.8,		

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
		756.7, 756.71, 756.79, 756.8, 756.81, 756.82, 756.83, 756.89, 756.9, 757, 757.0, 757.1, 757.2, 757.3, 757.31, 757.32, 757.33, 757.39, 757.4, 757.5, 757.6, 757.8, 757.9, 758, 758.0, 758.1, 758.2, 758.3, 758.33, 758.39, 758.4, 758.5, 758.6, 758.7, 758.8, 758.81, 758.89, 758.9, 759, 759.0, 759.1, 759.2, 759.3, 759.4, 759.5, 759.6, 759.7, 759.8, 759.81, 759.82, 759.83, 759.89, 759.9, V13.6, V13.61, V13.62, V13.63, V13.64, V13.65, V13.66, V13.67, V13.68, V13.69, V18.9, V19.5, V19.7, V19.8, V55.7, V82.3	Q39.9, Q40.0, Q40.1, Q40.2, Q40.3, Q40.8, Q40.9, Q41.0, Q41.1, Q41.2, Q41.8, Q41.9, Q42.0, Q42.1, Q42.2, Q42.3, Q42.8, Q42.9, Q43.0, Q43.1, Q43.2, Q43.3, Q43.4, Q43.5, Q43.6, Q43.7, Q43.8, Q43.9, Q44.0, Q44.1, Q44.2, Q44.3, Q44.4, Q44.5, Q44.6, Q44.7, Q45.0, Q45.1, Q45.2, Q45.3, Q45.8, Q45.9, Q50, Q50.0, Q50.01, Q50.02, Q50.1, Q50.2, Q50.3, Q50.31, Q50.32, Q50.39, Q50.4, Q50.5, Q50.6, Q51, Q51.0, Q51.1, Q51.10, Q51.11, Q51.2, Q51.5, Q51.6, Q51.7, Q51.8, Q51.81, Q51.810, Q51.811, Q51.818, Q51.82, Q51.820, Q51.821, Q51.828, Q51.9, Q52, Q52.1, Q52.10, Q52.11, Q52.12, Q52.2, Q52.3, Q52.4, Q52.5, Q52.6, Q52.7, Q52.70, Q52.71, Q52.79, Q52.8, Q52.9, Q53, Q53.0, Q53.00, Q53.01, Q53.02, Q53.1, Q53.10, Q53.11, Q53.12, Q53.2, Q53.20, Q53.21, Q53.22, Q53.9, Q54, Q54.0, Q54.1, Q54.2, Q54.3, Q54.4, Q54.8, Q54.9, Q55, Q55.0, Q55.1, Q55.2, Q55.20, Q55.21, Q55.22, Q55.23, Q55.29, Q55.3, Q55.4, Q55.5, Q55.6, Q55.61, Q55.62, Q55.63, Q55.64, Q55.69, Q55.7, Q55.8, Q55.9, Q56, Q56.0, Q56.1, Q56.2, Q56.3, Q56.4, Q64, Q64.0, Q64.1, Q64.10, Q64.11, Q64.12, Q64.19, Q65, Q65.0, Q65.00, Q65.01, Q65.02, Q65.1, Q65.2, Q65.3, Q65.30, Q65.31, Q65.32, Q65.4, Q65.5, Q65.6, Q65.8, Q65.81, Q65.82, Q65.89, Q65.9, Q66, Q66.0, Q66.1, Q66.2, Q66.3, Q66.4, Q66.5, Q66.50, Q66.51, Q66.52, Q66.6, Q66.7, Q66.8, Q66.80, Q66.81, Q66.82, Q66.89, Q66.9, Q67, Q67.0, Q67.1, Q67.2,		

231

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			Q67.3, Q67.4, Q67.5, Q67.6, Q67.7, Q67.8, Q68, Q68.0, Q68.1, Q68.2, Q68.3, Q68.4, Q68.5, Q68.8, Q69, Q69.0, Q69.1, Q69.2, Q69.9, Q70, Q70.0, Q70.00, Q70.01, Q70.02, Q70.03, Q70.1, Q70.10, Q70.11, Q70.12, Q70.13, Q70.2, Q70.20, Q70.21, Q70.22, Q70.23, Q70.3, Q70.30, Q70.31, Q70.32, Q70.33, Q70.4, Q70.9, Q71, Q71.0, Q71.00, Q71.01, Q71.02, Q71.03, Q71.1, Q71.10, Q71.11, Q71.12, Q71.13, Q71.2, Q71.20, Q71.21, Q71.22, Q71.23, Q71.3, Q71.30, Q71.31, Q71.32, Q71.33, Q71.4, Q71.40, Q71.41, Q71.42, Q71.43, Q71.5, Q71.50, Q71.51, Q71.52, Q71.53, Q71.6, Q71.60, Q71.61, Q71.62, Q71.63, Q71.8, Q71.81, Q71.811, Q71.812, Q71.813, Q71.819, Q71.89, Q71.891, Q71.892, Q71.893, Q71.899, Q71.9, Q71.90, Q71.91, Q71.92, Q71.93, Q72, Q72.0, Q72.00, Q72.01, Q72.02, Q72.03, Q72.1, Q72.10, Q72.11, Q72.12, Q72.13, Q72.2, Q72.20, Q72.21, Q72.22, Q72.23, Q72.3, Q72.30, Q72.31, Q72.32, Q72.33, Q72.4, Q72.40, Q72.41, Q72.42, Q72.43, Q72.5, Q72.50, Q72.51, Q72.52, Q72.53, Q72.6, Q72.60, Q72.61, Q72.62, Q72.63, Q72.7, Q72.70, Q72.71, Q72.72, Q72.73, Q72.8, Q72.81, Q72.811, Q72.812, Q72.813, Q72.819, Q72.89, Q72.891, Q72.892, Q72.893, Q72.899, Q72.9, Q72.90, Q72.91, Q72.92, Q72.93, Q73, Q73.0, Q73.1, Q73.8, Q74, Q74.0, Q74.1, Q74.2, Q74.3, Q74.8, Q74.9, Q75, Q75.0, Q75.1, Q75.2, Q75.3, Q75.4, Q75.5, Q75.8, Q75.9, Q76, Q76.0, Q76.1,		

232

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			Q76.2, Q76.3, Q76.4, Q76.41, Q76.411, Q76.412, Q76.413, Q76.414, Q76.415, Q76.419, Q76.42, Q76.425, Q76.426, Q76.427, Q76.428, Q76.429, Q76.49, Q76.5, Q76.6, Q76.7, Q76.8, Q76.9, Q77, Q77.0, Q77.1, Q77.2, Q77.3, Q77.4, Q77.5, Q77.6, Q77.7, Q77.8, Q77.9, Q78, Q78.0, Q78.1, Q78.2, Q78.3, Q78.4, Q78.5, Q78.6, Q78.8, Q78.9, Q79, Q79.0, Q79.1, Q79.4, Q79.6, Q79.8, Q79.9, Q80, Q80.0, Q80.1, Q80.2, Q80.3, Q80.4, Q80.8, Q80.9, Q81, Q81.0, Q81.1, Q81.2, Q81.8, Q81.9, Q82, Q82.0, Q82.1, Q82.2, Q82.3, Q82.4, Q82.5, Q82.8, Q82.9, Q83, Q83.0, Q83.1, Q83.2, Q83.3, Q83.8, Q83.9, Q84, Q84.0, Q84.1, Q84.2, Q84.3, Q84.4, Q84.5, Q84.6, Q84.8, Q84.9, Q85, Q85.0, Q85.00, Q85.01, Q85.02, Q85.03, Q85.09, Q85.1, Q85.8, Q85.9, Q86, Q87.0, Q89, Q89.0, Q89.01, Q89.09, Q89.1, Q89.2, Q89.3, Q89.4, Q89.9, Z43.7, Z87.710, Z87.718, Z87.720, Z87.721, Z87.730, Z87.738, Z87.75, Z87.76, Z87.790, Z87.798, Q96, Q96.0, Q96.1, Q96.2, Q96.3, Q96.4, Q96.8, Q96.9		

233

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
B.10.2	Skin and subcutaneous diseases	035, 035.0, 035.1, 035.4, 035.5, 035.8, 035.9, 040.0, 078.0, 078.1, 078.10, 078.11, 078.12, 078.19, 102, 102.0, 102.1, 102.2, 102.3, 102.4, 102.5, 102.6, 102.7, 102.8, 102.9, 103, 103.0, 103.1, 103.2, 103.3, 103.9, 110, 110.0, 110.1, 110.2, 110.3, 110.4, 110.5, 110.6, 110.7, 110.8, 110.9, 111, 111.0, 111.1, 111.2, 111.3, 111.4, 111.5, 111.6, 111.7, 111.8, 111.9, 132, 132.0, 132.1, 132.2, 132.3, 132.5, 132.9, 133, 133.0, 133.5, 133.6, 133.8, 133.9, 134, 134.0, 134.1, 134.2, 134.6, 134.8, 134.9, 136.1, 457.2, 457.3, 680, 680.0, 680.1, 680.2, 680.3, 680.4, 680.5, 680.6, 680.7, 680.8, 680.9, 681, 681.0, 681.00, 681.01, 681.02, 681.1, 681.10, 681.11, 681.2, 681.9, 682, 682.0, 682.1, 682.2, 682.3, 682.4, 682.5, 682.6, 682.7, 682.8, 682.9, 683, 683.0, 683.9, 684, 684.0, 684.9, 685, 685.0, 685.1, 685.7, 685.9, 686, 686.0, 686.00, 686.01, 686.09, 686.1, 686.8, 686.9, 690, 690.0, 690.1, 690.10, 690.11, 690.12, 690.18, 690.2, 690.8, 690.9, 691, 691.0, 691.8, 692, 692.0, 692.1, 692.2, 692.3, 692.4, 692.5, 692.6, 692.7, 692.70, 692.71, 692.72, 692.73, 692.74, 692.75, 692.76, 692.77, 692.79, 692.8, 692.81, 692.82, 692.83, 692.84, 692.89, 692.9, 693, 693.0, 693.1, 693.8, 693.9, 694, 694.0, 694.1, 694.2, 694.3, 694.4, 694.5, 694.6, 694.60, 694.61, 694.8, 694.9, 695, 695.0, 695.1, 695.10, 695.11, 695.12, 695.13, 695.14, 695.15, 695.19, 695.2, 695.3, 695.4, 695.5, 695.50, 695.51, 695.52, 695.53, 695.54, 695.55, 695.56, 695.57, 695.58, 695.59, 695.8, 695.81, 695.89, 695.9, 696, 696.0, 696.1, 696.2, 696.3, 696.4, 696.5, 696.8, 696.9, 697, 697.0,	R17, R20, R20.0, R20.1, R20.2, R20.3, R20.8, R20.9, R21, R21.0, R22, R22.0, R22.1, R22.2, R22.3, R22.30, R22.31, R22.32, R22.33, R22.4, R22.40, R22.41, R22.42, R22.43, R22.7, R22.9, R23, R23.0, R23.1, R23.2, R23.3, R23.4, R23.8, R23.9, R24, R24.0, R60.0, R60.1, R60.9, Z84.0, Z87.2, Z94.5, L70, L70.0, L70.1, L70.2, L70.3, L70.4, L70.5, L70.8, L70.9, L73.0, L63, L63.0, L63.1, L63.2, L63.8, L63.9, L64.0, L64.8, L64.9, L65.0, L65.1, L65.2, L65.8, L65.9, L66.0, L66.2, L66.8, L66.9, A46, A46.0, A48.0, A66, A66.0, A66.1, A66.2, A66.3, A66.4, A66.5, A66.6, A66.7, A66.8, A66.9, A67, A67.0, A67.1, A67.2, A67.3, A67.9, B78.1, E83.2, E83.20, E83.21, E83.22, E83.23, E83.28, I89.1, I96, L01, L01.0, L01.00, L01.01, L01.02, L01.03, L01.09, L01.1, L02, L02.0, L02.02, L02.03, L02.1, L02.12, L02.13, L02.2, L02.21, L02.22, L02.221, L02.222, L02.223, L02.224, L02.225, L02.226, L02.229, L02.23, L02.231, L02.232, L02.233, L02.234, L02.235, L02.236, L02.239, L02.3, L02.32, L02.33, L02.4, L02.41, L02.42, L02.421, L02.422, L02.423, L02.424, L02.425, L02.426, L02.429, L02.43, L02.431, L02.432, L02.433, L02.434, L02.435, L02.436, L02.439, L02.5, L02.51, L02.52, L02.521, L02.522, L02.529, L02.53, L02.531, L02.532, L02.539, L02.6, L02.61, L02.62, L02.621, L02.622, L02.629, L02.63, L02.631, L02.632, L02.639, L02.8, L02.81, L02.82, L02.821, L02.828, L02.83, L02.831, L02.838, L02.9, L02.92, L02.93, L04, L04.0, L04.1, L04.2, L04.3, L04.8, L04.9,	both	0-85

234

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
		697.1, 697.4, 697.8, 697.9, 698, 698.0, 698.1, 698.2, 698.3, 698.4, 698.8, 698.9, 700, 700.0, 700.6, 701, 701.0, 701.1, 701.2, 701.3, 701.4, 701.5, 701.8, 701.9, 702, 702.0, 702.1, 702.11, 702.19, 702.2, 702.8, 703, 703.0, 703.1, 703.2, 703.3, 703.8, 703.9, 704, 704.0, 704.00, 704.01, 704.02, 704.09, 704.1, 704.2, 704.3, 704.4, 704.41, 704.42, 704.8, 704.9, 705, 705.0, 705.1, 705.2, 705.21, 705.22, 705.83, 705.89, 705.9, 706, 706.0, 706.1, 706.2, 706.3, 706.8, 706.9, 707, 707.0, 707.00, 707.01, 707.02, 707.03, 707.04, 707.05, 707.06, 707.07, 707.09, 707.1, 707.10, 707.11, 707.12, 707.13, 707.14, 707.15, 707.19, 707.2, 707.20, 707.21, 707.22, 707.23, 707.24, 707.25, 707.7, 707.8, 707.9, 708, 708.0, 708.1, 708.2, 708.3, 708.4, 708.5, 708.8, 708.9, 709, 709.0, 709.00, 709.01, 709.09, 709.1, 709.2, 709.3, 709.8, 709.9, 713.3, 728.86, 782, 782.0, 782.1, 782.2, 782.3, 782.4, 782.5, 782.6, 782.61, 782.62, 782.7, 782.8, 782.9, 785.4, V13.3, V19.4, V42.3, V43.83, V58.77, V82.0	L05, L05.0, L05.01, L05.02, L05.9, L05.91, L05.92, L08, L08.0, L08.8, L08.81, L08.82, L08.89, L08.9, L88, L92.8, L97, L97.0, L97.1, L97.10, L97.11, L97.12, L97.2, L97.20, L97.21, L97.22, L97.3, L97.30, L97.31, L97.32, L97.4, L97.40, L97.41, L97.42, L97.5, L97.50, L97.51, L97.52, L97.8, L97.80, L97.81, L97.82, L97.9, L97.90, L97.91, L97.92, L98, L98.0, L98.4, L98.41, L98.42, L98.49, L02.01, L02.11, L02.211, L02.212, L02.213, L02.214, L02.215, L02.216, L02.219, L02.31, L02.411, L02.412, L02.413, L02.414, L02.415, L02.416, L02.419, L02.511, L02.512, L02.519, L02.611, L02.612, L02.619, L02.811, L02.818, L02.91, L03, L03.0, L03.01, L03.011, L03.012, L03.019, L03.02, L03.021, L03.022, L03.029, L03.03, L03.031, L03.032, L03.039, L03.04, L03.041, L03.042, L03.049, L03.1, L03.11, L03.111, L03.112, L03.113, L03.114, L03.115, L03.116, L03.119, L03.12, L03.121, L03.122, L03.123, L03.124, L03.125, L03.126, L03.129, L03.2, L03.21, L03.211, L03.212, L03.22, L03.221, L03.222, L03.3, L03.31, L03.311, L03.312, L03.313, L03.314, L03.315, L03.316, L03.317, L03.319, L03.32, L03.321, L03.322, L03.323, L03.324, L03.325, L03.326, L03.327, L03.329, L03.8, L03.81, L03.811, L03.818, L03.89, L03.891, L03.898, L03.9, L03.90, L03.91, L98.3, M72.5, M72.6, L89, L89.0, L89.00, L89.000, L89.001, L89.002, L89.003, L89.004, L89.009, L89.01, L89.010, L89.011, L89.012, L89.013, L89.014, L89.019, L89.02, L89.020, L89.021, L89.022, L89.023, L89.024, L89.029, L89.1,		

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			L89.10, L89.100, L89.101, L89.102, L89.103, L89.104, L89.109, L89.11, L89.110, L89.111, L89.112, L89.113, L89.114, L89.119, L89.12, L89.120, L89.121, L89.122, L89.123, L89.124, L89.129, L89.13, L89.130, L89.131, L89.132, L89.133, L89.134, L89.139, L89.14, L89.140, L89.141, L89.142, L89.143, L89.144, L89.149, L89.15, L89.150, L89.151, L89.152, L89.153, L89.154, L89.159, L89.2, L89.20, L89.200, L89.201, L89.202, L89.203, L89.204, L89.209, L89.21, L89.210, L89.211, L89.212, L89.213, L89.214, L89.219, L89.22, L89.220, L89.221, L89.222, L89.223, L89.224, L89.229, L89.3, L89.30, L89.300, L89.301, L89.302, L89.303, L89.304, L89.309, L89.31, L89.310, L89.311, L89.312, L89.313, L89.314, L89.319, L89.32, L89.320, L89.321, L89.322, L89.323, L89.324, L89.329, L89.4, L89.40, L89.41, L89.42, L89.43, L89.44, L89.45, L89.5, L89.50, L89.500, L89.501, L89.502, L89.503, L89.504, L89.509, L89.51, L89.510, L89.511, L89.512, L89.513, L89.514, L89.519, L89.52, L89.520, L89.521, L89.522, L89.523, L89.524, L89.529, L89.6, L89.60, L89.600, L89.601, L89.602, L89.603, L89.604, L89.609, L89.61, L89.610, L89.611, L89.612, L89.613, L89.614, L89.619, L89.62, L89.620, L89.621, L89.622, L89.623, L89.624, L89.629, L89.8, L89.81, L89.810, L89.811, L89.812, L89.813, L89.814, L89.819, L89.89, L89.890, L89.891, L89.892, L89.893, L89.894, L89.899, L89.9, L89.90, L89.91, L89.92, L89.93, L89.94, L89.95, L20.0, L20.81, L20.82, L20.83, L20.84, L20.89, L20.9, L21.0, L21.1, L21.8,		

236

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			L21.9, L22, L23.0, L23.1, L23.2, L23.3, L23.4, L23.5, L23.6, L23.7, L23.81, L23.89, L23.9, L24.0, L24.1, L24.2, L24.3, L24.4, L24.5, L24.6, L24.7, L24.81, L24.89, L24.9, L25.0, L25.1, L25.2, L25.3, L25.4, L25.5, L25.8, L25.9, L30.0, L30.2, L30.3, L30.8, L30.9, L56.4, L56.8, L56.9, L58.0, L58.1, L58.9, L59.0, L59.8, L59.9, B35, B35.0, B35.1, B35.2, B35.3, B35.4, B35.5, B35.6, B35.8, B35.9, B36, B36.0, B36.1, B36.2, B36.3, B36.8, B36.9, B83.4, B85, B85.0, B85.1, B85.2, B85.3, B85.4, B87, B87.0, B87.1, B87.2, B87.3, B87.4, B87.8, B87.81, B87.82, B87.89, B87.9, B88, B88.0, B88.1, B88.2, B88.3, B88.8, B88.9, E80.2, E80.20, E80.21, E80.28, E80.29, L00, L10, L10.0, L10.1, L10.2, L10.3, L10.4, L10.5, L10.8, L10.81, L10.89, L10.9, L11, L11.0, L11.1, L11.8, L11.9, L12, L12.0, L12.1, L12.2, L12.3, L12.30, L12.31, L12.35, L12.8, L12.9, L13, L13.0, L13.1, L13.8, L13.9, L14, L14.0, L20, L20.8, L21, L23, L23.8, L24, L24.8, L25, L26, L26.9, L27, L27.0, L27.1, L27.2, L27.8, L27.9, L28, L30, L30.1, L30.4, L40.1, L43, L43.0, L43.1, L43.2, L43.3, L43.8, L43.9, L44, L44.1, L44.2, L44.3, L44.9, L49, L49.0, L49.1, L49.2, L49.3, L49.4, L49.5, L49.6, L49.7, L49.8, L49.9, L51, L51.0, L51.1, L51.2, L51.3, L51.8, L51.9, L52, L53, L53.0, L53.1, L53.2, L53.3, L53.8, L53.9, L54, L54.0, L55.0, L55.1, L55.2, L55.9, L56, L56.0, L56.1, L56.2, L56.3, L56.5, L57, L57.0, L57.1, L57.2, L57.3, L57.4, L57.5, L57.8, L57.9, L59, L60, L60.0, L60.1, L60.2, L60.3, L60.4,		

237

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			L60.5, L60.8, L60.9, L62, L62.0, L62.8, L64, L65, L66, L66.1, L66.3, L66.4, L67, L67.0, L67.1, L67.8, L67.9, L68, L68.0, L68.1, L68.2, L68.3, L68.8, L68.9, L71, L71.0, L71.1, L71.8, L71.9, L72, L72.0, L72.1, L72.11, L72.12, L72.2, L72.3, L72.8, L72.9, L73, L73.1, L73.2, L73.8, L73.9, L74, L74.0, L74.1, L74.2, L74.3, L74.4, L74.5, L74.51, L74.510, L74.511, L74.512, L74.513, L74.519, L74.52, L74.8, L74.9, L75, L75.0, L75.1, L75.2, L75.8, L75.9, L80, L81, L81.0, L81.1, L81.2, L81.3, L81.4, L81.5, L81.6, L81.7, L81.8, L81.9, L82, L82.0, L82.1, L83, L84, L85, L85.0, L85.1, L85.2, L85.3, L85.8, L85.9, L86, L87, L87.0, L87.1, L87.2, L87.8, L87.9, L90, L90.0, L90.1, L90.2, L90.3, L90.4, L90.5, L90.6, L90.8, L90.9, L91, L91.0, L91.8, L91.9, L92, L92.0, L92.1, L92.2, L92.9, L93.0, L93.1, L93.2, L94, L94.0, L94.1, L94.2, L94.3, L94.4, L94.8, L94.9, L95, L95.0, L95.1, L95.8, L95.9, L97.101, L97.102, L97.103, L97.104, L97.109, L97.111, L97.112, L97.113, L97.114, L97.119, L97.121, L97.122, L97.123, L97.124, L97.129, L97.201, L97.202, L97.203, L97.204, L97.209, L97.211, L97.212, L97.213, L97.214, L97.219, L97.221, L97.222, L97.223, L97.224, L97.229, L97.301, L97.302, L97.303, L97.304, L97.309, L97.311, L97.312, L97.313, L97.314, L97.319, L97.321, L97.322, L97.323, L97.324, L97.329, L97.401, L97.402, L97.403, L97.404, L97.409, L97.411, L97.412, L97.413, L97.414, L97.419, L97.421, L97.422, L97.423, L97.424, L97.429, L97.501, L97.502, L97.503, L97.504, L97.509,		

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			L97.511, L97.512, L97.513, L97.514, L97.519, L97.521, L97.522, L97.523, L97.524, L97.529, L97.801, L97.802, L97.803, L97.804, L97.809, L97.811, L97.812, L97.813, L97.814, L97.819, L97.821, L97.822, L97.823, L97.824, L97.829, L97.901, L97.902, L97.903, L97.904, L97.909, L97.911, L97.912, L97.913, L97.914, L97.919, L97.921, L97.922, L97.923, L97.924, L97.929, L98.2, L98.411, L98.412, L98.413, L98.414, L98.419, L98.421, L98.422, L98.423, L98.424, L98.429, L98.491, L98.492, L98.493, L98.494, L98.499, L98.5, L98.6, L98.8, L98.9, L99, L99.0, L99.8, M35.2, L28.0, L28.1, L28.2, L29, L29.0, L29.1, L29.2, L29.3, L29.8, L29.9, L98.1, L30.5, L40, L40.0, L40.2, L40.3, L40.4, L40.5, L40.50, L40.51, L40.52, L40.53, L40.54, L40.59, L40.8, L40.9, L41, L41.0, L41.1, L41.2, L41.3, L41.4, L41.5, L41.8, L41.9, L42, L44.0, L44.8, L45, L94.5, B86, L50, L50.0, L50.1, L50.2, L50.3, L50.4, L50.5, L50.6, L50.8, L50.9, A63.0, B07, B07.0, B07.8, B07.9, B08, B08.0, B08.01, B08.010, B08.011, B08.02, B08.03, B08.04, B08.09, B08.1, B08.2, B08.20, B08.21, B08.22, B08.6, B08.60, B08.61, B08.62, B08.69, B08.7, B08.70, B08.71, B08.72, B08.79		

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
B.10.3	Sense organ diseases	077, 077.0, 077.1, 077.2, 077.3, 077.4, 077.8, 077.9, 077.98, 077.99, 360, 360.0, 360.00, 360.01, 360.02, 360.03, 360.04, 360.1, 360.11, 360.12, 360.13, 360.14, 360.19, 360.2, 360.20, 360.21, 360.23, 360.24, 360.29, 360.3, 360.30, 360.31, 360.32, 360.33, 360.34, 360.4, 360.40, 360.41, 360.42, 360.43, 360.44, 360.8, 360.81, 360.89, 360.9, 361, 361.0, 361.00, 361.01, 361.02, 361.03, 361.04, 361.05, 361.06, 361.07, 361.1, 361.10, 361.11, 361.12, 361.13, 361.14, 361.19, 361.2, 361.3, 361.30, 361.31, 361.32, 361.33, 361.8, 361.81, 361.89, 361.9, 362, 362.0, 362.1, 362.10, 362.11, 362.12, 362.13, 362.14, 362.15, 362.16, 362.17, 362.18, 362.2, 362.20, 362.21, 362.22, 362.23, 362.24, 362.25, 362.26, 362.27, 362.29, 362.3, 362.30, 362.31, 362.32, 362.33, 362.34, 362.35, 362.36, 362.37, 362.4, 362.40, 362.41, 362.42, 362.43, 362.5, 362.50, 362.51, 362.52, 362.53, 362.54, 362.55, 362.56, 362.57, 362.6, 362.60, 362.61, 362.62, 362.63, 362.64, 362.65, 362.66, 362.7, 362.70, 362.71, 362.72, 362.73, 362.74, 362.75, 362.76, 362.77, 362.8, 362.81, 362.82, 362.83, 362.84, 362.85, 362.89, 362.9, 363, 363.0, 363.00, 363.01, 363.03, 363.04, 363.05, 363.06, 363.07, 363.08, 363.1, 363.10, 363.11, 363.12, 363.13, 363.14, 363.15, 363.2, 363.20, 363.21, 363.22, 363.3, 363.30, 363.31, 363.32, 363.33, 363.34, 363.35, 363.4, 363.40, 363.41, 363.42, 363.43, 363.5, 363.50, 363.51, 363.52, 363.53, 363.54, 363.55, 363.56, 363.57, 363.6, 363.61, 363.62, 363.63, 363.7, 363.70, 363.71, 363.72, 363.8, 363.9, 364, 364.0, 364.00, 364.01, 364.02, 364.03,	Z01.0, Z01.1, Z01.11, Z13.5, Z52.5, Z82.1, Z83.5, Z83.51, Z83.518, Z83.52, Z94.7, Z96.1, Z97.0, Z97.3, Z97.4, H25, H25.0, H25.01, H25.011, H25.012, H25.013, H25.019, H25.03, H25.031, H25.032, H25.033, H25.039, H25.04, H25.041, H25.042, H25.043, H25.049, H25.09, H25.091, H25.092, H25.093, H25.099, H25.1, H25.10, H25.11, H25.12, H25.13, H25.2, H25.20, H25.21, H25.22, H25.23, H25.8, H25.81, H25.811, H25.812, H25.813, H25.819, H25.89, H25.9, H26, H26.0, H26.00, H26.001, H26.002, H26.003, H26.009, H26.01, H26.011, H26.012, H26.013, H26.019, H26.03, H26.031, H26.032, H26.033, H26.039, H26.04, H26.041, H26.042, H26.043, H26.049, H26.05, H26.051, H26.052, H26.053, H26.059, H26.06, H26.061, H26.062, H26.063, H26.069, H26.09, H26.1, H26.10, H26.101, H26.102, H26.103, H26.109, H26.11, H26.111, H26.112, H26.113, H26.119, H26.12, H26.121, H26.122, H26.123, H26.129, H26.13, H26.131, H26.132, H26.133, H26.139, H26.2, H26.20, H26.21, H26.211, H26.212, H26.213, H26.219, H26.22, H26.221, H26.222, H26.223, H26.229, H26.23, H26.231, H26.232, H26.233, H26.239, H26.3, H26.30, H26.31, H26.32, H26.33, H26.4, H26.40, H26.41, H26.411, H26.412, H26.413, H26.419, H26.49, H26.491, H26.492, H26.493, H26.499, H26.8, H26.9, H28, H28.0, H28.1, H28.2, H28.8, H40, H40.0, H40.00, H40.001, H40.002, H40.003, H40.009, H40.01, H40.011, H40.012, H40.013, H40.019, H40.02, H40.021, H40.022, H40.023, H40.029, H40.03,	both	0-85

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
		364.04, 364.05, 364.1, 364.10, 364.11, 364.2, 364.21, 364.22, 364.23, 364.24, 364.3, 364.4, 364.41, 364.42, 364.5, 364.51, 364.52, 364.53, 364.54, 364.55, 364.56, 364.57, 364.59, 364.6, 364.60, 364.61, 364.62, 364.63, 364.64, 364.7, 364.70, 364.71, 364.72, 364.73, 364.74, 364.75, 364.76, 364.77, 364.8, 364.81, 364.82, 364.89, 364.9, 365, 365.0, 365.00, 365.01, 365.02, 365.03, 365.04, 365.05, 365.06, 365.1, 365.10, 365.11, 365.12, 365.13, 365.14, 365.15, 365.2, 365.20, 365.21, 365.22, 365.23, 365.24, 365.3, 365.31, 365.32, 365.4, 365.41, 365.42, 365.43, 365.44, 365.5, 365.51, 365.52, 365.59, 365.6, 365.60, 365.61, 365.62, 365.63, 365.64, 365.65, 365.7, 365.70, 365.71, 365.72, 365.73, 365.74, 365.8, 365.81, 365.82, 365.83, 365.89, 365.9, 366, 366.0, 366.00, 366.01, 366.02, 366.03, 366.04, 366.09, 366.1, 366.10, 366.11, 366.12, 366.13, 366.14, 366.15, 366.16, 366.17, 366.18, 366.19, 366.2, 366.20, 366.21, 366.22, 366.23, 366.3, 366.30, 366.31, 366.32, 366.33, 366.34, 366.4, 366.41, 366.42, 366.43, 366.44, 366.45, 366.46, 366.5, 366.50, 366.51, 366.52, 366.53, 366.8, 366.9, 367, 367.0, 367.1, 367.2, 367.20, 367.21, 367.22, 367.3, 367.31, 367.32, 367.4, 367.5, 367.51, 367.52, 367.53, 367.8, 367.81, 367.89, 367.9, 368, 368.0, 368.00, 368.01, 368.02, 368.03, 368.1, 368.10, 368.11, 368.12, 368.13, 368.14, 368.15, 368.16, 368.2, 368.3, 368.30, 368.31, 368.32, 368.33, 368.34, 368.4, 368.40, 368.41, 368.42, 368.43, 368.44, 368.45, 368.46, 368.47, 368.5, 368.51, 368.52, 368.53, 368.54, 368.55, 368.59, 368.6, 368.60, 368.61, 368.62, 368.63, 368.69, 368.8,	H40.031, H40.032, H40.033, H40.039, H40.04, H40.041, H40.042, H40.043, H40.049, H40.05, H40.051, H40.052, H40.053, H40.059, H40.06, H40.061, H40.062, H40.063, H40.069, H40.1, H40.10, H40.11, H40.12, H40.121, H40.1210, H40.1211, H40.1212, H40.1213, H40.1214, H40.122, H40.1220, H40.1221, H40.1222, H40.1223, H40.1224, H40.123, H40.1230, H40.1231, H40.1232, H40.1233, H40.1234, H40.129, H40.1290, H40.1291, H40.1292, H40.1293, H40.1294, H40.13, H40.131, H40.1310, H40.1311, H40.1312, H40.1313, H40.1314, H40.132, H40.1320, H40.1321, H40.1322, H40.1323, H40.1324, H40.133, H40.1330, H40.1331, H40.1332, H40.1333, H40.1334, H40.139, H40.1390, H40.1391, H40.1392, H40.1393, H40.1394, H40.14, H40.141, H40.1410, H40.1411, H40.1412, H40.1413, H40.1414, H40.142, H40.1420, H40.1421, H40.1422, H40.1423, H40.1424, H40.143, H40.1430, H40.1431, H40.1432, H40.1433, H40.1434, H40.149, H40.1490, H40.1491, H40.1492, H40.1493, H40.1494, H40.15, H40.151, H40.152, H40.153, H40.159, H40.2, H40.20, H40.21, H40.211, H40.212, H40.213, H40.219, H40.22, H40.221, H40.2210, H40.2211, H40.2212, H40.2213, H40.2214, H40.222, H40.2220, H40.2221, H40.2222, H40.2223, H40.2224, H40.223, H40.2230, H40.2231, H40.2232, H40.2233, H40.2234, H40.229, H40.2290, H40.2291, H40.2292,		

241

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
		368.9, 369, 369.0, 369.00, 369.01, 369.02, 369.03, 369.04, 369.05, 369.06, 369.07, 369.08, 369.1, 369.10, 369.11, 369.12, 369.13, 369.14, 369.15, 369.16, 369.17, 369.18, 369.2, 369.20, 369.21, 369.22, 369.23, 369.24, 369.25, 369.3, 369.4, 369.6, 369.60, 369.61, 369.62, 369.63, 369.64, 369.65, 369.66, 369.67, 369.68, 369.69, 369.7, 369.70, 369.71, 369.72, 369.73, 369.74, 369.75, 369.76, 369.8, 369.9, 370, 370.0, 370.00, 370.01, 370.02, 370.03, 370.04, 370.05, 370.06, 370.07, 370.1, 370.2, 370.20, 370.21, 370.22, 370.23, 370.24, 370.3, 370.31, 370.32, 370.33, 370.34, 370.35, 370.4, 370.40, 370.44, 370.49, 370.5, 370.50, 370.52, 370.54, 370.55, 370.59, 370.6, 370.60, 370.61, 370.62, 370.63, 370.64, 370.8, 370.9, 371, 371.0, 371.00, 371.01, 371.02, 371.03, 371.04, 371.05, 371.1, 371.10, 371.11, 371.12, 371.13, 371.14, 371.15, 371.16, 371.2, 371.20, 371.21, 371.22, 371.23, 371.24, 371.3, 371.30, 371.31, 371.32, 371.33, 371.4, 371.40, 371.41, 371.42, 371.43, 371.44, 371.45, 371.46, 371.48, 371.49, 371.5, 371.50, 371.51, 371.52, 371.53, 371.54, 371.55, 371.56, 371.57, 371.58, 371.6, 371.60, 371.61, 371.62, 371.7, 371.70, 371.71, 371.72, 371.73, 371.8, 371.81, 371.82, 371.89, 371.9, 372, 372.0, 372.00, 372.01, 372.02, 372.03, 372.04, 372.05, 372.06, 372.1, 372.10, 372.11, 372.12, 372.13, 372.14, 372.15, 372.2, 372.20, 372.21, 372.22, 372.3, 372.30, 372.31, 372.33, 372.34, 372.39, 372.4, 372.40, 372.41, 372.42, 372.43, 372.44, 372.45, 372.5, 372.50, 372.51, 372.52, 372.53, 372.54, 372.55, 372.56, 372.6, 372.61,	H40.2293, H40.2294, H40.23, H40.231, H40.232, H40.233, H40.239, H40.24, H40.241, H40.242, H40.243, H40.249, H40.3, H40.30, H40.31, H40.32, H40.33, H40.4, H40.40, H40.41, H40.42, H40.43, H40.5, H40.50, H40.51, H40.52, H40.53, H40.6, H40.60, H40.61, H40.62, H40.63, H40.8, H40.81, H40.811, H40.812, H40.813, H40.819, H40.82, H40.821, H40.822, H40.823, H40.829, H40.83, H40.831, H40.832, H40.833, H40.839, H40.89, H40.9, H42, H42.0, H42.8, Z83.511, H71, H71.0, H71.00, H71.01, H71.02, H71.03, H71.1, H71.10, H71.11, H71.12, H71.13, H71.2, H71.20, H71.21, H71.22, H71.23, H71.3, H71.30, H71.31, H71.32, H71.33, H71.9, H71.90, H71.91, H71.92, H71.93, H72, H72.0, H72.00, H72.01, H72.02, H72.03, H72.1, H72.10, H72.11, H72.12, H72.13, H72.2, H72.8, H72.81, H72.811, H72.812, H72.813, H72.819, H72.82, H72.821, H72.822, H72.823, H72.829, H72.9, H72.90, H72.91, H72.92, H72.93, H73, H73.0, H73.00, H73.001, H73.002, H73.003, H73.009, H73.01, H73.011, H73.012, H73.013, H73.019, H73.09, H73.091, H73.092, H73.093, H73.099, H73.1, H73.10, H73.11, H73.12, H73.13, H73.2, H73.20, H73.21, H73.22, H73.23, H73.8, H73.81, H73.811, H73.812, H73.813, H73.819, H73.82, H73.821, H73.822, H73.823, H73.829, H73.89, H73.891, H73.892, H73.893, H73.899, H73.9, H73.90, H73.91, H73.92, H73.93, H74, H74.0, H74.01, H74.02, H74.03, H74.09, H74.1, H74.11, H74.12, H74.13, H74.19,		

242

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
		372.62, 372.63, 372.64, 372.7, 372.71, 372.72, 372.73, 372.74, 372.75, 372.8, 372.81, 372.89, 372.9, 373, 373.0, 373.00, 373.01, 373.02, 373.1, 373.11, 373.12, 373.13, 373.2, 373.3, 373.31, 373.32, 373.33, 373.34, 373.4, 373.5, 373.6, 373.8, 373.9, 374, 374.0, 374.00, 374.01, 374.02, 374.03, 374.04, 374.05, 374.1, 374.10, 374.11, 374.12, 374.13, 374.14, 374.2, 374.20, 374.21, 374.22, 374.23, 374.3, 374.30, 374.31, 374.32, 374.33, 374.34, 374.4, 374.41, 374.43, 374.44, 374.45, 374.46, 374.5, 374.50, 374.51, 374.52, 374.53, 374.54, 374.55, 374.56, 374.8, 374.81, 374.82, 374.83, 374.84, 374.85, 374.87, 374.89, 374.9, 375, 375.0, 375.00, 375.01, 375.02, 375.03, 375.1, 375.11, 375.12, 375.13, 375.14, 375.15, 375.16, 375.2, 375.20, 375.21, 375.22, 375.3, 375.30, 375.31, 375.32, 375.33, 375.4, 375.41, 375.42, 375.43, 375.5, 375.51, 375.52, 375.53, 375.54, 375.55, 375.56, 375.57, 375.6, 375.61, 375.69, 375.8, 375.81, 375.89, 375.9, 376, 376.0, 376.00, 376.01, 376.02, 376.03, 376.04, 376.1, 376.10, 376.11, 376.12, 376.13, 376.2, 376.21, 376.22, 376.3, 376.30, 376.31, 376.32, 376.33, 376.34, 376.35, 376.36, 376.4, 376.40, 376.41, 376.42, 376.43, 376.44, 376.45, 376.46, 376.47, 376.5, 376.50, 376.51, 376.52, 376.8, 376.81, 376.82, 376.89, 376.9, 377, 377.0, 377.00, 377.01, 377.02, 377.03, 377.04, 377.1, 377.10, 377.11, 377.12, 377.13, 377.14, 377.15, 377.16, 377.2, 377.21, 377.22, 377.23, 377.24, 377.3, 377.30, 377.31, 377.32, 377.33, 377.34, 377.39, 377.4, 377.41, 377.42, 377.43, 377.49, 377.5, 377.51, 377.52, 377.53, 377.54, 377.6, 377.61, 377.62, 377.63,	H74.2, H74.20, H74.21, H74.22, H74.23, H74.3, H74.31, H74.311, H74.312, H74.313, H74.319, H74.32, H74.321, H74.322, H74.323, H74.329, H74.39, H74.391, H74.392, H74.393, H74.399, H74.4, H74.40, H74.41, H74.42, H74.43, H74.8, H74.9, H74.90, H74.91, H74.92, H74.93, H75, H75.0, H75.00, H75.01, H75.02, H75.03, H75.8, H75.80, H75.81, H75.82, H75.83, H80, H80.0, H80.00, H80.01, H80.02, H80.03, H80.1, H80.10, H80.11, H80.12, H80.13, H80.2, H80.20, H80.21, H80.22, H80.23, H80.8, H80.80, H80.81, H80.82, H80.83, H80.9, H80.90, H80.91, H80.92, H80.93, H83, H83.0, H83.1, H83.2, H83.3, H83.8, H83.9, H90, H90.0, H90.1, H90.11, H90.12, H90.2, H90.3, H90.4, H90.41, H90.42, H90.5, H90.6, H90.7, H90.71, H90.72, H90.8, H91, H91.1, H91.2, H91.20, H91.21, H91.22, H91.23, H91.3, H91.8, H91.9, H91.90, H91.91, H91.92, H91.93, H94, H94.0, H94.8, Q16, Z01.10, Z01.110, Z01.118, Z01.12, Z46.1, Z82.2, H35.3, H35.30, H35.31, H35.32, H35.34, H35.341, H35.342, H35.343, H35.349, H35.35, H35.351, H35.352, H35.353, H35.359, H35.36, H35.361, H35.362, H35.363, H35.369, H35.37, H35.371, H35.372, H35.373, H35.379, H35.38, H35.381, H35.382, H35.383, H35.389, A74.0, B30, B30.0, B30.1, B30.2, B30.3, B30.8, B30.9, H00, H00.0, H00.01, H00.011, H00.012, H00.013, H00.014, H00.015, H00.016, H00.019, H00.02, H00.021, H00.022, H00.023, H00.024, H00.025, H00.026, H00.029, H00.03,		

243

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
		377.7, 377.71, 377.72, 377.73, 377.75, 377.9, 378, 378.0, 378.00, 378.01, 378.02, 378.03, 378.04, 378.05, 378.06, 378.07, 378.08, 378.1, 378.10, 378.11, 378.12, 378.13, 378.14, 378.15, 378.16, 378.17, 378.18, 378.2, 378.20, 378.21, 378.22, 378.23, 378.24, 378.3, 378.30, 378.31, 378.32, 378.33, 378.34, 378.35, 378.4, 378.40, 378.41, 378.42, 378.43, 378.44, 378.45, 378.5, 378.50, 378.51, 378.52, 378.53, 378.54, 378.55, 378.56, 378.6, 378.60, 378.61, 378.62, 378.63, 378.7, 378.71, 378.72, 378.73, 378.8, 378.81, 378.82, 378.83, 378.84, 378.85, 378.86, 378.87, 378.9, 379, 379.0, 379.00, 379.01, 379.02, 379.03, 379.04, 379.05, 379.06, 379.07, 379.09, 379.1, 379.11, 379.12, 379.13, 379.14, 379.15, 379.16, 379.19, 379.2, 379.21, 379.22, 379.23, 379.24, 379.25, 379.26, 379.27, 379.29, 379.3, 379.31, 379.32, 379.33, 379.34, 379.39, 379.4, 379.40, 379.41, 379.42, 379.43, 379.45, 379.46, 379.49, 379.5, 379.50, 379.51, 379.52, 379.53, 379.54, 379.55, 379.56, 379.57, 379.58, 379.59, 379.8, 379.9, 379.90, 379.91, 379.92, 379.93, 379.99, 380, 380.0, 380.00, 380.01, 380.02, 380.03, 380.1, 380.10, 380.11, 380.12, 380.13, 380.14, 380.15, 380.16, 380.2, 380.21, 380.22, 380.23, 380.3, 380.30, 380.31, 380.32, 380.39, 380.4, 380.5, 380.50, 380.51, 380.52, 380.53, 380.8, 380.81, 380.89, 380.9, 384, 384.0, 384.00, 384.01, 384.09, 384.1, 384.2, 384.20, 384.21, 384.22, 384.23, 384.24, 384.25, 384.3, 384.4, 384.8, 384.81, 384.82, 384.9, 385, 385.0, 385.00, 385.01, 385.02, 385.03, 385.09, 385.1, 385.10, 385.11, 385.12, 385.13,	H00.031, H00.032, H00.033, H00.034, H00.035, H00.036, H00.039, H00.1, H00.11, H00.12, H00.13, H00.14, H00.15, H00.16, H00.19, H01, H01.0, H01.00, H01.001, H01.002, H01.003, H01.004, H01.005, H01.006, H01.009, H01.01, H01.011, H01.012, H01.013, H01.014, H01.015, H01.016, H01.019, H01.02, H01.021, H01.022, H01.023, H01.024, H01.025, H01.026, H01.029, H01.1, H01.11, H01.111, H01.112, H01.113, H01.114, H01.115, H01.116, H01.119, H01.12, H01.121, H01.122, H01.123, H01.124, H01.125, H01.126, H01.129, H01.13, H01.131, H01.132, H01.133, H01.134, H01.135, H01.136, H01.139, H01.14, H01.141, H01.142, H01.143, H01.144, H01.145, H01.146, H01.149, H01.8, H01.9, H02, H02.0, H02.00, H02.001, H02.002, H02.003, H02.004, H02.005, H02.006, H02.009, H02.01, H02.011, H02.012, H02.013, H02.014, H02.015, H02.016, H02.019, H02.02, H02.021, H02.022, H02.023, H02.024, H02.025, H02.026, H02.029, H02.03, H02.031, H02.032, H02.033, H02.034, H02.035, H02.036, H02.039, H02.04, H02.041, H02.042, H02.043, H02.044, H02.045, H02.046, H02.049, H02.05, H02.051, H02.052, H02.053, H02.054, H02.055, H02.056, H02.059, H02.1, H02.10, H02.101, H02.102, H02.103, H02.104, H02.105, H02.106, H02.109, H02.11, H02.111, H02.112, H02.113, H02.114, H02.115, H02.116, H02.119, H02.12, H02.121, H02.122, H02.123, H02.124,		

244

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
		385.19, 385.2, 385.21, 385.22, 385.23, 385.24, 385.3, 385.30, 385.31, 385.32, 385.33, 385.35, 385.8, 385.82, 385.83, 385.89, 385.9, 386, 386.0, 386.00, 386.01, 386.02, 386.03, 386.04, 386.1, 386.10, 386.11, 386.12, 386.19, 386.2, 386.3, 386.30, 386.31, 386.32, 386.33, 386.34, 386.35, 386.4, 386.40, 386.41, 386.42, 386.43, 386.48, 386.5, 386.50, 386.51, 386.52, 386.53, 386.54, 386.55, 386.56, 386.58, 386.8, 386.9, 387, 387.0, 387.1, 387.2, 387.8, 387.9, 388, 388.0, 388.00, 388.01, 388.02, 388.1, 388.10, 388.11, 388.12, 388.2, 388.3, 388.30, 388.31, 388.32, 388.4, 388.40, 388.41, 388.42, 388.43, 388.44, 388.45, 388.5, 388.6, 388.60, 388.61, 388.69, 388.7, 388.70, 388.71, 388.72, 388.8, 388.9, 389, 389.0, 389.00, 389.01, 389.02, 389.03, 389.04, 389.05, 389.06, 389.08, 389.1, 389.10, 389.11, 389.12, 389.13, 389.14, 389.15, 389.16, 389.17, 389.18, 389.2, 389.20, 389.21, 389.22, 389.7, 389.8, 389.9, 744.0, V19.0, V19.1, V19.11, V19.19, V19.2, V19.3, V41, V41.0, V41.1, V41.2, V41.3, V41.4, V41.5, V42.5, V43.0, V43.1, V45.6, V45.61, V45.69, V45.78, V48.4, V48.5, V52.2, V53.1, V53.2, V58.71, V59.5, V72.0, V72.1, V72.11, V72.12, V72.19, V74.4, V80, V80.1, V80.2, V80.3	H02.125, H02.126, H02.129, H02.13, H02.131, H02.132, H02.133, H02.134, H02.135, H02.136, H02.139, H02.14, H02.141, H02.142, H02.143, H02.144, H02.145, H02.146, H02.149, H02.2, H02.20, H02.201, H02.202, H02.203, H02.204, H02.205, H02.206, H02.209, H02.21, H02.211, H02.212, H02.213, H02.214, H02.215, H02.216, H02.219, H02.22, H02.221, H02.222, H02.223, H02.224, H02.225, H02.226, H02.229, H02.23, H02.231, H02.232, H02.233, H02.234, H02.235, H02.236, H02.239, H02.3, H02.30, H02.31, H02.32, H02.33, H02.34, H02.35, H02.36, H02.4, H02.40, H02.401, H02.402, H02.403, H02.409, H02.41, H02.411, H02.412, H02.413, H02.419, H02.42, H02.421, H02.422, H02.423, H02.429, H02.43, H02.431, H02.432, H02.433, H02.439, H02.5, H02.51, H02.511, H02.512, H02.513, H02.514, H02.515, H02.516, H02.519, H02.52, H02.521, H02.522, H02.523, H02.524, H02.525, H02.526, H02.529, H02.53, H02.531, H02.532, H02.533, H02.534, H02.535, H02.536, H02.539, H02.59, H02.6, H02.60, H02.61, H02.62, H02.63, H02.64, H02.65, H02.66, H02.7, H02.70, H02.71, H02.711, H02.712, H02.713, H02.714, H02.715, H02.716, H02.719, H02.72, H02.721, H02.722, H02.723, H02.724, H02.725, H02.726, H02.729, H02.73, H02.731, H02.732, H02.733, H02.734, H02.735, H02.736, H02.739, H02.79, H02.8, H02.81, H02.811, H02.812, H02.813, H02.814, H02.815, H02.816,		

245

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			H02.819, H02.82, H02.821, H02.822, H02.823, H02.824, H02.825, H02.826, H02.829, H02.83, H02.831, H02.832, H02.833, H02.834, H02.835, H02.836, H02.839, H02.84, H02.841, H02.842, H02.843, H02.844, H02.845, H02.846, H02.849, H02.85, H02.851, H02.852, H02.853, H02.854, H02.855, H02.856, H02.859, H02.86, H02.861, H02.862, H02.863, H02.864, H02.865, H02.866, H02.869, H02.87, H02.871, H02.872, H02.873, H02.874, H02.875, H02.876, H02.879, H02.89, H02.9, H03.0, H03.1, H03.8, H04, H04.0, H04.00, H04.001, H04.002, H04.003, H04.009, H04.01, H04.011, H04.012, H04.013, H04.019, H04.02, H04.021, H04.022, H04.023, H04.029, H04.03, H04.031, H04.032, H04.033, H04.039, H04.1, H04.11, H04.111, H04.112, H04.113, H04.119, H04.12, H04.121, H04.122, H04.123, H04.129, H04.13, H04.131, H04.132, H04.133, H04.139, H04.14, H04.141, H04.142, H04.143, H04.149, H04.15, H04.151, H04.152, H04.153, H04.159, H04.16, H04.161, H04.162, H04.163, H04.169, H04.19, H04.2, H04.20, H04.201, H04.202, H04.203, H04.209, H04.21, H04.211, H04.212, H04.213, H04.219, H04.22, H04.221, H04.222, H04.223, H04.229, H04.3, H04.30, H04.301, H04.302, H04.303, H04.309, H04.31, H04.311, H04.312, H04.313, H04.319, H04.32, H04.321, H04.322, H04.323, H04.329, H04.33, H04.331, H04.332, H04.333, H04.339, H04.4, H04.41, H04.411, H04.412, H04.413, H04.419, H04.42, H04.421, H04.422, H04.423,		

246

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			H04.429, H04.43, H04.431, H04.432, H04.433, H04.439, H04.5, H04.51, H04.511, H04.512, H04.513, H04.519, H04.52, H04.521, H04.522, H04.523, H04.529, H04.53, H04.531, H04.532, H04.533, H04.539, H04.54, H04.541, H04.542, H04.543, H04.549, H04.55, H04.551, H04.552, H04.553, H04.559, H04.56, H04.561, H04.562, H04.563, H04.569, H04.57, H04.571, H04.572, H04.573, H04.579, H04.6, H04.61, H04.611, H04.612, H04.613, H04.619, H04.69, H04.8, H04.81, H04.811, H04.812, H04.813, H04.819, H04.89, H04.9, H05, H05.0, H05.00, H05.01, H05.011, H05.012, H05.013, H05.019, H05.02, H05.021, H05.022, H05.023, H05.029, H05.03, H05.031, H05.032, H05.033, H05.039, H05.04, H05.041, H05.042, H05.043, H05.049, H05.1, H05.10, H05.11, H05.111, H05.112, H05.113, H05.119, H05.12, H05.121, H05.122, H05.123, H05.129, H05.2, H05.20, H05.21, H05.211, H05.212, H05.213, H05.219, H05.22, H05.221, H05.222, H05.223, H05.229, H05.23, H05.231, H05.232, H05.233, H05.239, H05.24, H05.241, H05.242, H05.243, H05.249, H05.25, H05.251, H05.252, H05.253, H05.259, H05.26, H05.261, H05.262, H05.263, H05.269, H05.3, H05.30, H05.31, H05.311, H05.312, H05.313, H05.319, H05.32, H05.321, H05.322, H05.323, H05.329, H05.33, H05.331, H05.332, H05.333, H05.339, H05.34, H05.341, H05.342, H05.343, H05.349, H05.35, H05.351, H05.352, H05.353, H05.359, H05.4, H05.40, H05.401, H05.402, H05.403, H05.409, H05.41, H05.411, H05.412,		

247

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			H05.413, H05.419, H05.42, H05.421, H05.422, H05.423, H05.429, H05.8, H05.81, H05.811, H05.812, H05.813, H05.819, H05.82, H05.821, H05.822, H05.823, H05.829, H05.89, H05.9, H06, H06.0, H06.1, H06.2, H06.3, H10, H10.0, H10.01, H10.011, H10.012, H10.013, H10.019, H10.02, H10.021, H10.022, H10.023, H10.029, H10.1, H10.10, H10.11, H10.12, H10.13, H10.2, H10.21, H10.211, H10.212, H10.213, H10.219, H10.22, H10.221, H10.222, H10.223, H10.229, H10.23, H10.231, H10.232, H10.233, H10.239, H10.3, H10.30, H10.31, H10.32, H10.33, H10.4, H10.40, H10.401, H10.402, H10.403, H10.409, H10.41, H10.411, H10.412, H10.413, H10.419, H10.42, H10.421, H10.422, H10.423, H10.429, H10.43, H10.431, H10.432, H10.433, H10.439, H10.44, H10.45, H10.5, H10.50, H10.501, H10.502, H10.503, H10.509, H10.51, H10.511, H10.512, H10.513, H10.519, H10.52, H10.521, H10.522, H10.523, H10.529, H10.53, H10.531, H10.532, H10.533, H10.539, H10.8, H10.81, H10.811, H10.812, H10.813, H10.819, H10.89, H10.9, H11, H11.0, H11.00, H11.001, H11.002, H11.003, H11.009, H11.01, H11.011, H11.012, H11.013, H11.019, H11.02, H11.021, H11.022, H11.023, H11.029, H11.03, H11.031, H11.032, H11.033, H11.039, H11.04, H11.041, H11.042, H11.043, H11.049, H11.05, H11.051, H11.052, H11.053, H11.059, H11.06, H11.061, H11.062, H11.063, H11.069, H11.1, H11.10, H11.11, H11.111, H11.112, H11.113, H11.119, H11.12, H11.121, H11.122,		

248

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			H11.123, H11.129, H11.13, H11.131, H11.132, H11.133, H11.139, H11.14, H11.141, H11.142, H11.143, H11.149, H11.15, H11.151, H11.152, H11.153, H11.159, H11.2, H11.21, H11.211, H11.212, H11.213, H11.219, H11.22, H11.221, H11.222, H11.223, H11.229, H11.23, H11.231, H11.232, H11.233, H11.239, H11.24, H11.241, H11.242, H11.243, H11.249, H11.3, H11.30, H11.31, H11.32, H11.33, H11.4, H11.41, H11.411, H11.412, H11.413, H11.419, H11.42, H11.421, H11.422, H11.423, H11.429, H11.43, H11.431, H11.432, H11.433, H11.439, H11.44, H11.441, H11.442, H11.443, H11.449, H11.8, H11.81, H11.811, H11.812, H11.813, H11.819, H11.82, H11.821, H11.822, H11.823, H11.829, H11.89, H11.9, H13, H13.0, H13.1, H13.2, H13.3, H13.8, H15, H15.0, H15.00, H15.001, H15.002, H15.003, H15.009, H15.01, H15.011, H15.012, H15.013, H15.019, H15.02, H15.021, H15.022, H15.023, H15.029, H15.03, H15.031, H15.032, H15.033, H15.039, H15.04, H15.041, H15.042, H15.043, H15.049, H15.05, H15.051, H15.052, H15.053, H15.059, H15.09, H15.091, H15.092, H15.093, H15.099, H15.1, H15.10, H15.101, H15.102, H15.103, H15.109, H15.11, H15.111, H15.112, H15.113, H15.119, H15.12, H15.121, H15.122, H15.123, H15.129, H15.8, H15.81, H15.811, H15.812, H15.813, H15.819, H15.82, H15.821, H15.822, H15.823, H15.829, H15.83, H15.831, H15.832, H15.833, H15.839, H15.84, H15.841, H15.842, H15.843, H15.849, H15.85, H15.851, H15.852,		

249

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			H15.853, H15.859, H15.89, H15.9, H16, H16.0, H16.00, H16.001, H16.002, H16.003, H16.009, H16.01, H16.011, H16.012, H16.013, H16.019, H16.02, H16.021, H16.022, H16.023, H16.029, H16.03, H16.031, H16.032, H16.033, H16.039, H16.04, H16.041, H16.042, H16.043, H16.049, H16.05, H16.051, H16.052, H16.053, H16.059, H16.06, H16.061, H16.062, H16.063, H16.069, H16.07, H16.071, H16.072, H16.073, H16.079, H16.1, H16.10, H16.101, H16.102, H16.103, H16.109, H16.11, H16.111, H16.112, H16.113, H16.119, H16.12, H16.121, H16.122, H16.123, H16.129, H16.13, H16.131, H16.132, H16.133, H16.139, H16.14, H16.141, H16.142, H16.143, H16.149, H16.2, H16.20, H16.201, H16.202, H16.203, H16.209, H16.21, H16.211, H16.212, H16.213, H16.219, H16.22, H16.221, H16.222, H16.223, H16.229, H16.23, H16.231, H16.232, H16.233, H16.239, H16.24, H16.241, H16.242, H16.243, H16.249, H16.25, H16.251, H16.252, H16.253, H16.259, H16.26, H16.261, H16.262, H16.263, H16.269, H16.29, H16.291, H16.292, H16.293, H16.299, H16.3, H16.30, H16.301, H16.302, H16.303, H16.309, H16.31, H16.311, H16.312, H16.313, H16.319, H16.32, H16.321, H16.322, H16.323, H16.329, H16.33, H16.331, H16.332, H16.333, H16.339, H16.39, H16.391, H16.392, H16.393, H16.399, H16.4, H16.40, H16.401, H16.402, H16.403, H16.409, H16.41, H16.411, H16.412, H16.413, H16.419, H16.42, H16.421, H16.422, H16.423, H16.429, H16.43, H16.431,		

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			H16.432, H16.433, H16.439, H16.44, H16.441, H16.442, H16.443, H16.449, H16.8, H16.9, H17, H17.0, H17.00, H17.01, H17.02, H17.03, H17.1, H17.10, H17.11, H17.12, H17.13, H17.8, H17.81, H17.811, H17.812, H17.813, H17.819, H17.82, H17.821, H17.822, H17.823, H17.829, H17.89, H17.9, H18, H18.0, H18.00, H18.001, H18.002, H18.003, H18.009, H18.01, H18.011, H18.012, H18.013, H18.019, H18.02, H18.021, H18.022, H18.023, H18.029, H18.03, H18.031, H18.032, H18.033, H18.039, H18.04, H18.041, H18.042, H18.043, H18.049, H18.05, H18.051, H18.052, H18.053, H18.059, H18.06, H18.061, H18.062, H18.063, H18.069, H18.1, H18.10, H18.11, H18.12, H18.13, H18.2, H18.20, H18.21, H18.211, H18.212, H18.213, H18.219, H18.22, H18.221, H18.222, H18.223, H18.229, H18.23, H18.231, H18.232, H18.233, H18.239, H18.3, H18.30, H18.31, H18.311, H18.312, H18.313, H18.319, H18.32, H18.321, H18.322, H18.323, H18.329, H18.33, H18.331, H18.332, H18.333, H18.339, H18.4, H18.40, H18.41, H18.411, H18.412, H18.413, H18.419, H18.42, H18.421, H18.422, H18.423, H18.429, H18.43, H18.44, H18.441, H18.442, H18.443, H18.449, H18.45, H18.451, H18.452, H18.453, H18.459, H18.46, H18.461, H18.462, H18.463, H18.469, H18.49, H18.5, H18.50, H18.51, H18.52, H18.53, H18.54, H18.55, H18.59, H18.6, H18.60, H18.601, H18.602, H18.603, H18.609, H18.61, H18.611, H18.612, H18.613, H18.619, H18.62, H18.621, H18.622, H18.623,		

251

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			H18.629, H18.7, H18.70, H18.71, H18.711, H18.712, H18.713, H18.719, H18.72, H18.721, H18.722, H18.723, H18.729, H18.73, H18.731, H18.732, H18.733, H18.739, H18.79, H18.791, H18.792, H18.793, H18.799, H18.8, H18.81, H18.811, H18.812, H18.813, H18.819, H18.82, H18.821, H18.822, H18.823, H18.829, H18.83, H18.831, H18.832, H18.833, H18.839, H18.89, H18.891, H18.892, H18.893, H18.899, H18.9, H19, H19.0, H19.1, H19.2, H19.3, H19.8, H20, H20.0, H20.00, H20.01, H20.011, H20.012, H20.013, H20.019, H20.02, H20.021, H20.022, H20.023, H20.029, H20.03, H20.031, H20.032, H20.033, H20.039, H20.04, H20.041, H20.042, H20.043, H20.049, H20.05, H20.051, H20.052, H20.053, H20.059, H20.1, H20.10, H20.11, H20.12, H20.13, H20.2, H20.20, H20.21, H20.22, H20.23, H20.8, H20.81, H20.811, H20.812, H20.813, H20.819, H20.82, H20.821, H20.822, H20.823, H20.829, H20.9, H21, H21.0, H21.00, H21.01, H21.02, H21.03, H21.1, H21.2, H21.21, H21.211, H21.212, H21.213, H21.219, H21.22, H21.221, H21.222, H21.223, H21.229, H21.23, H21.231, H21.232, H21.233, H21.239, H21.24, H21.241, H21.242, H21.243, H21.249, H21.25, H21.251, H21.252, H21.253, H21.259, H21.26, H21.261, H21.262, H21.263, H21.269, H21.27, H21.271, H21.272, H21.273, H21.279, H21.29, H21.3, H21.30, H21.301, H21.302, H21.303, H21.309, H21.31, H21.311, H21.312, H21.313, H21.319, H21.32, H21.321, H21.322, H21.323, H21.329, H21.33,		

252

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			H21.331, H21.332, H21.333, H21.339, H21.34, H21.341, H21.342, H21.343, H21.349, H21.35, H21.351, H21.352, H21.353, H21.359, H21.4, H21.40, H21.41, H21.42, H21.43, H21.5, H21.50, H21.501, H21.502, H21.503, H21.509, H21.51, H21.511, H21.512, H21.513, H21.519, H21.52, H21.521, H21.522, H21.523, H21.529, H21.53, H21.531, H21.532, H21.533, H21.539, H21.54, H21.541, H21.542, H21.543, H21.549, H21.55, H21.551, H21.552, H21.553, H21.559, H21.56, H21.561, H21.562, H21.563, H21.569, H21.8, H21.81, H21.82, H21.89, H21.9, H22, H22.0, H22.1, H22.8, H27.00, H27.01, H27.02, H27.03, H27.10, H27.111, H27.112, H27.113, H27.119, H27.121, H27.122, H27.123, H27.129, H27.131, H27.132, H27.133, H27.139, H27.8, H27.9, H30, H30.0, H30.00, H30.01, H30.02, H30.03, H30.04, H30.1, H30.10, H30.11, H30.12, H30.13, H30.14, H30.2, H30.8, H30.81, H30.89, H30.9, H33.121, H33.122, H33.123, H33.129, H43, H43.0, H43.00, H43.01, H43.02, H43.03, H43.1, H43.10, H43.11, H43.12, H43.13, H43.2, H43.20, H43.21, H43.22, H43.23, H43.3, H43.31, H43.311, H43.312, H43.313, H43.319, H43.39, H43.391, H43.392, H43.393, H43.399, H43.8, H43.81, H43.811, H43.812, H43.813, H43.819, H43.82, H43.821, H43.822, H43.823, H43.829, H43.89, H43.9, H44, H44.0, H44.00, H44.001, H44.002, H44.003, H44.009, H44.01, H44.011, H44.012, H44.013, H44.019, H44.02, H44.021, H44.022, H44.023, H44.029, H44.1,		

253

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			H44.11, H44.111, H44.112, H44.113, H44.119, H44.12, H44.121, H44.122, H44.123, H44.129, H44.13, H44.131, H44.132, H44.133, H44.139, H44.19, H44.2, H44.20, H44.21, H44.22, H44.23, H44.3, H44.30, H44.31, H44.311, H44.312, H44.313, H44.319, H44.32, H44.321, H44.322, H44.323, H44.329, H44.39, H44.391, H44.392, H44.393, H44.399, H44.4, H44.40, H44.41, H44.411, H44.412, H44.413, H44.419, H44.42, H44.421, H44.422, H44.423, H44.429, H44.43, H44.431, H44.432, H44.433, H44.439, H44.44, H44.441, H44.442, H44.443, H44.449, H44.5, H44.50, H44.51, H44.511, H44.512, H44.513, H44.519, H44.52, H44.521, H44.522, H44.523, H44.529, H44.53, H44.531, H44.532, H44.533, H44.539, H44.8, H44.81, H44.811, H44.812, H44.813, H44.819, H44.82, H45, H45.0, H45.1, H45.8, H55, H55.0, H55.00, H55.01, H55.02, H55.03, H55.04, H55.09, H55.8, H55.81, H55.89, H57, H57.0, H57.00, H57.01, H57.02, H57.03, H57.04, H57.05, H57.051, H57.052, H57.053, H57.059, H57.09, H57.1, H57.10, H57.11, H57.12, H57.13, H57.8, H57.9, H58, H58.0, H58.8, H58.9, H60, H60.0, H60.00, H60.01, H60.02, H60.03, H60.1, H60.10, H60.11, H60.12, H60.13, H60.2, H60.20, H60.21, H60.22, H60.23, H60.3, H60.31, H60.311, H60.312, H60.313, H60.319, H60.32, H60.321, H60.322, H60.323, H60.329, H60.33, H60.331, H60.332, H60.333, H60.339, H60.39, H60.391, H60.392, H60.393, H60.399, H60.4, H60.40, H60.41, H60.42, H60.43, H60.5, H60.50, H60.501, H60.502, H60.503,		

254

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			H60.509, H60.51, H60.511, H60.512, H60.513, H60.519, H60.52, H60.521, H60.522, H60.523, H60.529, H60.53, H60.531, H60.532, H60.533, H60.539, H60.54, H60.541, H60.542, H60.543, H60.549, H60.55, H60.551, H60.552, H60.553, H60.559, H60.59, H60.591, H60.592, H60.593, H60.599, H60.6, H60.60, H60.61, H60.62, H60.63, H60.8, H60.9, H60.90, H60.91, H60.92, H60.93, H61, H61.0, H61.00, H61.001, H61.002, H61.003, H61.009, H61.01, H61.011, H61.012, H61.013, H61.019, H61.02, H61.021, H61.022, H61.023, H61.029, H61.03, H61.031, H61.032, H61.033, H61.039, H61.1, H61.10, H61.101, H61.102, H61.103, H61.109, H61.11, H61.111, H61.112, H61.113, H61.119, H61.12, H61.121, H61.122, H61.123, H61.129, H61.19, H61.191, H61.192, H61.193, H61.199, H61.2, H61.20, H61.21, H61.22, H61.23, H61.3, H61.30, H61.301, H61.302, H61.303, H61.309, H61.31, H61.311, H61.312, H61.313, H61.319, H61.32, H61.321, H61.322, H61.323, H61.329, H61.39, H61.391, H61.392, H61.393, H61.399, H61.8, H61.81, H61.811, H61.812, H61.813, H61.819, H61.89, H61.891, H61.892, H61.893, H61.899, H61.9, H61.90, H61.91, H61.92, H61.93, H62, H62.0, H62.1, H62.2, H62.3, H62.4, H62.40, H62.41, H62.42, H62.43, H62.8, H81, H81.0, H81.01, H81.02, H81.03, H81.09, H81.1, H81.10, H81.11, H81.12, H81.13, H81.2, H81.20, H81.21, H81.22, H81.23, H81.3, H81.31, H81.311, H81.312, H81.313, H81.319, H81.39, H81.391, H81.392,		

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			H81.393, H81.399, H81.4, H81.41, H81.42, H81.43, H81.49, H81.8, H81.9, H81.90, H81.91, H81.92, H81.93, H82, H82.1, H82.2, H82.3, H82.9, H83.01, H83.02, H83.03, H83.09, H83.11, H83.12, H83.13, H83.19, H83.90, H83.91, H83.92, H83.93, H91.10, H91.11, H91.12, H91.13, H92, H92.0, H92.01, H92.02, H92.03, H92.09, H92.1, H92.10, H92.11, H92.12, H92.13, H92.2, H92.20, H92.21, H92.22, H92.23, H93, H93.0, H93.01, H93.011, H93.012, H93.013, H93.019, H93.09, H93.091, H93.092, H93.093, H93.099, H93.1, H93.11, H93.12, H93.13, H93.19, H93.2, H93.21, H93.211, H93.212, H93.213, H93.219, H93.22, H93.221, H93.222, H93.223, H93.229, H93.23, H93.231, H93.232, H93.233, H93.239, H93.24, H93.241, H93.242, H93.243, H93.249, H93.25, H93.29, H93.291, H93.292, H93.293, H93.299, H93.3, H93.8, H93.9, H93.90, H93.91, H93.92, H93.93, H94.00, H94.01, H94.02, H94.03, H94.80, H94.81, H94.82, H94.83, R43, R44, H52, H52.0, H52.00, H52.01, H52.02, H52.03, H52.1, H52.10, H52.11, H52.12, H52.13, H52.2, H52.20, H52.201, H52.202, H52.203, H52.209, H52.21, H52.211, H52.212, H52.213, H52.219, H52.22, H52.221, H52.222, H52.223, H52.229, H52.3, H52.31, H52.32, H52.4, H52.5, H52.51, H52.511, H52.512, H52.513, H52.519, H52.52, H52.521, H52.522, H52.523, H52.529, H52.53, H52.531, H52.532, H52.533, H52.539, H52.6, H52.7, Z46.0, G45.3, H27, H27.0, H27.1, H27.11, H27.12, H27.13,		

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			H30.001, H30.002, H30.003, H30.009, H30.011, H30.012, H30.013, H30.019, H30.021, H30.022, H30.023, H30.029, H30.031, H30.032, H30.033, H30.039, H30.041, H30.042, H30.043, H30.049, H30.101, H30.102, H30.103, H30.109, H30.111, H30.112, H30.113, H30.119, H30.121, H30.122, H30.123, H30.129, H30.131, H30.132, H30.133, H30.139, H30.141, H30.142, H30.143, H30.149, H30.20, H30.21, H30.22, H30.23, H30.811, H30.812, H30.813, H30.819, H30.891, H30.892, H30.893, H30.899, H30.90, H30.91, H30.92, H30.93, H31, H31.0, H31.00, H31.001, H31.002, H31.003, H31.009, H31.01, H31.011, H31.012, H31.013, H31.019, H31.02, H31.021, H31.022, H31.023, H31.029, H31.09, H31.091, H31.092, H31.093, H31.099, H31.1, H31.10, H31.101, H31.102, H31.103, H31.109, H31.11, H31.111, H31.112, H31.113, H31.119, H31.12, H31.121, H31.122, H31.123, H31.129, H31.2, H31.20, H31.21, H31.22, H31.23, H31.29, H31.3, H31.30, H31.301, H31.302, H31.303, H31.309, H31.31, H31.311, H31.312, H31.313, H31.319, H31.32, H31.321, H31.322, H31.323, H31.329, H31.4, H31.40, H31.401, H31.402, H31.403, H31.409, H31.41, H31.411, H31.412, H31.413, H31.419, H31.42, H31.421, H31.422, H31.423, H31.429, H31.8, H31.9, H32, H32.0, H32.8, H33, H33.0, H33.00, H33.001, H33.002, H33.003, H33.009, H33.01, H33.011, H33.012, H33.013, H33.019, H33.02, H33.021,		

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			H33.022, H33.023, H33.029, H33.03, H33.031, H33.032, H33.033, H33.039, H33.04, H33.041, H33.042, H33.043, H33.049, H33.05, H33.051, H33.052, H33.053, H33.059, H33.1, H33.10, H33.101, H33.102, H33.103, H33.109, H33.11, H33.111, H33.112, H33.113, H33.119, H33.12, H33.19, H33.191, H33.192, H33.193, H33.199, H33.2, H33.20, H33.21, H33.22, H33.23, H33.3, H33.30, H33.301, H33.302, H33.303, H33.309, H33.31, H33.311, H33.312, H33.313, H33.319, H33.32, H33.321, H33.322, H33.323, H33.329, H33.33, H33.331, H33.332, H33.333, H33.339, H33.4, H33.40, H33.41, H33.42, H33.43, H33.5, H33.8, H34, H34.0, H34.00, H34.01, H34.02, H34.03, H34.1, H34.10, H34.11, H34.12, H34.13, H34.2, H34.21, H34.211, H34.212, H34.213, H34.219, H34.23, H34.231, H34.232, H34.233, H34.239, H34.8, H34.81, H34.811, H34.812, H34.813, H34.819, H34.82, H34.821, H34.822, H34.823, H34.829, H34.83, H34.831, H34.832, H34.833, H34.839, H34.9, H35, H35.0, H35.00, H35.01, H35.011, H35.012, H35.013, H35.019, H35.02, H35.021, H35.022, H35.023, H35.029, H35.03, H35.031, H35.032, H35.033, H35.039, H35.04, H35.041, H35.042, H35.043, H35.049, H35.05, H35.051, H35.052, H35.053, H35.059, H35.06, H35.061, H35.062, H35.063, H35.069, H35.07, H35.071, H35.072, H35.073, H35.079, H35.09, H35.1, H35.10, H35.101, H35.102, H35.103, H35.109, H35.11, H35.111, H35.112, H35.113, H35.119, H35.12, H35.121,		

258

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			H35.122, H35.123, H35.129, H35.13, H35.131, H35.132, H35.133, H35.139, H35.14, H35.141, H35.142, H35.143, H35.149, H35.15, H35.151, H35.152, H35.153, H35.159, H35.16, H35.161, H35.162, H35.163, H35.169, H35.17, H35.171, H35.172, H35.173, H35.179, H35.2, H35.20, H35.21, H35.22, H35.23, H35.33, H35.4, H35.40, H35.41, H35.411, H35.412, H35.413, H35.419, H35.42, H35.421, H35.422, H35.423, H35.429, H35.43, H35.431, H35.432, H35.433, H35.439, H35.44, H35.441, H35.442, H35.443, H35.449, H35.45, H35.451, H35.452, H35.453, H35.459, H35.46, H35.461, H35.462, H35.463, H35.469, H35.5, H35.50, H35.51, H35.52, H35.53, H35.54, H35.6, H35.60, H35.61, H35.62, H35.63, H35.7, H35.70, H35.71, H35.711, H35.712, H35.713, H35.719, H35.72, H35.721, H35.722, H35.723, H35.729, H35.73, H35.731, H35.732, H35.733, H35.739, H35.8, H35.81, H35.82, H35.89, H35.9, H36, H36.0, H36.8, H44.821, H44.822, H44.823, H44.829, H44.89, H44.9, H46, H46.0, H46.00, H46.01, H46.02, H46.03, H46.1, H46.10, H46.11, H46.12, H46.13, H46.2, H46.3, H46.8, H46.9, H47, H47.0, H47.01, H47.011, H47.012, H47.013, H47.019, H47.02, H47.021, H47.022, H47.023, H47.029, H47.03, H47.031, H47.032, H47.033, H47.039, H47.09, H47.091, H47.092, H47.093, H47.099, H47.1, H47.10, H47.11, H47.12, H47.13, H47.14, H47.141, H47.142, H47.143, H47.149, H47.2, H47.20, H47.21, H47.211, H47.212, H47.213, H47.219, H47.22, H47.23,		

259

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			H47.231, H47.232, H47.233, H47.239, H47.29, H47.291, H47.292, H47.293, H47.299, H47.3, H47.31, H47.311, H47.312, H47.313, H47.319, H47.32, H47.321, H47.322, H47.323, H47.329, H47.33, H47.331, H47.332, H47.333, H47.339, H47.39, H47.391, H47.392, H47.393, H47.399, H47.4, H47.41, H47.42, H47.43, H47.49, H47.5, H47.51, H47.511, H47.512, H47.519, H47.52, H47.521, H47.522, H47.529, H47.53, H47.531, H47.532, H47.539, H47.6, H47.61, H47.611, H47.612, H47.619, H47.62, H47.621, H47.622, H47.629, H47.63, H47.631, H47.632, H47.639, H47.64, H47.641, H47.642, H47.649, H47.7, H47.9, H48, H48.0, H48.1, H48.8, H49, H49.0, H49.00, H49.01, H49.02, H49.03, H49.1, H49.10, H49.11, H49.12, H49.13, H49.2, H49.20, H49.21, H49.22, H49.23, H49.3, H49.30, H49.31, H49.32, H49.33, H49.4, H49.40, H49.41, H49.42, H49.43, H49.8, H49.81, H49.811, H49.812, H49.813, H49.819, H49.88, H49.881, H49.882, H49.883, H49.889, H49.9, H50, H50.0, H50.00, H50.01, H50.011, H50.012, H50.02, H50.021, H50.022, H50.03, H50.031, H50.032, H50.04, H50.041, H50.042, H50.05, H50.06, H50.07, H50.08, H50.1, H50.10, H50.11, H50.111, H50.112, H50.12, H50.121, H50.122, H50.13, H50.131, H50.132, H50.14, H50.141, H50.142, H50.15, H50.16, H50.17, H50.18, H50.2, H50.21, H50.22, H50.3, H50.30, H50.31, H50.311, H50.312, H50.32, H50.33, H50.331, H50.332, H50.34, H50.4, H50.40, H50.41, H50.411, H50.412, H50.42, H50.43,		

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			H50.5, H50.50, H50.51, H50.52, H50.53, H50.54, H50.55, H50.6, H50.60, H50.61, H50.611, H50.612, H50.69, H50.8, H50.81, H50.811, H50.812, H50.89, H50.9, H51, H51.0, H51.1, H51.11, H51.12, H51.2, H51.20, H51.21, H51.22, H51.23, H51.8, H51.9, H53, H53.0, H53.00, H53.001, H53.002, H53.003, H53.009, H53.01, H53.011, H53.012, H53.013, H53.019, H53.02, H53.021, H53.022, H53.023, H53.029, H53.03, H53.031, H53.032, H53.033, H53.039, H53.1, H53.10, H53.11, H53.12, H53.121, H53.122, H53.123, H53.129, H53.13, H53.131, H53.132, H53.133, H53.139, H53.14, H53.141, H53.142, H53.143, H53.149, H53.15, H53.16, H53.19, H53.2, H53.3, H53.30, H53.31, H53.32, H53.33, H53.34, H53.4, H53.40, H53.41, H53.411, H53.412, H53.413, H53.419, H53.42, H53.421, H53.422, H53.423, H53.429, H53.43, H53.431, H53.432, H53.433, H53.439, H53.45, H53.451, H53.452, H53.453, H53.459, H53.46, H53.461, H53.462, H53.469, H53.47, H53.48, H53.481, H53.482, H53.483, H53.489, H53.5, H53.50, H53.51, H53.52, H53.53, H53.54, H53.55, H53.59, H53.6, H53.60, H53.61, H53.62, H53.63, H53.69, H53.7, H53.71, H53.72, H53.8, H53.9, H54, H54.0, H54.1, H54.10, H54.11, H54.12, H54.2, H54.3, H54.4, H54.40, H54.41, H54.42, H54.5, H54.50, H54.51, H54.52, H54.6, H54.60, H54.61, H54.62, H54.7, H54.8, H54.9, R44.1, R48.3, Z01.00, Z01.01		

261

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
B.10.4	Oral disorders	520, 520.0, 520.1, 520.2, 520.3, 520.4, 520.5, 520.6, 520.7, 520.8, 520.9, 521, 521.0, 521.00, 521.01, 521.02, 521.03, 521.04, 521.05, 521.06, 521.07, 521.08, 521.09, 521.1, 521.10, 521.11, 521.12, 521.13, 521.14, 521.15, 521.2, 521.20, 521.21, 521.22, 521.23, 521.24, 521.25, 521.3, 521.30, 521.31, 521.32, 521.33, 521.34, 521.35, 521.4, 521.40, 521.41, 521.42, 521.49, 521.5, 521.6, 521.7, 521.8, 521.81, 521.89, 521.9, 522, 522.0, 522.1, 522.2, 522.3, 522.4, 522.5, 522.6, 522.7, 522.8, 522.9, 523, 523.0, 523.00, 523.01, 523.1, 523.10, 523.11, 523.2, 523.20, 523.21, 523.22, 523.23, 523.24, 523.25, 523.3, 523.30, 523.31, 523.32, 523.33, 523.4, 523.40, 523.41, 523.42, 523.5, 523.6, 523.8, 523.9, 524, 524.0, 524.00, 524.01, 524.02, 524.03, 524.04, 524.05, 524.06, 524.07, 524.09, 524.1, 524.10, 524.11, 524.12, 524.19, 524.2, 524.20, 524.21, 524.22, 524.23, 524.24, 524.25, 524.26, 524.27, 524.28, 524.29, 524.3, 524.30, 524.31, 524.32, 524.33, 524.34, 524.35, 524.36, 524.37, 524.39, 524.4, 524.5, 524.50, 524.51, 524.52, 524.53, 524.54, 524.55, 524.56, 524.57, 524.59, 524.6, 524.60, 524.61, 524.62, 524.63, 524.64, 524.69, 524.7, 524.70, 524.71, 524.72, 524.73, 524.74, 524.75, 524.76, 524.79, 524.8, 524.81, 524.82, 524.89, 524.9, 525, 525.0, 525.1, 525.10, 525.11, 525.12, 525.13, 525.19, 525.2, 525.20, 525.21, 525.22, 525.23, 525.24, 525.25, 525.26, 525.3, 525.4, 525.40, 525.41, 525.42, 525.43, 525.44, 525.5, 525.50, 525.51, 525.52, 525.53, 525.54, 525.8, 525.9, 526, 526.0, 526.1, 526.2, 526.3, 526.4, 526.5, 526.6, 526.61, 526.69, 526.8,	Z01.2, Z01.20, Z01.21, Z97.2, K08.0, K08.1, K08.10, K08.101, K08.102, K08.103, K08.104, K08.109, K08.11, K08.111, K08.112, K08.113, K08.114, K08.119, K08.12, K08.121, K08.122, K08.123, K08.124, K08.129, K08.13, K08.131, K08.132, K08.133, K08.134, K08.139, K08.19, K08.191, K08.192, K08.193, K08.194, K08.199, K08.2, K08.4, K08.40, K08.401, K08.402, K08.403, K08.404, K08.409, K08.41, K08.411, K08.412, K08.413, K08.414, K08.419, K08.42, K08.421, K08.422, K08.423, K08.424, K08.429, K08.43, K08.431, K08.432, K08.433, K08.434, K08.439, K08.49, K08.491, K08.492, K08.493, K08.494, K08.499, K00, K00.0, K00.1, K00.2, K00.3, K00.4, K00.5, K00.6, K00.7, K00.8, K00.9, K01, K01.0, K01.1, K03, K03.0, K03.1, K03.2, K03.3, K03.4, K03.5, K03.7, K03.8, K03.81, K03.9, K04, K04.0, K04.1, K04.2, K04.3, K04.4, K04.5, K04.6, K04.7, K04.8, K04.9, K04.90, K04.99, K07, K07.0, K07.1, K07.2, K07.3, K07.4, K07.5, K07.6, K07.8, K07.9, K08, K08.20, K08.21, K08.22, K08.23, K08.24, K08.25, K08.26, K08.3, K08.8, K08.9, K09, K09.0, K09.1, K09.2, K09.8, K09.9, K10, K10.0, K10.1, K10.2, K10.3, K10.8, K10.9, K11, K11.0, K11.1, K11.2, K11.20, K11.21, K11.22, K11.23, K11.3, K11.4, K11.5, K11.6, K11.7, K11.8, K11.9, K12, K12.0, K12.1, K12.2, K12.3, K12.30, K12.31, K12.32, K12.33, K12.39, K13, K13.0, K13.1, K13.2, K13.21, K13.22, K13.23, K13.24, K13.29, K13.3, K13.4, K13.5, K13.6, K13.7, K13.70, K13.79, K14, K14.0, K14.1, K14.2, K14.3, K14.4, K14.5, K14.6, K14.8,	both	1-85

262

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
		526.81, 526.89, 526.9, 527, 527.0, 527.1, 527.2, 527.3, 527.4, 527.5, 527.6, 527.7, 527.8, 527.9, 528, 528.0, 528.00, 528.01, 528.02, 528.09, 528.1, 528.2, 528.3, 528.4, 528.5, 528.6, 528.7, 528.71, 528.72, 528.79, 528.8, 528.9, 529, 529.0, 529.1, 529.2, 529.3, 529.4, 529.5, 529.6, 529.8, 529.9, V45.84, V52.3, V53.4, V58.5, V72.2	K14.9, M26, M26.0, M26.00, M26.01, M26.02, M26.03, M26.04, M26.05, M26.06, M26.07, M26.09, M26.1, M26.10, M26.11, M26.12, M26.19, M26.2, M26.20, M26.21, M26.211, M26.212, M26.213, M26.219, M26.22, M26.220, M26.221, M26.23, M26.24, M26.25, M26.29, M26.3, M26.30, M26.31, M26.32, M26.33, M26.34, M26.35, M26.36, M26.37, M26.39, M26.4, M26.5, M26.50, M26.51, M26.52, M26.53, M26.54, M26.55, M26.56, M26.57, M26.59, M26.6, M26.60, M26.61, M26.62, M26.63, M26.69, M26.7, M26.70, M26.71, M26.72, M26.73, M26.74, M26.79, M26.8, M26.81, M26.82, M26.89, M26.9, M27, M27.0, M27.1, M27.2, M27.3, M27.4, M27.40, M27.49, M27.5, M27.51, M27.52, M27.53, M27.59, M27.6, M27.61, M27.62, M27.63, M27.69, M27.8, M27.9, R68.2, Z46.3, Z46.4, K03.6, K05, K05.0, K05.00, K05.01, K05.1, K05.10, K05.11, K05.2, K05.20, K05.21, K05.22, K05.3, K05.30, K05.31, K05.32, K05.4, K05.5, K05.6, K06, K06.0, K06.1, K06.2, K06.8, K06.9, K02, K02.0, K02.1, K02.2, K02.3, K02.4, K02.5, K02.51, K02.52, K02.53, K02.6, K02.61, K02.62, K02.63, K02.7, K02.8, K02.9, K03.89		

263

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
C.1.1	Road injuries	E80.03, E80.13, E80.23, E80.33, E80.43, E80.53, E80.63, E80.73, E81.00, E81.01, E81.02, E81.03, E81.04, E81.05, E81.06, E81.10, E81.11, E81.12, E81.13, E81.14, E81.15, E81.16, E81.17, E81.20, E81.21, E81.22, E81.23, E81.24, E81.25, E81.26, E81.27, E81.30, E81.31, E81.32, E81.33, E81.34, E81.35, E81.36, E81.37, E81.40, E81.41, E81.42, E81.43, E81.44, E81.45, E81.46, E81.47, E81.50, E81.51, E81.52, E81.53, E81.54, E81.55, E81.56, E81.57, E81.60, E81.61, E81.62, E81.63, E81.64, E81.65, E81.66, E81.67, E81.70, E81.71, E81.72, E81.73, E81.74, E81.75, E81.76, E81.77, E81.80, E81.81, E81.82, E81.83, E81.84, E81.85, E81.86, E81.87, E81.90, E81.91, E81.92, E81.93, E81.94, E81.95, E81.96, E81.97, E82.00, E82.01, E82.02, E82.03, E82.04, E82.05, E82.06, E82.10, E82.11, E82.12, E82.13, E82.14, E82.15, E82.16, E82.20, E82.21, E82.22, E82.23, E82.24, E82.25, E82.26, E82.27, E82.30, E82.31, E82.32, E82.33, E82.34, E82.35, E82.36, E82.37, E82.40, E82.41, E82.42, E82.43, E82.44, E82.45, E82.46, E82.47, E82.50, E82.51, E82.52, E82.53, E82.54, E82.55, E82.56, E82.57, E82.60, E82.61, E82.63, E82.64, E82.70, E82.73, E82.74, E82.80, E82.84, E82.90, E82.94	V20, V20.0, V20.1, V20.2, V20.3, V20.4, V20.5, V20.9, V21, V21.0, V21.1, V21.2, V21.3, V21.4, V21.5, V21.8, V21.9, V22, V22.0, V22.1, V22.2, V22.3, V22.4, V22.5, V22.9, V23, V23.0, V23.1, V23.2, V23.3, V23.4, V23.5, V23.7, V23.8, V23.9, V24, V24.0, V24.1, V24.2, V24.3, V24.4, V24.5, V24.9, V25, V25.0, V25.1, V25.2, V25.3, V25.4, V25.5, V25.8, V25.9, V26, V26.0, V26.1, V26.2, V26.3, V26.4, V26.5, V26.8, V26.9, V27, V27.0, V27.1, V27.2, V27.3, V27.4, V27.5, V27.6, V27.7, V27.9, V28, V28.0, V28.1, V28.2, V28.3, V28.4, V28.5, V28.6, V28.8, V28.9, V29, V29.0, V29.00, V29.09, V29.1, V29.10, V29.19, V29.2, V29.20, V29.29, V29.3, V29.4, V29.40, V29.49, V29.5, V29.50, V29.59, V29.6, V29.60, V29.69, V29.8, V29.81, V29.88, V29.9, V30, V30.0, V30.1, V30.2, V30.3, V30.4, V30.5, V30.6, V30.7, V30.9, V31, V31.0, V31.1, V31.2, V31.3, V31.4, V31.5, V31.6, V31.7, V31.9, V32, V32.0, V32.1, V32.2, V32.3, V32.4, V32.5, V32.6, V32.7, V32.9, V33, V33.0, V33.1, V33.2, V33.3, V33.4, V33.5, V33.6, V33.7, V33.9, V34, V34.0, V34.1, V34.2, V34.3, V34.4, V34.5, V34.6, V34.7, V34.9, V35, V35.0, V35.1, V35.2, V35.3, V35.4, V35.5, V35.6, V35.7, V35.9, V36, V36.0, V36.1, V36.2, V36.3, V36.4, V36.5, V36.6, V36.7, V36.9, V37, V37.0, V37.1, V37.2, V37.3, V37.4, V37.5, V37.6, V37.7, V37.9, V38, V38.0, V38.1, V38.2, V38.3, V38.4, V38.5, V38.6, V38.7, V38.9, V39, V39.0, V39.00, V39.09, V39.1, V39.10, V39.19, V39.2, V39.20,	both	0-85

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			V39.29, V39.3, V39.4, V39.40, V39.49, V39.5, V39.50, V39.59, V39.6, V39.60, V39.69, V39.8, V39.81, V39.89, V39.9, V40, V40.0, V40.1, V40.2, V40.3, V40.4, V40.5, V40.6, V40.7, V40.9, V41, V41.0, V41.1, V41.2, V41.3, V41.4, V41.5, V41.6, V41.7, V41.8, V41.9, V42, V42.0, V42.1, V42.2, V42.3, V42.4, V42.5, V42.6, V42.7, V42.8, V42.9, V43, V43.0, V43.01, V43.02, V43.03, V43.04, V43.1, V43.11, V43.12, V43.13, V43.14, V43.2, V43.21, V43.22, V43.23, V43.24, V43.3, V43.31, V43.32, V43.33, V43.34, V43.4, V43.41, V43.42, V43.43, V43.44, V43.5, V43.51, V43.52, V43.53, V43.54, V43.6, V43.61, V43.62, V43.63, V43.64, V43.7, V43.71, V43.72, V43.73, V43.74, V43.8, V43.9, V43.91, V43.92, V43.93, V43.94, V44, V44.0, V44.1, V44.2, V44.3, V44.4, V44.5, V44.6, V44.7, V44.8, V44.9, V45, V45.0, V45.1, V45.2, V45.3, V45.4, V45.5, V45.6, V45.7, V45.8, V45.9, V46, V46.0, V46.1, V46.2, V46.3, V46.4, V46.5, V46.6, V46.7, V46.8, V46.9, V47, V47.0, V47.01, V47.02, V47.1, V47.11, V47.12, V47.2, V47.3, V47.31, V47.32, V47.4, V47.5, V47.51, V47.52, V47.6, V47.61, V47.62, V47.7, V47.9, V47.91, V47.92, V48, V48.0, V48.1, V48.2, V48.3, V48.4, V48.5, V48.6, V48.7, V48.8, V48.9, V49, V49.0, V49.00, V49.09, V49.1, V49.10, V49.19, V49.2, V49.20, V49.29, V49.3, V49.4, V49.40, V49.49, V49.5, V49.50, V49.59, V49.6, V49.60, V49.69, V49.7, V49.8, V49.81, V49.88, V49.9, V50, V50.0, V50.1, V50.2, V50.3,		

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			V50.4, V50.5, V50.6, V50.7, V50.8, V50.9, V51, V51.0, V51.1, V51.2, V51.3, V51.4, V51.5, V51.6, V51.7, V51.9, V52, V52.0, V52.1, V52.2, V52.3, V52.4, V52.5, V52.6, V52.7, V52.8, V52.9, V53, V53.0, V53.1, V53.2, V53.3, V53.4, V53.5, V53.6, V53.7, V53.8, V53.9, V54, V54.0, V54.1, V54.2, V54.3, V54.4, V54.5, V54.6, V54.7, V54.8, V54.9, V55, V55.0, V55.1, V55.2, V55.3, V55.4, V55.5, V55.6, V55.7, V55.8, V55.9, V56, V56.0, V56.1, V56.2, V56.3, V56.4, V56.5, V56.6, V56.7, V56.8, V56.9, V57, V57.0, V57.1, V57.2, V57.3, V57.4, V57.5, V57.6, V57.7, V57.8, V57.9, V58, V58.0, V58.1, V58.2, V58.3, V58.4, V58.5, V58.6, V58.7, V58.8, V58.9, V59, V59.0, V59.00, V59.09, V59.1, V59.10, V59.19, V59.2, V59.20, V59.29, V59.3, V59.4, V59.40, V59.49, V59.5, V59.50, V59.59, V59.6, V59.60, V59.69, V59.8, V59.81, V59.88, V59.9, V60, V60.0, V60.1, V60.2, V60.3, V60.4, V60.5, V60.6, V60.7, V60.8, V60.9, V61, V61.0, V61.1, V61.2, V61.3, V61.4, V61.5, V61.6, V61.7, V61.8, V61.9, V62, V62.0, V62.1, V62.2, V62.3, V62.4, V62.5, V62.6, V62.7, V62.8, V62.9, V63, V63.0, V63.1, V63.2, V63.3, V63.4, V63.5, V63.6, V63.7, V63.8, V63.9, V64, V64.0, V64.1, V64.2, V64.3, V64.4, V64.5, V64.6, V64.7, V64.9, V65, V65.0, V65.1, V65.2, V65.3, V65.4, V65.5, V65.6, V65.7, V65.8, V65.9, V66, V66.0, V66.1, V66.2, V66.3, V66.4, V66.5, V66.6, V66.7, V66.9, V67, V67.0, V67.1, V67.2, V67.3, V67.4, V67.5, V67.6, V67.7, V67.9, V68, V68.0, V68.1, V68.2,		

266

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			V68.3, V68.4, V68.5, V68.6, V68.7, V68.8, V68.9, V69, V69.0, V69.00, V69.09, V69.1, V69.10, V69.19, V69.2, V69.20, V69.29, V69.3, V69.4, V69.40, V69.49, V69.5, V69.50, V69.59, V69.6, V69.60, V69.69, V69.8, V69.81, V69.88, V69.9, V70, V70.0, V70.1, V70.2, V70.3, V70.4, V70.5, V70.6, V70.7, V70.8, V70.9, V71, V71.0, V71.1, V71.2, V71.3, V71.4, V71.5, V71.6, V71.7, V71.8, V71.9, V72, V72.0, V72.1, V72.2, V72.3, V72.4, V72.5, V72.6, V72.7, V72.8, V72.9, V73, V73.0, V73.1, V73.2, V73.3, V73.4, V73.5, V73.6, V73.7, V73.8, V73.9, V74, V74.0, V74.1, V74.2, V74.3, V74.4, V74.5, V74.6, V74.7, V74.8, V74.9, V75, V75.0, V75.1, V75.2, V75.3, V75.4, V75.5, V75.6, V75.7, V75.8, V75.9, V76, V76.0, V76.1, V76.2, V76.3, V76.4, V76.5, V76.6, V76.7, V76.8, V76.9, V77, V77.0, V77.1, V77.2, V77.3, V77.4, V77.5, V77.6, V77.7, V77.8, V77.9, V78, V78.0, V78.1, V78.2, V78.3, V78.4, V78.5, V78.6, V78.7, V78.8, V78.9, V79, V79.0, V79.00, V79.09, V79.1, V79.10, V79.19, V79.2, V79.20, V79.29, V79.3, V79.4, V79.40, V79.49, V79.5, V79.50, V79.59, V79.6, V79.60, V79.69, V79.8, V79.81, V79.88, V79.9, V87.2, V87.3, V80, V80.0, V80.01, V80.010, V80.018, V80.02, V80.1, V80.11, V80.12, V80.2, V80.21, V80.22, V80.3, V80.31, V80.32, V80.4, V80.41, V80.42, V80.5, V80.51, V80.52, V80.6, V80.61, V80.62, V80.7, V80.71, V80.710, V80.711, V80.72, V80.720, V80.721, V80.73, V80.730, V80.731, V80.79, V80.790, V80.791, V80.8,		

267

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			V80.81, V80.82, V80.9, V80.91, V80.910, V80.918, V80.919, V80.92, V80.920, V80.928, V80.929, V82, V82.0, V82.1, V82.2, V82.3, V82.4, V82.5, V82.6, V82.7, V82.8, V82.9, V10, V10.0, V10.1, V10.2, V10.3, V10.4, V10.5, V10.6, V10.7, V10.8, V10.9, V11, V11.0, V11.1, V11.2, V11.3, V11.4, V11.5, V11.8, V11.9, V12, V12.0, V12.1, V12.2, V12.3, V12.4, V12.5, V12.6, V12.7, V12.9, V13, V13.0, V13.1, V13.2, V13.3, V13.4, V13.5, V13.6, V13.7, V13.8, V13.9, V14, V14.0, V14.1, V14.2, V14.3, V14.4, V14.5, V14.6, V14.7, V14.8, V14.9, V15, V15.0, V15.1, V15.2, V15.3, V15.4, V15.5, V15.6, V15.7, V15.8, V15.9, V16, V16.0, V16.1, V16.2, V16.3, V16.4, V16.5, V16.6, V16.7, V16.8, V16.9, V17, V17.0, V17.1, V17.2, V17.3, V17.4, V17.5, V17.6, V17.7, V17.8, V17.9, V18, V18.0, V18.1, V18.2, V18.3, V18.4, V18.5, V18.6, V18.7, V18.8, V18.9, V19, V19.0, V19.00, V19.09, V19.1, V19.10, V19.19, V19.2, V19.20, V19.29, V19.3, V19.4, V19.40, V19.49, V19.5, V19.50, V19.59, V19.6, V19.60, V19.69, V19.7, V19.8, V19.81, V19.88, V19.9, V01, V01.0, V01.00, V01.01, V01.02, V01.09, V01.1, V01.10, V01.11, V01.12, V01.19, V01.2, V01.3, V01.4, V01.5, V01.6, V01.7, V01.8, V01.9, V01.90, V01.91, V01.92, V01.99, V02, V02.0, V02.00, V02.01, V02.02, V02.09, V02.1, V02.10, V02.11, V02.12, V02.19, V02.2, V02.3, V02.5, V02.6, V02.7, V02.8, V02.9, V02.90, V02.91, V02.92, V02.99, V03, V03.0, V03.00, V03.01, V03.02, V03.09, V03.1, V03.10, V03.11, V03.12,		

268

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			V03.19, V03.2, V03.3, V03.4, V03.5, V03.6, V03.7, V03.8, V03.9, V03.90, V03.91, V03.92, V03.99, V04, V04.0, V04.00, V04.01, V04.02, V04.09, V04.1, V04.10, V04.11, V04.12, V04.19, V04.2, V04.3, V04.4, V04.5, V04.6, V04.7, V04.8, V04.9, V04.90, V04.91, V04.92, V04.99, V06, V06.0, V06.00, V06.01, V06.02, V06.09, V06.1, V06.10, V06.11, V06.12, V06.19, V06.2, V06.3, V06.4, V06.5, V06.6, V06.8, V06.9, V06.90, V06.91, V06.92, V06.99, V07, V07.0, V07.1, V07.2, V07.3, V07.4, V07.8, V07.9, V08, V09, V09.0, V09.00, V09.01, V09.09, V09.1, V09.2, V09.20, V09.21, V09.29, V09.3, V09.4, V09.5, V09.6, V09.7, V09.8, V09.9		

269

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
C.1.2	Other transport injuries	E80.0, E80.00, E80.01, E80.02, E80.1, E80.10, E80.11, E80.12, E80.2, E80.20, E80.21, E80.22, E80.3, E80.30, E80.31, E80.32, E80.4, E80.40, E80.41, E80.42, E80.5, E80.50, E80.51, E80.52, E80.6, E80.60, E80.61, E80.62, E80.7, E80.70, E80.71, E80.72, E81.07, E82.07, E82.17, E82.62, E82.72, E82.82, E83.1, E83.10, E83.11, E83.12, E83.13, E83.14, E83.15, E83.16, E83.17, E83.18, E83.19, E83.3, E83.30, E83.31, E83.32, E83.33, E83.34, E83.35, E83.36, E83.37, E83.38, E83.39, E83.4, E83.40, E83.41, E83.42, E83.43, E83.44, E83.45, E83.46, E83.47, E83.48, E83.49, E83.5, E83.50, E83.51, E83.52, E83.53, E83.54, E83.55, E83.56, E83.57, E83.58, E83.59, E83.6, E83.60, E83.61, E83.62, E83.63, E83.64, E83.65, E83.66, E83.67, E83.68, E83.69, E83.7, E83.70, E83.71, E83.72, E83.73, E83.74, E83.75, E83.76, E83.77, E83.78, E83.79, E83.8, E83.80, E83.81, E83.82, E83.83, E83.84, E83.85, E83.86, E83.87, E83.88, E83.89, E84.0, E84.00, E84.01, E84.02, E84.03, E84.04, E84.05, E84.06, E84.07, E84.08, E84.09, E84.1, E84.10, E84.11, E84.12, E84.13, E84.14, E84.15, E84.16, E84.17, E84.18, E84.19, E84.2, E84.26, E84.27, E84.28, E84.29, E84.3, E84.30, E84.31, E84.32, E84.33, E84.34, E84.35, E84.36, E84.37, E84.38, E84.39, E84.4, E84.40, E84.41, E84.42, E84.43, E84.44, E84.45, E84.46, E84.47, E84.48, E84.49, E84.5, E84.50, E84.58, E84.59, E84.6, E84.7, E84.8, E92.91	V00, V00.0, V00.01, V00.02, V00.09, V00.1, V00.11, V00.111, V00.112, V00.118, V00.12, V00.121, V00.122, V00.128, V00.13, V00.131, V00.132, V00.138, V00.14, V00.141, V00.142, V00.148, V00.15, V00.151, V00.152, V00.158, V00.18, V00.181, V00.182, V00.188, V00.2, V00.21, V00.211, V00.212, V00.218, V00.22, V00.221, V00.222, V00.228, V00.28, V00.281, V00.282, V00.288, V00.3, V00.31, V00.311, V00.312, V00.318, V00.32, V00.321, V00.322, V00.328, V00.38, V00.381, V00.382, V00.388, V00.8, V00.81, V00.811, V00.812, V00.818, V00.82, V00.821, V00.822, V00.828, V00.83, V00.831, V00.832, V00.838, V00.89, V00.891, V00.892, V00.898, V05, V05.0, V05.00, V05.01, V05.02, V05.09, V05.1, V05.10, V05.11, V05.12, V05.19, V05.2, V05.3, V05.4, V05.8, V05.9, V05.90, V05.91, V05.92, V05.99, V81, V81.0, V81.1, V81.2, V81.3, V81.4, V81.5, V81.6, V81.7, V81.8, V81.81, V81.82, V81.83, V81.89, V81.9, V83, V83.0, V83.1, V83.2, V83.3, V83.4, V83.5, V83.6, V83.7, V83.8, V83.9, V84, V84.0, V84.1, V84.2, V84.3, V84.4, V84.5, V84.6, V84.7, V84.8, V84.9, V85, V85.0, V85.1, V85.2, V85.3, V85.4, V85.5, V85.6, V85.7, V85.9, V86, V86.0, V86.01, V86.02, V86.03, V86.04, V86.09, V86.1, V86.11, V86.12, V86.13, V86.14, V86.19, V86.2, V86.21, V86.22, V86.23, V86.24, V86.29, V86.3, V86.31, V86.32, V86.33, V86.34, V86.39, V86.4, V86.41, V86.42, V86.43, V86.44, V86.49, V86.5, V86.51, V86.52, V86.53, V86.54, V86.59, V86.6, V86.61, V86.62, V86.63,	both	0-85

270

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			V86.64, V86.69, V86.7, V86.71, V86.72, V86.73, V86.74, V86.79, V86.9, V86.91, V86.92, V86.93, V86.94, V86.99, V88.2, V88.3, V90, V90.0, V90.00, V90.01, V90.02, V90.03, V90.04, V90.05, V90.06, V90.08, V90.09, V90.1, V90.10, V90.11, V90.12, V90.13, V90.14, V90.15, V90.16, V90.18, V90.19, V90.2, V90.20, V90.21, V90.22, V90.23, V90.24, V90.25, V90.26, V90.27, V90.28, V90.29, V90.3, V90.30, V90.31, V90.32, V90.33, V90.34, V90.35, V90.36, V90.37, V90.38, V90.39, V90.4, V90.5, V90.6, V90.7, V90.8, V90.80, V90.81, V90.82, V90.83, V90.84, V90.85, V90.86, V90.87, V90.88, V90.89, V90.9, V91, V91.0, V91.00, V91.01, V91.02, V91.03, V91.04, V91.05, V91.06, V91.07, V91.08, V91.09, V91.1, V91.10, V91.11, V91.12, V91.13, V91.14, V91.15, V91.16, V91.18, V91.19, V91.2, V91.20, V91.21, V91.22, V91.23, V91.24, V91.25, V91.26, V91.29, V91.3, V91.30, V91.31, V91.32, V91.33, V91.34, V91.35, V91.36, V91.37, V91.38, V91.39, V91.4, V91.5, V91.6, V91.7, V91.8, V91.80, V91.81, V91.82, V91.83, V91.84, V91.85, V91.86, V91.87, V91.88, V91.89, V91.9, V92, V92.0, V92.00, V92.01, V92.02, V92.03, V92.04, V92.05, V92.06, V92.07, V92.08, V92.09, V92.1, V92.10, V92.11, V92.12, V92.13, V92.14, V92.15, V92.16, V92.19, V92.2, V92.20, V92.21, V92.22, V92.23, V92.24, V92.25, V92.26, V92.27, V92.28, V92.29, V92.3, V92.4, V92.5, V92.6, V92.7, V92.8, V92.9, V93, V93.0, V93.00,		

271

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			V93.01, V93.02, V93.03, V93.04, V93.09, V93.1, V93.10, V93.11, V93.12, V93.13, V93.14, V93.19, V93.2, V93.20, V93.21, V93.22, V93.23, V93.24, V93.29, V93.3, V93.30, V93.31, V93.32, V93.33, V93.34, V93.35, V93.36, V93.38, V93.39, V93.4, V93.40, V93.41, V93.42, V93.43, V93.44, V93.48, V93.49, V93.5, V93.50, V93.51, V93.52, V93.53, V93.54, V93.59, V93.6, V93.60, V93.61, V93.62, V93.63, V93.64, V93.69, V93.7, V93.8, V93.80, V93.81, V93.82, V93.83, V93.84, V93.85, V93.86, V93.87, V93.88, V93.89, V93.9, V94, V94.0, V94.1, V94.11, V94.12, V94.2, V94.21, V94.22, V94.3, V94.31, V94.32, V94.4, V94.5, V94.6, V94.7, V94.8, V94.81, V94.810, V94.811, V94.818, V94.89, V94.9, V95, V95.0, V95.00, V95.01, V95.02, V95.03, V95.04, V95.05, V95.09, V95.1, V95.10, V95.11, V95.12, V95.13, V95.14, V95.15, V95.19, V95.2, V95.20, V95.21, V95.22, V95.23, V95.24, V95.25, V95.29, V95.3, V95.30, V95.31, V95.32, V95.33, V95.34, V95.35, V95.39, V95.4, V95.40, V95.41, V95.42, V95.43, V95.44, V95.45, V95.49, V95.8, V95.9, V96, V96.0, V96.00, V96.01, V96.02, V96.03, V96.04, V96.05, V96.09, V96.1, V96.10, V96.11, V96.12, V96.13, V96.14, V96.15, V96.19, V96.2, V96.20, V96.21, V96.22, V96.23, V96.24, V96.25, V96.29, V96.8, V96.9, V97, V97.0, V97.1, V97.2, V97.21, V97.22, V97.29, V97.3, V97.31, V97.32, V97.33, V97.39, V97.8, V97.81, V97.810, V97.811, V97.818, V97.89,		

272

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			V98, V98.0, V98.1, V98.2, V98.3, V98.8		

273

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
C.2.1	Falls	E88.0, E88.00, E88.000, E88.001, E88.002, E88.003, E88.004, E88.005, E88.006, E88.007, E88.008, E88.009, E88.01, E88.09, E88.090, E88.091, E88.092, E88.093, E88.094, E88.095, E88.096, E88.097, E88.098, E88.099, E88.1, E88.10, E88.100, E88.101, E88.102, E88.103, E88.104, E88.105, E88.106, E88.107, E88.108, E88.109, E88.11, E88.110, E88.111, E88.112, E88.113, E88.114, E88.115, E88.116, E88.117, E88.118, E88.119, E88.2, E88.20, E88.200, E88.201, E88.202, E88.203, E88.204, E88.205, E88.206, E88.207, E88.208, E88.209, E88.3, E88.30, E88.300, E88.301, E88.302, E88.303, E88.304, E88.305, E88.306, E88.307, E88.308, E88.309, E88.31, E88.310, E88.311, E88.312, E88.313, E88.314, E88.315, E88.316, E88.317, E88.318, E88.319, E88.32, E88.320, E88.321, E88.322, E88.323, E88.324, E88.325, E88.326, E88.327, E88.328, E88.329, E88.39, E88.390, E88.391, E88.392, E88.393, E88.394, E88.395, E88.396, E88.397, E88.398, E88.399, E88.4, E88.40, E88.400, E88.401, E88.402, E88.403, E88.404, E88.405, E88.406, E88.407, E88.408, E88.409, E88.41, E88.410, E88.411, E88.412, E88.413, E88.414, E88.415, E88.416, E88.417, E88.418, E88.419, E88.42, E88.420, E88.421, E88.422, E88.423, E88.424, E88.425, E88.426, E88.427, E88.428, E88.429, E88.43, E88.44, E88.45, E88.46, E88.49, E88.490, E88.491, E88.492, E88.493, E88.494, E88.495, E88.496, E88.497, E88.498, E88.499, E88.5, E88.50, E88.500, E88.501, E88.502, E88.503, E88.504, E88.505, E88.506, E88.507, E88.508, E88.509, E88.51, E88.52, E88.53,	W00, W00.0, W00.1, W00.2, W00.3, W00.4, W00.5, W00.6, W00.7, W00.8, W00.9, W01, W01.0, W01.1, W01.10, W01.11, W01.110, W01.111, W01.118, W01.119, W01.19, W01.190, W01.198, W01.2, W01.3, W01.4, W01.5, W01.6, W01.7, W01.8, W01.9, W02, W02.0, W02.1, W02.2, W02.3, W02.4, W02.5, W02.6, W02.7, W02.8, W02.9, W03, W03.0, W03.1, W03.2, W03.3, W03.4, W03.5, W03.6, W03.7, W03.8, W03.9, W04, W04.0, W04.1, W04.2, W04.3, W04.4, W04.5, W04.6, W04.7, W04.8, W04.9, W05, W05.0, W05.1, W05.2, W05.3, W05.4, W05.5, W05.6, W05.7, W05.8, W05.9, W06, W06.0, W06.1, W06.2, W06.3, W06.4, W06.5, W06.6, W06.7, W06.8, W06.9, W07, W07.0, W07.1, W07.2, W07.3, W07.4, W07.5, W07.6, W07.7, W07.8, W07.9, W08, W08.0, W08.1, W08.2, W08.3, W08.4, W08.5, W08.6, W08.7, W08.8, W08.9, W09, W09.0, W09.1, W09.2, W09.3, W09.4, W09.5, W09.6, W09.7, W09.8, W09.9, W10, W10.0, W10.1, W10.2, W10.3, W10.4, W10.5, W10.6, W10.7, W10.8, W10.9, W11, W11.0, W11.1, W11.2, W11.3, W11.4, W11.5, W11.6, W11.7, W11.8, W11.9, W12, W12.0, W12.1, W12.2, W12.3, W12.4, W12.5, W12.6, W12.7, W12.8, W12.9, W13, W13.0, W13.1, W13.2, W13.3, W13.4, W13.5, W13.6, W13.7, W13.8, W13.9, W14, W14.0, W14.1, W14.2, W14.3, W14.4, W14.5, W14.6, W14.7, W14.8, W14.9, W15, W15.0, W15.1, W15.2, W15.3, W15.4, W15.5, W15.6,	both	0-85

274

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
		E88.54, E88.59, E88.6, E88.60, E88.600, E88.601, E88.602, E88.603, E88.604, E88.605, E88.606, E88.607, E88.608, E88.609, E88.69, E88.690, E88.691, E88.692, E88.693, E88.694, E88.695, E88.696, E88.697, E88.698, E88.699, E88.8, E88.80, E88.800, E88.801, E88.802, E88.803, E88.804, E88.805, E88.806, E88.807, E88.808, E88.809, E88.81, E88.88, E88.89, E92.93, V15.88	W15.7, W15.8, W15.9, W16, W16.0, W16.01, W16.011, W16.012, W16.02, W16.021, W16.022, W16.03, W16.031, W16.032, W16.1, W16.11, W16.111, W16.112, W16.12, W16.121, W16.122, W16.13, W16.131, W16.132, W16.2, W16.21, W16.211, W16.212, W16.22, W16.221, W16.222, W16.3, W16.31, W16.311, W16.312, W16.32, W16.321, W16.322, W16.33, W16.331, W16.332, W16.4, W16.41, W16.42, W16.5, W16.51, W16.511, W16.512, W16.52, W16.521, W16.522, W16.53, W16.531, W16.532, W16.6, W16.61, W16.611, W16.612, W16.62, W16.621, W16.622, W16.7, W16.71, W16.711, W16.712, W16.72, W16.721, W16.722, W16.8, W16.81, W16.811, W16.812, W16.82, W16.821, W16.822, W16.83, W16.831, W16.832, W16.9, W16.91, W16.92, W17, W17.0, W17.1, W17.2, W17.3, W17.4, W17.5, W17.6, W17.7, W17.8, W17.81, W17.82, W17.89, W17.9, W18, W18.0, W18.00, W18.01, W18.02, W18.09, W18.1, W18.11, W18.12, W18.2, W18.3, W18.30, W18.31, W18.39, W18.4, W18.40, W18.41, W18.42, W18.43, W18.49, W18.5, W18.6, W18.7, W18.8, W18.9, W19, W19.0, W19.1, W19.2, W19.3, W19.4, W19.5, W19.6, W19.7, W19.8, W19.9		

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
C.2.2	Drowning	E83.0, E83.00, E83.01, E83.02, E83.03, E83.04, E83.05, E83.06, E83.07, E83.08, E83.09, E83.2, E83.20, E83.21, E83.22, E83.23, E83.24, E83.25, E83.26, E83.27, E83.28, E83.29, E91.0, E91.00, E91.000, E91.001, E91.002, E91.003, E91.004, E91.005, E91.006, E91.007, E91.008, E91.009, E91.01, E91.010, E91.011, E91.012, E91.013, E91.014, E91.015, E91.016, E91.017, E91.018, E91.019, E91.02, E91.020, E91.021, E91.022, E91.023, E91.024, E91.025, E91.026, E91.027, E91.028, E91.029, E91.03, E91.030, E91.031, E91.032, E91.033, E91.034, E91.035, E91.036, E91.037, E91.038, E91.039, E91.04, E91.040, E91.041, E91.042, E91.043, E91.044, E91.045, E91.046, E91.047, E91.048, E91.049, E91.08, E91.080, E91.081, E91.082, E91.083, E91.084, E91.085, E91.086, E91.087, E91.088, E91.089, E91.09, E91.090, E91.091, E91.092, E91.093, E91.094, E91.095, E91.096, E91.097, E91.098, E91.099	W65, W65.0, W65.1, W65.2, W65.3, W65.4, W65.5, W65.6, W65.7, W65.8, W65.9, W66, W66.0, W66.1, W66.2, W66.3, W66.4, W66.5, W66.6, W66.7, W66.8, W66.9, W67, W67.0, W67.1, W67.2, W67.3, W67.4, W67.5, W67.6, W67.7, W67.8, W67.9, W68, W68.0, W68.1, W68.2, W68.3, W68.4, W68.5, W68.6, W68.7, W68.8, W68.9, W69, W69.0, W69.1, W69.2, W69.3, W69.4, W69.5, W69.6, W69.7, W69.8, W69.9, W70, W70.0, W70.1, W70.2, W70.3, W70.4, W70.5, W70.6, W70.7, W70.8, W70.9, W73, W73.0, W73.1, W73.2, W73.3, W73.4, W73.5, W73.6, W73.7, W73.8, W73.9, W74, W74.0, W74.1, W74.2, W74.3, W74.4, W74.5, W74.6, W74.7, W74.8, W74.9	both	0-85

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
C.2.3	Fire, heat, and hot substances	E89.0, E89.00, E89.000, E89.001, E89.002, E89.003, E89.004, E89.005, E89.006, E89.007, E89.008, E89.009, E89.01, E89.010, E89.011, E89.012, E89.013, E89.014, E89.015, E89.016, E89.017, E89.018, E89.019, E89.02, E89.020, E89.021, E89.022, E89.023, E89.024, E89.025, E89.026, E89.027, E89.028, E89.029, E89.03, E89.030, E89.031, E89.032, E89.033, E89.034, E89.035, E89.036, E89.037, E89.038, E89.039, E89.08, E89.080, E89.081, E89.082, E89.083, E89.084, E89.085, E89.086, E89.087, E89.088, E89.089, E89.09, E89.090, E89.091, E89.092, E89.093, E89.094, E89.095, E89.096, E89.097, E89.098, E89.099, E89.1, E89.10, E89.100, E89.101, E89.102, E89.103, E89.104, E89.105, E89.106, E89.107, E89.108, E89.109, E89.11, E89.110, E89.111, E89.112, E89.113, E89.114, E89.115, E89.116, E89.117, E89.118, E89.119, E89.12, E89.120, E89.121, E89.122, E89.123, E89.124, E89.125, E89.126, E89.127, E89.128, E89.129, E89.13, E89.130, E89.131, E89.132, E89.133, E89.134, E89.135, E89.136, E89.137, E89.138, E89.139, E89.18, E89.180, E89.181, E89.182, E89.183, E89.184, E89.185, E89.186, E89.187, E89.188, E89.189, E89.19, E89.190, E89.191, E89.192, E89.193, E89.194, E89.195, E89.196, E89.197, E89.198, E89.199, E89.2, E89.20, E89.200, E89.201, E89.202, E89.203, E89.204, E89.205, E89.206, E89.207, E89.208, E89.209, E89.3, E89.30, E89.300, E89.301, E89.302, E89.303, E89.304, E89.305, E89.306, E89.307, E89.308, E89.309, E89.31, E89.310, E89.311, E89.312, E89.313, E89.314, E89.315, E89.316, E89.317, E89.318,	X00, X00.0, X00.1, X00.2, X00.3, X00.4, X00.5, X00.6, X00.7, X00.8, X00.9, X01, X01.0, X01.1, X01.2, X01.3, X01.4, X01.5, X01.6, X01.7, X01.8, X01.9, X02, X02.0, X02.1, X02.2, X02.3, X02.4, X02.5, X02.6, X02.7, X02.8, X02.9, X03, X03.0, X03.1, X03.2, X03.3, X03.4, X03.5, X03.6, X03.7, X03.8, X03.9, X04, X04.0, X04.1, X04.2, X04.3, X04.4, X04.5, X04.6, X04.7, X04.8, X04.9, X05, X05.0, X05.1, X05.2, X05.3, X05.4, X05.5, X05.7, X05.8, X05.9, X06, X06.0, X06.1, X06.2, X06.3, X06.4, X06.5, X06.6, X06.7, X06.8, X06.9, X08, X08.0, X08.00, X08.01, X08.09, X08.1, X08.10, X08.11, X08.19, X08.2, X08.20, X08.21, X08.29, X08.3, X08.4, X08.5, X08.6, X08.7, X08.8, X08.9, X09, X09.0, X09.1, X09.2, X09.3, X09.4, X09.5, X09.6, X09.7, X09.8, X09.9, X10, X10.0, X10.1, X10.2, X10.3, X10.4, X10.5, X10.6, X10.7, X10.8, X10.9, X11, X11.0, X11.1, X11.2, X11.4, X11.5, X11.6, X11.7, X11.8, X11.9, X12, X12.0, X12.1, X12.2, X12.4, X12.5, X12.6, X12.7, X12.8, X12.9, X13, X13.0, X13.1, X13.2, X13.3, X13.4, X13.5, X13.6, X13.7, X13.8, X13.9, X14, X14.0, X14.1, X14.2, X14.3, X14.4, X14.5, X14.6, X14.7, X14.8, X14.9, X15, X15.0, X15.1, X15.2, X15.3, X15.4, X15.5, X15.6, X15.7, X15.8, X15.9, X16, X16.0, X16.1, X16.2, X16.4, X16.5, X16.6, X16.7, X16.8, X16.9, X17, X17.0, X17.1, X17.4, X17.5, X17.6, X17.7, X17.8, X17.9, X18, X18.0, X18.1, X18.2, X18.4, X18.5, X18.6, X18.7, X18.8, X18.9, X19, X19.0, X19.1,	both	0-85

277

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
		E89.319, E89.32, E89.320, E89.321, E89.322, E89.323, E89.324, E89.325, E89.326, E89.327, E89.328, E89.329, E89.38, E89.380, E89.381, E89.382, E89.383, E89.384, E89.385, E89.386, E89.387, E89.388, E89.389, E89.39, E89.390, E89.391, E89.392, E89.393, E89.394, E89.395, E89.396, E89.397, E89.398, E89.399, E89.4, E89.40, E89.400, E89.401, E89.402, E89.403, E89.404, E89.405, E89.406, E89.407, E89.408, E89.409, E89.5, E89.50, E89.500, E89.501, E89.502, E89.503, E89.504, E89.505, E89.506, E89.507, E89.508, E89.509, E89.6, E89.60, E89.600, E89.601, E89.602, E89.603, E89.604, E89.605, E89.606, E89.607, E89.608, E89.609, E89.7, E89.70, E89.700, E89.701, E89.702, E89.703, E89.704, E89.705, E89.706, E89.707, E89.708, E89.709, E89.8, E89.80, E89.800, E89.801, E89.802, E89.803, E89.804, E89.805, E89.806, E89.807, E89.808, E89.809, E89.81, E89.810, E89.811, E89.812, E89.813, E89.814, E89.815, E89.816, E89.817, E89.818, E89.819, E89.9, E89.90, E89.900, E89.901, E89.902, E89.903, E89.904, E89.905, E89.906, E89.907, E89.908, E89.909, E92.4, E92.40, E92.400, E92.401, E92.402, E92.403, E92.404, E92.405, E92.406, E92.407, E92.408, E92.409, E92.41, E92.410, E92.411, E92.412, E92.413, E92.414, E92.415, E92.416, E92.417, E92.418, E92.419, E92.42, E92.48, E92.480, E92.481, E92.482, E92.483, E92.484, E92.485, E92.486, E92.487, E92.488, E92.489, E92.49, E92.490, E92.491, E92.492, E92.493, E92.494, E92.495, E92.496, E92.497, E92.498, E92.499, E92.94	X19.2, X19.3, X19.4, X19.5, X19.6, X19.7, X19.8, X19.9		

278

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
C.2.4	Poisonings	E85.03, E85.030, E85.031, E85.032, E85.033, E85.034, E85.035, E85.036, E85.037, E85.038, E85.039, E85.04, E85.040, E85.041, E85.042, E85.043, E85.044, E85.045, E85.046, E85.047, E85.048, E85.049, E85.05, E85.050, E85.051, E85.052, E85.053, E85.054, E85.055, E85.056, E85.057, E85.058, E85.059, E85.06, E85.060, E85.061, E85.062, E85.063, E85.064, E85.065, E85.066, E85.067, E85.068, E85.069, E85.07, E85.070, E85.071, E85.072, E85.073, E85.074, E85.075, E85.076, E85.077, E85.078, E85.079, E85.08, E85.080, E85.081, E85.082, E85.083, E85.084, E85.085, E85.086, E85.087, E85.088, E85.089, E85.09, E85.090, E85.091, E85.092, E85.093, E85.094, E85.095, E85.096, E85.097, E85.098, E85.099, E85.1, E85.10, E85.100, E85.101, E85.102, E85.103, E85.104, E85.105, E85.106, E85.107, E85.108, E85.109, E85.2, E85.20, E85.200, E85.201, E85.202, E85.203, E85.204, E85.205, E85.206, E85.207, E85.208, E85.209, E85.21, E85.210, E85.211, E85.212, E85.213, E85.214, E85.215, E85.216, E85.217, E85.218, E85.219, E85.22, E85.220, E85.221, E85.222, E85.223, E85.224, E85.225, E85.226, E85.227, E85.228, E85.229, E85.23, E85.230, E85.231, E85.232, E85.233, E85.234, E85.235, E85.236, E85.237, E85.238, E85.239, E85.24, E85.240, E85.241, E85.242, E85.243, E85.244, E85.245, E85.246, E85.247, E85.248, E85.249, E85.25, E85.250, E85.251, E85.252, E85.253, E85.254, E85.255, E85.256, E85.257, E85.258, E85.259, E85.28, E85.280, E85.281, E85.282, E85.283, E85.284, E85.285, E85.286, E85.287, E85.288, E85.289, E85.29,	X40, X40.0, X40.1, X40.2, X40.4, X40.5, X40.6, X40.7, X40.8, X40.9, X41, X41.0, X41.1, X41.2, X41.3, X41.4, X41.5, X41.6, X41.7, X41.8, X41.9, X42, X42.0, X42.1, X42.2, X42.3, X42.4, X42.5, X42.6, X42.7, X42.8, X42.9, X43, X43.0, X43.1, X43.2, X43.3, X43.4, X43.5, X43.6, X43.7, X43.8, X43.9, X44, X44.0, X44.1, X44.2, X44.3, X44.4, X44.5, X44.6, X44.7, X44.8, X44.9, X46, X46.0, X46.1, X46.2, X46.3, X46.4, X46.5, X46.6, X46.7, X46.8, X46.9, X47, X47.0, X47.1, X47.2, X47.3, X47.4, X47.5, X47.6, X47.7, X47.8, X47.9, X48, X48.0, X48.1, X48.2, X48.3, X48.4, X48.5, X48.6, X48.7, X48.8, X48.9, X49, X49.0, X49.1, X49.2, X49.3, X49.4, X49.5, X49.6, X49.7, X49.8, X49.9, Y10, Y10.0, Y10.1, Y10.2, Y10.3, Y10.4, Y10.5, Y10.6, Y10.7, Y10.8, Y10.9, Y11, Y11.0, Y11.1, Y11.2, Y11.3, Y11.4, Y11.5, Y11.6, Y11.7, Y11.8, Y11.9, Y12, Y12.0, Y12.1, Y12.2, Y12.3, Y12.4, Y12.5, Y12.6, Y12.7, Y12.8, Y12.9, Y13, Y13.0, Y13.1, Y13.2, Y13.3, Y13.4, Y13.5, Y13.6, Y13.7, Y13.8, Y13.9, Y14, Y14.0, Y14.1, Y14.2, Y14.3, Y14.4, Y14.5, Y14.6, Y14.7, Y14.8, Y14.9, Y16, Y16.0, Y16.1, Y16.2, Y16.3, Y16.4, Y16.5, Y16.6, Y16.7, Y16.8, Y16.9, Y17, Y17.0, Y17.1, Y17.2, Y17.3, Y17.4, Y17.5, Y17.6, Y17.7, Y17.8, Y17.9, Y18, Y18.0, Y18.1, Y18.2, Y18.3, Y18.4, Y18.5, Y18.6, Y18.7, Y18.8, Y18.9, Y19, Y19.0, Y19.1, Y19.2, Y19.3, Y19.4, Y19.5, Y19.6, Y19.7, Y19.8, Y19.9	both	0-85

279

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
		E85.290, E85.291, E85.292, E85.293, E85.294, E85.295, E85.296, E85.297, E85.298, E85.299, E85.3, E85.30, E85.300, E85.301, E85.302, E85.303, E85.304, E85.305, E85.306, E85.307, E85.308, E85.309, E85.31, E85.310, E85.311, E85.312, E85.313, E85.314, E85.315, E85.316, E85.317, E85.318, E85.319, E85.32, E85.320, E85.321, E85.322, E85.323, E85.324, E85.325, E85.326, E85.327, E85.328, E85.329, E85.38, E85.380, E85.381, E85.382, E85.383, E85.384, E85.385, E85.386, E85.387, E85.388, E85.389, E85.39, E85.390, E85.391, E85.392, E85.393, E85.394, E85.395, E85.396, E85.397, E85.398, E85.399, E85.4, E85.40, E85.400, E85.401, E85.402, E85.403, E85.404, E85.405, E85.406, E85.407, E85.408, E85.409, E85.41, E85.410, E85.411, E85.412, E85.413, E85.414, E85.415, E85.416, E85.417, E85.418, E85.419, E85.42, E85.420, E85.421, E85.422, E85.423, E85.424, E85.425, E85.426, E85.427, E85.428, E85.429, E85.43, E85.430, E85.431, E85.432, E85.433, E85.434, E85.435, E85.436, E85.437, E85.438, E85.439, E85.48, E85.5, E85.50, E85.500, E85.501, E85.502, E85.503, E85.504, E85.505, E85.506, E85.507, E85.508, E85.509, E85.51, E85.510, E85.511, E85.512, E85.513, E85.514, E85.515, E85.516, E85.517, E85.518, E85.519, E85.52, E85.520, E85.521, E85.522, E85.523, E85.524, E85.525, E85.526, E85.527, E85.528, E85.529, E85.53, E85.530, E85.531, E85.532, E85.533, E85.534, E85.535, E85.536, E85.537, E85.538, E85.539, E85.54, E85.540, E85.541, E85.542, E85.543, E85.544, E85.545, E85.546, E85.547, E85.548, E85.549,			

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
		E85.55, E85.550, E85.551, E85.552, E85.553, E85.554, E85.555, E85.556, E85.557, E85.558, E85.559, E85.56, E85.560, E85.561, E85.562, E85.563, E85.564, E85.565, E85.566, E85.567, E85.568, E85.569, E85.58, E85.580, E85.581, E85.582, E85.583, E85.584, E85.585, E85.586, E85.587, E85.588, E85.589, E85.59, E85.590, E85.591, E85.592, E85.593, E85.594, E85.595, E85.596, E85.597, E85.598, E85.599, E85.6, E85.60, E85.600, E85.601, E85.602, E85.603, E85.604, E85.605, E85.606, E85.607, E85.608, E85.609, E85.7, E85.70, E85.700, E85.701, E85.702, E85.703, E85.704, E85.705, E85.706, E85.707, E85.708, E85.709, E85.8, E85.80, E85.800, E85.801, E85.802, E85.803, E85.804, E85.805, E85.806, E85.807, E85.808, E85.809, E85.81, E85.810, E85.811, E85.812, E85.813, E85.814, E85.815, E85.816, E85.817, E85.818, E85.819, E85.82, E85.820, E85.821, E85.822, E85.823, E85.824, E85.825, E85.826, E85.827, E85.828, E85.829, E85.83, E85.830, E85.831, E85.832, E85.833, E85.834, E85.835, E85.836, E85.837, E85.838, E85.839, E85.84, E85.840, E85.841, E85.842, E85.843, E85.844, E85.845, E85.846, E85.847, E85.848, E85.849, E85.85, E85.850, E85.851, E85.852, E85.853, E85.854, E85.855, E85.856, E85.857, E85.858, E85.859, E85.86, E85.860, E85.861, E85.862, E85.863, E85.864, E85.865, E85.866, E85.867, E85.868, E85.869, E85.87, E85.870, E85.871, E85.872, E85.873, E85.874, E85.875, E85.876, E85.877, E85.878, E85.879, E85.88, E85.880, E85.881, E85.882, E85.883, E85.884, E85.885, E85.886, E85.887, E85.888, E85.889,			

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
		E85.89, E85.890, E85.891, E85.892, E85.893, E85.894, E85.895, E85.896, E85.897, E85.898, E85.899, E86.02, E86.020, E86.021, E86.022, E86.023, E86.024, E86.025, E86.026, E86.027, E86.028, E86.029, E86.03, E86.030, E86.031, E86.032, E86.033, E86.034, E86.035, E86.036, E86.037, E86.038, E86.039, E86.04, E86.040, E86.041, E86.042, E86.043, E86.044, E86.045, E86.046, E86.047, E86.048, E86.049, E86.08, E86.080, E86.081, E86.082, E86.083, E86.084, E86.085, E86.086, E86.087, E86.088, E86.089, E86.09, E86.090, E86.091, E86.092, E86.093, E86.094, E86.095, E86.096, E86.097, E86.098, E86.099, E86.1, E86.10, E86.100, E86.101, E86.102, E86.103, E86.104, E86.105, E86.106, E86.107, E86.108, E86.109, E86.11, E86.110, E86.111, E86.112, E86.113, E86.114, E86.115, E86.116, E86.117, E86.118, E86.119, E86.12, E86.120, E86.121, E86.122, E86.123, E86.124, E86.125, E86.126, E86.127, E86.128, E86.129, E86.13, E86.130, E86.131, E86.132, E86.133, E86.134, E86.135, E86.136, E86.137, E86.138, E86.139, E86.14, E86.140, E86.141, E86.142, E86.143, E86.144, E86.145, E86.146, E86.147, E86.148, E86.149, E86.15, E86.150, E86.151, E86.152, E86.153, E86.154, E86.155, E86.156, E86.157, E86.158, E86.159, E86.16, E86.160, E86.161, E86.162, E86.163, E86.164, E86.165, E86.166, E86.167, E86.168, E86.169, E86.19, E86.190, E86.191, E86.192, E86.193, E86.194, E86.195, E86.196, E86.197, E86.198, E86.199, E86.2, E86.20, E86.200, E86.201, E86.202, E86.203, E86.204, E86.205, E86.206, E86.207, E86.208, E86.209, E86.21,			

282

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
		E86.210, E86.211, E86.212, E86.213, E86.214, E86.215, E86.216, E86.217, E86.218, E86.219, E86.22, E86.220, E86.221, E86.222, E86.223, E86.224, E86.225, E86.226, E86.227, E86.228, E86.229, E86.23, E86.230, E86.231, E86.232, E86.233, E86.234, E86.235, E86.236, E86.237, E86.238, E86.239, E86.24, E86.240, E86.241, E86.242, E86.243, E86.244, E86.245, E86.246, E86.247, E86.248, E86.249, E86.29, E86.290, E86.291, E86.292, E86.293, E86.294, E86.295, E86.296, E86.297, E86.298, E86.299, E86.3, E86.30, E86.300, E86.301, E86.302, E86.303, E86.304, E86.305, E86.306, E86.307, E86.308, E86.309, E86.31, E86.310, E86.311, E86.312, E86.313, E86.314, E86.315, E86.316, E86.317, E86.318, E86.319, E86.32, E86.320, E86.321, E86.322, E86.323, E86.324, E86.325, E86.326, E86.327, E86.328, E86.329, E86.33, E86.330, E86.331, E86.332, E86.333, E86.334, E86.335, E86.336, E86.337, E86.338, E86.339, E86.34, E86.340, E86.341, E86.342, E86.343, E86.344, E86.345, E86.346, E86.347, E86.348, E86.349, E86.35, E86.350, E86.351, E86.352, E86.353, E86.354, E86.355, E86.356, E86.357, E86.358, E86.359, E86.36, E86.360, E86.361, E86.362, E86.363, E86.364, E86.365, E86.366, E86.367, E86.368, E86.369, E86.37, E86.370, E86.371, E86.372, E86.373, E86.374, E86.375, E86.376, E86.377, E86.378, E86.379, E86.38, E86.380, E86.381, E86.382, E86.383, E86.384, E86.385, E86.386, E86.387, E86.388, E86.389, E86.39, E86.390, E86.391, E86.392, E86.393, E86.394, E86.395, E86.396, E86.397, E86.398, E86.399, E86.4, E86.40, E86.400,			

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
		E86.401, E86.402, E86.403, E86.404, E86.405, E86.406, E86.407, E86.408, E86.409, E86.41, E86.410, E86.411, E86.412, E86.413, E86.414, E86.415, E86.416, E86.417, E86.418, E86.419, E86.42, E86.420, E86.421, E86.422, E86.423, E86.424, E86.425, E86.426, E86.427, E86.428, E86.429, E86.43, E86.430, E86.431, E86.432, E86.433, E86.434, E86.435, E86.436, E86.437, E86.438, E86.439, E86.44, E86.440, E86.441, E86.442, E86.443, E86.444, E86.445, E86.446, E86.447, E86.448, E86.449, E86.5, E86.50, E86.500, E86.501, E86.502, E86.503, E86.504, E86.505, E86.506, E86.507, E86.508, E86.509, E86.51, E86.510, E86.511, E86.512, E86.513, E86.514, E86.515, E86.516, E86.517, E86.518, E86.519, E86.52, E86.520, E86.521, E86.522, E86.523, E86.524, E86.525, E86.526, E86.527, E86.528, E86.529, E86.53, E86.530, E86.531, E86.532, E86.533, E86.534, E86.535, E86.536, E86.537, E86.538, E86.539, E86.54, E86.540, E86.541, E86.542, E86.543, E86.544, E86.545, E86.546, E86.547, E86.548, E86.549, E86.55, E86.550, E86.551, E86.552, E86.553, E86.554, E86.555, E86.556, E86.557, E86.558, E86.559, E86.58, E86.580, E86.581, E86.582, E86.583, E86.584, E86.585, E86.586, E86.587, E86.588, E86.589, E86.59, E86.590, E86.591, E86.592, E86.593, E86.594, E86.595, E86.596, E86.597, E86.598, E86.599, E86.6, E86.60, E86.600, E86.601, E86.602, E86.603, E86.604, E86.605, E86.606, E86.607, E86.608, E86.609, E86.61, E86.610, E86.611, E86.612, E86.613, E86.614, E86.615, E86.616, E86.617, E86.618, E86.619, E86.62, E86.620, E86.621,			

284

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
		E86.622, E86.623, E86.624, E86.625, E86.626, E86.627, E86.628, E86.629, E86.63, E86.630, E86.631, E86.632, E86.633, E86.634, E86.635, E86.636, E86.637, E86.638, E86.639, E86.64, E86.640, E86.641, E86.642, E86.643, E86.644, E86.645, E86.646, E86.647, E86.648, E86.649, E86.65, E86.650, E86.651, E86.652, E86.653, E86.654, E86.655, E86.656, E86.657, E86.658, E86.659, E86.66, E86.660, E86.661, E86.662, E86.663, E86.664, E86.665, E86.666, E86.667, E86.668, E86.669, E86.67, E86.670, E86.671, E86.672, E86.673, E86.674, E86.675, E86.676, E86.677, E86.678, E86.679, E86.68, E86.680, E86.681, E86.682, E86.683, E86.684, E86.685, E86.686, E86.687, E86.688, E86.689, E86.69, E86.690, E86.691, E86.692, E86.693, E86.694, E86.695, E86.696, E86.697, E86.698, E86.699, E86.7, E86.70, E86.700, E86.701, E86.702, E86.703, E86.704, E86.705, E86.706, E86.707, E86.708, E86.709, E86.8, E86.80, E86.800, E86.801, E86.802, E86.803, E86.804, E86.805, E86.806, E86.807, E86.808, E86.809, E86.81, E86.810, E86.811, E86.812, E86.813, E86.814, E86.815, E86.816, E86.817, E86.818, E86.819, E86.82, E86.820, E86.821, E86.822, E86.823, E86.824, E86.825, E86.826, E86.827, E86.828, E86.829, E86.83, E86.830, E86.831, E86.832, E86.833, E86.834, E86.835, E86.836, E86.837, E86.838, E86.839, E86.88, E86.880, E86.881, E86.882, E86.883, E86.884, E86.885, E86.886, E86.887, E86.888, E86.889, E86.89, E86.890, E86.891, E86.892, E86.893, E86.894, E86.895, E86.896, E86.897, E86.898, E86.899, E86.9, E86.90, E86.900, E86.901,			

285

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
		E86.902, E86.903, E86.904, E86.905, E86.906, E86.907, E86.908, E86.909, E86.91, E86.910, E86.911, E86.912, E86.913, E86.914, E86.915, E86.916, E86.917, E86.918, E86.919, E86.92, E86.920, E86.921, E86.922, E86.923, E86.924, E86.925, E86.926, E86.927, E86.928, E86.929, E86.93, E86.930, E86.931, E86.932, E86.933, E86.934, E86.935, E86.936, E86.937, E86.938, E86.939, E86.940, E86.941, E86.942, E86.943, E86.944, E86.945, E86.946, E86.947, E86.948, E86.949, E86.98, E86.980, E86.981, E86.982, E86.983, E86.984, E86.985, E86.986, E86.987, E86.988, E86.989, E86.99, E86.990, E86.991, E86.992, E86.993, E86.994, E86.995, E86.996, E86.997, E86.998, E86.999, E92.92, V15.6, V87.0, V87.01, V87.02, V87.09, V87.1, V87.11, V87.12, V87.19, V87.2, V87.3, V87.31, V87.32, V87.39			

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
C.2.5	Exposure to mechanical forces	E91.3, E91.30, E91.300, E91.301, E91.302, E91.303, E91.304, E91.305, E91.306, E91.307, E91.308, E91.309, E91.31, E91.310, E91.311, E91.312, E91.313, E91.314, E91.315, E91.316, E91.317, E91.318, E91.319, E91.6, E91.60, E91.600, E91.601, E91.602, E91.603, E91.604, E91.605, E91.606, E91.607, E91.608, E91.609, E91.7, E91.70, E91.700, E91.701, E91.702, E91.703, E91.704, E91.705, E91.706, E91.707, E91.708, E91.709, E91.71, E91.710, E91.711, E91.712, E91.713, E91.714, E91.715, E91.716, E91.717, E91.718, E91.719, E91.72, E91.720, E91.721, E91.722, E91.723, E91.724, E91.725, E91.726, E91.727, E91.728, E91.729, E91.73, E91.74, E91.75, E91.76, E91.77, E91.78, E91.79, E91.790, E91.791, E91.792, E91.793, E91.794, E91.795, E91.796, E91.797, E91.798, E91.799, E91.8, E91.80, E91.800, E91.801, E91.802, E91.803, E91.804, E91.805, E91.806, E91.807, E91.808, E91.809, E91.9, E91.90, E91.900, E91.901, E91.902, E91.903, E91.904, E91.905, E91.906, E91.907, E91.908, E91.909, E91.91, E91.910, E91.911, E91.912, E91.913, E91.914, E91.915, E91.916, E91.917, E91.918, E91.919, E91.92, E91.920, E91.921, E91.922, E91.923, E91.924, E91.925, E91.926, E91.927, E91.928, E91.929, E91.93, E91.930, E91.931, E91.932, E91.933, E91.934, E91.935, E91.936, E91.937, E91.938, E91.939, E91.94, E91.940, E91.941, E91.942, E91.943, E91.944, E91.945, E91.946, E91.947, E91.948, E91.949, E91.95, E91.950, E91.951, E91.952, E91.953, E91.954, E91.955, E91.956, E91.957, E91.958, E91.959, E91.96, E91.960, E91.961,	W32, W32.0, W32.1, W32.2, W32.3, W32.4, W32.5, W32.6, W32.7, W32.8, W32.9, W33, W33.0, W33.00, W33.01, W33.02, W33.03, W33.09, W33.1, W33.10, W33.11, W33.12, W33.13, W33.19, W33.2, W33.3, W33.4, W33.5, W33.6, W33.7, W33.8, W33.9, W34, W34.0, W34.00, W34.01, W34.010, W34.011, W34.018, W34.09, W34.1, W34.10, W34.11, W34.110, W34.111, W34.118, W34.19, W34.2, W34.3, W34.4, W34.5, W34.6, W34.7, W34.8, W34.9, W20, W20.0, W20.1, W20.2, W20.3, W20.4, W20.5, W20.6, W20.7, W20.8, W20.9, W21, W21.0, W21.00, W21.01, W21.02, W21.03, W21.04, W21.05, W21.06, W21.07, W21.09, W21.1, W21.11, W21.12, W21.13, W21.19, W21.2, W21.21, W21.210, W21.211, W21.22, W21.220, W21.221, W21.3, W21.31, W21.32, W21.39, W21.4, W21.5, W21.6, W21.7, W21.8, W21.81, W21.89, W21.9, W22, W22.0, W22.01, W22.02, W22.03, W22.04, W22.041, W22.042, W22.09, W22.1, W22.10, W22.11, W22.12, W22.19, W22.2, W22.3, W22.4, W22.5, W22.6, W22.7, W22.8, W22.9, W23, W23.0, W23.1, W23.2, W23.3, W23.4, W23.5, W23.6, W23.7, W23.8, W23.9, W24, W24.0, W24.1, W24.2, W24.3, W24.4, W24.5, W24.6, W24.7, W24.8, W24.9, W25, W25.0, W25.1, W25.2, W25.3, W25.4, W25.5, W25.6, W25.7, W25.8, W25.9, W26, W26.0, W26.1, W26.2, W26.3, W26.4, W26.5, W26.6, W26.7, W26.8, W26.9, W27, W27.0, W27.1, W27.2, W27.3, W27.4,	both	0-85

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
		E91.962, E91.963, E91.964, E91.965, E91.966, E91.967, E91.968, E91.969, E91.97, E91.970, E91.971, E91.972, E91.973, E91.974, E91.975, E91.976, E91.977, E91.978, E91.979, E91.98, E91.980, E91.981, E91.982, E91.983, E91.984, E91.985, E91.986, E91.987, E91.988, E91.989, E91.99, E91.990, E91.991, E91.992, E91.993, E91.994, E91.995, E91.996, E91.997, E91.998, E91.999, E92.0, E92.00, E92.000, E92.001, E92.002, E92.003, E92.004, E92.005, E92.006, E92.007, E92.008, E92.009, E92.01, E92.010, E92.011, E92.012, E92.013, E92.014, E92.015, E92.016, E92.017, E92.018, E92.019, E92.02, E92.020, E92.021, E92.022, E92.023, E92.024, E92.025, E92.026, E92.027, E92.028, E92.029, E92.03, E92.030, E92.031, E92.032, E92.033, E92.034, E92.035, E92.036, E92.037, E92.038, E92.039, E92.04, E92.040, E92.041, E92.042, E92.043, E92.044, E92.045, E92.046, E92.047, E92.048, E92.049, E92.05, E92.08, E92.080, E92.081, E92.082, E92.083, E92.084, E92.085, E92.086, E92.087, E92.088, E92.089, E92.09, E92.090, E92.091, E92.092, E92.093, E92.094, E92.095, E92.096, E92.097, E92.098, E92.099, E92.1, E92.10, E92.100, E92.101, E92.102, E92.103, E92.104, E92.105, E92.106, E92.107, E92.108, E92.109, E92.11, E92.110, E92.111, E92.112, E92.113, E92.114, E92.115, E92.116, E92.117, E92.118, E92.119, E92.18, E92.180, E92.181, E92.182, E92.183, E92.184, E92.185, E92.186, E92.187, E92.188, E92.189, E92.19, E92.190, E92.191, E92.192, E92.193, E92.194, E92.195, E92.196, E92.197, E92.198, E92.199, E92.2, E92.20, E92.200,	W27.5, W27.6, W27.7, W27.8, W27.9, W28, W28.0, W28.1, W28.2, W28.3, W28.4, W28.5, W28.6, W28.7, W28.8, W28.9, W29, W29.0, W29.1, W29.2, W29.3, W29.4, W29.5, W29.6, W29.7, W29.8, W29.9, W30, W30.0, W30.1, W30.2, W30.3, W30.4, W30.5, W30.6, W30.7, W30.8, W30.81, W30.89, W30.9, W31, W31.0, W31.1, W31.2, W31.3, W31.4, W31.5, W31.6, W31.7, W31.8, W31.81, W31.82, W31.83, W31.89, W31.9, W35, W35.0, W35.1, W35.2, W35.3, W35.4, W35.5, W35.6, W35.7, W35.8, W35.9, W36, W36.0, W36.1, W36.2, W36.3, W36.4, W36.5, W36.6, W36.7, W36.8, W36.9, W37, W37.0, W37.1, W37.2, W37.3, W37.4, W37.5, W37.6, W37.7, W37.8, W37.9, W38, W38.0, W38.1, W38.2, W38.3, W38.4, W38.5, W38.6, W38.7, W38.8, W38.9, W40, W40.0, W40.1, W40.2, W40.3, W40.4, W40.5, W40.6, W40.7, W40.8, W40.9, W41, W41.0, W41.1, W41.2, W41.3, W41.4, W41.5, W41.6, W41.7, W41.8, W41.9, W42, W42.0, W42.2, W42.3, W42.9, W43, W43.0, W43.1, W43.2, W43.3, W43.4, W43.5, W43.6, W43.7, W43.8, W43.9, W45.0, W45.1, W45.2, W46, W46.0, W46.1, W46.2, W49, W49.0, W49.01, W49.02, W49.03, W49.04, W49.09, W49.1, W49.2, W49.3, W49.4, W49.5, W49.6, W49.7, W49.8, W49.9, W50, W50.0, W50.1, W50.2, W50.3, W50.4, W50.5, W50.6, W50.7, W50.8, W50.9, W51, W51.0, W51.1, W51.2, W51.3, W51.4, W51.5, W51.6, W51.7, W51.8, W51.9, W52,		

288

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
		E92.201, E92.202, E92.203, E92.204, E92.205, E92.206, E92.207, E92.208, E92.209, E92.21, E92.210, E92.211, E92.212, E92.213, E92.214, E92.215, E92.216, E92.217, E92.218, E92.219, E92.22, E92.220, E92.221, E92.222, E92.223, E92.224, E92.225, E92.226, E92.227, E92.228, E92.229, E92.23, E92.230, E92.231, E92.232, E92.233, E92.234, E92.235, E92.236, E92.237, E92.238, E92.239, E92.24, E92.25, E92.28, E92.280, E92.281, E92.282, E92.283, E92.284, E92.285, E92.286, E92.287, E92.288, E92.289, E92.29, E92.290, E92.291, E92.292, E92.293, E92.294, E92.295, E92.296, E92.297, E92.298, E92.299, E92.81, E92.810, E92.811, E92.812, E92.813, E92.814, E92.815, E92.816, E92.817, E92.818, E92.819, E92.82, E92.820, E92.821, E92.822, E92.823, E92.824, E92.825, E92.826, E92.827, E92.828, E92.829, E92.83, E92.84, E92.85, E92.86, E92.87	W75, W75.0, W75.1, W75.2, W75.3, W75.4, W75.5, W75.6, W75.7, W75.8, W75.9, W76, W76.0, W76.1, W76.2, W76.3, W76.4, W76.5, W76.6, W76.7, W76.8, W76.9		

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
C.2.6	Animal contact	E90.5, E90.50, E90.500, E90.501, E90.502, E90.503, E90.504, E90.505, E90.506, E90.507, E90.508, E90.509, E90.51, E90.510, E90.511, E90.512, E90.513, E90.514, E90.515, E90.516, E90.517, E90.518, E90.519, E90.52, E90.520, E90.521, E90.522, E90.523, E90.524, E90.525, E90.526, E90.527, E90.528, E90.529, E90.53, E90.530, E90.531, E90.532, E90.533, E90.534, E90.535, E90.536, E90.537, E90.538, E90.539, E90.54, E90.540, E90.541, E90.542, E90.543, E90.544, E90.545, E90.546, E90.547, E90.548, E90.549, E90.55, E90.550, E90.551, E90.552, E90.553, E90.554, E90.555, E90.556, E90.557, E90.558, E90.559, E90.56, E90.560, E90.561, E90.562, E90.563, E90.564, E90.565, E90.566, E90.567, E90.568, E90.569, E90.57, E90.570, E90.571, E90.572, E90.573, E90.574, E90.575, E90.576, E90.577, E90.578, E90.579, E90.58, E90.580, E90.581, E90.582, E90.583, E90.584, E90.585, E90.586, E90.587, E90.588, E90.589, E90.59, E90.590, E90.591, E90.592, E90.593, E90.594, E90.595, E90.596, E90.597, E90.598, E90.599, E90.6, E90.60, E90.600, E90.601, E90.602, E90.603, E90.604, E90.605, E90.606, E90.607, E90.608, E90.609, E90.61, E90.610, E90.611, E90.612, E90.613, E90.614, E90.615, E90.616, E90.617, E90.618, E90.619, E90.62, E90.620, E90.621, E90.622, E90.623, E90.624, E90.625, E90.626, E90.627, E90.628, E90.629, E90.63, E90.630, E90.631, E90.632, E90.633, E90.634, E90.635, E90.636, E90.637, E90.638, E90.639, E90.64, E90.640, E90.641, E90.642, E90.643, E90.644, E90.645, E90.646, E90.647, E90.648, E90.649, E90.65,	W52.0, W52.1, W52.2, W52.3, W52.4, W52.5, W52.6, W52.7, W52.8, W52.9, W53, W53.0, W53.01, W53.09, W53.1, W53.11, W53.19, W53.2, W53.21, W53.29, W53.3, W53.8, W53.81, W53.89, W53.9, W54, W54.0, W54.1, W54.2, W54.3, W54.4, W54.5, W54.6, W54.7, W54.8, W54.9, W55, W55.0, W55.01, W55.03, W55.09, W55.1, W55.11, W55.12, W55.19, W55.2, W55.21, W55.22, W55.29, W55.3, W55.31, W55.32, W55.39, W55.4, W55.41, W55.42, W55.49, W55.5, W55.51, W55.52, W55.59, W55.6, W55.7, W55.8, W55.81, W55.82, W55.89, W55.9, W56, W56.0, W56.01, W56.02, W56.09, W56.1, W56.11, W56.12, W56.19, W56.2, W56.21, W56.22, W56.29, W56.3, W56.31, W56.32, W56.39, W56.4, W56.41, W56.42, W56.49, W56.5, W56.51, W56.52, W56.59, W56.6, W56.7, W56.8, W56.81, W56.82, W56.89, W56.9, W57, W57.0, W57.1, W57.2, W57.4, W57.5, W57.6, W57.7, W57.8, W57.9, W58, W58.0, W58.01, W58.02, W58.03, W58.09, W58.1, W58.11, W58.12, W58.13, W58.19, W58.4, W58.7, W58.8, W58.9, W59, W59.0, W59.01, W59.02, W59.09, W59.1, W59.11, W59.12, W59.13, W59.19, W59.2, W59.21, W59.22, W59.29, W59.4, W59.5, W59.6, W59.7, W59.8, W59.81, W59.82, W59.83, W59.89, W59.9, W60, W60.0, W60.1, W60.2, W60.4, W60.5, W60.6, W60.7, W60.8, W60.9, W61, W61.0, W61.01, W61.02, W61.09, W61.1, W61.11, W61.12, W61.19, W61.2, W61.21, W61.22, W61.29,	both	0-85

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
		E90.68, E90.680, E90.681, E90.682, E90.683, E90.684, E90.685, E90.686, E90.687, E90.688, E90.689, E90.69, E90.690, E90.691, E90.692, E90.693, E90.694, E90.695, E90.696, E90.697, E90.698, E90.699, V90.31	W61.3, W61.32, W61.33, W61.39, W61.4, W61.42, W61.43, W61.49, W61.5, W61.51, W61.52, W61.59, W61.6, W61.61, W61.62, W61.69, W61.9, W61.91, W61.92, W61.99, W62, W62.0, W62.1, W62.9, W64, W64.0, W64.1, W64.2, W64.3, W64.4, W64.5, W64.6, W64.7, W64.8, W64.9, X20, X20.0, X20.1, X20.2, X20.3, X20.4, X20.5, X20.6, X20.7, X20.8, X20.9, X21, X21.0, X21.1, X21.2, X21.4, X21.5, X21.6, X21.7, X21.8, X21.9, X22, X22.0, X22.1, X22.2, X22.3, X22.4, X22.5, X22.6, X22.7, X22.8, X22.9, X23, X23.0, X23.1, X23.2, X23.3, X23.4, X23.5, X23.6, X23.7, X23.8, X23.9, X24, X24.0, X24.1, X24.2, X24.4, X24.6, X24.7, X24.8, X24.9, X25, X25.0, X25.1, X25.2, X25.4, X25.5, X25.6, X25.7, X25.8, X25.9, X26, X26.0, X26.1, X26.2, X26.3, X26.5, X26.7, X26.8, X26.9, X27, X27.0, X27.1, X27.2, X27.3, X27.4, X27.5, X27.7, X27.8, X27.9, X28, X28.0, X28.1, X28.2, X28.4, X28.5, X28.7, X28.8, X28.9, X29, X29.0, X29.1, X29.2, X29.3, X29.4, X29.5, X29.6, X29.7, X29.8, X29.9		

291

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
C.2.7	Foreign body	360.5, 360.50, 360.51, 360.52, 360.53, 360.54, 360.55, 360.59, 360.6, 360.60, 360.61, 360.62, 360.63, 360.64, 360.65, 360.69, 374.86, 376.6, 709.4, 728.82, 729.6, 770.1, 770.10, 770.11, 770.12, 770.13, 770.14, 770.15, 770.16, 770.17, 770.18, E91.1, E91.10, E91.100, E91.101, E91.102, E91.103, E91.104, E91.105, E91.106, E91.107, E91.108, E91.109, E91.2, E91.20, E91.200, E91.201, E91.202, E91.203, E91.204, E91.205, E91.206, E91.207, E91.208, E91.209, E91.38, E91.380, E91.381, E91.382, E91.383, E91.384, E91.385, E91.386, E91.387, E91.388, E91.389, E91.39, E91.390, E91.391, E91.392, E91.393, E91.394, E91.395, E91.396, E91.397, E91.398, E91.399, E91.4, E91.40, E91.400, E91.401, E91.402, E91.403, E91.404, E91.405, E91.406, E91.407, E91.408, E91.409, E91.5, E91.50, E91.500, E91.501, E91.502, E91.503, E91.504, E91.505, E91.506, E91.507, E91.508, E91.509, V15.53, V90, V90.0, V90.01, V90.09, V90.1, V90.10, V90.11, V90.12, V90.2, V90.3, V90.32, V90.33, V90.39, V90.8, V90.81, V90.83, V90.89, V90.9	Z18.2, Z18.9, P24.9, W78, W78.0, W78.1, W78.2, W78.3, W78.4, W78.5, W78.6, W78.7, W78.8, W78.9, W79, W79.0, W79.1, W79.2, W79.3, W79.4, W79.5, W79.6, W79.7, W79.8, W79.9, W80, W80.0, W80.1, W80.2, W80.3, W80.4, W80.5, W80.6, W80.7, W80.8, W80.9, W83, W83.0, W83.1, W83.2, W83.3, W83.4, W83.5, W83.6, W83.7, W83.8, W83.9, W84, W84.0, W84.1, W84.2, W84.3, W84.4, W84.5, W84.6, W84.7, W84.8, W84.9, H44.6, H44.60, H44.601, H44.602, H44.603, H44.609, H44.61, H44.611, H44.612, H44.613, H44.619, H44.62, H44.621, H44.622, H44.623, H44.629, H44.63, H44.631, H44.632, H44.633, H44.639, H44.64, H44.641, H44.642, H44.643, H44.649, H44.65, H44.651, H44.652, H44.653, H44.659, H44.69, H44.691, H44.692, H44.693, H44.699, H44.7, H44.70, H44.701, H44.702, H44.703, H44.709, H44.71, H44.711, H44.712, H44.713, H44.719, H44.72, H44.721, H44.722, H44.723, H44.729, H44.73, H44.731, H44.732, H44.733, H44.739, H44.74, H44.741, H44.742, H44.743, H44.749, H44.75, H44.751, H44.752, H44.753, H44.759, H44.79, H44.791, H44.792, H44.793, H44.799, M60.20, M60.211, M60.212, M60.219, M60.221, M60.222, M60.229, M60.231, M60.232, M60.239, M60.241, M60.242, M60.249, M60.251, M60.252, M60.259, M60.261, M60.262, M60.269, M60.271, M60.272, M60.279, M60.28, M79.5, L92.3, M60.2, M60.21, M60.22, M60.23, M60.24, M60.25, M60.26,	both	0-85

292

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			M60.27, W44, W44.0, W44.1, W44.2, W44.3, W44.4, W44.5, W44.6, W44.7, W44.8, W44.9, W45, W45.3, W45.4, W45.5, W45.6, W45.7, W45.8, W45.9		

293

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
C.2.8	Other unintentional injuries	E90.0, E90.00, E90.000, E90.001, E90.002, E90.003, E90.004, E90.005, E90.006, E90.007, E90.008, E90.009, E90.01, E90.010, E90.011, E90.012, E90.013, E90.014, E90.015, E90.016, E90.017, E90.018, E90.019, E90.09, E90.090, E90.091, E90.092, E90.093, E90.094, E90.095, E90.096, E90.097, E90.098, E90.099, E90.1, E90.10, E90.100, E90.101, E90.102, E90.103, E90.104, E90.105, E90.106, E90.107, E90.108, E90.109, E90.11, E90.110, E90.111, E90.112, E90.113, E90.114, E90.115, E90.116, E90.117, E90.118, E90.119, E90.18, E90.180, E90.181, E90.182, E90.183, E90.184, E90.185, E90.186, E90.187, E90.188, E90.189, E90.19, E90.190, E90.191, E90.192, E90.193, E90.194, E90.195, E90.196, E90.197, E90.198, E90.199, E90.2, E90.20, E90.200, E90.201, E90.202, E90.203, E90.204, E90.205, E90.206, E90.207, E90.208, E90.209, E90.21, E90.210, E90.211, E90.212, E90.213, E90.214, E90.215, E90.216, E90.217, E90.218, E90.219, E90.22, E90.220, E90.221, E90.222, E90.223, E90.224, E90.225, E90.226, E90.227, E90.228, E90.229, E90.28, E90.280, E90.281, E90.282, E90.283, E90.284, E90.285, E90.286, E90.287, E90.288, E90.289, E90.29, E90.290, E90.291, E90.292, E90.293, E90.294, E90.295, E90.296, E90.297, E90.298, E90.299, E90.3, E90.30, E90.300, E90.301, E90.302, E90.303, E90.304, E90.305, E90.306, E90.307, E90.308, E90.309, E90.4, E90.40, E90.400, E90.401, E90.402, E90.403, E90.404, E90.405, E90.406, E90.407, E90.408, E90.409, E90.41, E90.410, E90.411, E90.412, E90.413, E90.414, E90.415, E90.416, E90.417,	W85, W85.0, W85.1, W85.2, W85.3, W85.4, W85.5, W85.6, W85.7, W85.8, W85.9, W86, W86.0, W86.1, W86.2, W86.3, W86.4, W86.5, W86.6, W86.7, W86.8, W86.9, W87, W87.0, W87.1, W87.2, W87.3, W87.4, W87.5, W87.6, W87.7, W87.8, W87.9, L55, L55.8, L58, W88, W88.0, W88.1, W88.2, W88.4, W88.5, W88.6, W88.7, W88.8, W88.9, W89, W89.0, W89.1, W89.2, W89.3, W89.4, W89.5, W89.6, W89.7, W89.8, W89.9, W90, W90.0, W90.1, W90.2, W90.3, W90.5, W90.6, W90.7, W90.8, W90.9, W91, W91.0, W91.1, W91.2, W91.3, W91.4, W91.6, W91.7, W91.8, W91.9, W92, W92.0, W92.1, W92.2, W92.3, W92.4, W92.5, W92.6, W92.7, W92.8, W92.9, W93, W93.0, W93.01, W93.02, W93.1, W93.11, W93.12, W93.2, W93.3, W93.4, W93.5, W93.6, W93.7, W93.8, W93.9, W94, W94.0, W94.1, W94.11, W94.12, W94.2, W94.21, W94.22, W94.23, W94.29, W94.3, W94.31, W94.32, W94.39, W94.4, W94.5, W94.6, W94.7, W94.8, W94.9, W97.9, W99, W99.0, W99.1, W99.2, W99.3, W99.4, W99.6, W99.7, W99.8, W99.9, X30, X30.0, X30.1, X30.2, X30.3, X30.4, X30.5, X30.6, X30.7, X30.8, X30.9, X31, X31.0, X31.1, X31.2, X31.3, X31.4, X31.5, X31.6, X31.7, X31.8, X31.9, X32, X32.0, X32.1, X32.3, X32.4, X32.5, X32.6, X32.7, X32.8, X32.9, X39, X39.0, X39.01, X39.08, X39.1, X39.2, X39.3, X39.4, X39.5, X39.6, X39.7, X39.8, X39.9, W39, W39.0, W39.1, W39.2, W39.3, W39.4, W39.5, W39.6, W39.7, W39.8,	both	0-85

294

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
		E90.418, E90.419, E90.42, E90.420, E90.421, E90.422, E90.423, E90.424, E90.425, E90.426, E90.427, E90.428, E90.429, E90.43, E90.430, E90.431, E90.432, E90.433, E90.434, E90.435, E90.436, E90.437, E90.438, E90.439, E90.49, E90.490, E90.491, E90.492, E90.493, E90.494, E90.495, E90.496, E90.497, E90.498, E90.499, E91.32, E91.320, E91.321, E91.322, E91.323, E91.324, E91.325, E91.326, E91.327, E91.328, E91.329, E91.33, E91.330, E91.331, E91.332, E91.333, E91.334, E91.335, E91.336, E91.337, E91.338, E91.339, E92.3, E92.30, E92.300, E92.301, E92.302, E92.303, E92.304, E92.305, E92.306, E92.307, E92.308, E92.309, E92.31, E92.310, E92.311, E92.312, E92.313, E92.314, E92.315, E92.316, E92.317, E92.318, E92.319, E92.32, E92.320, E92.321, E92.322, E92.323, E92.324, E92.325, E92.326, E92.327, E92.328, E92.329, E92.38, E92.380, E92.381, E92.382, E92.383, E92.384, E92.385, E92.386, E92.387, E92.388, E92.389, E92.39, E92.390, E92.391, E92.392, E92.393, E92.394, E92.395, E92.396, E92.397, E92.398, E92.399, E92.5, E92.50, E92.500, E92.501, E92.502, E92.503, E92.504, E92.505, E92.506, E92.507, E92.508, E92.509, E92.51, E92.510, E92.511, E92.512, E92.513, E92.514, E92.515, E92.516, E92.517, E92.518, E92.519, E92.52, E92.520, E92.521, E92.522, E92.523, E92.524, E92.525, E92.526, E92.527, E92.528, E92.529, E92.58, E92.580, E92.581, E92.582, E92.583, E92.584, E92.585, E92.586, E92.587, E92.588, E92.589, E92.59, E92.590, E92.591, E92.592, E92.593, E92.594, E92.595, E92.596, E92.597, E92.598,	W39.9, W77, W77.0, W77.1, W77.2, W77.3, W77.4, W77.5, W77.6, W77.7, W77.8, W77.9, W81, W81.0, W81.1, W81.2, W81.3, W81.4, W81.5, W81.6, W81.7, W81.8, W81.9, X50, X50.0, X50.1, X50.2, X50.3, X50.4, X50.5, X50.6, X50.7, X50.8, X50.9, X51, X51.0, X51.1, X51.2, X51.3, X51.4, X51.5, X51.6, X51.8, X51.9, X52, X52.0, X52.1, X52.4, X52.6, X52.7, X52.8, X52.9, X53, X53.0, X53.1, X53.2, X53.3, X53.4, X53.5, X53.6, X53.7, X53.8, X53.9, X54, X54.0, X54.1, X54.2, X54.3, X54.4, X54.5, X54.8, X54.9, X55, X56, X57, X57.0, X57.1, X57.2, X57.4, X57.5, X57.6, X57.8, X57.9, X58, X58.0, X58.1, X58.2, X58.3, X58.4, X58.5, X58.6, X58.7, X58.8, X58.9		

295

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
		E92.599, E92.6, E92.60, E92.600, E92.601, E92.602, E92.603, E92.604, E92.605, E92.606, E92.607, E92.608, E92.609, E92.61, E92.610, E92.611, E92.612, E92.613, E92.614, E92.615, E92.616, E92.617, E92.618, E92.619, E92.62, E92.620, E92.621, E92.622, E92.623, E92.624, E92.625, E92.626, E92.627, E92.628, E92.629, E92.63, E92.630, E92.631, E92.632, E92.633, E92.634, E92.635, E92.636, E92.637, E92.638, E92.639, E92.64, E92.640, E92.641, E92.642, E92.643, E92.644, E92.645, E92.646, E92.647, E92.648, E92.649, E92.65, E92.650, E92.651, E92.652, E92.653, E92.654, E92.655, E92.656, E92.657, E92.658, E92.659, E92.68, E92.680, E92.681, E92.682, E92.683, E92.684, E92.685, E92.686, E92.687, E92.688, E92.689, E92.69, E92.690, E92.691, E92.692, E92.693, E92.694, E92.695, E92.696, E92.697, E92.698, E92.699, E92.7, E92.70, E92.700, E92.701, E92.702, E92.703, E92.704, E92.705, E92.706, E92.707, E92.708, E92.709, E92.71, E92.72, E92.73, E92.74, E92.78, E92.79, E92.8, E92.80, E92.800, E92.801, E92.802, E92.803, E92.804, E92.805, E92.806, E92.807, E92.808, E92.809, E92.88, E92.880, E92.881, E92.882, E92.883, E92.884, E92.885, E92.886, E92.887, E92.888, E92.889, E92.95			

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
C.3.1	Self-harm	E95.0, E95.00, E95.01, E95.02, E95.03, E95.04, E95.05, E95.06, E95.07, E95.08, E95.09, E95.1, E95.10, E95.11, E95.18, E95.2, E95.20, E95.21, E95.28, E95.29, E95.3, E95.30, E95.31, E95.38, E95.39, E95.4, E95.5, E95.50, E95.51, E95.52, E95.53, E95.54, E95.55, E95.56, E95.57, E95.59, E95.6, E95.7, E95.70, E95.71, E95.72, E95.79, E95.8, E95.80, E95.81, E95.82, E95.83, E95.84, E95.85, E95.86, E95.87, E95.88, E95.89, E95.9	X60, X60.0, X60.1, X60.2, X60.3, X60.4, X60.5, X60.6, X60.7, X60.8, X60.9, X61, X61.0, X61.1, X61.2, X61.3, X61.4, X61.5, X61.6, X61.7, X61.8, X61.9, X62, X62.0, X62.1, X62.2, X62.3, X62.4, X62.5, X62.6, X62.7, X62.8, X62.9, X63, X63.0, X63.1, X63.2, X63.3, X63.4, X63.5, X63.6, X63.7, X63.8, X63.9, X64, X64.0, X64.1, X64.2, X64.3, X64.4, X64.5, X64.6, X64.7, X64.8, X64.9, X66, X66.0, X66.1, X66.2, X66.3, X66.4, X66.5, X66.6, X66.7, X66.8, X66.9, X67, X67.0, X67.1, X67.2, X67.3, X67.4, X67.5, X67.6, X67.7, X67.8, X67.9, X68, X68.0, X68.1, X68.2, X68.3, X68.4, X68.5, X68.6, X68.7, X68.8, X68.9, X69, X69.0, X69.1, X69.2, X69.3, X69.4, X69.5, X69.6, X69.7, X69.8, X69.9, X70, X70.0, X70.1, X70.2, X70.3, X70.4, X70.5, X70.6, X70.7, X70.8, X70.9, X71, X71.0, X71.1, X71.2, X71.3, X71.4, X71.5, X71.6, X71.7, X71.8, X71.9, X72, X72.0, X72.1, X72.2, X72.3, X72.4, X72.5, X72.6, X72.7, X72.8, X72.9, X73, X73.0, X73.1, X73.2, X73.3, X73.4, X73.5, X73.6, X73.7, X73.8, X73.9, X74, X74.0, X74.01, X74.02, X74.09, X74.1, X74.2, X74.3, X74.4, X74.5, X74.6, X74.7, X74.8, X74.9, X75, X75.0, X75.1, X75.2, X75.3, X75.4, X75.5, X75.6, X75.7, X75.8, X75.9, X76, X76.0, X76.1, X76.2, X76.3, X76.4, X76.5, X76.6, X76.7, X76.8, X76.9, X77, X77.0, X77.1, X77.2, X77.3, X77.4, X77.5, X77.6, X77.7, X77.8, X77.9, X78, X78.0, X78.1, X78.2, X78.3, X78.4, X78.5, X78.6, X78.7, X78.8, X78.9, X79, X79.0, X79.1, X79.2, X79.3, X79.4, X79.5, X79.6,	both	5-85

297

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			X79.7, X79.8, X79.9, X80, X80.0, X80.1, X80.2, X80.3, X80.4, X80.5, X80.6, X80.7, X80.8, X80.9, X81, X81.0, X81.1, X81.2, X81.3, X81.4, X81.5, X81.6, X81.7, X81.8, X81.9, X82, X82.0, X82.1, X82.2, X82.3, X82.4, X82.5, X82.6, X82.7, X82.8, X82.9, X83, X83.0, X83.1, X83.2, X83.3, X83.4, X83.5, X83.6, X83.7, X83.8, X83.9, X84, X84.0, X84.1, X84.2, X84.3, X84.4, X84.5, X84.6, X84.7, X84.8, X84.9, Y87.0		

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
C.3.2	Interpersonal violence	E96.0, E96.00, E96.01, E96.1, E96.2, E96.20, E96.21, E96.22, E96.29, E96.3, E96.4, E96.5, E96.50, E96.51, E96.52, E96.53, E96.54, E96.55, E96.56, E96.57, E96.58, E96.59, E96.6, E96.7, E96.70, E96.71, E96.72, E96.73, E96.74, E96.75, E96.76, E96.77, E96.78, E96.79, E96.8, E96.80, E96.81, E96.82, E96.83, E96.84, E96.85, E96.86, E96.87, E96.88, E96.89, E96.9, V15.41, V71.5, V71.81	X93, X93.0, X93.1, X93.2, X93.3, X93.4, X93.5, X93.6, X93.7, X93.8, X93.9, X94, X94.0, X94.1, X94.2, X94.3, X94.4, X94.5, X94.6, X94.7, X94.8, X94.9, X95, X95.0, X95.01, X95.02, X95.09, X95.1, X95.2, X95.3, X95.4, X95.5, X95.6, X95.7, X95.8, X95.9, X99, X99.0, X99.1, X99.2, X99.3, X99.4, X99.5, X99.6, X99.7, X99.8, X99.9, X85, X85.0, X85.1, X85.2, X85.3, X85.4, X85.5, X85.6, X85.7, X85.8, X85.9, X86, X86.0, X86.1, X86.2, X86.4, X86.5, X86.6, X86.8, X86.9, X87, X87.0, X87.1, X87.2, X87.3, X87.4, X87.5, X87.6, X87.7, X87.8, X87.9, X88, X88.0, X88.1, X88.2, X88.3, X88.4, X88.5, X88.6, X88.7, X88.8, X88.9, X89, X89.0, X89.1, X89.2, X89.3, X89.4, X89.5, X89.6, X89.7, X89.8, X89.9, X90, X90.0, X90.1, X90.2, X90.3, X90.4, X90.5, X90.6, X90.7, X90.8, X90.9, X91, X91.0, X91.1, X91.2, X91.3, X91.4, X91.5, X91.6, X91.7, X91.8, X91.9, X92, X92.0, X92.1, X92.2, X92.3, X92.4, X92.5, X92.6, X92.7, X92.8, X92.9, X96, X96.0, X96.1, X96.2, X96.3, X96.4, X96.5, X96.6, X96.7, X96.8, X96.9, X97, X97.0, X97.1, X97.2, X97.3, X97.4, X97.5, X97.6, X97.7, X97.8, X97.9, X98, X98.0, X98.1, X98.2, X98.3, X98.4, X98.5, X98.7, X98.8, X98.9, Y00, Y00.0, Y00.1, Y00.2, Y00.3, Y00.4, Y00.5, Y00.6, Y00.7, Y00.8, Y00.9, Y01, Y01.0, Y01.1, Y01.2, Y01.3, Y01.4, Y01.5, Y01.6, Y01.7, Y01.8, Y01.9, Y02, Y02.0, Y02.1, Y02.2, Y02.3, Y02.4, Y02.5, Y02.6, Y02.7, Y02.8, Y02.9, Y03, Y03.0, Y03.1, Y03.2, Y03.3, Y03.4, Y03.5, Y03.6, Y03.7, Y03.8, Y03.9, Y04,	both	0-85

299

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			Y04.0, Y04.1, Y04.2, Y04.3, Y04.4, Y04.5, Y04.6, Y04.7, Y04.8, Y04.9, Y06, Y06.0, Y06.1, Y06.2, Y06.8, Y06.9, Y07, Y07.0, Y07.01, Y07.02, Y07.03, Y07.04, Y07.1, Y07.11, Y07.12, Y07.13, Y07.14, Y07.2, Y07.3, Y07.4, Y07.41, Y07.410, Y07.411, Y07.42, Y07.420, Y07.421, Y07.43, Y07.430, Y07.432, Y07.433, Y07.434, Y07.435, Y07.436, Y07.49, Y07.490, Y07.491, Y07.499, Y07.5, Y07.50, Y07.51, Y07.510, Y07.511, Y07.512, Y07.513, Y07.519, Y07.52, Y07.521, Y07.528, Y07.529, Y07.53, Y07.59, Y07.8, Y07.9, Y08, Y08.0, Y08.01, Y08.02, Y08.09, Y08.1, Y08.2, Y08.3, Y08.4, Y08.5, Y08.6, Y08.7, Y08.8, Y08.81, Y08.89, Y08.9, Y09, Y87.1, Y87.2, Y05, Y05.0, Y05.1, Y05.2, Y05.3, Y05.4, Y05.5, Y05.6, Y05.7, Y05.8, Y05.9		

300

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
C.4.1	Exposure to forces of nature	E90.7, E90.70, E90.700, E90.701, E90.702, E90.703, E90.704, E90.705, E90.706, E90.707, E90.708, E90.709, E90.8, E90.80, E90.800, E90.801, E90.802, E90.803, E90.804, E90.805, E90.806, E90.807, E90.808, E90.809, E90.81, E90.82, E90.83, E90.84, E90.88, E90.89, E90.9, E90.90, E90.900, E90.901, E90.902, E90.903, E90.904, E90.905, E90.906, E90.907, E90.908, E90.909, E90.91, E90.92, E90.93, E90.94, E90.98, E90.99	X33, X33.0, X33.1, X33.2, X33.3, X33.4, X33.5, X33.6, X33.7, X33.8, X33.9, X34, X34.0, X34.1, X34.2, X34.3, X34.4, X34.5, X34.6, X34.7, X34.8, X34.9, X35, X35.0, X35.1, X35.4, X35.5, X35.7, X35.8, X35.9, X36, X36.0, X36.1, X36.2, X36.3, X36.4, X36.5, X36.6, X36.7, X36.8, X36.9, X37, X37.0, X37.1, X37.2, X37.3, X37.4, X37.41, X37.42, X37.43, X37.5, X37.6, X37.7, X37.8, X37.9, X38, X38.0, X38.1, X38.2, X38.4, X38.6, X38.7, X38.8, X38.9	both	0-85

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
C.4.2	Collective violence and legal intervention	E97.0, E97.1, E97.2, E97.3, E97.4, E97.5, E97.6, E97.7, E97.8, E97.9, E97.90, E97.91, E97.92, E97.93, E97.94, E97.95, E97.96, E97.97, E97.98, E97.99, E99.0, E99.00, E99.01, E99.02, E99.03, E99.09, E99.1, E99.10, E99.11, E99.12, E99.13, E99.14, E99.15, E99.16, E99.17, E99.18, E99.19, E99.2, E99.20, E99.21, E99.22, E99.23, E99.28, E99.29, E99.3, E99.30, E99.31, E99.32, E99.33, E99.34, E99.35, E99.36, E99.37, E99.38, E99.39, E99.4, E99.40, E99.41, E99.42, E99.43, E99.48, E99.49, E99.5, E99.50, E99.51, E99.52, E99.53, E99.54, E99.58, E99.59, E99.6, E99.60, E99.61, E99.62, E99.63, E99.68, E99.69, E99.7, E99.70, E99.71, E99.72, E99.73, E99.78, E99.79, E99.8, E99.80, E99.81, E99.88, E99.89, E99.9, E99.90, E99.91	Y35, Y35.0, Y35.00, Y35.001, Y35.002, Y35.003, Y35.01, Y35.011, Y35.012, Y35.013, Y35.02, Y35.021, Y35.022, Y35.023, Y35.03, Y35.031, Y35.032, Y35.033, Y35.04, Y35.041, Y35.042, Y35.043, Y35.09, Y35.091, Y35.092, Y35.093, Y35.1, Y35.10, Y35.101, Y35.102, Y35.103, Y35.11, Y35.111, Y35.112, Y35.113, Y35.12, Y35.121, Y35.122, Y35.123, Y35.19, Y35.191, Y35.192, Y35.193, Y35.2, Y35.20, Y35.201, Y35.202, Y35.203, Y35.21, Y35.211, Y35.212, Y35.213, Y35.29, Y35.291, Y35.292, Y35.293, Y35.3, Y35.30, Y35.301, Y35.302, Y35.303, Y35.31, Y35.311, Y35.312, Y35.313, Y35.39, Y35.391, Y35.392, Y35.393, Y35.4, Y35.40, Y35.401, Y35.402, Y35.403, Y35.41, Y35.411, Y35.412, Y35.413, Y35.49, Y35.491, Y35.492, Y35.493, Y35.5, Y35.6, Y35.7, Y35.8, Y35.81, Y35.811, Y35.812, Y35.813, Y35.89, Y35.891, Y35.892, Y35.893, Y35.9, Y35.91, Y35.92, Y35.93, Y89.0, Y36, Y36.0, Y36.00, Y36.000, Y36.001, Y36.01, Y36.010, Y36.011, Y36.02, Y36.020, Y36.021, Y36.03, Y36.030, Y36.031, Y36.04, Y36.040, Y36.041, Y36.05, Y36.050, Y36.051, Y36.09, Y36.090, Y36.091, Y36.1, Y36.10, Y36.100, Y36.101, Y36.11, Y36.110, Y36.111, Y36.12, Y36.120, Y36.121, Y36.13, Y36.130, Y36.131, Y36.14, Y36.140, Y36.141, Y36.19, Y36.190, Y36.191, Y36.2, Y36.20, Y36.200, Y36.201, Y36.21, Y36.210, Y36.211, Y36.22, Y36.220, Y36.221, Y36.23, Y36.230, Y36.231, Y36.24, Y36.240, Y36.241, Y36.25, Y36.250, Y36.251, Y36.26, Y36.260, Y36.261, Y36.27, Y36.270, Y36.271, Y36.29, Y36.290, Y36.291,	both	0-85

302

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			Y36.3, Y36.30, Y36.300, Y36.301, Y36.31, Y36.310, Y36.311, Y36.32, Y36.320, Y36.321, Y36.33, Y36.330, Y36.331, Y36.39, Y36.390, Y36.391, Y36.4, Y36.41, Y36.410, Y36.411, Y36.42, Y36.420, Y36.421, Y36.43, Y36.430, Y36.431, Y36.44, Y36.440, Y36.441, Y36.45, Y36.450, Y36.451, Y36.46, Y36.460, Y36.461, Y36.47, Y36.470, Y36.471, Y36.49, Y36.490, Y36.491, Y36.5, Y36.50, Y36.500, Y36.501, Y36.51, Y36.510, Y36.511, Y36.52, Y36.520, Y36.521, Y36.53, Y36.530, Y36.531, Y36.54, Y36.540, Y36.541, Y36.59, Y36.590, Y36.591, Y36.6, Y36.7, Y36.8, Y36.81, Y36.810, Y36.811, Y36.82, Y36.820, Y36.821, Y36.88, Y36.880, Y36.881, Y36.89, Y36.890, Y36.891, Y36.9, Y36.90, Y36.91, Y36.92, Y37, Y37.0, Y37.00, Y37.000, Y37.001, Y37.01, Y37.010, Y37.011, Y37.02, Y37.020, Y37.021, Y37.03, Y37.030, Y37.031, Y37.04, Y37.040, Y37.041, Y37.05, Y37.050, Y37.051, Y37.09, Y37.090, Y37.091, Y37.1, Y37.10, Y37.100, Y37.101, Y37.11, Y37.110, Y37.111, Y37.12, Y37.120, Y37.121, Y37.13, Y37.130, Y37.131, Y37.14, Y37.140, Y37.141, Y37.19, Y37.190, Y37.191, Y37.2, Y37.20, Y37.200, Y37.201, Y37.21, Y37.210, Y37.211, Y37.22, Y37.220, Y37.221, Y37.23, Y37.230, Y37.231, Y37.24, Y37.240, Y37.241, Y37.25, Y37.250, Y37.251, Y37.26, Y37.260, Y37.261, Y37.27, Y37.270, Y37.271, Y37.29, Y37.290, Y37.291, Y37.3, Y37.30, Y37.300, Y37.301, Y37.31, Y37.310, Y37.311, Y37.32, Y37.320, Y37.321, Y37.33, Y37.330, Y37.331, Y37.39, Y37.390, Y37.391, Y37.4, Y37.41, Y37.410, Y37.411,		

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			Y37.42, Y37.420, Y37.421, Y37.43, Y37.430, Y37.431, Y37.44, Y37.440, Y37.441, Y37.45, Y37.450, Y37.451, Y37.46, Y37.460, Y37.461, Y37.47, Y37.470, Y37.471, Y37.49, Y37.490, Y37.491, Y37.5, Y37.50, Y37.500, Y37.501, Y37.51, Y37.510, Y37.511, Y37.52, Y37.520, Y37.521, Y37.53, Y37.530, Y37.531, Y37.54, Y37.540, Y37.541, Y37.59, Y37.590, Y37.591, Y37.6, Y37.7, Y37.9, Y37.90, Y37.91, Y37.92, Y89.1, U00, U01, U02, U03, Y38, Y38.0, Y38.1, Y38.2, Y38.3, Y38.4, Y38.5, Y38.6, Y38.7, Y38.8, Y38.80, Y38.81, Y38.811, Y38.812, Y38.89, Y38.891, Y38.892, Y38.893, Y38.9		

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
D.1.1	Well person	V20.1, V20.2, V20.3, V20.31, V20.32, V21, V21.0, V21.1, V21.2, V21.3, V21.30, V21.31, V21.32, V21.33, V21.34, V21.35, V21.8, V21.9, V30, V30.0, V30.00, V30.01, V30.1, V30.2, V31, V31.0, V31.00, V31.01, V31.1, V31.2, V32, V32.0, V32.00, V32.01, V32.1, V32.2, V33, V33.0, V33.00, V33.01, V33.1, V33.2, V34, V34.0, V34.00, V34.01, V34.1, V34.2, V35, V35.0, V35.00, V35.01, V35.1, V35.2, V36, V36.0, V36.00, V36.01, V36.1, V36.2, V37, V37.0, V37.00, V37.01, V37.1, V37.2, V39, V39.0, V39.00, V39.01, V39.1, V39.2, V50.2, V70, V70.0, V70.3, V70.4, V70.5, V70.6, V70.8, V70.9, V72, V72.3, V72.31, V72.5, V72.6, V72.60, V72.61, V72.62, V72.63, V72.69, V72.7, V72.8, V72.83, V72.84, V72.85, V72.86, V72.9, V82, V82.5, V82.6, V82.7, V82.71, V82.79, V82.8, V82.89, V82.9, V83, V83.8, V83.81, V83.89, V84, V84.0, V84.01, V84.02, V84.03, V84.04, V84.09, V84.8, V84.81, V84.89, V86, V86.0, V86.1	Z00.2, Z00.3, Z00.5, Z00.8, Z01.5, Z01.7, Z02.0, Z02.1, Z02.2, Z02.3, Z02.4, Z02.5, Z02.6, Z13.9, Z14.1, Z14.8, Z15, Z15.0, Z15.01, Z15.02, Z15.03, Z15.04, Z15.09, Z15.8, Z15.81, Z15.89, Z17, Z17.0, Z17.1, Z38.1, Z38.2, Z38.4, Z38.5, Z38.7, Z38.8, Z41.2, Z76.2, Z00, Z00.0, Z00.00, Z00.01, Z00.1, Z00.11, Z00.110, Z00.111, Z00.12, Z00.121, Z00.129, Z00.4, Z00.6, Z00.7, Z00.70, Z00.71, Z01, Z01.8, Z01.81, Z01.810, Z01.811, Z01.812, Z01.818, Z01.82, Z01.83, Z01.84, Z01.89, Z01.9, Z02, Z02.7, Z02.71, Z02.79, Z02.8, Z02.81, Z02.82, Z02.83, Z02.89, Z02.9, Z03, Z03.6, Z03.8, Z03.81, Z03.810, Z03.818, Z03.89, Z03.9, Z04, Z04.0, Z04.7, Z04.71, Z04.72, Z04.8, Z04.9, Z08, Z09, Z10, Z10.0, Z10.1, Z10.2, Z10.3, Z10.8, Z13, Z13.8, Z13.81, Z13.810, Z13.811, Z13.818, Z13.82, Z13.820, Z13.828, Z13.83, Z13.84, Z13.85, Z13.850, Z13.858, Z13.88, Z13.89, Z38, Z38.0, Z38.00, Z38.01, Z38.3, Z38.30, Z38.31, Z38.6, Z38.61, Z38.62, Z38.63, Z38.64, Z38.65, Z38.66, Z38.68, Z38.69	both	0-85
D.1.2	Well baby	*see well person*	*see well person*	both	0
D.1.3	Well dental	V07.31, V49.82	Z98.81, Z98.810, Z98.811, Z98.818	both	0-85

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
D.2.1	Pregnancy and postpartum care	644.03, 644.21, 645.11, 650, 650.0, 650.5, 651, 651.0, 651.00, 651.01, 651.03, 651.1, 651.10, 651.11, 651.13, 651.2, 651.20, 651.21, 651.23, 651.3, 651.30, 651.31, 651.33, 651.4, 651.40, 651.41, 651.43, 651.5, 651.50, 651.51, 651.53, 651.6, 651.60, 651.61, 651.63, 651.7, 651.70, 651.71, 651.73, 651.8, 651.80, 651.81, 651.83, 651.9, 651.90, 651.91, 651.93, 652, 652.21, 652.51, 652.61, 652.81, 653.41, 654.21, 655.71, 655.81, 656.11, 656.41, 656.51, 656.61, 656.81, 657.01, 658.01, 658.11, 658.21, 658.41, 659.11, 659.41, 659.51, 659.61, 659.71, 659.81, 661.01, 661.21, 661.31, 663.11, 663.21, 663.31, 663.81, 664.01, 664.81, 669.7, 669.71, 669.81, V13.21, V20, V20.0, V22, V22.0, V22.1, V22.2, V23, V23.0, V23.1, V23.2, V23.3, V23.4, V23.41, V23.42, V23.49, V23.5, V23.7, V23.8, V23.81, V23.82, V23.83, V23.84, V23.85, V23.86, V23.87, V23.89, V23.9, V24, V24.0, V24.1, V24.2, V27, V27.0, V27.1, V27.2, V27.3, V27.4, V27.5, V27.6, V27.7, V27.9, V28, V28.0, V28.1, V28.2, V28.3, V28.4, V28.5, V28.6, V28.8, V28.81, V28.82, V28.89, V28.9, V72.4, V72.40, V72.41, V72.42, V82.4, V91, V91.0, V91.00, V91.01, V91.02, V91.03, V91.09, V91.1, V91.10, V91.11, V91.12, V91.19, V91.2, V91.20, V91.21, V91.22, V91.29, V91.9, V91.90, V91.91, V91.92, V91.99	O30, O30.0, O30.00, O30.001, O30.002, O30.003, O30.009, O30.01, O30.011, O30.012, O30.013, O30.019, O30.02, O30.021, O30.022, O30.023, O30.029, O30.03, O30.031, O30.032, O30.033, O30.039, O30.04, O30.041, O30.042, O30.043, O30.049, O30.09, O30.091, O30.092, O30.093, O30.099, O30.1, O30.10, O30.101, O30.102, O30.103, O30.109, O30.11, O30.111, O30.112, O30.113, O30.119, O30.12, O30.121, O30.122, O30.123, O30.129, O30.19, O30.191, O30.192, O30.193, O30.199, O30.2, O30.20, O30.201, O30.202, O30.203, O30.209, O30.21, O30.211, O30.212, O30.213, O30.219, O30.22, O30.221, O30.222, O30.223, O30.229, O30.29, O30.291, O30.292, O30.293, O30.299, O30.8, O30.80, O30.801, O30.802, O30.803, O30.809, O30.81, O30.811, O30.812, O30.813, O30.819, O30.82, O30.821, O30.822, O30.823, O30.829, O30.89, O30.891, O30.892, O30.893, O30.899, O48.0, O61.0, O61.8, O61.9, O62.0, O62.2, O62.3, O65.4, O66.6, O70.0, O76, O77.0, O77.1, O77.8, O77.9, O80, O82, Z33.1, Z35, Z36, Z36.2, Z36.5, Z37, Z37.0, Z37.1, Z37.2, Z37.3, Z37.4, Z37.7, Z37.9, Z39.0, Z39.1, Z39.2, Z3A.00, Z3A.01, Z3A.08, Z3A.09, Z3A.0, Z3A.10, Z3A.11, Z3A.12, Z3A.13, Z3A.14, Z3A.15, Z3A.16, Z3A.17, Z3A.18, Z3A.19, Z3A.1, Z3A.20, Z3A.21, Z3A.22, Z3A.23, Z3A.24, Z3A.25, Z3A.26, Z3A.27, Z3A.28, Z3A.29, Z3A.2, Z3A.30, Z3A.31, Z3A.32, Z3A.33, Z3A.34, Z3A.35, Z3A.36, Z3A.37, Z3A.38, Z3A.39, Z3A.3,	female	15-50

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
			Z3A.40, Z3A.41, Z3A.42, Z3A.49, Z3A.4, Z76.1		

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
D.2.2	Family planning	V15.7, V25, V25.0, V25.01, V25.02, V25.03, V25.04, V25.09, V25.1, V25.11, V25.12, V25.13, V25.2, V25.3, V25.4, V25.40, V25.41, V25.42, V25.43, V25.49, V25.5, V25.8, V25.9, V26.33, V26.41, V45.5, V45.51, V45.52, V45.59	Z30, Z30.2, Z30.3, Z30.8, Z30.9, Z31.5, Z92.0, Z97.5, Z30.0, Z30.01, Z30.011, Z30.012, Z30.013, Z30.014, Z30.018, Z30.019, Z30.02, Z30.09, Z30.1, Z30.4, Z30.40, Z30.41, Z30.42, Z30.43, Z30.430, Z30.431, Z30.432, Z30.433, Z30.49, Z30.5, Z98.5, Z98.51, Z98.52	both	0-85
D.3.1	Donor	V59, V59.0, V59.01, V59.02, V59.09, V59.1, V59.2, V59.3, V59.4, V59.6, V59.7, V59.8, V59.9	Z52.3, Z52.4, Z52.6, Z52.9, Z52, Z52.0, Z52.00, Z52.000, Z52.001, Z52.008, Z52.01, Z52.010, Z52.011, Z52.018, Z52.09, Z52.090, Z52.091, Z52.098, Z52.1, Z52.10, Z52.11, Z52.19, Z52.2, Z52.20, Z52.21, Z52.29, Z52.8, Z52.81, Z52.810, Z52.811, Z52.812, Z52.813, Z52.819, Z52.89	both	0-85

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
D.3.2	Counseling services	V26.4, V61.1, V61.11, V61.12, V61.2, V61.20, V61.21, V61.22, V61.23, V61.24, V61.25, V61.29, V61.3, V61.4, V61.41, V61.42, V61.49, V61.5, V61.6, V61.7, V61.8, V61.9, V62, V62.0, V62.1, V62.2, V62.21, V62.22, V62.29, V62.3, V62.4, V62.5, V62.6, V62.8, V62.81, V62.82, V62.83, V62.84, V62.85, V62.89, V62.9, V65, V65.0, V65.1, V65.11, V65.19, V65.2, V65.3, V65.4, V65.40, V65.41, V65.42, V65.43, V65.44, V65.45, V65.46, V65.49, V65.5, V65.8, V65.9, V69, V69.0, V69.1, V69.2, V69.3, V69.4, V69.5, V69.8, V69.9	Z32.2, Z32.3, Z55.0, Z55.1, Z55.2, Z55.3, Z55.4, Z55.8, Z55.9, Z56.0, Z56.1, Z56.2, Z56.3, Z56.4, Z56.5, Z56.6, Z56.9, Z57.0, Z57.1, Z57.2, Z57.4, Z57.5, Z57.6, Z57.7, Z57.9, Z60.0, Z60.3, Z60.4, Z60.5, Z60.8, Z60.9, Z62.0, Z62.1, Z62.3, Z62.6, Z62.9, Z63.0, Z63.1, Z63.4, Z63.6, Z63.9, Z64.0, Z64.1, Z64.4, Z65.0, Z65.1, Z65.2, Z65.3, Z65.4, Z65.5, Z65.8, Z65.9, Z70.0, Z70.1, Z70.2, Z70.3, Z70.8, Z70.9, Z71.0, Z71.1, Z71.2, Z71.3, Z71.6, Z71.7, Z71.8, Z71.81, Z71.89, Z71.9, Z72, Z72.0, Z72.3, Z72.4, Z72.6, Z72.8, Z72.81, Z72.810, Z72.811, Z72.82, Z72.820, Z72.821, Z72.89, Z72.9, Z73.0, Z73.1, Z73.2, Z73.3, Z73.4, Z73.5, Z73.6, Z73.9, Z76.3, Z76.4, Z76.5	both	0-85
D.3.3	Social services	V60, V60.0, V60.1, V60.2, V60.3, V60.4, V60.5, V60.6, V60.8, V60.81, V60.89, V60.9, V61, V61.0, V61.01, V61.02, V61.03, V61.04, V61.05, V61.06, V61.07, V61.08, V61.09, V61.10	Z59.0, Z59.1, Z59.2, Z59.3, Z59.4, Z59.5, Z59.6, Z59.7, Z59.8, Z59.9, Z60.2, Z63.5, Z63.8, Z74.1, Z74.2, Z74.3, Z74.8, Z74.9, Z75.5	both	0-85

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
E.1.1	Tobacco intervention	305.1, 305.11, 305.13, 649.0, 989.84, E86.94, V15.82	F17.2, F17.20, F17.200, F17.201, F17.203, F17.208, F17.209, F17.21, F17.210, F17.211, F17.213, F17.218, F17.219, F17.22, F17.220, F17.221, F17.223, F17.228, F17.229, F17.29, F17.290, F17.291, F17.293, F17.298, F17.299	both	0-85
E.2.1	Treatment of obesity	278.0, 278.00, 278.01, 278.02, 278.03, 278.1, V45.86, V53.51, V53.59, V77.8, V77.91, V85, V85.2, V85.21, V85.22, V85.23, V85.24, V85.25, V85.3, V85.30, V85.31, V85.32, V85.33, V85.34, V85.35, V85.36, V85.37, V85.38, V85.39, V85.4, V85.41, V85.42, V85.43, V85.44, V85.45, V85.5, V85.51, V85.52, V85.53, V85.54	Z68.3, Z68.30, Z68.31, Z68.32, Z68.33, Z68.34, Z68.35, Z68.36, Z68.37, Z68.38, Z68.39, Z68.4, Z68.41, Z68.42, Z68.43, Z68.44, Z68.45, E65, E66, E66.0, E66.01, E66.09, E66.1, E66.2, E66.3, E66.8, E66.9	both	0-85

Hierarchy	Cause name	ICD9 code(s)	ICD10 code(s)	Sexes allowed	Ages allowed
E.2.2	Treatment of hypertension	401, 401.0, 401.1, 401.9, 405, 405.0, 405.01, 405.09, 405.1, 405.11, 405.19, 405.9, 405.91, 405.99, 458, 458.8, 458.9, 796.2, 796.3, V81.1	I10, I10.0, I15, I15.0, I15.1, I15.2, I15.8, I15.9, I95, I95.8, I95.81, I95.89, I95.9, N26.2, R03, R03.0, R03.1, Z13.6	both	0-85
E.2.3	Treatment of hyperlipidemia	272, 272.0, 272.1, 272.2, 272.3, 272.4, 272.5, 272.6, 272.7, 272.8, 272.9	E75.3, E75.5, E75.6, E77.0, E77.8, E77.9, E78, E78.0, E78.1, E78.2, E78.3, E78.4, E78.5, E78.6, E78.7, E78.70, E78.71, E78.72, E78.79, E78.8, E78.81, E78.89, E78.9, E88.1, E88.10, E88.11, E88.2	both	0-85

10. Condition hierarchy

Table 10.1: Hierarchy of condition categories

Condition Level one	Condition Level two	Condition Level three
Communicable, maternal, neonatal, and nutritional disorders	HIV/AIDS and tuberculosis	Tuberculosis
Communicable, maternal, neonatal, and nutritional disorders	HIV/AIDS and tuberculosis	HIV/AIDS
Communicable, maternal, neonatal, and nutritional disorders	Diarrhea, lower respiratory, and other common infectious diseases	Diarrheal diseases
Communicable, maternal, neonatal, and nutritional disorders	Diarrhea, lower respiratory, and other common infectious diseases	Tetanus
Communicable, maternal, neonatal, and nutritional disorders	Diarrhea, lower respiratory, and other common infectious diseases	Measles
Communicable, maternal, neonatal, and nutritional disorders	Diarrhea, lower respiratory, and other common infectious diseases	Varicella
Communicable, maternal, neonatal, and nutritional disorders	Diarrhea, lower respiratory, and other common infectious diseases	Intestinal infectious diseases
Communicable, maternal, neonatal, and nutritional disorders	Diarrhea, lower respiratory, and other common infectious diseases	Lower respiratory tract infections
Communicable, maternal, neonatal, and nutritional disorders	Diarrhea, lower respiratory, and other common infectious diseases	Upper respiratory tract infections
Communicable, maternal, neonatal, and nutritional disorders	Diarrhea, lower respiratory, and other common infectious diseases	Otitis media
Communicable, maternal, neonatal, and nutritional disorders	Diarrhea, lower respiratory, and other common infectious diseases	Meningitis
Communicable, maternal, neonatal, and nutritional disorders	Diarrhea, lower respiratory, and other common infectious diseases	Encephalitis
Communicable, maternal, neonatal, and nutritional disorders	Diarrhea, lower respiratory, and other common infectious diseases	Diphtheria
Communicable, maternal, neonatal, and nutritional disorders	Diarrhea, lower respiratory, and other common infectious diseases	Whooping cough

Condition Level one	Condition Level two	Condition Level three
Communicable, maternal, neonatal, and nutritional disorders	Neglected tropical diseases and malaria	Neglected tropical diseases and malaria
Communicable, maternal, neonatal, and nutritional disorders	Maternal disorders	Maternal hemorrhage
Communicable, maternal, neonatal, and nutritional disorders	Maternal disorders	Maternal disorders NEC
Communicable, maternal, neonatal, and nutritional disorders	Maternal disorders	Maternal sepsis and other pregnancy related infection
Communicable, maternal, neonatal, and nutritional disorders	Maternal disorders	Hypertensive disorders of pregnancy
Communicable, maternal, neonatal, and nutritional disorders	Maternal disorders	Obstructed labor
Communicable, maternal, neonatal, and nutritional disorders	Maternal disorders	Complications of abortion
Communicable, maternal, neonatal, and nutritional disorders	Maternal disorders	Pre-existing medical condition complicating pregnancy or childbirth
Communicable, maternal, neonatal, and nutritional disorders	Maternal disorders	Other maternal disorders
Communicable, maternal, neonatal, and nutritional disorders	Neonatal disorders	Preterm birth complications
Communicable, maternal, neonatal, and nutritional disorders	Neonatal disorders	Neonatal encephalopathy (birth asphyxia and birth trauma)
Communicable, maternal, neonatal, and nutritional disorders	Neonatal disorders	Sepsis and other infectious disorders of the newborn baby
Communicable, maternal, neonatal, and nutritional disorders	Neonatal disorders	Hemolytic disease in fetus and newborn and other neonatal jaundice
Communicable, maternal, neonatal, and nutritional disorders	Neonatal disorders	Other neonatal disorders

Condition Level one	Condition Level two	Condition Level three
Communicable, maternal, neonatal, and nutritional disorders	Neonatal disorders	Neonatal disorders NEC
Communicable, maternal, neonatal, and nutritional disorders	Nutritional deficiencies	Protein-energy malnutrition
Communicable, maternal, neonatal, and nutritional disorders	Nutritional deficiencies	Iodine deficiency
Communicable, maternal, neonatal, and nutritional disorders	Nutritional deficiencies	Vitamin A deficiency
Communicable, maternal, neonatal, and nutritional disorders	Nutritional deficiencies	Iron-deficiency anemia
Communicable, maternal, neonatal, and nutritional disorders	Nutritional deficiencies	Other nutritional deficiencies
Communicable, maternal, neonatal, and nutritional disorders	Nutritional deficiencies	Nutritional deficiencies NEC
Communicable, maternal, neonatal, and nutritional disorders	Other communicable, maternal, neonatal, and nutritional diseases	Sexually transmitted diseases excluding HIV
Communicable, maternal, neonatal, and nutritional disorders	Other communicable, maternal, neonatal, and nutritional diseases	Hepatitis
Communicable, maternal, neonatal, and nutritional disorders	Other communicable, maternal, neonatal, and nutritional diseases	Leprosy
Communicable, maternal, neonatal, and nutritional disorders	Other communicable, maternal, neonatal, and nutritional diseases	Other infectious diseases
Communicable, maternal, neonatal, and nutritional disorders	Other communicable, maternal, neonatal, and nutritional diseases	Septicemia
Communicable, maternal, neonatal, and nutritional disorders	Communicable, maternal, neonatal, and nutritional disorders NEC	Communicable, maternal, neonatal, and nutritional disorders NEC
Non-communicable diseases	Neoplasms	Esophageal cancer
Non-communicable diseases	Neoplasms	Colon and rectum cancers
Non-communicable diseases	Neoplasms	Mouth cancer
Non-communicable diseases	Neoplasms	Nasopharynx cancer

Condition Level one	Condition Level two	Condition Level three
Non-communicable diseases	Neoplasms	Other pharynx cancer
Non-communicable diseases	Neoplasms	Gallbladder and biliary tract cancer
Non-communicable diseases	Neoplasms	Pancreatic cancer
Non-communicable diseases	Neoplasms	Malignant skin melanoma
Non-communicable diseases	Neoplasms	Non-melanoma skin cancer
Non-communicable diseases	Neoplasms	Ovarian cancer
Non-communicable diseases	Neoplasms	Testicular cancer
Non-communicable diseases	Neoplasms	Stomach cancer
Non-communicable diseases	Neoplasms	Kidney cancer
Non-communicable diseases	Neoplasms	Bladder cancer
Non-communicable diseases	Neoplasms	Brain and nervous system cancers
Non-communicable diseases	Neoplasms	Thyroid cancer
Non-communicable diseases	Neoplasms	Hodgkin lymphoma
Non-communicable diseases	Neoplasms	Non-Hodgkin lymphoma
Non-communicable diseases	Neoplasms	Multiple myeloma
Non-communicable diseases	Neoplasms	Leukemia
Non-communicable diseases	Neoplasms	Other neoplasms
Non-communicable diseases	Neoplasms	Neoplasms NEC
Non-communicable diseases	Neoplasms	Liver cancer
Non-communicable diseases	Neoplasms	Larynx cancer
Non-communicable diseases	Neoplasms	Trachea, bronchus, and lung cancers
Non-communicable diseases	Neoplasms	Breast cancer
Non-communicable diseases	Neoplasms	Cervical cancer
Non-communicable diseases	Neoplasms	Uterine cancer

Condition Level one	Condition Level two	Condition Level three
Non-communicable diseases	Neoplasms	Prostate cancer
Non-communicable diseases	Other non-communicable diseases	Congenital anomalies
Non-communicable diseases	Other non-communicable diseases	Skin and subcutaneous diseases
Non-communicable diseases	Other non-communicable diseases	Sense organ diseases
Non-communicable diseases	Other non-communicable diseases	Oral disorders
Non-communicable diseases	Cardiovascular diseases	Rheumatic heart disease
Non-communicable diseases	Cardiovascular diseases	Other cardiovascular and circulatory diseases
Non-communicable diseases	Cardiovascular diseases	Heart failure
Non-communicable diseases	Cardiovascular diseases	Cardiovascular diseases NEC
Non-communicable diseases	Cardiovascular diseases	Ischemic heart disease
Non-communicable diseases	Cardiovascular diseases	Cerebrovascular disease
Non-communicable diseases	Cardiovascular diseases	Hypertensive heart disease
Non-communicable diseases	Cardiovascular diseases	Cardiomyopathy and myocarditis
Non-communicable diseases	Cardiovascular diseases	Atrial fibrillation and flutter
Non-communicable diseases	Cardiovascular diseases	Aortic aneurysm
Non-communicable diseases	Cardiovascular diseases	Peripheral vascular disease
Non-communicable diseases	Cardiovascular diseases	Endocarditis
Non-communicable diseases	Chronic respiratory diseases	Chronic obstructive pulmonary disease
Non-communicable diseases	Chronic respiratory diseases	Pneumoconiosis
Non-communicable diseases	Chronic respiratory diseases	Asthma
Non-communicable diseases	Chronic respiratory diseases	Interstitial lung disease and pulmonary sarcoidosis
Non-communicable diseases	Chronic respiratory diseases	Other chronic respiratory diseases

Condition Level one	Condition Level two	Condition Level three
Non-communicable diseases	Chronic respiratory diseases	Chronic respiratory diseases NEC
Non-communicable diseases	Cirrhosis of the liver	Cirrhosis of the liver
Non-communicable diseases	Digestive diseases	Peptic ulcer disease
Non-communicable diseases	Digestive diseases	Other digestive diseases
Non-communicable diseases	Digestive diseases	Digestive diseases NEC
Non-communicable diseases	Digestive diseases	Appendicitis
Non-communicable diseases	Digestive diseases	Paralytic ileus and intestinal obstruction
Non-communicable diseases	Digestive diseases	Inguinal or femoral hernia
Non-communicable diseases	Digestive diseases	Inflammatory bowel disease
Non-communicable diseases	Digestive diseases	Vascular intestinal disorders
Non-communicable diseases	Digestive diseases	Gallbladder and biliary diseases
Non-communicable diseases	Digestive diseases	Pancreatitis
Non-communicable diseases	Digestive diseases	Gastritis and duodenitis
Non-communicable diseases	Neurological disorders	Alzheimer disease and other dementias
Non-communicable diseases	Neurological disorders	Parkinson's disease
Non-communicable diseases	Neurological disorders	Epilepsy
Non-communicable diseases	Neurological disorders	Multiple sclerosis
Non-communicable diseases	Neurological disorders	Migraine
Non-communicable diseases	Neurological disorders	Tension-type headache
Non-communicable diseases	Neurological disorders	Other neurological disorders
Non-communicable diseases	Neurological disorders	Neurological disorders NEC
Non-communicable diseases	Mental and behavioral disorders	Schizophrenia
Non-communicable diseases	Mental and behavioral disorders	Conduct disorder

Condition Level one	Condition Level two	Condition Level three
Non-communicable diseases	Mental and behavioral disorders	Idiopathic intellectual disability
Non-communicable diseases	Mental and behavioral disorders	Other mental and behavioral disorders
Non-communicable diseases	Mental and behavioral disorders	Mental and behavioral disorders NEC
Non-communicable diseases	Mental and behavioral disorders	Alcohol use disorders
Non-communicable diseases	Mental and behavioral disorders	Drug use disorders
Non-communicable diseases	Mental and behavioral disorders	Depressive disorders
Non-communicable diseases	Mental and behavioral disorders	Bipolar disorder
Non-communicable diseases	Mental and behavioral disorders	Anxiety disorders
Non-communicable diseases	Mental and behavioral disorders	Eating disorders
Non-communicable diseases	Mental and behavioral disorders	Autistic spectrum disorders
Non-communicable diseases	Mental and behavioral disorders	Attention-deficit/hyperactivity disorder
Non-communicable diseases	Diabetes, urogenital, blood, and endocrine diseases	Diabetes mellitus
Non-communicable diseases	Diabetes, urogenital, blood, and endocrine diseases	Acute glomerulonephritis
Non-communicable diseases	Diabetes, urogenital, blood, and endocrine diseases	Chronic kidney diseases
Non-communicable diseases	Diabetes, urogenital, blood, and endocrine diseases	Urinary diseases and male infertility
Non-communicable diseases	Diabetes, urogenital, blood, and endocrine diseases	Gynecological diseases
Non-communicable diseases	Diabetes, urogenital, blood, and endocrine diseases	Hemoglobinopathies and hemolytic anemias
Non-communicable diseases	Diabetes, urogenital, blood, and endocrine diseases	Endocrine, metabolic, blood, and immune disorders

Condition Level one	Condition Level two	Condition Level three
Non-communicable diseases	Diabetes, urogenital, blood, and endocrine diseases	Acute renal failure
Non-communicable diseases	Musculoskeletal disorders	Rheumatoid arthritis
Non-communicable diseases	Musculoskeletal disorders	Low back and neck pain
Non-communicable diseases	Musculoskeletal disorders	Gout
Non-communicable diseases	Musculoskeletal disorders	Osteoarthritis
Non-communicable diseases	Musculoskeletal disorders	Other musculoskeletal disorders
Non-communicable diseases	Musculoskeletal disorders	Musculoskeletal disorders NEC
Injuries	Transport injuries	Road injuries
Injuries	Transport injuries	Other transport injuries
Injuries	Unintentional injuries	Falls
Injuries	Unintentional injuries	Drowning
Injuries	Unintentional injuries	Fire, heat, and hot substances
Injuries	Unintentional injuries	Poisonings
Injuries	Unintentional injuries	Exposure to mechanical forces
Injuries	Unintentional injuries	Animal contact
Injuries	Unintentional injuries	Foreign body
Injuries	Unintentional injuries	Other unintentional injuries
Injuries	Self-harm and interpersonal violence	Self-harm
Injuries	Self-harm and interpersonal violence	Interpersonal violence
Injuries	Forces of nature, war, and legal intervention	Exposure to forces of nature
Injuries	Forces of nature, war, and legal intervention	Collective violence and legal intervention

Condition Level one	Condition Level two	Condition Level three
Injuries	Injuries NEC	Injuries NEC
Well care	Well newborn, person, and dental	Well person
Well care	Well newborn, person, and dental	Well newborn
Well care	Well newborn, person, and dental	Well dental
Well care	Well pregnancy and family planning	Pregnancy and postpartum care
Well care	Well pregnancy and family planning	Family planning
Well care	Well services	Donor
Well care	Well services	Counselling services
Well care	Well services	Social services
Expenditure on risk factors	Behavioral risks	Tobacco intervention
Expenditure on risk factors	Metabolic risks	Treatment of obesity
Expenditure on risk factors	Metabolic risks	Treatment of hypertension
Expenditure on risk factors	Metabolic risks	Treatment of hyperlipidemia

Table 10.2: Condition Level three to reporting Level two map

Condition Level three	Reporting Level two
Whooping cough	Communicable, maternal, neonatal, and nutritional disorders
Acute glomerulonephritis	Diabetes, urogenital, blood, and endocrine diseases
Foreign body	Injuries
Eating disorders	Mental and behavioral disorders
Larynx cancer	Neoplasms
Alzheimer disease and other dementias	Neurological disorders
Sense organ diseases	Other non-communicable diseases
Cirrhosis of the liver	Cirrhosis of the liver
Cardiomyopathy and myocarditis	Cardiovascular diseases
Gastritis and duodenitis	Digestive diseases
Well dental	Well care
Other musculoskeletal disorders	Musculoskeletal disorders
Pneumoconiosis	Chronic respiratory diseases
Treatment of hypertension	Expenditure on risk factors
Intestinal infectious diseases	Communicable, maternal, neonatal, and nutritional disorders
HIV/AIDS	Communicable, maternal, neonatal, and nutritional disorders
Diarrheal diseases	Communicable, maternal, neonatal, and nutritional disorders
Diphtheria	Communicable, maternal, neonatal, and nutritional disorders
Pre-existing medical condition complicating pregnancy or childbirth	Communicable, maternal, neonatal, and nutritional disorders
Sexually transmitted diseases excluding HIV	Communicable, maternal, neonatal, and nutritional disorders
Vitamin A deficiency	Communicable, maternal, neonatal, and nutritional disorders
Other neonatal disorders	Communicable, maternal, neonatal, and nutritional disorders
Septicemia	Communicable, maternal, neonatal, and nutritional disorders
Upper respiratory tract infections	Communicable, maternal, neonatal, and nutritional disorders
Tuberculosis	Communicable, maternal, neonatal, and nutritional disorders
Hypertensive disorders of pregnancy	Communicable, maternal, neonatal, and nutritional disorders

Condition Level three	Reporting Level two
Neonatal encephalopathy (birth asphyxia and birth trauma)	Communicable, maternal, neonatal, and nutritional disorders
Lower respiratory tract infections	Communicable, maternal, neonatal, and nutritional disorders
Meningitis	Communicable, maternal, neonatal, and nutritional disorders
Hemolytic disease in fetus and newborn and other neonatal jaundice	Communicable, maternal, neonatal, and nutritional disorders
Maternal sepsis and other pregnancy-related infection	Communicable, maternal, neonatal, and nutritional disorders
Hepatitis	Communicable, maternal, neonatal, and nutritional disorders
Maternal hemorrhage	Communicable, maternal, neonatal, and nutritional disorders
Other infectious diseases	Communicable, maternal, neonatal, and nutritional disorders
Iron-deficiency anemia	Communicable, maternal, neonatal, and nutritional disorders
Leprosy	Communicable, maternal, neonatal, and nutritional disorders
Protein-energy malnutrition	Communicable, maternal, neonatal, and nutritional disorders
Varicella	Communicable, maternal, neonatal, and nutritional disorders
Measles	Communicable, maternal, neonatal, and nutritional disorders
Complications of abortion	Communicable, maternal, neonatal, and nutritional disorders
Other maternal disorders	Communicable, maternal, neonatal, and nutritional disorders
Sepsis and other infectious disorders of the newborn baby	Communicable, maternal, neonatal, and nutritional disorders
Preterm birth complications	Communicable, maternal, neonatal, and nutritional disorders
Obstructed labor	Communicable, maternal, neonatal, and nutritional disorders
Other nutritional deficiencies	Communicable, maternal, neonatal, and nutritional disorders
Iodine deficiency	Communicable, maternal, neonatal, and nutritional disorders

Condition Level three	Reporting Level two
Tetanus	Communicable, maternal, neonatal, and nutritional disorders
Encephalitis	Communicable, maternal, neonatal, and nutritional disorders
Otitis media	Communicable, maternal, neonatal, and nutritional disorders
Chronic kidney diseases	Diabetes, urogenital, blood, and endocrine diseases
Urinary diseases and male infertility	Diabetes, urogenital, blood, and endocrine diseases
Gynecological diseases	Diabetes, urogenital, blood, and endocrine diseases
Diabetes mellitus	Diabetes, urogenital, blood, and endocrine diseases
Endocrine, metabolic, blood, and immune disorders	Diabetes, urogenital, blood, and endocrine diseases
Acute renal failure	Diabetes, urogenital, blood, and endocrine diseases
Hemoglobinopathies and hemolytic anemias	Diabetes, urogenital, blood, and endocrine diseases
Collective violence and legal intervention	Injuries
Other transport injuries	Injuries
Self-harm	Injuries
Drowning	Injuries
Interpersonal violence	Injuries
Fire, heat, and hot substances	Injuries
Poisonings	Injuries
Exposure to mechanical forces	Injuries
Other unintentional injuries	Injuries
Road injuries	Injuries
Animal contact	Injuries
Exposure to forces of nature	Injuries
Falls	Injuries
Schizophrenia	Mental and behavioral disorders
Anxiety disorders	Mental and behavioral disorders
Autistic spectrum disorders	Mental and behavioral disorders
Drug use disorders	Mental and behavioral disorders
Bipolar disorder	Mental and behavioral disorders
Other mental and behavioral disorders	Mental and behavioral disorders
Conduct disorder	Mental and behavioral disorders
Attention-deficit/hyperactivity disorder	Mental and behavioral disorders
Alcohol use disorders	Mental and behavioral disorders
Depressive disorders	Mental and behavioral disorders
Idiopathic intellectual disability	Mental and behavioral disorders
Stomach cancer	Neoplasms
Other neoplasms	Neoplasms
Testicular cancer	Neoplasms

Condition Level three	Reporting Level two
Colon and rectum cancers	Neoplasms
Cervical cancer	Neoplasms
Breast cancer	Neoplasms
Trachea, bronchus, and lung cancers	Neoplasms
Nasopharynx cancer	Neoplasms
Gallbladder and biliary tract cancer	Neoplasms
Hodgkin lymphoma	Neoplasms
Kidney cancer	Neoplasms
Mouth cancer	Neoplasms
Uterine cancer	Neoplasms
Leukemia	Neoplasms
Prostate cancer	Neoplasms
Multiple myeloma	Neoplasms
Non-Hodgkin lymphoma	Neoplasms
Brain and nervous system cancers	Neoplasms
Malignant skin melanoma	Neoplasms
Ovarian cancer	Neoplasms
Bladder cancer	Neoplasms
Thyroid cancer	Neoplasms
Non-melanoma skin cancer	Neoplasms
Liver cancer	Neoplasms
Pancreatic cancer	Neoplasms
Other pharynx cancer	Neoplasms
Esophageal cancer	Neoplasms
Migraine	Neurological disorders
Parkinson's disease	Neurological disorders
Other neurological disorders	Neurological disorders
Epilepsy	Neurological disorders
Tension-type headache	Neurological disorders
Multiple sclerosis	Neurological disorders
Oral disorders	Other non-communicable diseases
Congenital anomalies	Other non-communicable diseases
Skin and subcutaneous diseases	Other non-communicable diseases
Aortic aneurysm	Cardiovascular diseases
Endocarditis	Cardiovascular diseases
Other cardiovascular and circulatory diseases	Cardiovascular diseases
Ischemic heart disease	Cardiovascular diseases
Heart failure	Cardiovascular diseases
Cerebrovascular disease	Cardiovascular diseases
Hypertensive heart disease	Cardiovascular diseases

Condition Level three	Reporting Level two
Rheumatic heart disease	Cardiovascular diseases
Atrial fibrillation and flutter	Cardiovascular diseases
Peripheral vascular disease	Cardiovascular diseases
Pancreatitis	Digestive diseases
Vascular intestinal disorders	Digestive diseases
Inguinal or femoral hernia	Digestive diseases
Appendicitis	Digestive diseases
Peptic ulcer disease	Digestive diseases
Other digestive diseases	Digestive diseases
Paralytic ileus and intestinal obstruction	Digestive diseases
Gallbladder and biliary diseases	Digestive diseases
Inflammatory bowel disease	Digestive diseases
Well newborn	Well care
Counselling services	Well care
Pregnancy and postpartum care	Well care
Family planning	Well care
Well person	Well care
Donor	Well care
Social services	Well care
Low back and neck pain	Musculoskeletal disorders
Gout	Musculoskeletal disorders
Rheumatoid arthritis	Musculoskeletal disorders
Osteoarthritis	Musculoskeletal disorders
Chronic obstructive pulmonary disease	Chronic respiratory diseases
Interstitial lung disease and pulmonary sarcoidosis	Chronic respiratory diseases
Other chronic respiratory diseases	Chronic respiratory diseases
Asthma	Chronic respiratory diseases
Treatment of obesity	Expenditure on risk factors
Treatment of hyperlipidemia	Expenditure on risk factors
Tobacco intervention	Expenditure on risk factors

11.   Comparison to prior DEX estimates

In December 2016, the DEX team published its first set of health care spending estimates disaggregated by age, sex, health condition, and type of care.[38] Those estimates were for 1996 through 2013. The present study builds upon this prior work and has improved upon it in a number of ways, including extending results through 2016 and providing a breakdown of health spending across the primary payers of health expenditures in the US. The following section outlines the major improvements and highlights how the 2013 spending estimates from the original study compare to spending estimates made for 2013 in this study.

Major methodological changes and improvements (See preceding chapters for additional detail)

All types of care:

- The present study reported spending estimates in 2016 US dollars ($). In the original study, we reported spending estimates in 2015 US dollars. (For the comparison made below, the original spending estimates were deflated to be in 2016 US dollars.)
- In the present study, the comorbidity analysis now includes all comorbidities observed in the raw data, and used penalized regression to avoid spurious results caused by small sample sizes. The original study included only comorbidities that occurred for each primary diagnosis in at least 5% of all observations.
- In the present study, the hierarchical model used to combine multiple datasets was made to be considerably more flexible in order to more precisely track changes in spending across time and age. This was achieved by taking the interaction (Kronecker product) of the sets of age and time p-splines. To avoid spurious results due to small samples, we set health-condition-, sex-specific penalties for these splines based on the missingness in the data. The original study did not have health-condition-specific penalties and did not include the interaction of the age and time p-splines. This improvement allows our model to fit the raw data much better when there are non-linear trends that vary across both age and time.
- This analysis uses an ICD-to-health-condition map based off that of the Global Burden of Disease 2017 and includes mapping for both ICD9 and ICD10, which was necessary as the transition to ICD10 occurred in many of the datasets starting at the end of 2015 or 2016. Regarding the cause list, GBD 2017 removed mesothelioma cancer form the list of health conditions after consultation with experts who expressed little confidence in ICD9 codes mapped to mesothelioma cancer. This study follows suit, and ICD9 codes are now mapped to other cancers. As a consequence, the present study splits spending across 154 health conditions, while the original study split spending across 155 health conditions.

- The present study disaggregates spending for general administration and the net cost of insurance, whereas the original study did not.
- The present study used six years of MarketScan data to develop volume profiles and used these estimates to model volume profiles for all years included in the study. The original study only used three years of MarketScan data and held the volume profiles constant across time. This new method captures more fully changes in utilization across time and changes due to shifts in population size and age structure.
- In this present study, the health system encounters with a garbage ICD codes as the primary diagnosis used the secondary diagnosis (if it was not garbage). The original study relied on the redistribution methods developed by the Global Burden of Disease.

Ambulatory care:

- The present study adjusted NAMCS data for the fact that the data capture only outpatient visits that included a visit with a physician. The original study did not make this adjustment.
- The present study used an objective function for the hierarchical model used to combine data from MEPS and NAMCS that prioritizes fitting each health condition's and sex's price (MEPS) and volume (NAMCS) estimate (and excluded spending [MEPS]). As a consequence, the changes across time and age more closely reflect those observed in the NAMCS data, which is a substantially larger dataset than MEPS. The original study relied equally on fitting price (MEPS), volume (NAMCS), and spending (MEPS) data.

Inpatient care:

- In the present study, the hierarchical model used to combine datasets and fill in missingness is built from data that track spending, number of admissions (volume), duration of stay (bed-days) and price (spending per bed-day). The original study combined the potentially distinct trends of admissions and duration of stay, such that it was less flexible than the present model.
- The present study reallocated spending on well newborn care that exceeded four days of inpatient care. This spending was reallocated proportionally to all other neonatal conditions, with the majority of the spending being reallocated to preterm birth. There is evidence that preterm births are under-recorded in administrative data such as NIS. The original study included well newborn spending of any length of stay.

Emergency department:

- This present study relies on a new dataset for estimating ED spending: the Nationwide Emergency Department Sample (NEDS). Relative to the prior study, which primarily relied on the much smaller MEPS dataset, NEDS is much larger and provides a nationally representative sample of hospital-based ED visits throughout the country. This study continues to leverage MEPS in order to refine spending estimates, since, similar to the NIS that is uses for inpatient care estimates, NEDS only includes facility charges. Further, using adjustments as outlined in Section 5.5, the present study also accounts for ED spending that would have been originally attributed to inpatient spending estimates (since the NIS charges for patients hospitalized

327

through the ED are inclusive of ED charges). The prior study did not include NEDS and relied on the much smaller datasets, fitting price using MEPS, volume using NHAMCS, and spending using MEPS data.

Retail pharmaceutical:

- The present study went to great length to properly track spending on specialty drugs that are not well represented in survey data such as MEPS. To do this, we relied on a specialty drug dataset provided by the pharmaceutical firm IQVIA to refine our estimates (see Section 5.8 for a complete description of this adjustment). The original study only used data from MEPS to measure retail pharmaceutical spending.

Nursing facility care:

- The present study used Medicaid data to capture spending trends across time for long-term nursing facility care stays. The original study used data from the Medicare Current Beneficiaries Study (MCBS). The Medicaid dataset is substantially larger, such that it measures spending across time and age more precisely and has more precise diagnosis information based on ICD9 codes, rather than MCBS, which uses different criteria to establish cause of illness.
- The present study used published literature to measure the share of spending initially assigned to lower respiratory infection and falls that should be attributed to Alzheimer disease and other dementias. This spending was reallocated because of the considerable excess risk of LRI and falls attributed to Alzheimer disease. The original study did not make such an adjustment.

Comparing this study's spending results with previous spending estimates

In order to illustrate how this current analysis compared with prior work, we provide Figure 11.1 below. Specifically, in Figure 11.1, we compare spending estimates for 2013 from this research study (DEX 2.0), by health condition, with spending estimates published previously (DEX 1.0).

Figure 11.1: Comparing current estimates with prior DEX published estimates for 2013

329
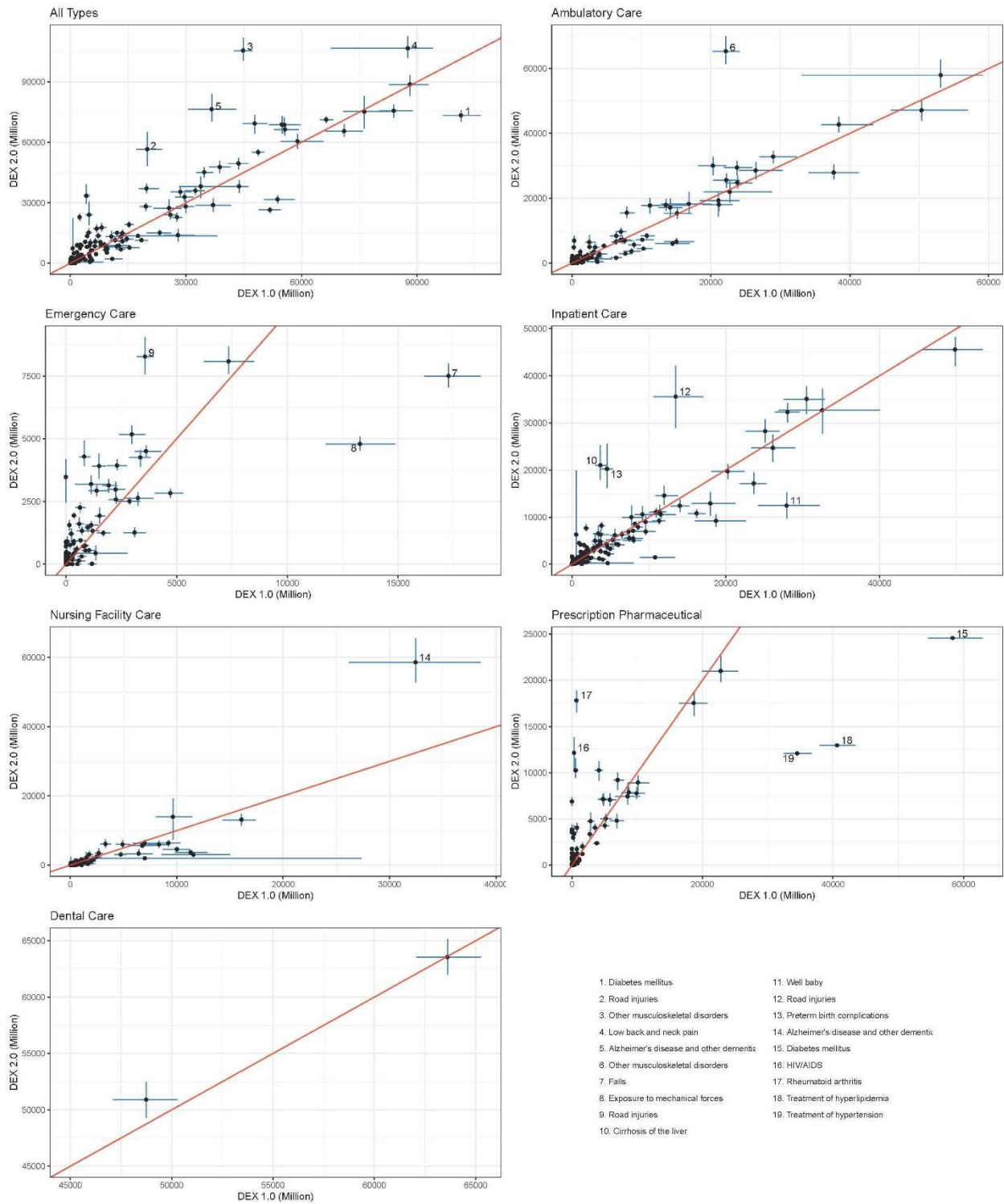
In the following section, we summarize key differences in outcomes between the DEX 1.0 results for 2013 and those for DEX 2.0 results by each type of care.

Ambulatory care:

- More spending was allocated to well person care, gynecological diseases, other musculoskeletal disorders, and skin and subcutaneous diseases spending because of the new methods to adjust NAMCS data for visits that did not include a physician.
- Other musculoskeletal disorders grew in particular because of improvements in our mapping of ICD diagnoses to health condition, and captures joint and limb pain, as well as osteoporosis.
- More spending was allocated to well person care and skin and subcutaneous diseases, and less spending was allocated to the treatment of hypertension and depressive disorders because of the greater reliance on NAMCS data associated with changes to the objective function of the hierarchical model.

Emergency care:

- Including the NEDS data as our primary data source has improved our estimates dramatically. In addition, including emergency care spending for patients who are eventually admitted to the hospital means we have estimated more spending on cases with higher acuity.
- Road traffic injuries saw the largest increases, while falls and injuries from mechanical forces (including cuts) saw the largest declines.

Inpatient care:

- Other research has shown that preterm births are undercounted because age of gestation is often not reported precisely. In addition, a great deal of well-newborn spending is on children in NICU or in the hospital for a substantial period. To adjust for these factors, we have reallocated well-newborn stays greater than four days to the neonatal conditions proportionally, based on relative spending for the neonatal conditions, for that year and sex. This adjustment is new, and therefore our preterm birth spending increased dramatically (as preterm birth is the neonatal condition with the most spending) and well-newborn decreased.
- More spending was allocated to cirrhosis and road injuries spending, and less spending was allocated to ischemic heart disease; spending was reduced because of the implementation of a more flexible hierarchical model.

Nursing care facility:

- Other research shows that a great deal of pneumonia cases and falls are attributable to Alzheimer's disease. To address, we extracted the relative risk of falls and LRI for Alzheimer's disease and other dementia cases, and used these estimates to reallocate resources for falls and LRI to Alzheimer's disease. This is a new adjustment, and therefore we see that Alzheimer's disease and other dementias have increased dramatically.

Retail pharmaceutical:

- Less spending was allocated to diabetes mellitus, treatment of hypertension, and treatment of hyperlipidemia because of the inclusion of estimates from IQVIA.
- In addition, all health conditions with substantial spending from specialty drugs provided in a retail setting, such as HIV, rheumatoid arthritis, and hepatitis, show increases because of the inclusion of the IQVIA data.

12.   Results

Table 12.1: Personal health care spending results, by type of care, 2016

Rank	Health condition	2016 spending (billions of UDS)	Ambulatory care	Inpatient care	Pharmaceutical care	Nursing care	Emergency department care	Dental care	General administration
1	Low back and neck pain	$134.5 ($122.4 - $146.9)	58.7% (55.7% - 61.2%)	22.4% (19.8% - 25.1%)	3.5% (2.7% - 4.5%)	1.4% (0.8% - 2.9%)	3.9% (3.4% - 4.3%)	0	10% (9.8% - 10.2%)
2	Other musculoskeletal disorders	$129.8 ($116.3 - $149.7)	64.5% (61.7% - 67.2%)	8.6% (7.3% - 9.8%)	8.7% (7.6% - 9.9%)	5.5% (4.2% - 7%)	2.5% (2.2% - 2.9%)	0	10.2% (9.9% - 10.3%)
3	Diabetes mellitus	$111.2 ($105.7 - $115.9)	27.1% (24.5% - 29.6%)	8.6% (7.1% - 10.5%)	46.3% (44.4% - 48.7%)	5.8% (4.8% - 6.8%)	2.1% (1.9% - 2.3%)	0	10.1% (9.9% - 10.2%)
4	Ischemic heart disease	$89.3 ($81.1 - $95.5)	23.8% (16.8% - 27.4%)	49.5% (45.8% - 54.1%)	7.5% (6.3% - 8.5%)	3.8% (3% - 5.6%)	5.1% (4.6% - 5.9%)	0	10.3% (10.1% - 10.4%)
5	Falls	$87.4 ($75 - $100.1)	27.7% (22.6% - 34.2%)	31.1% (26% - 37.1%)	1.1% (0.6% - 1.8%)	21.1% (11.4% - 28.1%)	9.7% (8.3% - 11.5%)	0	9.2% (8.2% - 10%)
6	Urinary diseases and male infertility	$86 ($76.3 - $95.9)	52% (47.4% - 56.5%)	14.1% (11.5% - 16.7%)	7.8% (6.5% - 9%)	5.1% (4% - 6.3%)	11% (9.6% - 12.6%)	0	10.1% (10% - 10.2%)
7	Skin and subcutaneous diseases	$85 ($80.5 - $90.2)	54.1% (52% - 56.2%)	12.3% (10.8% - 14%)	13.6% (12.3% - 15.4%)	3.8% (2.9% - 5.5%)	5.9% (5.2% - 6.5%)	0	10.2% (10% - 10.4%)
8	Osteoarthritis	$80 ($72.2 - $86.1)	26.7% (23.4% - 30.4%)	49.9% (46.5% - 54%)	6.1% (4.9% - 7.5%)	6.6% (4.8% - 8.9%)	0.4% (0.4% - 0.5%)	0	10.3% (10% - 10.4%)
9	Alzheimer's disease and other dementias	$79.2 ($67.6 - $90.8)	2.2% (1.7% - 2.9%)	9.3% (7.8% - 11%)	2.4% (1.7% - 3.2%)	77.1% (74.5% - 79.7%)	1.2% (0.8% - 1.7%)	0	7.8% (5.8% - 9.3%)
10	Treatment of hypertension	$79 ($72.6 - $86.8)	60.1% (56.7% - 62.6%)	5.2% (4.5% - 5.8%)	12.1% (10.9% - 13.1%)	7.1% (5.6% - 9.8%)	5.6% (4.8% - 6.5%)	0	9.9% (9.7% - 10.1%)
11	Oral disorders	$76.4 ($73.8 - $79.4)	1.4% (1% - 1.8%)	1.6% (1.2% - 1.9%)	0.7% (0.6% - 0.8%)	0% (0% - 0.1%)	1% (0.9% - 1.2%)	88.5% (87.9% - 89.1%)	6.7% (6.6% - 6.8%)
12	Pregnancy and postpartum care	$71.3 ($64.9 - $77.7)	42% (38.1% - 46.1%)	46.5% (42.5% - 50.3%)	0.3% (0.2% - 0.3%)	0% (0% - 0%)	0.6% (0.5% - 0.6%)	0	10.7% (10.5% - 10.9%)
13	Depressive disorders	$67.5 ($62.3 - $72.7)	53.1% (49.7% - 56.7%)	12.5% (11.2% - 14%)	21.2% (18.6% - 24%)	2.1% (1.4% - 3.1%)	1.4% (1.2% - 1.6%)	0	9.7% (9.5% - 9.8%)
14	Sense organ diseases	$64.1 ($58.1 - $69.8)	74.4% (72.6% - 76.3%)	2.5% (1.9% - 3%)	9.6% (8.2% - 11%)	1.6% (1.2% - 2.3%)	2.5% (2.2% - 2.8%)	0	9.5% (9.3% - 9.6%)
15	Well dental	$60.5 ($57.3 - $63.2)	0% (0% - 0%)	0% (0% - 0%)	0% (0% - 0%)	0% (0% - 0%)	0	92.6% (92.5% - 92.7%)	7.4% (7.3% - 7.5%)
16	Road injuries	$57.9 ($46.7 - $71.6)	11.8% (7.1% - 18.5%)	59.5% (51.8% - 65.8%)	0.2% (0.1% - 0.4%)	0.7% (0.4% - 1.8%)	17.2% (13.8% - 21.2%)	0	10.5% (10% - 11%)

Rank	Health condition	2016 spending (billions of UDS)	Percent of 2016 spending that is on:						
			Ambulatory care	Inpatient care	Pharmaceutical care	Nursing care	Emergency department care	Dental care	General administration
17	Other neurological disorders	$52.9 ($47.1 - $58.7)	59.3% (55.6% - 62.8%)	7.7% (6.2% - 9.7%)	11.1% (8.9% - 13.2%)	6.3% (4.5% - 8.3%)	5.6% (4.7% - 6.6%)	0	10% (9.8% - 10.1%)
18	Septicemia	$52.5 ($42 - $62.9)	0% (0% - 0%)	84.6% (82.8% - 85.8%)	0% (0% - 0%)	3.1% (2.2% - 4.8%)	2.2% (1.7% - 2.8%)	0	10.2% (9.6% - 10.5%)
19	Other chronic respiratory diseases	$45 ($39.4 - $50.1)	72.3% (69.9% - 74.3%)	4.9% (3.9% - 5.8%)	8% (6.9% - 9.4%)	0.2% (0.2% - 0.3%)	4.3% (3.5% - 5.1%)	0	10.3% (10.1% - 10.4%)
20	Other digestive diseases	$44.4 ($40.6 - $49.5)	29.4% (25.3% - 35%)	19.9% (17.1% - 22.7%)	19.8% (17% - 22.5%)	8.5% (6.1% - 11.7%)	12.3% (10.6% - 14%)	0	10.1% (9.9% - 10.3%)
21	Anxiety disorders	$42.4 ($37.8 - $47.7)	55.7% (51.3% - 59.5%)	7% (6.1% - 7.9%)	21.3% (18.6% - 24.7%)	2.5% (1.7% - 3.9%)	3.8% (3.1% - 4.5%)	0	9.7% (9.5% - 9.9%)
22	Cerebrovascular disease	$41.9 ($37.7 - $47.1)	4.6% (3.3% - 5.9%)	48.1% (42.8% - 51.7%)	1% (0.8% - 1.2%)	32.7% (28.7% - 38.6%)	4.1% (3.5% - 4.8%)	0	9.4% (8.8% - 10%)
23	Gynecological diseases	$39.4 ($35.3 - $43.3)	51.7% (47.5% - 56%)	17.1% (14.6% - 19.4%)	12.1% (8.8% - 14.9%)	0.7% (0.4% - 1%)	8% (7% - 9.1%)	0	10.4% (10.3% - 10.6%)
24	Asthma	$35.5 ($32.4 - $38.2)	21.8% (17.7% - 26.2%)	8.6% (7% - 10.4%)	48% (43.9% - 51.7%)	1.5% (0.8% - 3.9%)	9.9% (8.7% - 11.2%)	0	10.1% (10% - 10.3%)
25	Chronic obstructive pulmonary disease	$34.3 ($31.5 - $37.3)	10.6% (8.7% - 12.6%)	28.8% (25.1% - 33.2%)	28.5% (24.9% - 32.3%)	12.7% (10.7% - 16%)	9.7% (8.2% - 11.1%)	0	9.7% (9.5% - 9.9%)
26	Rheumatoid arthritis	$33.8 ($28.9 - $37.7)	6% (3.9% - 8.6%)	1.1% (0.8% - 1.5%)	83.8% (81.5% - 86.2%)	0.4% (0.2% - 0.6%)	0.1% (0.1% - 0.2%)	0	8.6% (6.7% - 9.7%)
27	Heart failure	$33.4 ($30.7 - $36.8)	6.9% (5.5% - 8.6%)	51.2% (47.3% - 55%)	11.4% (10% - 13.1%)	16.5% (13.7% - 20.1%)	4.6% (3.9% - 5.3%)	0	9.5% (9% - 9.8%)
28	Endocrine, metabolic, blood, and immune disorders	$32.9 ($29.9 - $36.3)	32.4% (26.8% - 36.2%)	22.5% (18.8% - 26%)	26.4% (22.8% - 30.4%)	5.7% (4.4% - 7.4%)	3.2% (2.5% - 3.6%)	0	9.9% (9.6% - 10%)
29	Cirrhosis of the liver	$32.5 ($27 - $40.4)	17.4% (12.3% - 22.6%)	62.9% (57.1% - 68.9%)	2.6% (1.6% - 4.1%)	2.3% (1.3% - 4.4%)	4.3% (3.5% - 5.5%)	0	10.5% (10.1% - 10.7%)
30	Lower respiratory tract infections	$32.2 ($28.7 - $35.9)	12.8% (10.9% - 14.9%)	51.2% (48.1% - 54.2%)	3.9% (3.2% - 4.5%)	9.3% (7.6% - 11.4%)	12.9% (11.3% - 14.2%)	0	9.9% (9.5% - 10.2%)
31	Other unintentional injuries	$30.1 ($24.3 - $37.9)	63% (56.4% - 68.9%)	11.4% (8% - 15.8%)	1.4% (0.7% - 2.3%)	2% (1.1% - 3.8%)	11.9% (9.3% - 14.8%)	0	10.3% (9.5% - 10.6%)
32	Exposure to mechanical forces	$28.7 ($23.5 - $34.4)	60% (53.4% - 65.5%)	11% (7.7% - 15%)	1.9% (1.1% - 3%)	0.2% (0.1% - 0.4%)	16.7% (13.7% - 20.3%)	0	10.1% (9.1% - 10.6%)
33	Atrial fibrillation and flutter	$28.4 ($24.6 - $33.8)	29.4% (22.7% - 36.4%)	29.8% (25.3% - 33.6%)	10.5% (7.8% - 13.6%)	15.3% (10.5% - 24.2%)	5.1% (4.1% - 6.1%)	0	9.9% (9.5% - 10.1%)
34	Preterm birth complications	$28.2 ($21.8 - $37.6)	7.5% (0% - 17.6%)	81.6% (71.7% - 88.7%)	0% (0% - 0%)	0% (0% - 0%)	0.2% (0% - 0.5%)	0	10.7% (10.1% - 11.3%)
35	Treatment of hyperlipidemia	$26.4 ($24.3 - $29.4)	33.4% (28.6% - 36.9%)	5.9% (4.8% - 7%)	45.6% (40.8% - 49.3%)	4.7% (2.5% - 12.2%)	0.5% (0.2% - 1%)	0	10% (9.8% - 10.1%)

333

Rank	Health condition	2016 spending (billions of UDS)	Percent of 2016 spending that is on:						
			Ambulatory care	Inpatient care	Pharmaceutical care	Nursing care	Emergency department care	Dental care	General administration
36	Other cardiovascular and circulatory diseases	$26.2 ($22.8 - $29.9)	37.3% (30.5% - 43.7%)	42.8% (37.2% - 49%)	2.3% (1.5% - 3.4%)	3.9% (3% - 5.8%)	3.5% (2.8% - 4.3%)	0	10.2% (10% - 10.4%)
37	Inflammatory bowel disease	$25.4 ($22.3 - $28.7)	15.5% (9.9% - 22.1%)	40.4% (34.8% - 45.5%)	12.9% (8.3% - 18.4%)	2.6% (1.3% - 6.9%)	18.2% (15.5% - 21.6%)	0	10.5% (10.2% - 10.7%)
38	Non-melanoma skin cancer	$21.6 ($17.7 - $27.5)	87.8% (87.2% - 88.2%)	1.2% (0.9% - 1.6%)	0.8% (0.6% - 1.1%)	0.1% (0.1% - 0.2%)	0% (0% - 0%)	0	10.1% (9.9% - 10.2%)
39	Gallbladder and biliary diseases	$20.6 ($18.3 - $23.2)	14.3% (9% - 20.9%)	52.9% (47.3% - 58.1%)	0.3% (0.2% - 0.4%)	1.7% (1.1% - 2.7%)	20.2% (17.3% - 23.2%)	0	10.6% (10.3% - 10.8%)
40	Chronic kidney diseases	$19.7 ($16.3 - $22.9)	9.2% (6.2% - 12.9%)	72.8% (68.2% - 76.5%)	0.3% (0.2% - 0.6%)	6.3% (4.9% - 8.3%)	1.2% (0.5% - 2.5%)	0	10.2% (9.9% - 10.5%)
41	Well baby	$17.4 ($13.5 - $21.9)	0	89.2% (88.7% - 89.6%)	0	0	0	0	10.8% (10.4% - 11.3%)
42	Attention-deficit/hyperactivity disorder	$17 ($14.4 - $20.1)	39.4% (32.3% - 45.4%)	1% (0.9% - 1.2%)	49.6% (43.6% - 56.5%)	0% (0% - 0%)	0.1% (0.1% - 0.1%)	0	9.9% (9.6% - 10.2%)
43	HIV/AIDS	$15.7 ($12.7 - $20)	2.4% (1.6% - 3.8%)	6.7% (4.8% - 10.2%)	80.8% (77.4% - 83.1%)	0.5% (0.3% - 0.7%)	0% (0% - 0%)	0	9.6% (8.5% - 10.2%)
44	Other infectious diseases	$14.9 ($13 - $16.9)	42.8% (37.5% - 49.2%)	27.5% (23.2% - 31.6%)	7.8% (5.7% - 10%)	3.7% (2.5% - 8.1%)	8.1% (6.6% - 9.5%)	0	10.1% (9.8% - 10.4%)
45	Congenital anomalies	$14.6 ($10.6 - $18.6)	7.7% (5.4% - 10.8%)	80% (77.3% - 82%)	0.6% (0.4% - 0.8%)	0.4% (0.3% - 0.6%)	0.7% (0.3% - 1%)	0	10.7% (9.3% - 11.5%)
46	Migraine	$14.3 ($11.8 - $17)	36.7% (28.2% - 44.8%)	6.2% (4.5% - 8.3%)	32.8% (25.8% - 40.7%)	0.1% (0.1% - 0.1%)	13.7% (11.2% - 17.2%)	0	10.4% (10.2% - 10.6%)
47	Multiple sclerosis	$13.9 ($12.6 - $15.6)	5.1% (1.5% - 13.3%)	3.9% (3% - 5%)	76.3% (69% - 80.2%)	5.4% (3.5% - 7.5%)	0.1% (0% - 0.1%)	0	9.2% (8.4% - 9.8%)
48	Bipolar disorder	$13.7 ($12.4 - $15.1)	15.3% (11.9% - 18.2%)	44.8% (40.8% - 48.9%)	23.5% (19.4% - 29.1%)	4.6% (3.2% - 7.5%)	1.9% (1.2% - 2.7%)	0	9.8% (9.6% - 10%)
49	Schizophrenia	$13.7 ($12.5 - $15)	8.6% (6.6% - 11%)	58.9% (55.7% - 62.9%)	8.5% (7.7% - 9.6%)	14% (10.1% - 17.3%)	0.5% (0.2% - 0.8%)	0	9.5% (9.1% - 9.8%)
50	Other neoplasms	$13.2 ($11 - $15.6)	44% (35.3% - 52.3%)	42.4% (35% - 50.3%)	1% (0.7% - 1.5%)	1.7% (0.6% - 6.2%)	0.4% (0.2% - 0.8%)	0	10.4% (9.9% - 10.7%)
51	Iron-deficiency anemia	$12.8 ($11 - $16.2)	19.3% (14.6% - 24.6%)	45.2% (34.6% - 52%)	1.2% (0.7% - 1.8%)	19.3% (13.3% - 36.9%)	5.1% (3.6% - 6.8%)	0	10% (9.4% - 10.3%)
52	Upper respiratory tract infections	$12.6 ($11.3 - $13.9)	58.1% (55% - 62%)	6.3% (4.8% - 8.2%)	3.6% (2.9% - 4.4%)	0.3% (0.2% - 0.4%)	21.7% (19.1% - 23.8%)	0	10% (9.8% - 10.1%)
53	Drug use disorders	$12.5 ($10.9 - $14.1)	59% (53.4% - 64.2%)	26.1% (21.2% - 31.2%)	0.5% (0.3% - 0.7%)	0.8% (0.6% - 1%)	4.3% (1.8% - 6.9%)	0	9.4% (8.9% - 9.8%)
54	Leukemia	$12 ($10.7 - $13.6)	11.3% (8.9% - 14.1%)	47.7% (42.4% - 52.2%)	29.8% (25.7% - 35.2%)	1% (0.3% - 3.5%)	0% (0% - 0%)	0	10.2% (9.5% - 10.7%)
55	Non-Hodgkin lymphoma	$11.7 ($10.4 - $13.4)	14.4% (10.6% - 18.1%)	27.4% (21.6% - 34.3%)	48.1% (41.6% - 53.8%)	1.8% (0.4% - 7.1%)	0% (0% - 0%)	0	8.3% (7.2% - 9.6%)

334

Rank	Health condition	2016 spending (billions of UDS)	Percent of 2016 spending that is on:						
			Ambulatory care	Inpatient care	Pharmaceutical care	Nursing care	Emergency department care	Dental care	General administration
56	Endocarditis	$11.5 ($0.6 - $37.9)	8% (0.7% - 26.2%)	78.9% (55.5% - 88.4%)	0.3% (0% - 1.4%)	2.3% (0.2% - 11.9%)	0% (0% - 0.2%)	0	10.4% (10.1% - 10.7%)
57	Well person	$11 ($9.3 - $13)	88.2% (87.2% - 88.9%)	0	1.6% (0.8% - 2.6%)	0% (0% - 0%)	0	0	10.2% (10% - 10.3%)
58	Pre-existing medical condition complicating pregnancy or childbirth	$11 ($8.3 - $13.5)	2.1% (1.5% - 3%)	72.9% (68.2% - 76.9%)	0.2% (0.1% - 0.3%)	0% (0% - 0%)	14.5% (10.6% - 19.4%)	0	10.3% (8.5% - 11.2%)
59	Interpersonal violence	$10.9 ($8.2 - $14)	5.2% (3.2% - 8.3%)	64.5% (56.3% - 70.7%)	0.2% (0.1% - 0.3%)	0.1% (0% - 0.2%)	19.4% (14.2% - 26.8%)	0	10.5% (9.5% - 11.3%)
60	Hemoglobinopathies and hemolytic anemias	$10.7 ($9.6 - $11.9)	3.1% (2.3% - 4.1%)	18.4% (15.4% - 21.7%)	70.7% (66.6% - 74%)	0.2% (0.2% - 0.3%)	0.4% (0.2% - 0.8%)	0	7.1% (5.1% - 9.7%)
61	Colon and rectum cancers	$10.5 ($9.3 - $11.6)	19.7% (14.8% - 25.8%)	65.9% (59.5% - 71%)	0.8% (0.6% - 1%)	2.8% (2.1% - 3.7%)	0.3% (0.1% - 0.7%)	0	10.5% (10.2% - 10.7%)
62	Otitis media	$9.7 ($7.9 - $12.8)	78.3% (75.2% - 81.6%)	1.5% (1% - 2%)	4.4% (3% - 6%)	0.1% (0% - 0.1%)	5.7% (4.1% - 7%)	0	10.2% (10% - 10.4%)
63	Treatment of obesity	$9.7 ($7.2 - $12.4)	8% (5.6% - 11.7%)	75.1% (68% - 79.8%)	2.1% (1.4% - 3.2%)	4.2% (1.3% - 11.6%)	0.1% (0% - 0.6%)	0	10.5% (9.7% - 11%)
64	Inguinal or femoral hernia	$9.5 ($7.7 - $11.5)	54.5% (46.8% - 61.7%)	27.6% (21.7% - 34%)	1.2% (0.7% - 2%)	1% (0.6% - 2.1%)	5.3% (4.2% - 6.9%)	0	10.3% (10% - 10.5%)
65	Appendicitis	$9.3 ($8 - $10.8)	3.2% (2.3% - 4.4%)	53.2% (46.6% - 59.5%)	0% (0% - 0%)	0.2% (0.1% - 0.3%)	32.8% (25.9% - 39.8%)	0	10.6% (10% - 11%)
66	Paralytic ileus and intestinal obstruction	$9.2 ($8.3 - $11.4)	3% (1.9% - 4.5%)	73.4% (59.1% - 76.4%)	0.1% (0% - 0.1%)	6.1% (3.9% - 22%)	7.2% (5.6% - 8.7%)	0	10.2% (9.9% - 10.6%)
67	Acute renal failure	$9.1 ($7.6 - $10.7)	16.7% (9.8% - 22.8%)	59.1% (51.8% - 66.8%)	0.9% (0.7% - 1.2%)	10% (6.6% - 16.3%)	3.6% (1.8% - 5.1%)	0	9.8% (9.5% - 10.1%)
68	Hepatitis	$8.9 ($7.9 - $10.4)	3.8% (3% - 4.6%)	4.2% (3.1% - 5.5%)	82.5% (81.1% - 84%)	0.2% (0.2% - 0.3%)	0.1% (0% - 0.1%)	0	9.2% (8% - 10.2%)
69	Epilepsy	$8.6 ($7.4 - $10)	12.8% (9.8% - 16.6%)	49.2% (43.4% - 54.8%)	14.6% (10.2% - 20.1%)	3.4% (2.7% - 4.3%)	10.1% (7.4% - 13.4%)	0	9.9% (9.7% - 10.2%)
70	Alcohol use disorders	$8.2 ($6.9 - $9.4)	36.5% (28.7% - 44.9%)	46.7% (39.3% - 53.6%)	0.2% (0.1% - 0.3%)	1.3% (1% - 2%)	5.6% (1.9% - 10%)	0	9.7% (9.5% - 9.9%)
71	Pancreatitis	$7.7 ($6.3 - $9.2)	5.2% (3.6% - 7.2%)	75.1% (65% - 78.9%)	0.3% (0.2% - 0.4%)	4.1% (1.5% - 15.9%)	5.2% (3.1% - 7.6%)	0	10.1% (9.6% - 10.6%)
72	Trachea, bronchus, and lung cancers	$7.3 ($6.3 - $8.4)	21.3% (15.5% - 26%)	61.7% (56.7% - 67.1%)	2.7% (2.2% - 3.4%)	2.6% (1.8% - 4.7%)	1.6% (0.9% - 2.3%)	0	10.1% (9.9% - 10.4%)
73	Multiple myeloma	$7.1 ($6.1 - $8.5)	28.9% (19.7% - 39.2%)	20.2% (15.6% - 24.4%)	40.5% (33.8% - 47.6%)	0.6% (0.4% - 0.9%)	0% (0% - 0%)	0	9.8% (9.2% - 10.2%)
74	Peripheral vascular disease	$7 ($6.1 - $8)	11.8% (8.8% - 15.8%)	56.5% (50.4% - 61.6%)	1.1% (0.8% - 1.5%)	20.2% (15.7% - 27.3%)	0.3% (0% - 0.6%)	0	10% (9.3% - 10.4%)

335

Rank	Health condition	2016 spending (billions of UDS)	Percent of 2016 spending that is on:						
			Ambulatory care	Inpatient care	Pharmaceutical care	Nursing care	Emergency department care	Dental care	General administration
75	Brain and nervous system cancers	$6.8 ($6 - $7.6)	7.2% (5.7% - 8.7%)	67.1% (64% - 69.7%)	12.3% (10.8% - 14.1%)	2.4% (1.5% - 4.2%)	0.6% (0.3% - 0.9%)	0	10.4% (10% - 10.7%)
76	Diarrheal diseases	$6.6 ($6.1 - $7.2)	20.1% (16.9% - 22.7%)	51.7% (48.2% - 56%)	1.8% (1.3% - 3%)	4.9% (4.2% - 6.3%)	11.4% (10.2% - 12.7%)	0	10% (9.8% - 10.3%)
77	Cardiomyopathy and myocarditis	$5.9 ($4.5 - $6.9)	42.8% (34.7% - 52.6%)	34.9% (24% - 42.9%)	8.9% (5.7% - 13.2%)	1.4% (0.9% - 3.2%)	1.9% (1.4% - 2.6%)	0	10.1% (9.8% - 10.3%)
78	Prostate cancer	$5.9 ($5.4 - $6.6)	39.5% (35.2% - 43.9%)	37.9% (34.2% - 42.9%)	8.4% (6.9% - 10.4%)	3.9% (2.5% - 6.1%)	0.1% (0.1% - 0.2%)	0	10.1% (9.8% - 10.5%)
79	Aortic aneurysm	$5.6 ($5.1 - $6.2)	7.5% (5.3% - 10.3%)	80.2% (77% - 82.5%)	0% (0% - 0.1%)	1.8% (1.3% - 2.9%)	0.2% (0% - 0.4%)	0	10.3% (10.1% - 10.5%)
80	Hypertensive disorders of pregnancy	$5.5 ($4.8 - $6.3)	2.8% (1.3% - 5.3%)	86.7% (84.3% - 88.2%)	0% (0% - 0%)	0% (0% - 0%)	0.1% (0% - 0.2%)	0	10.4% (10% - 10.8%)
81	Poisonings	$5.3 ($4.5 - $6.4)	5.4% (3.6% - 7.7%)	68.5% (63.7% - 72.6%)	0.8% (0.5% - 1.1%)	0.4% (0.2% - 0.7%)	14.7% (11.4% - 18.3%)	0	10.2% (9.8% - 10.8%)
82	Other maternal disorders	$5.1 ($4 - $6)	1.3% (1% - 1.8%)	76.7% (73.3% - 79.4%)	0.1% (0% - 0.1%)	0% (0% - 0%)	11.2% (8.4% - 14.9%)	0	10.7% (10.1% - 11.2%)
83	Peptic ulcer disease	$4.5 ($3.9 - $5.7)	6.6% (4.7% - 8.1%)	71.2% (57.7% - 74.6%)	3.1% (1.7% - 5.1%)	5.2% (2.9% - 20.6%)	3.7% (2.4% - 4.9%)	0	10.2% (10% - 10.6%)
84	Breast cancer	$4.5 ($3.6 - $5.5)	31% (21.6% - 41.1%)	48.9% (37.9% - 57.8%)	2.8% (2.2% - 3.7%)	5.1% (3.5% - 7.6%)	2.1% (0.7% - 4.2%)	0	10.1% (7.3% - 10.7%)
85	Parkinson's disease	$4.5 ($3.9 - $5.2)	14.3% (10.7% - 18.4%)	10% (8.1% - 11.9%)	12.7% (9.1% - 16.7%)	53.9% (48.4% - 62%)	0.1% (0% - 0.3%)	0	9% (5.8% - 9.7%)
86	Obstructed labor	$4.4 ($3.8 - $5.1)	0% (0% - 0.1%)	89.6% (89.1% - 90%)	0% (0% - 0%)	0% (0% - 0%)	0% (0% - 0%)	0	10.4% (10% - 10.8%)
87	Rheumatic heart disease	$4.3 ($1.9 - $5.6)	9.6% (4.4% - 20.3%)	78.4% (66.1% - 84.1%)	0% (0% - 0%)	0.8% (0.5% - 1.8%)	1% (0.6% - 2%)	0	10.2% (10.1% - 10.5%)
88	Family planning	$3.6 ($3 - $4.4)	12.8% (9.6% - 16.8%)	0.3% (0.2% - 0.4%)	75.8% (71.9% - 78.7%)	0% (0% - 0%)	0% (0% - 0.1%)	0	11.1% (10.6% - 11.5%)
89	Kidney cancer	$3.4 ($2.9 - $3.9)	18.9% (13% - 23.1%)	45.6% (38.7% - 52.1%)	26.2% (21.9% - 32.2%)	0.8% (0.6% - 1.1%)	0% (0% - 0%)	0	8.6% (7.7% - 9.6%)
90	Gastritis and duodenitis	$3.3 ($3 - $3.5)	12.1% (9.2% - 15.3%)	40.8% (37.4% - 44%)	3.3% (2.5% - 4%)	3.2% (2% - 5.4%)	31% (26.9% - 34.4%)	0	9.7% (9.4% - 10.1%)
91	Animal contact	$3.2 ($2.4 - $4.4)	56.2% (45.1% - 66.2%)	6.8% (4.4% - 9.9%)	2.6% (1.3% - 4.9%)	0.1% (0% - 0.2%)	24.3% (17% - 33%)	0	10% (9% - 10.4%)
92	Gout	$2.8 ($1.7 - $5.7)	18.6% (7% - 28.1%)	14.8% (6.1% - 21.2%)	27.2% (11.2% - 40.1%)	23.8% (5.5% - 63.6%)	6.5% (2.7% - 9.3%)	0	9.1% (8.1% - 9.7%)
93	Autistic spectrum disorders	$2.7 ($2 - $3.3)	81.7% (78.8% - 83.9%)	6.7% (4.7% - 9.2%)	1.7% (0.9% - 2.9%)	0% (0% - 0.1%)	0% (0% - 0.1%)	0	9.8% (9.4% - 10.4%)

Rank	Health condition	2016 spending (billions of UDS)	Percent of 2016 spending that is on:						
			Ambulatory care	Inpatient care	Pharmaceutical care	Nursing care	Emergency department care	Dental care	General administration
94	Bladder cancer	$2.6 ($2.3 - $2.9)	46% (41.8% - 51%)	37.8% (33% - 42.5%)	0.9% (0.5% - 1.3%)	4.4% (2.1% - 7.7%)	0.8% (0.2% - 1.6%)	0	10.1% (9.9% - 10.3%)
95	Foreign body	$2.5 ($2.2 - $2.8)	26.3% (20.2% - 32.4%)	34.9% (29.7% - 40.7%)	2.4% (1.5% - 3.5%)	0.3% (0.2% - 0.6%)	26.1% (22% - 30.2%)	0	10% (9.5% - 10.5%)
96	Pancreatic cancer	$2.5 ($2.2 - $2.8)	11.7% (6% - 17.7%)	57.4% (48% - 63.1%)	19.2% (16.1% - 29.1%)	1.8% (1.4% - 2.5%)	0% (0% - 0.1%)	0	9.9% (9% - 10.8%)
97	Self-harm	$2.4 ($1.7 - $3.2)	0.8% (0.3% - 1.6%)	78.4% (73.8% - 81.9%)	0% (0% - 0%)	0.2% (0% - 0.5%)	10.4% (6.9% - 14.9%)	0	10.3% (9.5% - 11%)
98	Neonatal encephalopathy (birth asphyxia and birth trauma)	$2.4 ($1.8 - $3.3)	8% (2.7% - 18.8%)	81.5% (70.9% - 86.5%)	0% (0% - 0%)	0% (0% - 0%)	0% (0% - 0.1%)	0	10.6% (9.8% - 11.1%)
99	Other neonatal disorders	$2.2 ($1.5 - $3)	9.6% (0.1% - 17.7%)	79.5% (71.5% - 88.6%)	0% (0% - 0%)	0% (0% - 0%)	0.4% (0.1% - 0.7%)	0	10.5% (9.8% - 11.1%)
100	Interstitial lung disease and pulmonary sarcoidosis	$2.1 ($1.8 - $2.5)	24.4% (14.9% - 31.6%)	62.8% (55.6% - 71.6%)	0.2% (0.1% - 0.3%)	2.4% (1.8% - 3.4%)	0.1% (0% - 0.2%)	0	10.1% (9.8% - 10.4%)
101	Counseling services	$2 ($1.7 - $2.4)	41.1% (31.5% - 49.2%)	5.9% (4.5% - 7.4%)	42.7% (34.5% - 52.2%)	1% (0.4% - 5.2%)	0.5% (0.2% - 1%)	0	8.8% (8.3% - 9.2%)
102	Complications of abortion	$2 ($1.8 - $2.2)	17.9% (13.7% - 21.8%)	32.9% (28.2% - 37.2%)	0.2% (0.1% - 0.2%)	0% (0% - 0%)	38.9% (33.5% - 44.4%)	0	10.1% (9.8% - 10.4%)
103	Protein-energy malnutrition	$2 ($1.6 - $2.4)	36.4% (26.2% - 45.2%)	47.7% (39.3% - 56.8%)	0% (0% - 0%)	5.7% (3.6% - 8.7%)	0% (0% - 0%)	0	10.2% (9.6% - 10.5%)
104	Tobacco intervention	$1.9 ($1.5 - $2.3)	22.3% (8.9% - 30.8%)	55.5% (44.9% - 69.6%)	0.9% (0.6% - 1.3%)	2.7% (2.1% - 3.6%)	8.8% (2.1% - 20.7%)	0	9.9% (9.4% - 10.3%)
105	Vascular intestinal disorders	$1.8 ($1.6 - $2)	1.8% (0.4% - 4.8%)	85.8% (82.5% - 87.5%)	0% (0% - 0%)	1.9% (1.3% - 3.5%)	0.1% (0% - 0.4%)	0	10.3% (10.2% - 10.5%)
106	Meningitis	$1.8 ($1.5 - $2.2)	5.8% (3.7% - 8.8%)	80.5% (77.5% - 82.8%)	0% (0% - 0%)	2.6% (2% - 3.3%)	0.8% (0.3% - 1.1%)	0	10.4% (9.9% - 10.8%)
107	Liver cancer	$1.7 ($1.5 - $2.1)	19.3% (11.5% - 26.7%)	56.2% (49.2% - 63.7%)	12.8% (10.8% - 15.2%)	1.3% (0.9% - 1.8%)	0% (0% - 0.1%)	0	10.4% (10.1% - 10.8%)
108	Other nutritional deficiencies	$1.7 ($1.3 - $2.3)	44.8% (32% - 53%)	26% (18.4% - 32.5%)	3.7% (2.7% - 4.7%)	15.8% (6.5% - 36.5%)	0% (0% - 0%)	0	9.7% (8.9% - 10.1%)
109	Hypertensive heart disease	$1.6 ($1.5 - $1.9)	11.7% (7.3% - 17.4%)	45.3% (40.5% - 50.1%)	16.6% (13.8% - 19.1%)	10.4% (6.7% - 16.4%)	6% (4.8% - 7.1%)	0	10% (9.7% - 10.2%)
110	Fire, heat, and hot substances	$1.6 ($1.3 - $1.9)	21.4% (16.6% - 26.5%)	54% (46.9% - 59.8%)	1.1% (0.8% - 1.4%)	1% (0.6% - 1.9%)	12.8% (9.9% - 15.9%)	0	9.6% (6.2% - 10.7%)
111	Ovarian cancer	$1.6 ($1.3 - $2)	30.1% (18.8% - 45%)	58.1% (43.9% - 69%)	0% (0% - 0%)	1.4% (1% - 2%)	0% (0% - 0%)	0	10.4% (9.8% - 10.8%)
112	Maternal sepsis and other pregnancy-related infection	$1.5 ($1.3 - $1.7)	3.1% (2% - 4.7%)	61.4% (56% - 68.6%)	0.1% (0% - 0.1%)	0% (0% - 0%)	25.1% (17.7% - 30.9%)	0	10.3% (10% - 10.6%)

Rank	Health condition	2016 spending (billions of UDS)	Percent of 2016 spending that is on:						
			Ambulatory care	Inpatient care	Pharmaceutical care	Nursing care	Emergency department care	Dental care	General administration
113	Stomach cancer	$1.5 ($1.2 - $2)	1.5% (0.9% - 2.2%)	74.1% (54.8% - 80.1%)	0% (0% - 0%)	13.7% (7.6% - 33.6%)	0.1% (0% - 0.3%)	0	10.5% (10.3% - 10.7%)
114	Maternal hemorrhage	$1.4 ($1.1 - $1.7)	4.2% (2.2% - 9%)	74% (61.2% - 84%)	0% (0% - 0%)	0% (0% - 0%)	11.4% (2.5% - 24.4%)	0	10.4% (10% - 10.8%)
115	Malignant skin melanoma	$1.4 ($1.3 - $1.6)	60.7% (57.7% - 64.3%)	4.1% (3.3% - 4.9%)	26.1% (22.6% - 29.3%)	0.8% (0.6% - 1.1%)	0% (0% - 0%)	0	8.2% (7.3% - 8.8%)
116	Mouth cancer	$1.4 ($1.1 - $1.6)	28.6% (20.4% - 36.6%)	59.5% (51.7% - 67.5%)	0% (0% - 0%)	1.4% (1% - 1.9%)	0% (0% - 0%)	0	10.5% (9.8% - 10.8%)
117	Hemolytic disease in fetus and newborn and other neonatal jaundice	$1.4 ($0.9 - $1.9)	4.3% (0% - 7.5%)	84.4% (81.3% - 88.4%)	0	0% (0% - 0%)	0.7% (0.5% - 1.1%)	0	10.6% (9.8% - 11.1%)
118	Other mental and behavioral disorders	$1.3 ($1.2 - $1.5)	40.6% (34.3% - 47.3%)	35.2% (30.2% - 40.1%)	13.2% (10.3% - 16.3%)	0.9% (0.7% - 1.3%)	0.5% (0.2% - 1.4%)	0	9.5% (8.9% - 10.1%)
119	Sepsis and other infectious disorders of the newborn baby	$1.3 ($0.8 - $1.7)	1.4% (0% - 9.8%)	87.4% (79.1% - 89.4%)	0% (0% - 0%)	0% (0% - 0%)	0.6% (0.4% - 0.9%)	0	10.6% (9.8% - 11.2%)
120	Esophageal cancer	$1.1 ($0.9 - $1.3)	24.7% (14.7% - 36.6%)	62.3% (50.8% - 72%)	0% (0% - 0%)	2.4% (1.7% - 3.5%)	0% (0% - 0%)	0	10.6% (10.4% - 10.7%)
121	Uterine cancer	$1.1 ($0.9 - $1.2)	14.2% (10.5% - 18.4%)	73.5% (69.2% - 77.3%)	0.1% (0% - 0.1%)	1.5% (1.1% - 2%)	0% (0% - 0%)	0	10.7% (10.5% - 10.9%)
122	Sexually transmitted diseases excluding HIV	$1.1 ($1 - $1.2)	23.5% (17.1% - 29.1%)	43.6% (37% - 50.2%)	0.5% (0.3% - 0.7%)	1% (0.8% - 1.3%)	21.6% (16% - 26.2%)	0	9.8% (9.3% - 10.3%)
123	Social services	$1 ($0.1 - $1.9)	81.6% (37.4% - 89.9%)	9.6% (2.9% - 47.7%)	0% (0% - 0%)	1.2% (0.4% - 5.3%)	0% (0% - 0%)	0	7.6% (5.4% - 10.1%)
124	Varicella	$1 ($0.9 - $1.1)	37.5% (33.2% - 41.8%)	21.5% (18.1% - 25.3%)	17% (12.7% - 23.5%)	3.9% (3.1% - 5%)	11.1% (9.6% - 12.7%)	0	9% (8.6% - 9.4%)
125	Hodgkin lymphoma	$0.9 ($0.6 - $1.2)	40.3% (15.2% - 54.8%)	48.9% (34.1% - 73.8%)	0% (0% - 0%)	0.4% (0.2% - 0.6%)	0% (0% - 0%)	0	10.4% (8.6% - 11.1%)
126	Thyroid cancer	$0.9 ($0.8 - $1)	49.2% (43% - 56%)	37.9% (31.2% - 44.1%)	2.4% (1.6% - 3.4%)	0.5% (0.3% - 0.7%)	0% (0% - 0%)	0	10.1% (9.4% - 10.5%)
127	Encephalitis	$0.8 ($0.7 - $0.9)	0.7% (0.1% - 1.3%)	84.3% (82.7% - 85.5%)	0% (0% - 0%)	4.9% (3.8% - 6.3%)	0% (0% - 0%)	0	10.1% (9.8% - 10.5%)
128	Other transport injuries	$0.8 ($0.6 - $1)	33.3% (25% - 42.7%)	21.2% (16.1% - 27.4%)	0.4% (0.3% - 0.6%)	0.6% (0.2% - 1.5%)	34.1% (23.2% - 42.5%)	0	10.4% (9.7% - 10.9%)
129	Cervical cancer	$0.8 ($0.7 - $1)	54.1% (44.4% - 65.1%)	34.1% (23.2% - 43%)	1% (0.6% - 1.5%)	0.6% (0.4% - 0.9%)	0.1% (0% - 0.4%)	0	10.1% (9.4% - 10.8%)
130	Larynx cancer	$0.8 ($0.6 - $1)	38.7% (23.8% - 49.3%)	48.2% (38.2% - 62%)	0% (0% - 0%)	2.5% (1.7% - 3.7%)	0	0	10.6% (10.4% - 10.7%)
131	Other pharynx cancer	$0.7 ($0.5 - $0.8)	52.7% (38.5% - 58.5%)	35% (29.3% - 48.3%)	0	0.9% (0.7% - 1.4%)	0.7% (0.5% - 1%)	0	10.7% (10.5% - 10.8%)

338

Rank	Health condition	2016 spending (billions of UDS)	Percent of 2016 spending that is on:						
			Ambulatory care	Inpatient care	Pharmaceutical care	Nursing care	Emergency department care	Dental care	General administration
132	Neglected tropical diseases and malaria	$0.6 ($0.5 - $0.7)	47.6% (37.5% - 56%)	32.8% (25.4% - 40.9%)	6.6% (4.7% - 9.1%)	1.7% (1.3% - 2.3%)	1.9% (0.8% - 3.3%)	0	9.4% (8.8% - 10.3%)
133	Conduct disorder	$0.6 ($0.5 - $0.8)	59.6% (51.7% - 65.9%)	22.7% (18% - 28.5%)	4.6% (3.2% - 6.4%)	0% (0% - 0%)	3.2% (1.3% - 5.2%)	0	9.9% (9.6% - 10%)
134	Eating disorders	$0.5 ($0.4 - $0.6)	28.5% (19.1% - 38.7%)	60.2% (50.2% - 69.7%)	1.2% (0.6% - 2.2%)	0.1% (0.1% - 0.2%)	0.1% (0% - 0.4%)	0	9.9% (9.1% - 10.4%)
135	Idiopathic intellectual disability	$0.5 ($0.4 - $0.7)	34.8% (25.2% - 45.3%)	17.1% (12.9% - 22%)	0.1% (0.1% - 0.3%)	38.8% (26.2% - 49.9%)	0% (0% - 0%)	0	9.1% (7.4% - 9.7%)
136	Tuberculosis	$0.5 ($0.4 - $0.6)	39.2% (30.1% - 45.8%)	47.7% (40.5% - 57.8%)	0.5% (0.3% - 0.7%)	3.6% (2.6% - 4.5%)	0% (0% - 0%)	0	9.1% (5.6% - 10.3%)
137	Gallbladder and biliary tract cancer	$0.4 ($0.3 - $0.4)	0% (0% - 0.1%)	88.2% (87.5% - 88.6%)	0% (0% - 0%)	1.2% (0.8% - 1.9%)	0% (0% - 0%)	0	10.5% (10.3% - 10.7%)
138	Testicular cancer	$0.4 ($0.3 - $0.7)	60.3% (45.7% - 73.7%)	28.9% (15.7% - 43.7%)	0% (0% - 0.1%)	0.2% (0.1% - 0.3%)	0% (0% - 0%)	0	10.6% (9% - 11.4%)
139	Tension-type headache	$0.4 ($0.3 - $0.5)	76% (71.2% - 79.8%)	1.1% (0.8% - 1.5%)	11.9% (8.8% - 16%)	0.2% (0.1% - 0.5%)	1.6% (0.2% - 4.7%)	0	9.2% (8.2% - 9.9%)
140	Donor	$0.3 ($0.2 - $0.3)	0% (0% - 0%)	89.7% (88.7% - 90.6%)	0% (0% - 0%)	0% (0% - 0.1%)	0.1% (0% - 0.1%)	0	10.2% (9.3% - 11.2%)
141	Pneumoconiosis	$0.2 ($0.1 - $0.3)	76.4% (55.6% - 84.5%)	12.3% (5% - 31.7%)	0.2% (0% - 0.8%)	1% (0.4% - 2.8%)	0% (0% - 0.2%)	0	10% (9.9% - 10.1%)
142	Drowning	$0.1 ($0.1 - $0.1)	12.8% (5.7% - 24.6%)	74% (62.3% - 81.6%)	0.1% (0% - 0.2%)	0.1% (0% - 0.2%)	2.8% (0.3% - 6.6%)	0	10.2% (9.8% - 10.8%)
143	Nasopharynx cancer	$0.1 ($0 - $0.1)	2.3% (1.5% - 3.2%)	83.5% (82.1% - 84.8%)	0% (0% - 0%)	1% (0.6% - 1.5%)	2.4% (1.7% - 3.1%)	0	10.9% (10.5% - 11.1%)
144	Diphtheria	$0 ($0 - $0)	0% (0% - 0%)	31.2% (10.6% - 85.2%)	0% (0% - 0%)	1.5% (0% - 6.5%)	56.9% (0% - 78.1%)	0	10.4% (10.1% - 10.6%)
145	Acute glomerulonephritis	$0 ($0 - $0)	0% (0% - 0%)	85.7% (84.6% - 86.6%)	0% (0% - 0%)	0.7% (0.4% - 1.2%)	3% (2.3% - 3.9%)	0	10.5% (10.3% - 10.9%)
146	Exposure to forces of nature	$0 ($0 - $0)	17.4% (0% - 45.5%)	71.7% (43.7% - 89.5%)	0.1% (0% - 0.4%)	0.2% (0% - 1.1%)	0.1% (0% - 0.7%)	0	10.4% (10.1% - 10.8%)
147	Collective violence and legal intervention	$0 ($0 - $0)	11.9% (1.2% - 48.3%)	52.1% (25.7% - 74.3%)	0.7% (0% - 2.5%)	1.2% (0% - 7.5%)	23.6% (4.8% - 49.3%)	0	10.4% (9.9% - 10.7%)
148	Intestinal infectious diseases	$0 ($0 - $0)	0% (0% - 0%)	86.9% (81.9% - 89.5%)	0% (0% - 0.1%)	2.8% (0.1% - 8%)	0% (0% - 0%)	0	10.2% (9.7% - 10.7%)
149	Leprosy	$0 ($0 - $0)	0% (0% - 0%)	2.3% (0.1% - 13.5%)	0% (0% - 0%)	88.9% (76.2% - 93.1%)	0.3% (0% - 0%)	0	8.5% (6.1% - 9.6%)
150	Measles	$0 ($0 - $0)	0% (0% - 0%)	26.8% (5.1% - 78.5%)	13.1% (0% - 52.8%)	50.5% (2.3% - 82.7%)	0.1% (0% - 0%)	0	9.5% (6.9% - 10.2%)
151	Iodine deficiency	$0 ($0 - $0)	3.1% (0% - 11.6%)	1.5% (0.1% - 8%)	60.1% (3.4% - 87.9%)	28.1% (3.9% - 81.1%)	0% (0% - 0%)	0	7.2% (5.6% - 9.6%)

339

Rank	Health condition	2016 spending (billions of UDS)	Percent of 2016 spending that is on:						
			Ambulatory care	Inpatient care	Pharmaceutical care	Nursing care	Emergency department care	Dental care	General administration
152	Vitamin A deficiency	$0 ($0 - $0)	0% (0% - 0%)	0.7% (0% - 5.8%)	0	81.6% (62% - 90.3%)	8.5% (0.8% - 28.1%)	0	9.2% (6.6% - 10.1%)
153	Tetanus	$0 ($0 - $0)	5.9% (1% - 17.4%)	77.2% (65.4% - 84.6%)	0.5% (0% - 1.7%)	6.3% (2.3% - 11.6%)	0.1% (0% - 0.6%)	0	10.1% (9.6% - 10.5%
154	Whooping cough	$0 ($0 - $0)	0% (0% - 0%)	82.6% (80% - 84.5%)	0% (0% - 0%)	0% (0% - 0%)	7.2% (5.1% - 9.8%)	0	10.3% (10% - 10.7%)

Table 12.2: Personal health care spending results by age group, 2016

Rank	Condition	2016 spending (billions of USD)	Annualized rate of change 1996–2016			Percentage of 2015 spending that is:		
			All ages	Ages less than 65	Age greater than or equal to 65	Age less than 20	Age greater than or equal to 20 and less than 65	Age greater than or equal to 65
1	Low back and neck pain	$134.5 ($122.4 - $146.9)	6.6% (6% - 7.4%)	5.9% (5.2% - 6.7%)	9% (8% - 10.4%)	1.9% (1.6% - 2.3%)	30.3% (27.7% - 33.9%)	67.9% (64.3% - 70.5%)
2	Other musculoskeletal disorders	$129.8 ($116.3 - $149.7)	6% (5.3% - 6.7%)	5.7% (4.8% - 6.5%)	6.5% (5.5% - 7.5%)	3.9% (3.1% - 5%)	35.4% (32.9% - 38.5%)	60.7% (57.6% - 63.2%)
3	Diabetes mellitus	$111.2 ($105.7 - $115.9)	7.4% (6.9% - 7.9%)	8.5% (7.7% - 9.3%)	6.1% (5.6% - 6.5%)	2.5% (1.8% - 4.1%)	40.1% (37.7% - 42.4%)	57.4% (55.2% - 59.5%)
4	Ischemic heart disease	$89.3 ($81.1 - $95.5)	0.5% (-0.2% - 0.9%)	0.5% (-0.2% - 1%)	0.4% (-0.4% - 0.9%)	0.4% (0.3% - 0.5%)	56.9% (54.3% - 59.7%)	42.7% (40% - 45.3%)
5	Falls	$87.4 ($75 - $100.1)	4.2% (3.2% - 5.1%)	4% (3% - 5.2%)	4.4% (2.9% - 5.5%)	5.2% (4.1% - 6.6%)	56.4% (50% - 61.9%)	38.4% (33.2% - 44.6%)
6	Urinary diseases and male infertility	$86 ($76.3 - $95.9)	4.9% (4% - 5.7%)	4.7% (3.6% - 5.7%)	5% (4% - 6%)	4.1% (3.5% - 5.1%)	47.7% (44.5% - 50.7%)	48.2% (45.1% - 51.6%)
7	Skin and subcutaneous diseases	$85 ($80.5 - $90.2)	5.1% (4.7% - 5.5%)	5.2% (4.8% - 5.7%)	4.8% (4.4% - 5.5%)	15.2% (13.5% - 17.1%)	29.5% (27.8% - 31.4%)	55.3% (52.8% - 57.1%)
8	Osteoarthritis	$80 ($72.2 - $86.1)	7.7% (7% - 8.3%)	10.1% (8.9% - 11%)	6.1% (5.3% - 6.7%)	0	49.9% (47.2% - 52.9%)	50.1% (47.1% - 52.8%)
9	Alzheimer's disease and other dementias	$79.2 ($67.6 - $90.8)	3.7% (2.8% - 4.7%)	4% (1.9% - 5.5%)	3.6% (2.7% - 4.7%)	0	96.9% (95.9% - 97.6%)	3.1% (2.4% - 4.1%)
10	Treatment of hypertension	$79 ($72.6 - $86.8)	4.6% (4.1% - 5.2%)	5% (4.3% - 5.5%)	4.3% (3.6% - 5.1%)	0.7% (0.5% - 1.1%)	51.2% (48.3% - 54.5%)	48.1% (44.7% - 51%)
11	Oral disorders	$76.4 ($73.8 - $79.4)	2.8% (2.5% - 3%)	2.1% (1.7% - 2.3%)	5.9% (5% - 6.7%)	16.3% (14.6% - 18.2%)	25.6% (23.5% - 27.3%)	58.1% (55.5% - 60.5%)
12	Pregnancy and postpartum care	$71.3 ($64.9 - $77.7)	3.2% (2.6% - 3.8%)	3.2% (2.6% - 3.8%)	0	2.7% (2.4% - 3.1%)	0	97.3% (96.9% - 97.6%)
13	Depressive disorders	$67.5 ($62.3 - $72.7)	3.3% (2.8% - 3.8%)	3.5% (2.9% - 4.1%)	2.3% (1.6% - 3.1%)	10% (7.6% - 13.3%)	14.5% (12.5% - 16.6%)	75.5% (72.8% - 78.8%)
14	Sense organ diseases	$64.1 ($58.1 - $69.8)	2.7% (1.9% - 3.2%)	3.6% (2.8% - 4.4%)	2.1% (1.3% - 2.7%)	7.9% (6.4% - 9.7%)	56.7% (53.9% - 60.2%)	35.5% (32.8% - 38.5%)
15	Well dental	$60.5 ($57.3 - $63.2)	3.6% (3.3% - 3.9%)	3.1% (2.7% - 3.5%)	7.1% (6.1% - 8.1%)	39.8% (35.6% - 42.7%)	16% (13.3% - 19%)	44.3% (40.4% - 47.2%)
16	Road injuries	$57.9 ($46.7 - $71.6)	3.4% (2% - 4.9%)	3.3% (1.8% - 4.9%)	3.8% (2.2% - 5.4%)	8.7% (7.6% - 10%)	18.8% (15.9% - 22.2%)	72.5% (69.1% - 75.4%)
17	Other neurological disorders	$52.9 ($47.1 - $58.7)	5.6% (4.8% - 6.5%)	5.3% (4.4% - 6.3%)	6.2% (5.1% - 7.5%)	5.2% (3.2% - 8.3%)	32.6% (29.1% - 36%)	62.2% (58.2% - 65.7%)
18	Septicemia	$52.5 ($42 - $62.9)	8.9% (7.5% - 10.4%)	10.7% (8.9% - 12.4%)	7.3% (5.9% - 8.6%)	2.5% (2.1% - 2.9%)	44.2% (39.7% - 52.8%)	53.3% (45.1% - 57.5%)
19	Other chronic respiratory diseases	$45 ($39.4 - $50.1)	2.7% (2% - 3.4%)	2.2% (1.4% - 2.9%)	5.8% (4.3% - 7.1%)	22.6% (19% - 26.7%)	19.7% (16.2% - 23.8%)	57.7% (53.3% - 62.3%)
20	Other digestive diseases	$44.4 ($40.6 - $49.5)	3.1% (2.5% - 3.7%)	3.5% (2.8% - 4.2%)	2.4% (1.8% - 3.1%)	8.8% (6.1% - 13%)	37.2% (33.6% - 40.9%)	54% (49.3% - 57.9%)
21	Anxiety disorders	$42.4 ($37.8 - $47.7)	7.2% (6.3% - 8%)	7.1% (6.1% - 8%)	8.1% (6.7% - 9.6%)	9.7% (6.3% - 12.7%)	15% (12.1% - 18.1%)	75.3% (72.1% - 78.5%)
22	Cerebrovascular disease	$41.9 ($37.7 - $47.1)	1.4% (0.7% - 1.9%)	3.8% (2.7% - 5.1%)	0.3% (-0.2% - 0.8%)	1.1% (0.9% - 1.4%)	63.1% (55.5% - 68.2%)	35.8% (30.8% - 43.2%)
23	Gynecological diseases	$39.4 ($35.3 - $43.3)	1.8% (1.2% - 2.5%)	1.7% (1% - 2.5%)	2.6% (1.3% - 4%)	2.4% (2% - 2.9%)	11.2% (8.8% - 13.7%)	86.3% (83.8% - 89%)
24	Asthma	$35.5 ($32.4 - $38.2)	4.4% (3.9% - 4.9%)	4.2% (3.7% - 4.7%)	5.4% (4.1% - 6.7%)	22.1% (19.1% - 25.7%)	21.1% (18.1% - 25%)	56.8% (53.1% - 60.2%)
25	Chronic obstructive pulmonary disease	$34.3 ($31.5 - $37.3)	4% (3.3% - 4.7%)	5% (4% - 5.9%)	3.5% (2.8% - 4.2%)	0.6% (0.5% - 0.8%)	63.6% (60.3% - 66.3%)	35.8% (33.1% - 39%)

Rank	Condition	2016 spending (billions of USD)	Annualized rate of change 1996–2016			Percentage of 2015 spending that is:		
			All ages	Ages less than 65	Age greater than or equal to 65	Age less than 20	Age greater than or equal to 20 and less than 65	Age greater than or equal to 65
26	Rheumatoid arthritis	$33.8 ($28.9 - $37.7)	12.4% (11.1% - 13.4%)	14.4% (12.7% - 15.9%)	7.2% (6% - 8.3%)	17.8% (15.7% - 19.5%)	16.1% (14.1% - 19%)	66.1% (63% - 68.7%)
27	Heart Failure	$33.4 ($30.7 - $36.8)	0.6% (0.1% - 1.1%)	3.6% (2.6% - 4.5%)	-0.7% (-1.2% - -0.2%)	5.1% (4.5% - 5.7%)	60.1% (55.7% - 63.5%)	34.8% (31.7% - 39.2%)
28	Endocrine, metabolic, blood, and immune disorders	$32.9 ($29.9 - $36.3)	5.5% (4.8% - 6.1%)	5.9% (5.1% - 6.9%)	4.5% (3.7% - 5.2%)	10.1% (9.1% - 11.2%)	28.9% (26.1% - 31.2%)	60.9% (58.2% - 63.6%)
29	Cirrhosis of the liver	$32.5 ($27 - $40.4)	4.3% (2.8% - 5.8%)	5.1% (3.4% - 6.8%)	2.7% (1.2% - 4.2%)	3.6% (2.7% - 4.3%)	28.4% (25.1% - 32.1%)	67.9% (64.3% - 71.8%)
30	Lower respiratory tract infections	$32.2 ($28.7 - $35.9)	1.2% (0.5% - 1.8%)	1.5% (0.5% - 2.2%)	0.9% (0.1% - 1.5%)	17% (15.5% - 18.7%)	39.8% (37.1% - 43.1%)	43.2% (40.6% - 45.8%)
31	Other unintentional injuries	$30.1 ($24.3 - $37.9)	3.8% (2.4% - 5.1%)	3.3% (1.8% - 4.8%)	5.7% (3.2% - 8%)	8.3% (5.8% - 11.9%)	22.8% (17.2% - 29.3%)	68.9% (62.7% - 74.7%)
32	Exposure to mechanical forces	$28.7 ($23.5 - $34.4)	2.5% (1.3% - 3.7%)	2% (0.9% - 3.3%)	6.1% (3.7% - 8.6%)	22.7% (17.7% - 29.3%)	14.6% (10.3% - 20.1%)	62.6% (55.8% - 69.2%)
33	Atrial fibrillation and flutter	$28.4 ($24.6 - $33.9)	5.4% (4.5% - 6.3%)	5.6% (4.1% - 6.7%)	5.4% (4.4% - 6.3%)	0	75% (71% - 79.5%)	25% (20.5% - 29%)
34	Preterm birth complications	$28.2 ($21.8 - $37.6)	6% (4.5% - 7.6%)	6% (4.5% - 7.6%)	0	100% (100% - 100%)	0	0
35	Treatment of hyperlipidemia	$26.4 ($24.3 - $29.4)	7.4% (6.8% - 8.1%)	6.4% (5.7% - 7.1%)	8.8% (7.9% - 9.9%)	0.6% (0.5% - 0.9%)	48.4% (45.5% - 53.4%)	51% (46.1% - 53.9%)
36	Other cardiovascular and circulatory diseases	$26.2 ($22.8 - $29.9)	3.1% (2.2% - 4.1%)	3.2% (1.8% - 4.4%)	3% (2.2% - 3.9%)	3.9% (2.5% - 6.3%)	49.3% (44.7% - 54.1%)	46.8% (42% - 51.5%)
37	Inflammatory bowel disease	$25.3 ($22.2 - $28.7)	7.1% (6.2% - 7.9%)	7.2% (6.2% - 8.1%)	6.9% (5% - 8.2%)	8.6% (6.3% - 12.7%)	25.3% (22% - 30%)	66.1% (60.2% - 69.9%)
38	Non-melanoma skin cancer	$21.6 ($17.7 - $27.5)	7.3% (6% - 9.1%)	5.9% (4.2% - 7.5%)	8.6% (6.8% - 11%)	0.5% (0.2% - 1.2%)	59.3% (52% - 66.8%)	40.2% (32.8% - 47.4%)
39	Gallbladder and biliary diseases	$20.6 ($18.3 - $23.2)	3.2% (2.5% - 3.9%)	4.1% (3.2% - 5%)	1.4% (0.7% - 2.1%)	2.5% (2% - 3%)	26.1% (23.3% - 28.9%)	71.4% (68.5% - 74.1%)
40	Chronic kidney diseases	$19.7 ($16.3 - $22.9)	5.1% (3.9% - 6.2%)	4.5% (3.2% - 5.8%)	5.6% (4.2% - 6.8%)	3% (2.5% - 3.5%)	51.7% (48.3% - 55%)	45.3% (42.2% - 48.6%)
41	Well baby	$17.4 ($13.5 - $21.9)	6.4% (5.2% - 7.5%)	6.4% (5.2% - 7.5%)	0	100% (100% - 100%)	0	0
42	Attention-deficit/hyperactivity disorder	$17 ($14.4 - $20.1)	7.1% (5.8% - 8.2%)	7.4% (6.1% - 8.5%)	0.8% (-0.3% - 2.1%)	58.2% (54.5% - 61.9%)	1.9% (1.5% - 2.2%)	40% (36.3% - 43.4%)
43	HIV/AIDS	$15.7 ($12.7 - $20)	7.6% (6.2% - 9.5%)	7.2% (5.7% - 9.1%)	16.6% (15.2% - 17.9%)	16.3% (12.9% - 20.7%)	10.3% (8.4% - 12.9%)	73.4% (66.4% - 78.4%)
44	Other infectious diseases	$14.9 ($13 - $16.9)	2.6% (1.8% - 3.4%)	2.6% (1.7% - 3.4%)	2.7% (1.6% - 4.1%)	36.8% (32.3% - 42.3%)	18.5% (15.8% - 22.6%)	44.7% (39.2% - 49.6%)
45	Congenital anomalies	$14.6 ($10.6 - $18.6)	3.2% (1.4% - 4.8%)	3.2% (1.3% - 4.9%)	3.1% (2.1% - 5%)	72.9% (67.4% - 76.7%)	6.3% (4.6% - 10.8%)	20.9% (18.4% - 24.6%)
46	Migraine	$14.3 ($11.8 - $17)	4.7% (3.6% - 5.9%)	4.6% (3.5% - 5.8%)	5.9% (3.6% - 8.4%)	7.3% (5% - 11%)	6.6% (4.8% - 9.3%)	86.1% (82.2% - 89.2%)
47	Multiple sclerosis	$13.9 ($12.6 - $15.6)	11.1% (9.2% - 12.7%)	11.7% (9.6% - 13.5%)	8.5% (6.8% - 10.4%)	16.6% (14.5% - 18.9%)	15.1% (13.5% - 16.9%)	68.3% (65.7% - 71.2%)
48	Bipolar disorder	$13.7 ($12.4 - $15.1)	4% (3.5% - 4.6%)	4.4% (3.8% - 5%)	2% (1.2% - 2.8%)	11.3% (10% - 12.7%)	12.8% (11.2% - 15.1%)	75.9% (73.7% - 77.6%)
49	Schizophrenia	$13.7 ($12.5 - $15)	0.1% (-0.6% - 0.7%)	-0.2% (-0.9% - 0.5%)	0.9% (-0.3% - 1.7%)	3.5% (3.2% - 3.7%)	21.5% (18.9% - 24%)	75% (72.6% - 77.6%)
50	Other neoplasms	$13.2 ($11 - $15.6)	3.4% (2.4% - 4.5%)	4.1% (2.9% - 5.3%)	2.3% (0.8% - 3.9%)	10.6% (7.7% - 15.2%)	33.7% (28.4% - 40.1%)	55.6% (50% - 60.9%)
51	Iron-deficiency anemia	$12.8 ($11 - $16.2)	8% (7.2% - 9.5%)	9.7% (8.6% - 10.8%)	6.8% (5.8% - 9.5%)	4.6% (3.5% - 6.1%)	51.6% (45.9% - 61.1%)	43.8% (34.9% - 49.5%)
52	Upper respiratory tract infections	$12.6 ($11.3 - $13.9)	1.6% (0.9% - 2.4%)	1.6% (0.8% - 2.4%)	2.2% (1.3% - 3.5%)	50.2% (46.1% - 54.7%)	10.9% (9% - 13.1%)	38.9% (34.7% - 41.9%)
53	Drug use disorders	$12.5 ($10.9 - $14.1)	3.6% (2.6% - 4.5%)	3.8% (2.6% - 4.9%)	2.3% (0% - 5.2%)	3.3% (2.7% - 4%)	11.6% (7.8% - 15.2%)	85.1% (81.3% - 88.8%)

342

Rank	Condition	2016 spending (billions of USD)	Annualized rate of change 1996–2016			Percentage of 2015 spending that is:		
			All ages	Ages less than 65	Age greater than or equal to 65	Age less than 20	Age greater than or equal to 20 and less than 65	Age greater than or equal to 65
54	Leukemia	$12 ($10.7 - $13.6)	5.6% (4.8% - 6.5%)	5.9% (5% - 6.9%)	4.3% (2.7% - 5.7%)	22.7% (20.3% - 25.1%)	19.4% (16.5% - 23.9%)	57.9% (54.5% - 61.8%)
55	Non-Hodgkin lymphoma	$11.8 ($10.4 - $13.4)	6% (5.1% - 7%)	7.4% (6.5% - 8.6%)	3.6% (2.3% - 5.1%)	15.9% (13.6% - 18.7%)	27.3% (21.8% - 33.4%)	56.7% (52.4% - 61%)
56	Endocarditis	$11.5 ($0.6 - $37.9)	6.4% (0.8% - 12.4%)	8.4% (1.1% - 15.4%)	5.3% (0.2% - 10.4%)	2.2% (0.1% - 13.4%)	54.7% (43.6% - 70.9%)	43.1% (26.7% - 52.9%)
57	Well person	$11 ($9.3 - $13)	4.3% (3.4% - 5.4%)	5.8% (4.7% - 7.1%)	1.5% (-0.4% - 3.3%)	31.3% (22.8% - 39.6%)	25.1% (19.1% - 32.1%)	43.7% (36.5% - 50%)
58	Peripartum death due to complications of a preexisting medical condition	$11 ($8.3 - $13.5)	10% (8.7% - 11.4%)	10% (8.7% - 11.4%)	0	5.8% (4.8% - 6.2%)	0	94.2% (93.8% - 95.2%)
59	Interpersonal violence	$10.9 ($8.2 - $14)	4% (2.4% - 5.2%)	4% (2.3% - 5.2%)	4.5% (2% - 7%)	9.8% (8.3% - 11.3%)	4.4% (3% - 6.6%)	85.8% (83.2% - 88.1%)
60	Hemoglobinopathies and hemolytic anemias	$10.7 ($9.7 - $11.9)	9.3% (8.5% - 10.1%)	9.5% (8.6% - 10.3%)	8.7% (8.2% - 9.3%)	24.2% (23.1% - 25.1%)	17.1% (15.4% - 18.8%)	58.7% (57.2% - 61.1%)
61	Colon and rectum cancers	$10.5 ($9.3 - $11.7)	0.9% (0.1% - 1.6%)	3.4% (2.6% - 4.3%)	-1.3% (-2.2% - -0.5%)	0.6% (0.5% - 0.8%)	42.7% (39.4% - 45.8%)	56.7% (53.5% - 60%)
62	Otitis media	$9.7 ($7.9 - $12.8)	0.8% (-0.5% - 2.5%)	0.6% (-0.8% - 2.4%)	4.6% (2.8% - 7.5%)	77.5% (70.2% - 83.2%)	7.5% (5.2% - 11.4%)	15.1% (10.8% - 21%)
63	Treatment of obesity	$9.7 ($7.2 - $12.4)	9.9% (8% - 11.7%)	10.1% (8.1% - 12%)	8.7% (7% - 10.1%)	1.9% (1.6% - 2.3%)	15.1% (11.2% - 21.8%)	83% (75.9% - 86.8%)
64	Inguinal or femoral hernia	$9.5 ($7.7 - $11.5)	1.7% (0.3% - 3%)	2% (0.2% - 3.8%)	1.1% (-0.4% - 2.6%)	3.7% (2% - 7.2%)	34.4% (28.2% - 41.4%)	61.9% (54.4% - 68.3%)
65	Appendicitis	$9.3 ($8 - $10.8)	3.5% (2.6% - 4.4%)	3.6% (2.6% - 4.5%)	3.1% (2.3% - 3.7%)	27.6% (24.6% - 30.7%)	8.2% (6.9% - 9.6%)	64.1% (61.1% - 67.3%)
66	Paralytic ileus and intestinal obstruction	$9.2 ($8.3 - $11.4)	2.9% (2.4% - 3.8%)	4.3% (3.7% - 5%)	1.8% (1.2% - 2.8%)	5.7% (4.6% - 6.7%)	48.9% (44.3% - 57.4%)	45.5% (37.9% - 49.5%)
67	Acute renal failure	$9.1 ($7.6 - $10.7)	6.2% (5.2% - 7.2%)	6.2% (4.7% - 7.6%)	6.1% (5.2% - 7.1%)	2.4% (2% - 3.4%)	65.3% (59.9% - 69.2%)	32.3% (28.6% - 37.2%)
68	Hepatitis	$8.9 ($7.9 - $10.4)	14.1% (13.1% - 14.9%)	14.4% (13.3% - 15.4%)	12.4% (11.4% - 13%)	24.1% (21.8% - 25.6%)	13.5% (11.4% - 15.1%)	62.3% (60.1% - 65.6%)
69	Epilepsy	$8.6 ($7.4 - $10)	4.9% (3.7% - 6%)	4.6% (3.3% - 5.9%)	6.1% (4.8% - 7.4%)	23.1% (20% - 25.7%)	18.4% (15.9% - 21.3%)	58.5% (55.1% - 62.5%)
70	Alcohol use disorders	$8.2 ($6.9 - $9.4)	0.8% (-0.1% - 1.6%)	0.6% (-0.4% - 1.6%)	1.9% (-0.1% - 3.5%)	2.6% (1.9% - 4.4%)	18% (14.6% - 22.1%)	79.5% (74.5% - 82.9%)
71	Pancreatitis	$7.7 ($6.3 - $9.2)	3.4% (2.1% - 4.3%)	3.7% (2.1% - 4.4%)	2.3% (1.3% - 5.2%)	3.3% (2.6% - 3.9%)	23.3% (18.8% - 34.6%)	73.4% (62.5% - 77.8%)
72	Trachea, bronchus, and lung cancers	$7.3 ($6.3 - $8.4)	1% (0.1% - 1.9%)	1.6% (0.4% - 2.4%)	0.7% (-0.1% - 1.5%)	0.6% (0.5% - 0.8%)	55.2% (51.2% - 59%)	44.2% (40.4% - 48.2%)
73	Multiple myeloma	$7.1 ($6.1 - $8.5)	6.9% (5.9% - 7.9%)	10.8% (9.8% - 11.7%)	3.8% (3.2% - 4.3%)	3.4% (2.8% - 4.1%)	38.7% (31.4% - 46%)	57.9% (51.2% - 64.6%)
74	Peripheral vascular disease	$7 ($6.1 - $8)	0.2% (-1.1% - 0.9%)	1.3% (-0.4% - 2.7%)	-0.3% (-2.1% - 0.3%)	0	65.5% (59.1% - 72.4%)	34.5% (27.6% - 40.9%)
75	Brain and nervous system cancers	$6.8 ($6 - $7.6)	4.7% (3.9% - 5.5%)	5.4% (4.5% - 6.2%)	3% (2.2% - 3.7%)	14.1% (11.8% - 15.5%)	22.2% (20.1% - 25.4%)	63.7% (60.7% - 66.6%)
76	Diarrheal diseases	$6.6 ($6.1 - $7.2)	3.4% (2.8% - 3.9%)	2.7% (2.2% - 3.4%)	4.7% (4.1% - 5.2%)	16.2% (14.6% - 17.3%)	36.8% (34% - 40%)	47% (44.1% - 50%)
77	Cardiomyopathy and myocarditis	$5.9 ($4.5 - $6.9)	-0.9% (-1.8% - -0.3%)	1.4% (0.4% - 2.2%)	-2.9% (-4.2% - -2%)	5.7% (4.4% - 9.2%)	42.5% (36% - 47.6%)	51.8% (47.3% - 56.5%)
78	Prostate cancer	$5.9 ($5.4 - $6.6)	0.8% (0.1% - 1.2%)	3.2% (2.6% - 3.9%)	-0.8% (-1.4% - -0.3%)	1.1% (0.8% - 1.5%)	50.8% (47.9% - 53.2%)	48.1% (45.8% - 51%)
79	Aortic aneurysm	$5.6 ($5.1 - $6.2)	1.1% (0.7% - 1.6%)	2.7% (1.9% - 3.4%)	0.3% (-0.4% - 0.8%)	1.3% (1% - 2.3%)	58.2% (49.1% - 62.6%)	40.5% (36.3% - 48.7%)
80	Hypertensive disorders of pregnancy	$5.5 ($4.8 - $6.3)	8.4% (7.6% - 9%)	8.4% (7.6% - 9%)	0	5.1% (4.1% - 5.8%)	0	94.9% (94.2% - 95.9%)
81	Poisonings	$5.3 ($4.5 - $6.4)	8.5% (7.3% - 10%)	8.8% (7.3% - 10.4%)	7.6% (6.4% - 8.8%)	10.7% (9.4% - 12.1%)	18.7% (15.8% - 21.9%)	70.6% (67% - 73.9%)

Rank	Condition	2016 spending (billions of USD)	Annualized rate of change 1996–2016			Percentage of 2015 spending that is:		
			All ages	Ages less than 65	Age greater than or equal to 65	Age less than 20	Age greater than or equal to 20 and less than 65	Age greater than or equal to 65
82	Other maternal disorders	$5.1 ($4 - $6)	3.1% (2% - 4.1%)	3.1% (2% - 4.1%)	0	5% (3.8% - 5.4%)	0	95% (94.6% - 96.2%)
83	Peptic ulcer disease	$4.5 ($3.9 - $5.7)	-0.3% (-1.3% - 0.5%)	0.6% (-0.4% - 1.5%)	-1.3% (-2.3% - 0.2%)	1.6% (1.2% - 2%)	45.3% (41.2% - 56.3%)	53.1% (42.4% - 57.1%)
84	Breast cancer	$4.5 ($3.6 - $5.5)	-1.9% (-3.8% - -0.4%)	-1.3% (-3.6% - 0.6%)	-3% (-5% - -1.2%)	0.5% (0.3% - 0.9%)	30.9% (24.6% - 39.4%)	68.6% (60.2% - 75%)
85	Parkinson's disease	$4.5 ($3.9 - $5.2)	1% (0.3% - 1.8%)	1.5% (0.5% - 2.7%)	0.9% (0.2% - 1.7%)	0	84.7% (80.9% - 87.6%)	15.3% (12.4% - 19.1%)
86	Obstructed labor	$4.4 ($3.8 - $5.1)	2.6% (1.8% - 3.2%)	2.6% (1.8% - 3.2%)	0.8% (-2.1% - 3.6%)	3.6% (2.9% - 4.3%)	0% (0% - 0%)	96.4% (95.7% - 97.1%)
87	Rheumatic heart disease	$4.3 ($1.9 - $5.6)	3.4% (0.9% - 4.2%)	2.5% (0.8% - 3.5%)	3.7% (0.8% - 4.5%)	4% (1.7% - 16.9%)	75.5% (35.5% - 83.6%)	20.5% (14.6% - 47%)
88	Family planning	$3.6 ($3 - $4.4)	4.5% (3.3% - 5.8%)	4.5% (3.3% - 5.8%)	1.4% (0.3% - 3.5%)	4.6% (3.5% - 5.5%)	0.4% (0.3% - 0.7%)	95% (93.9% - 96.1%)
89	Kidney cancer	$3.4 ($2.9 - $3.9)	5.5% (4.3% - 6.3%)	6.8% (5.4% - 7.8%)	3.7% (2.6% - 4.4%)	9.9% (8.2% - 12.8%)	34.9% (30.6% - 39.6%)	55.2% (50.7% - 59.6%)
90	Gastritis and duodenitis	$3.3 ($3 - $3.5)	1.1% (-0.7% - 1.7%)	2.6% (1.7% - 3.3%)	-1% (-4% - -0.1%)	7.3% (6.6% - 8%)	31.3% (28.5% - 34.1%)	61.4% (58.8% - 64.1%)
91	Animal contact	$3.2 ($2.4 - $4.4)	2.8% (0.6% - 5%)	2.2% (0% - 4.4%)	5.6% (1.9% - 9.3%)	24.3% (15.6% - 35.3%)	24.7% (15.9% - 36.4%)	51% (41.5% - 59.8%)
92	Gout	$2.8 ($1.7 - $5.7)	5.8% (3.6% - 9.7%)	4.7% (3% - 6.2%)	6.2% (3.4% - 11.4%)	0.1% (0% - 0.2%)	63.4% (49.6% - 85.2%)	36.5% (14.7% - 50.2%)
93	Autistic spectrum disorders	$2.7 ($2 - $3.3)	7.8% (6.2% - 9.2%)	8% (6.4% - 9.5%)	-1% (-1.7% - -0.3%)	72.9% (64.7% - 79.6%)	1.1% (0.7% - 1.2%)	26.1% (19.6% - 33.3%)
94	Bladder cancer	$2.6 ($2.3 - $2.9)	1.6% (0.9% - 2.1%)	2.2% (1.3% - 2.9%)	1.3% (0.7% - 1.9%)	0.4% (0.3% - 0.8%)	69.2% (66.3% - 72.8%)	30.3% (26.8% - 33%)
95	Foreign body	$2.5 ($2.2 - $2.8)	1% (0.2% - 1.8%)	1.1% (0.2% - 2%)	0.6% (-0.7% - 1.6%)	39% (31.6% - 43.9%)	15.9% (13.4% - 19%)	45% (40.7% - 49.9%)
96	Pancreatic cancer	$2.5 ($2.2 - $2.8)	4% (3.2% - 4.8%)	5.8% (4.9% - 6.5%)	2.4% (1.5% - 3.3%)	2% (1.6% - 3.4%)	44% (37.5% - 47.7%)	54% (50.5% - 59.1%)
97	Self-harm	$2.4 ($1.7 - $3.2)	2.9% (1.2% - 4.4%)	2.6% (0.8% - 4.3%)	6.2% (3.5% - 9%)	9.4% (7.6% - 11.6%)	8.8% (6% - 13.1%)	81.8% (77.1% - 85.6%)
98	Neonatal encephalopathy (birth asphyxia and birth trauma)	$2.4 ($1.8 - $3.3)	6.7% (4.9% - 8.2%)	6.7% (4.9% - 8.2%)	0	100% (100% - 100%)	0	0
99	Other neonatal disorders	$2.2 ($1.5 - $3)	9.2% (7.6% - 10.7%)	9.2% (7.6% - 10.7%)	0	100% (100% - 100%)	0	0
100	Interstitial lung disease and pulmonary sarcoidosis	$2.1 ($1.8 - $2.5)	2.5% (1.5% - 3.3%)	2.5% (1.2% - 3.7%)	2.4% (1.5% - 3.3%)	1.5% (1.1% - 2.5%)	47% (42.3% - 51.4%)	51.6% (47.2% - 55.8%)
101	Counselling services	$2 ($1.7 - $2.4)	1.5% (0.1% - 2.7%)	1.6% (-0.1% - 3.2%)	1.2% (-0.3% - 2.6%)	13.3% (10.4% - 17.1%)	22% (16.8% - 29.5%)	64.7% (57.7% - 70.1%)
102	Complications of abortion	$2 ($1.8 - $2.2)	3.1% (2.4% - 3.7%)	3.1% (2.4% - 3.7%)	0	4.5% (4.1% - 4.9%)	0	95.5% (95.1% - 95.9%)
103	Protein-energy malnutrition	$2 ($1.6 - $2.4)	3.2% (2.5% - 3.9%)	5.1% (4.2% - 6%)	1.4% (0.3% - 2.1%)	15.3% (12.4% - 18.2%)	41.2% (35.4% - 45.8%)	43.5% (40.1% - 48.1%)
104	Tobacco intervention	$1.9 ($1.5 - $2.3)	5.8% (4.4% - 7%)	6.4% (4.8% - 7.7%)	4.2% (3% - 5.3%)	2.2% (1.5% - 3.4%)	22.2% (18.6% - 26.5%)	75.6% (70.4% - 79.3%)
105	Vascular intestinal disorders	$1.8 ($1.6 - $2)	1.1% (0.2% - 1.8%)	2.3% (1.1% - 3.5%)	0.3% (-0.4% - 1.1%)	1.4% (1% - 1.8%)	58% (54.2% - 61.9%)	40.6% (36.8% - 44.4%)
106	Meningitis	$1.8 ($1.5 - $2.2)	1.8% (1% - 2.7%)	1.9% (1% - 2.9%)	1.6% (0.9% - 2.3%)	18.4% (14.9% - 21.1%)	19.4% (16.1% - 22.9%)	62.2% (58.2% - 68%)
107	Liver cancer	$1.7 ($1.5 - $2.1)	7.3% (6.3% - 8.1%)	8.7% (7.8% - 9.7%)	5.6% (4.2% - 7.1%)	4.4% (3.6% - 5.3%)	37.3% (33.9% - 45.9%)	58.3% (50.2% - 61.5%)
108	Other nutritional deficiencies	$1.7 ($1.3 - $2.3)	5.7% (4.3% - 7.3%)	5.7% (4.1% - 6.5%)	5.7% (4.2% - 8.6%)	8.4% (5.8% - 12.3%)	44.7% (37.1% - 59.5%)	46.9% (33.9% - 53.7%)
109	Hypertensive heart disease	$1.6 ($1.5 - $1.9)	-0.4% (-0.9% - 0.5%)	2.2% (1.6% - 2.9%)	-2.2% (-2.8% - -1%)	8.6% (7.4% - 11.7%)	47.2% (40.4% - 51.7%)	44.2% (40.6% - 47.9%)

344

Rank	Condition	2016 spending (billions of USD)	Annualized rate of change 1996–2016			Percentage of 2015 spending that is:		
			All ages	Ages less than 65	Age greater than or equal to 65	Age less than 20	Age greater than or equal to 20 and less than 65	Age greater than or equal to 65
110	Fire, heat and hot substances	$1.6 ($1.3 - $1.9)	0.9% (0% - 1.6%)	1.1% (-0.1% - 1.9%)	0.1% (-0.3% - 0.5%)	31.4% (28.2% - 33.2%)	17.8% (14.9% - 21.1%)	50.8% (48.3% - 53.8%)
111	Ovarian cancer	$1.6 ($1.3 - $2)	0.5% (-0.5% - 1.4%)	1% (0% - 2%)	-0.5% (-1.4% - 0.9%)	0.9% (0.6% - 1.4%)	33.4% (30.3% - 37%)	65.7% (62.2% - 68.9%)
112	Maternal sepsis and other pregnancy related infection	$1.5 ($1.3 - $1.7)	5.4% (4.5% - 6.2%)	5.4% (4.5% - 6.2%)	0	9.6% (7.9% - 11%)	0	90.4% (89% - 92.1%)
113	Stomach cancer	$1.5 ($1.2 - $2)	0.9% (-0.5% - 2.6%)	2.3% (1.1% - 3.4%)	-0.2% (-1.9% - 2.4%)	0.4% (0.2% - 0.5%)	50.5% (44.7% - 63.3%)	49.2% (36.4% - 54.9%)
114	Maternal hemorrhage	$1.4 ($1.1 - $1.7)	4.1% (2.7% - 5.3%)	4.1% (2.7% - 5.3%)	0	3.9% (2.7% - 5.1%)	0	96.1% (94.9% - 97.3%)
115	Malignant skin melanoma	$1.4 ($1.3 - $1.6)	3% (2.3% - 3.4%)	3.6% (2.8% - 4%)	2.1% (1.4% - 2.6%)	4.4% (3.9% - 5.8%)	35.4% (32.1% - 38.1%)	60.2% (57.8% - 62.1%)
116	Mouth cancer	$1.4 ($1.1 - $1.6)	2.3% (1.2% - 3%)	2.6% (1.4% - 3.6%)	1.8% (0.9% - 2.4%)	0.7% (0.5% - 1.1%)	38.1% (35.3% - 41.8%)	61.2% (57.4% - 64%)
117	Hemolytic disease in fetus and newborn and other neonatal jaundice	$1.4 ($0.9 - $1.9)	2.5% (1.1% - 4%)	2.5% (1.1% - 4%)	0	100% (100% - 100%)	0	0
118	Other mental and behavioral disorders	$1.3 ($1.2 - $1.5)	0% (-0.9% - 0.9%)	0.8% (-0.2% - 2%)	-2.6% (-3.6% - -1.5%)	24.7% (22.2% - 27%)	18.3% (15.4% - 21.2%)	57% (53.7% - 60.1%)
119	Sepsis and other infectious disorders of the newborn baby	$1.3 ($0.8 - $1.7)	4.7% (2.9% - 6.5%)	4.7% (2.9% - 6.5%)	0	100% (100% - 100%)	0	0
120	Esophageal cancer	$1.1 ($0.9 - $1.3)	1.6% (0.7% - 2.6%)	2.3% (1.1% - 3.3%)	1% (0.1% - 2%)	0.4% (0.3% - 0.8%)	46.2% (42.2% - 50.3%)	53.4% (49.3% - 57.4%)
121	Uterine cancer	$1.1 ($0.9 - $1.2)	-1.6% (-2.4% - -0.7%)	-1.8% (-2.7% - -0.8%)	-1.2% (-2.2% - -0.3%)	2.2% (1.4% - 3.5%)	32.7% (30 - 36.6%)	65.1% (61.3% - 67.7%)
122	Sexually transmitted diseases excluding HIV	$1.1 ($1 - $1.2)	-1.2% (-2.3% - -0.2%)	-1.2% (-2.4% - -0.1%)	-1.5% (-3.7% - -0.1%)	7.9% (6.6% - 9.3%)	6.8% (5.7% - 8.7%)	85.4% (82.3% - 87.4%)
123	Social services	$1 ($0.1 - $1.9)	9.7% (5.3% - 11.3%)	10.1% (6.1% - 11.7%)	4% (2.8% - 5.1%)	1.4% (0.5% - 8.8%)	4.7% (1.7% - 24%)	93.9% (67.2% - 97.8%)
124	Varicella	$1 ($0.9 - $1.1)	0.9% (0.4% - 1.6%)	0.4% (-0.2% - 1%)	1.8% (1% - 2.8%)	14.9% (13.3% - 16.4%)	41.3% (37.6% - 45.7%)	43.9% (40.1% - 47.4%)
125	Hodgkin lymphoma	$0.9 ($0.6 - $1.2)	2.2% (1.3% - 3.2%)	2.4% (1.4% - 3.4%)	0.9% (-0.2% - 1.8%)	13.8% (11% - 18%)	9.4% (8% - 11.3%)	76.7% (71.4% - 80.1%)
126	Thyroid cancer	$0.9 ($0.8 - $1)	2.3% (1% - 3.3%)	2.5% (1.1% - 3.5%)	1.9% (0.7% - 3.3%)	4.4% (3.7% - 5.4%)	22.8% (21.4% - 24.9%)	72.8% (70.4% - 74.5%)
127	Encephalitis	$0.8 ($0.7 - $0.9)	10% (8.6% - 11.2%)	8.7% (7% - 10%)	13.3% (12.1% - 14.5%)	14.5% (11.7% - 16.8%)	37% (32.1% - 40.9%)	48.5% (43.7% - 53.3%)
128	Other transport injuries	$0.8 ($0.6 - $1)	1.7% (0.7% - 2.4%)	1.8% (0.9% - 2.7%)	0.4% (-1.4% - 1.2%)	30.7% (26.9% - 34.9%)	8.8% (7.1% - 13.1%)	60.4% (55.3% - 64.6%)
129	Cervical cancer	$0.8 ($0.7 - $1)	0.8% (-0.3% - 1.8%)	1% (-0.2% - 2.1%)	-0.2% (-1.4% - 0.8%)	3% (1.9% - 4.3%)	13.2% (10.9% - 15.5%)	83.8% (80.9% - 86.1%)
130	Larynx cancer	$0.8 ($0.6 - $1)	1.8% (0.6% - 2.5%)	2.2% (1.1% - 3%)	1.2% (-0.2% - 2%)	0.5% (0.3% - 1.4%)	43.9% (37.3% - 47.9%)	55.6% (51.7% - 61.4%)
131	Other pharynx cancer	$0.7 ($0.5 - $0.8)	3.4% (1.3% - 4.2%)	4% (1.7% - 5%)	1.8% (0.6% - 2.6%)	0.7% (0.5% - 1.9%)	24.3% (22% - 29.1%)	75% (69.2% - 77.4%)
132	Neglected tropical diseases and malaria	$0.6 ($0.5 - $0.7)	2.6% (2% - 3.1%)	2.6% (2% - 3.2%)	2.5% (1.5% - 3.5%)	19.1% (17.3% - 21.4%)	22.2% (18.9% - 27.2%)	58.7% (53.9% - 61.3%)
133	Conduct disorder	$0.6 ($0.5 - $0.8)	-1.3% (-2.5% - 0%)	-1.3% (-2.5% - 0%)	0	75.2% (68.9% - 80.6%)	0	24.8% (19.4% - 31.1%)
134	Eating disorders	$0.5 ($0.4 - $0.6)	0.9% (-0.5% - 2.3%)	0.9% (-0.5% - 2.3%)	0	57.4% (53.6% - 61.4%)	0	42.6% (38.6% - 46.4%)
135	Idiopathic intellectual disability	$0.5 ($0.4 - $0.7)	-3.6% (-4.7% - -2.6%)	-3.3% (-4.4% - -2%)	-4.5% (-6.4% - -3%)	18.3% (14% - 22.9%)	27.4% (20.5% - 36%)	54.4% (47.2% - 60.2%)
136	Tuberculosis	$0.5 ($0.4 - $0.6)	-0.9% (-1.6% - 0.6%)	-0.6% (-1.4% - 1%)	-1.5% (-2.4% - 0.3%)	14.9% (12.3% - 17.1%)	27.2% (22.9% - 30.4%)	58% (54.6% - 63.1%)
137	Gallbladder and biliary tract cancer	$0.4 ($0.3 - $0.4)	0.9% (0% - 1.9%)	2.8% (1.6% - 4.3%)	-0.3% (-1.4% - 0.8%)	0% (0% - 0%)	52.4% (48.8% - 57.8%)	47.6% (42.2% - 51.2%)

345

Rank	Condition	2016 spending (billions of USD)	Annualized rate of change 1996–2016			Percentage of 2015 spending that is:		
			All ages	Ages less than 65	Age greater than or equal to 65	Age less than 20	Age greater than or equal to 20 and less than 65	Age greater than or equal to 65
138	Testicular cancer	$0.4 ($0.3 - $0.7)	0.9% (0.3% - 1.7%)	1% (0.3% - 1.9%)	0% (-0.4% - 0.4%)	4.8% (3.3% - 7.1%)	5% (3.6% - 8.3%)	90.2% (85.8% - 92.2%)
139	Tension-type headache	$0.4 ($0.3 - $0.5)	0.5% (-0.9% - 1.3%)	0.7% (-0.9% - 1.6%)	-0.4% (-1.3% - 0.3%)	14.3% (12.4% - 17.1%)	16.6% (13.3% - 22.1%)	69.1% (63.1% - 72.2%)
140	Donor	$0.3 ($0.2 - $0.3)	6.3% (4% - 8%)	6.3% (3.9% - 8%)	8.2% (5.5% - 11%)	4.1% (2.8% - 5.3%)	3.4% (2.3% - 5%)	92.5% (90.6% - 94.2%)
141	Pneumoconiosis	$0.2 ($0.1 - $0.3)	5.4% (-0.4% - 8.6%)	3.2% (-0.2% - 5.6%)	6.1% (-1% - 9.9%)	1.7% (1% - 5.6%)	78% (58.1% - 83.8%)	20.3% (15.1% - 36.3%)
142	Drowning	$0.1 ($0.1 - $0.1)	-1% (-1.9% - 0.3%)	-1.1% (-2.2% - 0.3%)	0.1% (-0.2% - 0.4%)	44.6% (32.1% - 51.2%)	15.3% (12.3% - 19.7%)	40.1% (34.9% - 48.6%)
143	Nasopharynx cancer	$0.1 ($0 - $0.1)	0.9% (-0.4% - 2%)	1.3% (-0.2% - 2.8%)	-0.5% (-2.2% - 1%)	19.7% (15.4% - 28.9%)	18.1% (14% - 22.8%)	62.3% (54.7% - 67.4%)
144	Diphtheria	$0 ($0 - $0)	-3.6% (-9.1% - -0.7%)	-3.6% (-9.1% - -0.7%)		43.5% (33.7% - 69.4%)		56.5% (30.6% - 66.3%)
					0		0	
145	Acute glomerulonephritis	$0 ($0 - $0)	0.8% (-1.1% - 2.2%)	1.1% (-0.9% - 2.9%)	0.3% (-1.7% - 2.3%)	16.6% (11.3% - 20.8%)	33.6% (25.4% - 40.5%)	49.7% (42.6% - 56.5%)
146	Exposure to forces of nature	$0 ($0 - $0)	0.2% (-0.6% - 0.8%)	0.3% (-0.3% - 0.9%)	-0.1% (-2.2% - 1.1%)	24.9% (22.3% - 27.7%)	23.5% (20.6% - 29.8%)	51.6% (46.8% - 54.7%)
147	Collective violence and legal intervention	$0 ($0 - $0)	-0.3% (-1.9% - 0.8%)	-0.1% (-1.2% - 0.9%)	-0.7% (-4.5% - 1.3%)	26.3% (16.5% - 35%)	18.9% (10.1% - 42.1%)	54.8% (35.9% - 71.5%)
148	Intestinal infectious diseases	$0 ($0 - $0)	0.1% (-1.7% - 5.1%)	0.1% (-1.8% - 5.3%)	-0.4% (-4.7% - 4.9%)	40.1% (13.3% - 50.8%)	6% (2.2% - 17.3%)	53.8% (44.7% - 71.4%)
149	Leprosy	$0 ($0 - $0)	-11% (-12.5% - -9.3%)	-3% (-4.5% - -1.7%)	-12.1% (-13.8% - -10.3%)	14.7% (6.8% - 22.9%)	72.8% (63.4% - 82.8%)	12.5% (8.7% - 16.4%)
150	Measles	$0 ($0 - $0)	-0.9% (-6.5% - 5.9%)	-0.9% (-6.5% - 5.9%)	0	29.5% (7.4% - 71.5%)	0	70.5% (28.5% - 92.6%)
151	Iodine deficiency	$0 ($0 - $0)	2.7% (-0.6% - 8.3%)	1.4% (-1.4% - 5%)	2.9% (-0.9% - 9.5%)	1.9% (0.4% - 4.2%)	85% (64% - 96.2%)	13% (3.3% - 33%)
152	Vitamin A deficiency	$0 ($0 - $0)	2.6% (-4.5% - 11.2%)	6.9% (1.4% - 12.1%)	2% (-5.6% - 11.5%)	7.6% (0.5% - 28.4%)	81.8% (58.9% - 96.6%)	10.6% (2.1% - 23.7%)
153	Tetanus	$0 ($0 - $0)	-0.8% (-5% - 0.9%)	0.6% (-0.4% - 1.5%)	-3.4% (-10.9% - 0.3%)	17.5% (14.9% - 22.4%)	20.7% (14.8% - 28.2%)	61.8% (50.2% - 69.7%)
154	Whooping cough	$0 ($0 - $0)	-2.1% (-3.9% - 0.4%)	-2.1% (-3.9% - 0.4%)	0	84.6% (79% - 89.2%)	0	15.4% (10.8% - 21%)

346

Table 12.3: Personal health care spending results by payer, 2016

Rank	Condition	2016 $Billion	Percentage of 2016 spending that is:		
			Public	Private	Out-of-pocket
1	Low back and neck pain	$134.5 ($122.4 - $146.9)	33.7% (30% - 38.4%)	57.2% (52.2% - 61.2%)	9.2% (8.3% - 10.4%)
2	Other musculoskeletal disorders	$129.8 ($116.3 - $149.7)	36.2% (33.2% - 39.9%)	56.4% (52.6% - 59.3%)	7.5% (6.5% - 9.8%)
3	Diabetes mellitus	$111.2 ($105.7 - $115.9)	49.8% (44.4% - 56%)	44.2% (38.4% - 49.5%)	6% (5.1% - 7.5%)
4	Ischemic heart disease	$89.3 ($81.1 - $95.5)	54% (48.7% - 61.1%)	42.4% (35.3% - 47.8%)	3.5% (2.9% - 4.4%)
5	Falls	$87.4 ($75 - $100.1)	46.7% (38.1% - 56.1%)	39.7% (30.1% - 47.9%)	13.6% (6.7% - 22.9%)
6	Urinary diseases and male infertility	$86 ($76.3 - $95.9)	49.2% (45.3% - 53.2%)	45.1% (41.1% - 48.6%)	5.7% (4.9% - 6.5%)
7	Skin and subcutaneous diseases	$85 ($80.5 - $90.2)	35% (32% - 38.4%)	58% (54.5% - 60.8%)	7% (6.1% - 8.8%)
8	Osteoarthritis	$80 ($72.2 - $86.1)	45.4% (40.4% - 53.9%)	49.5% (40.4% - 54.7%)	5.1% (3.9% - 6.5%)
9	Alzheimer's disease and other dementias	$79.2 ($67.6 - $90.8)	56.1% (38% - 66.4%)	19.2% (8.1% - 31.2%)	24.6% (9.8% - 43.6%)
10	Treatment of hypertension	$79 ($72.6 - $86.8)	56.9% (49.6% - 61.9%)	36.5% (31.6% - 43.7%)	6.6% (5.1% - 8%)
11	Oral disorders	$76.4 ($73.8 - $79.4)	15.1% (14.1% - 16%)	45% (43.7% - 46.2%)	40% (39% - 40.9%)
12	Pregnancy and postpartum care	$71.3 ($64.9 - $77.7)	20.9% (17.5% - 24.7%)	74% (69.8% - 77.8%)	5.1% (4.2% - 6.1%)
13	Depressive disorders	$67.5 ($62.3 - $72.7)	53.4% (49.1% - 58.5%)	37.7% (33.1% - 41.6%)	8.9% (7.4% - 10.5%)
14	Sense organ diseases	$64.1 ($58.1 - $69.8)	46.3% (43.9% - 49.3%)	41.8% (38.6% - 44.8%)	11.9% (10.6% - 13.1%)
15	Well dental	$60.5 ($57.3 - $63.2)	10.7% (9.6% - 12%)	54.4% (53.1% - 55.9%)	34.9% (33.8% - 36.1%)
16	Road injuries	$57.9 ($46.7 - $71.6)	36.2% (20.1% - 53.2%)	58.9% (41.7% - 76.5%)	4.9% (2.8% - 7.2%)
17	Other neurological disorders	$52.9 ($47.1 - $58.7)	41.7% (37.1% - 46.2%)	50.1% (45.8% - 54.9%)	8.2% (6.7% - 9.9%)
18	Septicemia	$52.5 ($42 - $62.9)	55% (39.4% - 85.9%)	40.6% (11.2% - 56.4%)	4.4% (2.4% - 8.3%)
19	Other chronic respiratory diseases	$45 ($39.4 - $50.1)	26.9% (23.8% - 31.1%)	65% (60.5% - 68.2%)	8.1% (7.4% - 9.2%)
20	Other digestive diseases	$44.4 ($40.6 - $49.5)	48.5% (41.9% - 53.8%)	45.3% (40.5% - 51.6%)	6.1% (5% - 8%)
21	Anxiety disorders	$42.4 ($37.8 - $47.7)	49.6% (44.8% - 54.7%)	41.2% (36.2% - 45.2%)	9.2% (7.9% - 10.7%)
22	Cerebrovascular disease	$41.9 ($37.7 - $47.1)	56.5% (47.4% - 68.6%)	32.8% (21.2% - 43.6%)	10.7% (5.2% - 16.5%)
23	Gynecological diseases	$39.4 ($35.3 - $43.3)	18.5% (15.8% - 21.8%)	73.5% (69.7% - 76.6%)	8% (6.7% - 9.2%)
24	Asthma	$35.5 ($32.4 - $38.2)	41.4% (37.6% - 45.8%)	51.5% (47.1% - 55.3%)	7.1% (6.1% - 8.6%)
25	Chronic obstructive pulmonary disease	$34.3 ($31.5 - $37.3)	69.8% (63.2% - 77.4%)	24.2% (16.9% - 30.1%)	6% (4.7% - 8.5%)
26	Rheumatoid arthritis	$33.8 ($28.9 - $37.7)	36.8% (22.4% - 54.9%)	43.2% (22.3% - 56.8%)	20% (11.1% - 36.6%)
27	Heart Failure	$33.4 ($30.7 - $36.8)	68% (57.1% - 77.8%)	23.7% (14.5% - 34.2%)	8.3% (5.3% - 12.8%)
28	Endocrine, metabolic, blood, and immune disorders	$32.9 ($29.9 - $36.3)	36.3% (30.9% - 42.5%)	53.8% (47.5% - 59.5%)	9.9% (8.5% - 11.7%)
29	Cirrhosis of the liver	$32.5 ($27 - $40.4)	39.9% (32.5% - 50.4%)	56.2% (45.2% - 63.8%)	3.9% (2.8% - 6.5%)
30	Lower respiratory tract infections	$32.2 ($28.7 - $35.9)	56% (48.5% - 66.1%)	37.7% (27.1% - 45%)	6.4% (4.4% - 10.1%)

347

Rank	Condition	2016 $Billion	Percentage of 2016 spending that is:		
			Public	Private	Out-of-pocket
31	Other unintentional injuries	$30.1 ($24.3 - $37.9)	27.2% (21.1% - 34.6%)	64.7% (54.9% - 72.2%)	8% (5.9% - 14.5%)
32	Exposure to mechanical forces	$28.7 ($23.5 - $34.4)	25.5% (17.9% - 35.9%)	65.3% (51.6% - 74.2%)	9.2% (6.2% - 17.7%)
33	Atrial fibrillation and flutter	$28.4 ($24.6 - $33.9)	56.4% (47.3% - 63.5%)	36.9% (30.3% - 44.7%)	6.7% (4.5% - 11.2%)
34	Preterm birth complications	$28.2 ($21.8 - $37.6)	25.9% (5.4% - 47.1%)	70% (48.9% - 91.6%)	4.1% (0.9% - 6.5%)
35	Treatment of hyperlipidemia	$26.4 ($24.3 - $29.4)	49.1% (43.9% - 54.4%)	43.8% (39.2% - 48.9%)	7.1% (5.7% - 8.7%)
36	Other cardiovascular and circulatory diseases	$26.2 ($22.8 - $29.9)	53.1% (45.9% - 62%)	42.7% (33.9% - 50.3%)	4.1% (3.3% - 5.1%)
37	Inflammatory bowel disease	$25.3 ($22.2 - $28.7)	34.2% (28.6% - 41.7%)	60.8% (52.6% - 66.6%)	5% (3.8% - 6.8%)
38	Non-melanoma skin cancer	$21.6 ($17.7 - $27.5)	45.1% (38.9% - 50.9%)	48.2% (42.6% - 54.4%)	6.6% (5.8% - 7.9%)
39	Gallbladder and biliary diseases	$20.6 ($18.3 - $23.2)	34.7% (27.2% - 42.6%)	61% (52.9% - 69.3%)	4.2% (3.2% - 5.3%)
40	Chronic kidney diseases	$19.7 ($16.3 - $22.9)	59.4% (49.2% - 68.4%)	37.6% (28.6% - 47%)	3% (1.8% - 6.3%)
41	Well baby	$17.4 ($13.5 - $21.9)	29.5% (9.9% - 53%)	67.9% (44.8% - 87.7%)	2.6% (1.3% - 4.4%)
42	Attention-deficit/hyperactivity disorder	$17 ($14.4 - $20.1)	34.3% (28.6% - 40.7%)	55.6% (48.4% - 61.2%)	10.1% (8% - 12.4%)
43	HIV/AIDS	$15.7 ($12.7 - $20)	78.7% (57% - 91.6%)	15.3% (5.9% - 32.8%)	6% (1.2% - 17.5%)
44	Other infectious diseases	$14.9 ($13 - $16.9)	37.2% (29.6% - 47.7%)	55.3% (45.3% - 62.6%)	7.6% (6.1% - 10.3%)
45	Congenital anomalies	$14.6 ($10.6 - $18.6)	30% (4.6% - 78.5%)	65.9% (16.1% - 93.9%)	4.1% (1% - 10.5%)
46	Migraine	$14.3 ($11.8 - $17)	22.8% (18.9% - 27.2%)	69.4% (64.8% - 73.6%)	7.8% (6.6% - 9.1%)
47	Multiple sclerosis	$13.9 ($12.6 - $15.6)	50.9% (39.9% - 62.5%)	36.2% (24.8% - 45.6%)	13% (8.2% - 20.7%)
48	Bipolar disorder	$13.7 ($12.4 - $15.1)	73.6% (64.3% - 81.7%)	21.6% (14.4% - 30.6%)	4.7% (3.3% - 7.1%)
49	Schizophrenia	$13.7 ($12.5 - $15)	91.3% (83.4% - 95.3%)	4.7% (2.1% - 11.3%)	4% (1.8% - 8.7%)
50	Other neoplasms	$13.2 ($11 - $15.6)	33.9% (27.3% - 45.8%)	60.4% (48.2% - 67.6%)	5.7% (4% - 10.1%)
51	Iron-deficiency anemia	$12.8 ($11 - $16.2)	53.3% (37.3% - 66.4%)	40.6% (27.8% - 50.9%)	6% (3.6% - 10.8%)
52	Upper respiratory tract infections	$12.6 ($11.3 - $13.9)	37% (32% - 42.6%)	54.3% (49% - 59.6%)	8.7% (7.6% - 10.1%)
53	Drug use disorders	$12.5 ($10.9 - $14.1)	71.4% (58.8% - 82.6%)	20% (9.6% - 32.5%)	8.6% (5.7% - 12.7%)
54	Leukemia	$12 ($10.7 - $13.6)	28.6% (19.3% - 38.7%)	62.7% (50.9% - 73.6%)	8.7% (4.8% - 14.4%)
55	Non-Hodgkin lymphoma	$11.8 ($10.4 - $13.4)	22.6% (12.9% - 33.9%)	52.2% (37.8% - 65.8%)	25.1% (15% - 33.3%)
56	Endocarditis	$11.5 ($0.6 - $37.9)	51.7% (39.6% - 64.3%)	45.6% (32.9% - 57.8%)	2.7% (1.7% - 6%)
57	Well person	$11 ($9.3 - $13)	34.2% (28.2% - 39.6%)	58.3% (53.2% - 63.8%)	7.5% (6.2% - 8.8%)
58	Peripartum death due to complications of a preexisting medical condition	$11 ($8.3 - $13.5)	37.7% (9.3% - 81.4%)	56.2% (12.7% - 86.9%)	6% (1.9% - 20.2%)
59	Interpersonal violence	$10.9 ($8.2 - $14)	24.7% (7.1% - 60.4%)	69.4% (33% - 90.1%)	5.9% (2.2% - 13.7%)
60	Hemoglobinopathies and hemolytic anemias	$10.7 ($9.7 - $11.9)	52.3% (33.1% - 84.5%)	17.6% (9.5% - 33%)	30.1% (4% - 50.8%)

348

Rank	Condition	2016 $Billion	Percentage of 2016 spending that is:		
			Public	Private	Out-of-pocket
61	Colon and rectum cancers	$10.5 ($9.3 - $11.7)	41.8% (36.5% - 50.7%)	54.4% (44.6% - 60.1%)	3.8% (2.6% - 6.1%)
62	Otitis media	$9.7 ($7.9 - $12.8)	25.6% (21.2% - 32.5%)	65.4% (58.8% - 70.1%)	9% (7.4% - 10.5%)
63	Treatment of obesity	$9.7 ($7.2 - $12.4)	32.8% (16.7% - 68.7%)	62.1% (27.4% - 79.8%)	5.2% (2.7% - 8.7%)
64	Inguinal or femoral hernia	$9.5 ($7.7 - $11.5)	38.2% (31.3% - 45.2%)	55.7% (48.5% - 63.2%)	6% (4.7% - 7.9%)
65	Appendicitis	$9.3 ($8 - $10.8)	23.2% (14.8% - 34.8%)	71.1% (57.7% - 81.8%)	5.6% (2.9% - 9.1%)
66	Paralytic ileus and intestinal obstruction	$9.2 ($8.3 - $11.4)	58% (43.3% - 70.7%)	38.1% (25.5% - 54%)	3.8% (2.6% - 5.3%)
67	Acute renal failure	$9.1 ($7.6 - $10.7)	81.9% (70.4% - 89.3%)	14.7% (8.4% - 26.8%)	3.4% (1.6% - 6.3%)
68	Hepatitis	$8.9 ($7.9 - $10.4)	50.7% (29.6% - 69.7%)	36.4% (20.8% - 59.5%)	12.9% (6.1% - 24.6%)
69	Epilepsy	$8.6 ($7.4 - $10)	63.4% (46.5% - 76.3%)	31.5% (19.3% - 48.1%)	5.1% (4.1% - 6.5%)
70	Alcohol use disorders	$8.2 ($6.9 - $9.4)	71.9% (62.5% - 81.2%)	22.5% (14.3% - 31.6%)	5.5% (3.6% - 8%)
71	Pancreatitis	$7.7 ($6.3 - $9.2)	45.4% (29.5% - 72.9%)	48.5% (22.3% - 66.1%)	6.1% (3.6% - 9.3%)
72	Trachea, bronchus, and lung cancers	$7.3 ($6.3 - $8.4)	61% (51.1% - 75.8%)	35.2% (20.3% - 45.4%)	3.8% (2.9% - 4.9%)
73	Multiple myeloma	$7.1 ($6.1 - $8.5)	37.3% (30.8% - 43.8%)	52.5% (46.4% - 59.6%)	10.2% (7.5% - 15.1%)
74	Peripheral vascular disease	$7 ($6.1 - $8)	62.6% (49.2% - 80.2%)	32.6% (16% - 46.1%)	4.7% (2.7% - 10.6%)
75	Brain and nervous system cancers	$6.8 ($6 - $7.6)	28.3% (21.8% - 45.9%)	65.3% (47% - 72.5%)	6.4% (4.7% - 8.7%)
76	Diarrheal diseases	$6.6 ($6.1 - $7.2)	48% (40.6% - 57.5%)	45.5% (36.9% - 53.5%)	6.5% (5.1% - 8.1%)
77	Cardiomyopathy and myocarditis	$5.9 ($4.5 - $6.9)	47.4% (39.9% - 55.9%)	46.3% (37.9% - 53.8%)	6.3% (4.8% - 8%)
78	Prostate cancer	$5.9 ($5.4 - $6.6)	41.3% (37.2% - 45.1%)	52% (47% - 57.1%)	6.8% (4.4% - 9.7%)
79	Aortic aneurysm	$5.6 ($5.1 - $6.2)	62.5% (53.4% - 70.7%)	35.3% (27% - 44.4%)	2.3% (1.7% - 3.1%)
80	Hypertensive disorders of pregnancy	$5.5 ($4.8 - $6.3)	41.4% (24.8% - 57.6%)	54% (37.9% - 71.2%)	4.6% (2.6% - 7%)
81	Poisonings	$5.3 ($4.5 - $6.4)	45.5% (25.1% - 68.4%)	49.2% (26.8% - 70.9%)	5.3% (3.4% - 7.9%)
82	Other maternal disorders	$5.1 ($4 - $6)	28.1% (10.7% - 56.6%)	67.9% (38.9% - 86.7%)	4% (2% - 7.1%)
83	Peptic ulcer disease	$4.5 ($3.9 - $5.7)	53% (41.1% - 63.7%)	42.8% (32.3% - 56%)	4.2% (2.8% - 5.9%)
84	Breast cancer	$4.5 ($3.6 - $5.5)	34% (22.3% - 60.1%)	57.9% (29.9% - 71.7%)	8.1% (4.5% - 33%)
85	Parkinson's disease	$4.5 ($3.9 - $5.2)	69.5% (41% - 78%)	18.5% (12.6% - 24.4%)	11.9% (5.6% - 45%)
86	Obstructed labor	$4.4 ($3.8 - $5.1)	42.9% (25.2% - 59.2%)	52.9% (36.1% - 71.1%)	4.2% (2.5% - 6.6%)
87	Rheumatic heart disease	$4.3 ($1.9 - $5.6)	65.8% (46.1% - 72.3%)	31.9% (25.4% - 50.9%)	2.3% (1.9% - 3.1%)
88	Family planning	$3.6 ($3 - $4.4)	11% (6.8% - 16.3%)	84.1% (76.9% - 90.6%)	4.9% (2.8% - 8.1%)
89	Kidney cancer	$3.4 ($2.9 - $3.9)	49.4% (33.6% - 67.9%)	32% (14.8% - 51.6%)	18.5% (9.8% - 25.9%)
90	Gastritis and duodenitis	$3.3 ($3 - $3.5)	63.6% (50.2% - 77.5%)	29.6% (17.3% - 43%)	6.9% (4.2% - 9.8%)
91	Animal contact	$3.2 ($2.4 - $4.4)	37.3% (25.4% - 51.1%)	54% (37.2% - 67%)	8.8% (5.5% - 16.6%)

349

Rank	Condition	2016 $Billion	Percentage of 2016 spending that is:		
			Public	Private	Out-of-pocket
92	Gout	$2.8 ($1.7 - $5.7)	48.1% (38.3% - 56.1%)	37.7% (27.6% - 47.4%)	14.2% (10% - 23.5%)
93	Autistic spectrum disorders	$2.7 ($2 - $3.3)	57.7% (43.1% - 72.6%)	35.4% (22.8% - 52.3%)	6.9% (3.6% - 10.7%)
94	Bladder cancer	$2.6 ($2.3 - $2.9)	60% (54% - 67.7%)	35.9% (28.1% - 42.2%)	4.1% (2.9% - 6%)
95	Foreign body	$2.5 ($2.2 - $2.8)	42.3% (26.3% - 58.5%)	50.3% (34.1% - 67%)	7.4% (5.1% - 10.8%)
96	Pancreatic cancer	$2.5 ($2.2 - $2.8)	47.8% (34.3% - 58.1%)	44.8% (36.3% - 60.2%)	7.5% (2.3% - 15.6%)
97	Self-harm	$2.4 ($1.7 - $3.2)	40.6% (14.9% - 77.7%)	53.7% (18.7% - 80.7%)	5.8% (2.5% - 12.2%)
98	Neonatal encephalopathy (birth asphyxia and birth trauma)	$2.4 ($1.8 - $3.3)	34.3% (9.4% - 98%)	61.4% (1.8% - 86.6%)	4.3% (0.4% - 8.3%)
99	Other neonatal disorders	$2.2 ($1.5 - $3)	35.1% (11.1% - 96.3%)	60.4% (2.8% - 85.7%)	4.5% (0.6% - 8.5%)
100	Interstitial lung disease and pulmonary sarcoidosis	$2.1 ($1.8 - $2.5)	57.4% (47.8% - 67.9%)	38.4% (27.2% - 48.6%)	4.2% (3.1% - 5.9%)
101	Counselling services	$2 ($1.7 - $2.4)	37.1% (28.8% - 43.8%)	44.1% (36.6% - 53.5%)	18.8% (15.3% - 22.4%)
102	Complications of abortion	$2 ($1.8 - $2.2)	43.3% (30.8% - 54.5%)	50.1% (40.1% - 62.2%)	6.6% (3.9% - 9.1%)
103	Protein-energy malnutrition	$2 ($1.6 - $2.4)	50.4% (41.3% - 64.8%)	44.6% (29.9% - 54.7%)	5% (3.1% - 9.8%)
104	Tobacco intervention	$1.9 ($1.5 - $2.3)	48.5% (36% - 65.5%)	43.5% (28.8% - 55.7%)	8% (3.5% - 12.7%)
105	Vascular intestinal disorders	$1.8 ($1.6 - $2)	57.7% (49.3% - 67%)	39.6% (30.3% - 48.1%)	2.7% (2.3% - 3.3%)
106	Meningitis	$1.8 ($1.5 - $2.2)	45.3% (24.3% - 72.7%)	50.4% (25.1% - 71.9%)	4.3% (2.4% - 8%)
107	Liver cancer	$1.7 ($1.5 - $2.1)	36.8% (18.9% - 46.3%)	57.7% (47.9% - 76.4%)	5.5% (3.9% - 7.7%)
108	Other nutritional deficiencies	$1.7 ($1.3 - $2.3)	42.4% (26.5% - 51.3%)	47.3% (38.2% - 60.3%)	10.4% (6.1% - 17.9%)
109	Hypertensive heart disease	$1.6 ($1.5 - $1.9)	48.9% (41.7% - 54.8%)	43.9% (38.2% - 51.5%)	7.2% (5.3% - 9.6%)
110	Fire, heat and hot substances	$1.6 ($1.3 - $1.9)	39.1% (19.7% - 67.8%)	49.5% (23.6% - 74.7%)	11.4% (4.4% - 42.8%)
111	Ovarian cancer	$1.6 ($1.3 - $2)	37% (29.2% - 54.5%)	57.7% (40.1% - 66.9%)	5.3% (2.1% - 9.7%)
112	Maternal sepsis and other pregnancy related infection	$1.5 ($1.3 - $1.7)	48.7% (35.9% - 60.9%)	47.3% (35.8% - 60.5%)	4% (2.7% - 6%)
113	Stomach cancer	$1.5 ($1.2 - $2)	49% (41.6% - 60%)	48.6% (37.9% - 56.3%)	2.4% (1.6% - 4%)
114	Maternal hemorrhage	$1.4 ($1.1 - $1.7)	41.3% (26% - 57.7%)	54% (37.7% - 69.9%)	4.7% (2.9% - 6.6%)
115	Malignant skin melanoma	$1.4 ($1.3 - $1.6)	31.3% (26.2% - 39.4%)	44.4% (36.4% - 50.3%)	24.3% (18.9% - 32.6%)
116	Mouth cancer	$1.4 ($1.1 - $1.6)	41.4% (31.6% - 59.8%)	54.8% (37.4% - 65.5%)	3.8% (1.7% - 9.7%)
117	Hemolytic disease in fetus and newborn and other neonatal jaundice	$1.4 ($0.9 - $1.9)	34.1% (9.2% - 98.2%)	61.7% (1.6% - 86.8%)	4.2% (0.3% - 8.5%)
118	Other mental and behavioral disorders	$1.3 ($1.2 - $1.5)	51.7% (33.8% - 73.3%)	38% (18.6% - 56.2%)	10.3% (5.8% - 15.6%)
119	Sepsis and other infectious disorders of the newborn baby	$1.3 ($0.8 - $1.7)	33.8% (8% - 99.2%)	62% (0.5% - 88.2%)	4.2% (0.2% - 8.6%)
120	Esophageal cancer	$1.1 ($0.9 - $1.3)	42.6% (37.5% - 52.1%)	54.5% (44.9% - 59.9%)	2.9% (2.3% - 3.6%)
121	Uterine cancer	$1.1 ($0.9 - $1.2)	34.1% (28.8% - 45.2%)	63% (52% - 68.6%)	2.9% (2.3% - 3.8%)
122	Sexually transmitted diseases excluding HIV	$1.1 ($1 - $1.2)	37.3% (24.9% - 54.5%)	52.7% (37.3% - 66.5%)	10% (6.3% - 14.5%)

Rank	Condition	2016 $Billion	Percentage of 2016 spending that is:		
			Public	Private	Out-of-pocket
123	Social services	$1 ($0.1 - $1.9)	9.5% (3.4% - 40.6%)	56.9% (34.5% - 81.5%)	33.6% (11.1% - 52.6%)
124	Varicella	$1 ($0.9 - $1.1)	50.7% (43.2% - 57.4%)	34.3% (26.6% - 43.5%)	15% (11.6% - 18.1%)
125	Hodgkin lymphoma	$0.9 ($0.6 - $1.2)	20.8% (11.5% - 59.6%)	71.5% (36.4% - 84.8%)	7.7% (1.6% - 24.2%)
126	Thyroid cancer	$0.9 ($0.8 - $1)	26.6% (20.7% - 58.2%)	64% (38.1% - 71.3%)	9.3% (3.9% - 15.2%)
127	Encephalitis	$0.8 ($0.7 - $0.9)	58.1% (43.1% - 76.8%)	37.5% (19.3% - 52.5%)	4.4% (3.1% - 6.2%)
128	Other transport injuries	$0.8 ($0.6 - $1)	26.9% (12.4% - 51.1%)	66.2% (42.8% - 82.3%)	6.9% (4.2% - 12.1%)
129	Cervical cancer	$0.8 ($0.7 - $1)	35.8% (20.6% - 59.1%)	56.2% (33.9% - 73.9%)	8% (4% - 13.1%)
130	Larynx cancer	$0.8 ($0.6 - $1)	40.3% (34.7% - 48.2%)	56.4% (48.4% - 62.2%)	3.3% (2.7% - 4.1%)
131	Other pharynx cancer	$0.7 ($0.5 - $0.8)	27.4% (23.6% - 34.9%)	68.4% (60.6% - 72.3%)	4.2% (3.4% - 5.3%)
132	Neglected tropical diseases and malaria	$0.6 ($0.5 - $0.7)	22.5% (16.4% - 29.8%)	61.5% (51.4% - 71.1%)	16% (9.1% - 21.3%)
133	Conduct disorder	$0.6 ($0.5 - $0.8)	77.8% (66.8% - 88.2%)	18.8% (10.1% - 28.3%)	3.4% (1.6% - 6.6%)
134	Eating disorders	$0.5 ($0.4 - $0.6)	53.4% (42.8% - 66%)	39.3% (26.3% - 51.4%)	7.3% (3.4% - 13%)
135	Idiopathic intellectual disability	$0.5 ($0.4 - $0.7)	82.8% (64.3% - 89.8%)	8.3% (5.4% - 13.1%)	8.9% (3.3% - 26.1%)
136	Tuberculosis	$0.5 ($0.4 - $0.6)	53.4% (24.4% - 71.4%)	33.2% (20.2% - 54.3%)	13.4% (3.8% - 47.7%)
137	Gallbladder and biliary tract cancer	$0.4 ($0.3 - $0.4)	49.2% (43.2% - 60.6%)	48.7% (37.3% - 55%)	2.1% (1.5% - 2.8%)
138	Testicular cancer	$0.4 ($0.3 - $0.7)	10.4% (5.8% - 25.9%)	82% (62.2% - 91.6%)	7.6% (1.1% - 21.3%)
139	Tension-type headache	$0.4 ($0.3 - $0.5)	25% (18.5% - 35.4%)	57.5% (42.7% - 67.5%)	17.5% (11.1% - 25.1%)
140	Donor	$0.3 ($0.2 - $0.3)	52.8% (3.5% - 95.8%)	42.6% (3.8% - 93.1%)	4.6% (0.2% - 13%)
141	Pneumoconiosis	$0.2 ($0.1 - $0.3)	63.6% (57% - 67.2%)	32% (28.3% - 38.1%)	4.4% (4% - 5.1%)
142	Drowning	$0.1 ($0.1 - $0.1)	49.2% (24.6% - 70.7%)	45.9% (25.3% - 71.5%)	4.9% (2.9% - 7.6%)
143	Nasopharynx cancer	$0.1 ($0 - $0.1)	25.7% (18.2% - 44%)	71.7% (53.4% - 79.7%)	2.6% (1.8% - 3.7%)
144	Diphtheria	$0 ($0 - $0)	43.2% (33.3% - 61.4%)	52.8% (34.6% - 62.7%)	3.9% (2.7% - 5.1%)
145	Acute glomerulonephritis	$0 ($0 - $0)	47.2% (33.4% - 58%)	50% (39.2% - 64.8%)	2.8% (1.8% - 3.8%)
146	Exposure to forces of nature	$0 ($0 - $0)	40.7% (27.5% - 56.9%)	54.8% (39.2% - 67.8%)	4.5% (2.9% - 6.4%)
147	Collective violence and legal intervention	$0 ($0 - $0)	39% (27.6% - 53.2%)	55.9% (40.9% - 67.1%)	5.1% (3.6% - 7.2%)
148	Intestinal infectious diseases	$0 ($0 - $0)	47.1% (25% - 74.2%)	47.6% (21.7% - 69.7%)	5.3% (3.4% - 8.3%)
149	Leprosy	$0 ($0 - $0)	70.1% (34.8% - 83.2%)	13.9% (5.2% - 26.2%)	16% (5.6% - 44.1%)
150	Measles	$0 ($0 - $0)	69.9% (33.3% - 90.9%)	22.7% (5% - 54.1%)	7.5% (2.1% - 32.1%)
151	Iodine deficiency	$0 ($0 - $0)	49.4% (22.3% - 68.9%)	20.8% (10.4% - 45.6%)	29.8% (7.7% - 44.1%)
152	Vitamin A deficiency	$0 ($0 - $0)	61% (5.8% - 83.9%)	27.3% (8.5% - 74.1%)	11.7% (1.9% - 39.7%)
153	Tetanus	$0 ($0 - $0)	46.9% (29.2% - 69.2%)	46.5% (25.1% - 64.9%)	6.6% (4.3% - 10.2%)
154	Whooping cough	$0 ($0 - $0)	60.2% (36.6% - 79.7%)	37.1% (18.4% - 60%)	2.7% (1.9% - 3.9%)

351

Table 12.4: Aggregated personal health care spending results by type of care, 2016

Rank	Condition	2016 spending (billions of USD)	Percentage of 2016 spending that is:						
			Ambulatory care	Inpatient care	Retail pharmaceuticals	Emergency department care	Nursing care	Dental care	General administration
	ALL	$2705.6 ($2705.6 - $2705.6)	33% (33% - 33%)	28.2% (28.2% - 28.2%)	12.4% (12.4% - 12.4%)	5% (5% - 5%)	7% (7% - 7%)	4.6% (4.6% - 4.6%)	9.8% (9.8% - 9.8%)
1	Musculoskeletal disorders	$380.9 ($360 - $405.4)	49% (46.8% - 51.5%)	21.5% (19.4% - 23.4%)	13.1% (11.9% - 14.1%)	2.4% (2.2% - 2.6%)	4% (3.3% - 5.1%)	0	10% (9.8% - 10.1%)
2	Diabetes, urogenital, blood, and endocrine diseases	$309.1 ($292.4 - $328.4)	35.5% (33% - 37.8%)	18.6% (16% - 21.1%)	25.7% (23.9% - 27.1%)	5.4% (4.8% - 5.8%)	4.9% (4.3% - 5.7%)	0	10% (9.9% - 10.1%)
3	Cardiovascular diseases	$255.1 ($233.4 - $282.6)	19% (16.4% - 21.4%)	49.2% (45.8% - 53.1%)	6% (5.3% - 6.8%)	4.1% (3.6% - 4.7%)	11.7% (9.9% - 13.8%)	0	10% (9.8% - 10.1%)
4	Communicable, maternal, neonatal, and nutritional disorders	$241.7 ($226.5 - $258.6)	15% (13.2% - 17%)	55.2% (52.9% - 57.9%)	9.9% (8.5% - 11.3%)	6.2% (5.8% - 6.9%)	3.6% (2.9% - 5.2%)	0	10.1% (10% - 10.3%)
5	Other non-communicable diseases	$240.2 ($231.3 - $249.5)	39.9% (38.3% - 41.7%)	10.4% (8.9% - 12%)	7.6% (7% - 8.4%)	3.1% (2.8% - 3.4%)	1.8% (1.4% - 2.5%)	28.2% (26.7% - 29.5%)	8.9% (8.8% - 9.1%)
6	Injuries	$231.1 ($211.7 - $250.7)	30.9% (27.6% - 34.5%)	36% (32.5% - 39.6%)	1% (0.8% - 1.2%)	13.7% (12.6% - 14.9%)	8.5% (4.6% - 11.9%)	0	9.9% (9.5% - 10.3%)
7	Mental and behavioral disorders	$180.7 ($172.8 - $189.7)	46.1% (44.5% - 48.2%)	18.8% (17.2% - 20.3%)	20.2% (18.9% - 21.8%)	2.2% (1.9% - 2.5%)	3% (2.5% - 3.8%)	0	9.7% (9.6% - 9.8%)
8	Neurological disorders	$173.9 ($161.2 - $186.9)	23.7% (21% - 26.3%)	10.1% (8.8% - 11.4%)	14.4% (13% - 16%)	3.9% (3.4% - 4.5%)	39% (35.5% - 42.7%)	0	8.9% (8.2% - 9.6%)
9	Well care	$167 ($158 - $175.4)	25% (22.6% - 27.7%)	29.3% (26.8% - 31.8%)	2.4% (2% - 2.9%)	0.2% (0.2% - 0.3%)	0% (0% - 0.1%)	33.6% (31.2% - 35.5%)	9.5% (9.3% - 9.6%)
10	Digestive diseases	$135.6 ($127.9 - $144.3)	19.8% (17.5% - 22.5%)	41.3% (38.3% - 43.9%)	9.2% (7.9% - 10.4%)	14.8% (13.4% - 16.1%)	4.6% (3.4% - 6.6%)	0	10.3% (10.2% - 10.4%)
11	Neoplasms	$123.8 ($114.9 - $132.8)	36% (32.7% - 39.9%)	38.8% (34.8% - 42.4%)	13.1% (11.7% - 14.3%)	0.3% (0.2% - 0.4%)	1.9% (1.4% - 2.5%)	0	10% (9.8% - 10.1%)
12	Chronic respiratory diseases	$117 ($110.8 - $123.2)	38.1% (35.2% - 40.7%)	14.1% (12.2% - 16%)	26% (23.8% - 28.4%)	7.5% (6.6% - 8.3%)	4.3% (3.7% - 5.8%)	0	10% (9.9% - 10.1%)
13	Expenditure on risk factors	$117 ($109.3 - $125.7)	49.1% (46.4% - 51.5%)	12% (10% - 13.9%)	18.6% (17.3% - 19.9%)	4.1% (3.5% - 4.8%)	6.3% (4.8% - 8.7%)	0	9.9% (9.8% - 10.1%)
14	Cirrhosis of the liver	$32.5 ($27 - $40.4)	17.4% (12.3% - 22.6%)	62.9% (57% - 68.9%)	2.6% (1.6% - 4.1%)	4.3% (3.5% - 5.5%)	2.3% (1.3% - 4.4%)	0	10.5% (10.2% - 10.7%)

Table 12.5: Aggregated personal health care spending results by age group, 2016

Rank	Condition	Total 2016 spending in billions USD	Annualized rate of change 1996–2016			Percentage of 2016 spending that is:		
			All ages	Ages less than 65	Age greater than or equal to 65	Age less than 20	Age greater than or equal to 20 and less than 65	Age greater than or equal to 65
	ALL	$2705.6 ($2705.6 - $2705.6)	4% (4% - 4%)	4.3% (4.2% - 4.4%)	3.6% (3.5% - 3.7%)	10.7% (10.2% - 11.1%)	54.2% (53.6% - 54.8%)	35.1% (34.6% - 35.7%)
1	Musculoskeletal disorders	$380.9 ($360 - $405.4)	6.9% (6.6% - 7.3%)	6.8% (6.5% - 7.3%)	7% (6.5% - 7.6%)	3.6% (3.2% - 4%)	61.3% (59.6% - 62.8%)	35.2% (33.8% - 36.8%)
2	Diabetes, urogenital, blood, and endocrine diseases	$309.1 ($292.4 - $328.4)	5.3% (4.9% - 5.7%)	5.2% (4.8% - 5.7%)	5.4% (4.9% - 5.8%)	4.5% (4.1% - 5.1%)	57.5% (56.1% - 59%)	38% (36.5% - 39.5%)
3	Cardiovascular diseases	$255.1 ($233.4 - $282.6)	1.4% (1% - 1.9%)	2.3% (1.7% - 3%)	0.9% (0.4% - 1.4%)	1.7% (1.4% - 2%)	38.8% (36.8% - 41.1%)	59.5% (57.2% - 61.6%)
4	Communicable, maternal, neonatal, and nutritional disorders	$241.7 ($226.5 - $258.6)	4.6% (4.1% - 4.9%)	4.7% (4.2% - 5%)	4.3% (3.7% - 4.8%)	29.3% (26.7% - 32.8%)	47.7% (45% - 49.9%)	23% (21.5% - 24.4%)
5	Other non-communicable diseases	$240.2 ($231.3 - $249.5)	3.5% (3.2% - 3.7%)	3.4% (3.2% - 3.7%)	3.6% (3.1% - 3.9%)	17.1% (15.6% - 18.5%)	48.8% (47.3% - 50.3%)	34.1% (32.7% - 35.5%)
6	Injuries	$231.1 ($211.7 - $250.7)	3.6% (3.1% - 4.2%)	3.3% (2.7% - 3.9%)	4.5% (3.5% - 5.3%)	9.9% (8.9% - 11.2%)	57.8% (54.8% - 60.8%)	32.3% (28.9% - 35.4%)
7	Mental and behavioral disorders	$180.7 ($172.8 - $189.7)	3.7% (3.4% - 4.1%)	3.9% (3.6% - 4.2%)	2.8% (2.2% - 3.4%)	14.7% (13.1% - 16.3%)	71.8% (70.3% - 73.4%)	13.5% (12.3% - 14.8%)
8	Neurological disorders	$173.9 ($161.2 - $186.9)	4.6% (4.1% - 5.1%)	5.6% (5% - 6.2%)	4% (3.3% - 4.7%)	4.7% (4% - 5.7%)	36.4% (33.4% - 39.5%)	58.9% (55.6% - 62%)
9	Well care	$167 ($158 - $175.4)	3.7% (3.4% - 4%)	3.6% (3.2% - 3.9%)	5% (4% - 6%)	28.3% (25.7% - 31.1%)	64% (61.7% - 66.6%)	7.7% (6.5% - 8.7%)
10	Digestive diseases	$135.6 ($127.9 - $144.3)	3.3% (2.9% - 3.7%)	3.9% (3.5% - 4.4%)	2.1% (1.5% - 2.6%)	7.8% (6.6% - 9.4%)	60.6% (58.1% - 62.7%)	31.5% (29.6% - 33.9%)
11	Neoplasms	$123.8 ($114.9 - $132.8)	3.2% (2.7% - 3.7%)	4.1% (3.5% - 4.7%)	2.1% (1.5% - 2.6%)	6.7% (6% - 7.4%)	53.7% (51.7% - 55.9%)	39.6% (37.2% - 41.9%)
12	Chronic respiratory diseases	$117 ($110.8 - $123.2)	3.6% (3.2% - 3.9%)	3.2% (2.8% - 3.7%)	4.2% (3.7% - 4.8%)	15.6% (14.1% - 17.6%)	50.8% (48.8% - 53.1%)	33.5% (31.5% - 36%)
13	Expenditure on risk factors	$117 ($109.3 - $125.7)	5.5% (5.1% - 6%)	5.8% (5.3% - 6.3%)	5.2% (4.6% - 5.7%)	0.8% (0.7% - 1.1%)	52.1% (49.1% - 54.4%)	47.1% (44.8% - 50.1%)
14	Cirrhosis of the liver	$32.5 ($27 - $40.4)	4.3% (2.8% - 5.8%)	5.1% (3.4% - 6.8%)	2.7% (1.2% - 4.2%)	3.6% (2.7% - 4.3%)	67.9% (64.3% - 71.8%)	28.4% (25.1% - 32.1%)

Table 12.6: Aggregated personal health care spending results by payer, 2016

Rank	Condition	2016 total spending in billions USD	Percentage of 2016 spending that is:		
			Public spending	Private spending	Out-of-pocket spending
	ALL	$2705.6 ($2705.6 - $2705.6)	42.6% (42.5% - 42.6%)	48% (48% - 48%)	9.4% (9.4% - 9.4%)
1	Musculoskeletal disorders	$380.9 ($360 - $405.4)	37.3% (35% - 39.8%)	54% (51.4% - 56.4%)	8.7% (7.7% - 10.1%)
2	Diabetes, urogenital, blood, and endocrine diseases	$309.1 ($292.4 - $328.4)	45.8% (43.1% - 48.3%)	47% (44.5% - 49.5%)	7.1% (6.1% - 8%)
3	Cardiovascular diseases	$255.1 ($233.4 - $282.6)	56.5% (52.9% - 59.9%)	37.7% (34.4% - 41.4%)	5.8% (4.3% - 7.4%)
4	Communicable, maternal, neonatal, and nutritional disorders	$241.7 ($226.5 - $258.6)	46% (40.9% - 51.9%)	48% (42.2% - 52.9%)	6% (5.2% - 7.4%)
5	Other non-communicable diseases	$240.2 ($231.3 - $249.5)	31.2% (28.8% - 34.1%)	50.2% (47% - 52.8%)	18.6% (17.6% - 19.6%)
6	Injuries	$231.1 ($211.7 - $250.7)	37.2% (31.7% - 42.6%)	53.5% (47.5% - 59.5%)	9.3% (6.5% - 13%)
7	Mental and behavioral disorders	$180.7 ($172.8 - $189.7)	57.4% (54.5% - 59.9%)	34.4% (31.8% - 36.9%)	8.2% (7.3% - 9.3%)
8	Neurological disorders	$173.9 ($161.2 - $186.9)	49.2% (41.3% - 54.2%)	34.9% (30.3% - 40.1%)	15.9% (9.6% - 23.5%)
9	Well care	$167 ($158 - $175.4)	18.8% (16.1% - 21.8%)	65.1% (61.3% - 68.3%)	16.1% (15.1% - 17.2%)
10	Digestive diseases	$135.6 ($127.9 - $144.3)	42.3% (39.3% - 45.9%)	52.4% (48.7% - 55.4%)	5.3% (4.7% - 6.3%)
11	Neoplasms	$123.8 ($114.9 - $132.8)	38.2% (35.2% - 42.3%)	53.2% (49.5% - 56.5%)	8.6% (7.4% - 10%)
12	Chronic respiratory diseases	$117 ($110.8 - $123.2)	44.4% (41.5% - 47.7%)	48.5% (45.1% - 51.6%)	7.1% (6.4% - 8.1%)
13	Expenditure on risk factors	$117 ($109.3 - $125.7)	52.9% (47.2% - 57.2%)	40.5% (35.7% - 46.2%)	6.6% (5.5% - 7.9%)
14	Cirrhosis of the liver	$32.5 ($27 - $40.4)	39.9% (32.5% - 50.4%)	56.2% (45.2% - 63.8%)	3.9% (2.8% - 6.5%)

References

1. Center for Medicare and Medicaid Services. *National Health Expenditure Accounts: Methodology Paper, 2013*. Washington D.C.; 2014. http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/Downloads/DSM-13.pdf. Accessed May 12, 2015.

2. Tompkins C, Altman S, Eliat E. The Precarious Pricing System for Hospital Services. *Health Aff (Millwood)*. 2006;25(1):45-56. doi:doi:10.1377/hlthaff.25.1.57

3. Reinhardt UE. The Pricing of U.S. Hospital Services: Chaos Behind A Veil of Secrecy. *Health Aff (Millwood)*. 2006;25(1):57-69. doi:10.1377/hlthaff.25.1.57

4. Hamavid H, Birger M, Bulchis AG, et al. Assessing the Complex and Evolving Relationship between Charges and Payments in US Hospitals: 1996 – 2012. *PLOS ONE*. 2016;11(7):e0157912. doi:10.1371/journal.pone.0157912

5. International Monetary Fund. *World Economic Outlook*. Washington D.C.; 2015. http://www.imf.org/external/pubs/ft/weo/2015/01/weodata/index.aspx. Accessed April 12, 2015.

6. Murray, Christopher. Global Burden of Disease Study, 2017. *The Lancet*. November 2018.

7. World Health Organizations. Health Accounts methodology. WHO. https://www.who.int/health-accounts/methodology/en/. Accessed August 31, 2019.

8. Center for Medicare and Medicaid Services. *Quick Definitions for National Health Expenditure Accounts Categories*. Washington D.C. http://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/NationalHealthExpendData/Downloads/quickref.pdf. Accessed May 12, 2015.

9. Organisation for Economic Co-operation and Development. *OECD.StatExtracts*. http://stats.oecd.org/. Accessed October 7, 2014.

10. Agency for Health care Research and Quality. *United States Medical Expenditure Panel Survey.* Rockville, United States: Agency for Health Care Research and Quality

11. National Expenditures for Mental Health Services and Substance Abuse Treatment 1986–2009. :108.

12. Lefit K, Kassed C, Coffey R. Projections of National Expenditures for Mental health Services & Substance Abuse Treatment, 2004-2014. 2008. https://store.samhsa.gov/shin/content/SMA14-4883/SMA14-4883.pdf. Accessed August 2, 2018.

13. Foreman KJ, Naghavi M, Ezzati M. Improving the usefulness of US mortality data: new methods for reclassification of underlying cause of death. *Popul Health Metr*. 2016;14. doi:10.1186/s12963-016-0082-4

14. Naghavi M, Makela S, Foreman K, O'Brien J, Pourmalek F, Lozano R. Algorithms for enhancing public health utility of national causes-of-death data. *Popul Health Metr*. 2010;8(1):9. doi:10.1186/1478-7954-8-9

15. Eilers PHC, Marx BD. Flexible Smoothing with B-splines and Penalties. *Stat Sci*. 1996;11(2):89-102.

16. Eilers PHC, Marx BD. Flexible smoothing with B-splines and penalties. *Stat Sci*. 1996;11(2):89-121. doi:10.1214/ss/1038425655

17. *Pymc3: Probabilistic Programming in Python: Bayesian Modeling and Probabilistic Machine Learning with Theano*. PyMC; 2018. https://github.com/pymc-devs/pymc3. Accessed August 2, 2018.

18. Foster JT. *Python/Numpy Bspline Implementation via Cox: De Boor*.; 2018. https://github.com/johntfoster/bspline. Accessed August 2, 2018.

19. Lang S, Brezger A. Bayesian P-Splines. *J Comput Graph Stat*. 2004;13(1):183-212. doi:10.1198/1061860043010

20. Dieleman JL, Baral R, Johnson E, et al. Adjusting health spending for the presence of comorbidities: an application to United States national inpatient data. *Health Econ Rev*. 2017;7(1):30. doi:10.1186/s13561-017-0166-2

21. Chichignoud M, Lederer J, Wainwright MJ. A Practical Scheme and Fast Algorithm to Tune the Lasso With Optimality Guarantees. *J Mach Learn Res*. 2016;17(231):1-20.

22. Dementia as a Risk Factor for Falls and Fall Injuries Among Nursing Home Residents - Van Doorn - 2003 - Journal of the American Geriatrics Society - Wiley Online Library. https://onlinelibrary.wiley.com/doi/abs/10.1046/j.1532-5415.2003.51404.x?sid=nlm%3Apubmed&. Accessed July 27, 2019.

23. Morimoto S, Okaishi K, Onishi M, et al. Deletion allele of the angiotensin-converting enzyme gene as a risk factor for pneumonia in elderly patients. *Am J Med*. 2002;112(2):89-94. doi:10.1016/s0002-9343(01)01071-3

24. MEPS HC - 135D: 2010 Hospital Inpatient Stays. July 2012. http://meps.ahrq.gov/mepsweb/data_stats/download_data/pufs/h135d/h135ddoc.shtml.

25. Green SB. How Many Subjects Does It Take To Do A Regression Analysis. *Multivar Behav Res*. 1991;26(3):499-510. doi:10.1207/s15327906mbr2603_7

26. Schneider, A; Hommel, G; Blettner, M Linear Regression Analysis: Part 14 of a Series on Evaluation of Scientific Publications Dtsch Arztebl Int 2010; 107(44): - ppt download. https://slideplayer.com/slide/9867829/. Accessed August 2, 2018.

27. Health care Cost and Utilization Project (HCUP). NIS Description of Data Elements. https://www.hcup-us.ahrq.gov/db/nation/nis/nisdde.jsp. Accessed September 2, 2018.

28. Hamavid H, Birger M, Bulchis AG, et al. Assessing the Complex and Evolving Relationship between Charges and Payments in US Hospitals: 1996 – 2012. *PLoS ONE*. 2016;11(7). doi:10.1371/journal.pone.0157912

29. Thomas Day. About Nursing Homes. https://www.longtermcarelink.net/eldercare/nursing_home.htm. Accessed May 12, 2016.

30. *National Nursing Home Survey: 2004 Overview.* Washington, DC: Center for Disease Control and Prevention; 2009. http://www.cdc.gov/nchs/data/series/sr_13/sr13_167.pdf. Accessed May 12, 2016.

31. Tina Highfill, David Johnson. Measuring Nursing Home Price Growth between 2000-2009. http://www.bea.gov/papers/pdf/Highfill%20Johnson_Nursing%20Homes%20MCE%20index.pdf. Accessed May 12, 2016.

32. Skilled nursing facility (SNF) care | Medicare.gov. Medicare.gov The Official U.S. Government site for Medicare. https://www.medicare.gov/coverage/skilled-nursing-facility-care.html. Accessed May 12, 2016.

33. Aitken M, Berndt ER, Cutler D, Kleinrock M, Maini L. Has The Era Of Slow Growth For Prescription Drug Spending Ended? *Health Aff Proj Hope*. 2016;35(9):1595-1603. doi:10.1377/hlthaff.2015.1636

34. Centers for Medicare & Medicaid Services. National Health Accounts Historical. https://www.cms.gov/research-statistics-data-and-systems/statistics-trends-and-reports/nationalhealthexpenddata/nationalhealthaccountshistorical.html. Accessed February 1, 2017.

35. Lassman D, Hartman M, Washington B, Andrews K, Catlin A. US Health Spending Trends By Age And Gender: Selected Years 2002–10. *Health Aff (Millwood)*. 2014;33(5):815-822. doi:10.1377/hlthaff.2013.1224

36. Cylus J, Hartman M, Washington B, Andrews K, Catlin A. Pronounced Gender And Age Differences Are Evident In Personal Health Care Spending Per Person. *Health Aff (Millwood)*. December 2010:10.1377/hlthaff.2010.0216. doi:10.1377/hlthaff.2010.0216

37. *Stata Statistical Software: Release 13*. College Station, TX: StateCorp; 2013.

38. Dieleman JL, Baral R, Birger M, et al. US Spending on Personal Health Care and Public Health, 1996-2013. *JAMA*. 2016;316(24):2627-2646. doi:10.1001/jama.2016.16885