

Supplementary Online Content

el Bcheraoui C, Mokdad AH, Dwyer-Lindgren L, et al. Trends and patterns of differences in infectious disease mortality among US counties, 1980-2014. *JAMA*. doi:10.1001/jama.2018.2089

eTable 1. Data Sources Used for Covariates

eTable 2. Counties Combined to Ensure Historically Stable Units of Analysis

eTable 3. GBD Cause List and Associated *ICD-9* and *ICD-10* Codes

eTable 4. Observed Deaths Due to Infectious Diseases by Cause, United States, 1980-2014

eTable 5. Diarrheal Diseases and Associated *ICD-9* and *ICD-10* Codes

This supplementary material has been provided by the authors to give readers additional information about their work.

Trends and patterns of disparities in infectious disease mortality among US counties, 1980-2014

eTables

eTable 1: Data sources used for covariates.

eTable 2: Counties combined to ensure historically stable units of analysis.

eTable 3: GBD cause list and associated ICD9 and ICD10 codes.

eTable 4: Observed deaths due to infectious diseases by cause, United States, 1980-2014.

eTable 5: Diarrheal diseases and associated ICD9 and ICD10 codes.

eTable 1: Data sources used for covariates.

Variable	Data Sources	Data Processing
Percent of the population age 25 and older who have completed high school	1980 census [1]; 1990 census [2]; 2000 census [3]; 2009-2014 ACS [4-9]	Linear interpolation was used fill in intermediate years between data sources. The rate of change calculated between 2007 and 2012 was applied to fill in estimates for 2013 and 2014.
Percent of the population who are Hispanic	1980 census [10]; 1990-2014 NCHS Bridged Race Files [11-13]	Linear interpolation was used to fill in intermediate years between data sources.
Percent of the population who are Black and some other race	1980-1989 Census Bureau Inter-censal County Estimates by Age, Sex, and Race [14]; 1990-2014 NCHS Bridged Race Files [11-13]	Linear interpolation was used to fill in intermediate years between data sources.
Percent of land area in a Native American reservation	2013 Cartographic Boundary File, State-County for United States [15]; AIANNH Areas National Shapefile [16]	Geographic boundaries of AIANNH Areas were intersected with county boundaries using ArcGIS. The area of the intersection and the area of the county were calculated using an Albers Equal Area Conic projection. The proportion of the land area that is in a reservation was generated by dividing the area of the reservation by the total area in each county.
Household Median Income	1980 census [17]; 1989, 1993, 1995-2014 Small Area Income and Poverty Estimates [18]; 1980-2014 Bureau of Labor Statistics, Consumer Price Index [19]	Data were adjusted for inflation using the consumer price index, and linear interpolation was used to generate values between observed data points. Income was then log-transformed.
Population Density	1980-1989 Census Bureau Inter-censal County Estimates by Age, Sex, and Race [14]; 1990-2014 NCHS Bridged Race Files [11-13]; 2013 Cartographic Boundary File, State-County for United States [15]	The area of each county was calculated using an Albers Equal Area Conic projection. The total population of each county was divided by the total area of the county, and was then log-transformed.

[1] Missouri Census Data Center. 1980 Census Summary Tape File 3, Table NT48A. MCDC Data Archive (Uexplore/Dexter). <http://mcdc2.missouri.edu/applications/uexplore.shtml>. Accessed April 22, 2013.

[2] Minnesota Population Center. 1990 Census Summary Tape File 3, Table P057. National Historical Geographic Information System: Version 2.0. Minneapolis, MN: University of Minnesota 2011. <http://www.nhgis.org>. Accessed July 18, 2013.

[3] US Census Bureau. 2000 Census Summary Tape File 3, Table DP2. <http://factfinder2.census.gov>. Accessed April 18, 2013.

- [4] US Census Bureau. 2009 American Community Survey 5-Year Estimates, Table S1501. <http://factfinder2.census.gov>. Accessed April 17, 2013.
- [5] US Census Bureau. 2010 American Community Survey 5-Year Estimates, Table S1501. <http://factfinder2.census.gov>. Accessed April 17, 2013.
- [6] US Census Bureau. 2011 American Community Survey 5-Year Estimates, Table S1501. <http://factfinder2.census.gov>. Accessed April 17, 2013.
- [7] US Census Bureau. 2012 American Community Survey 5-Year Estimates, Table S1501. <http://factfinder2.census.gov>. Accessed December 18, 2013.
- [8] US Census Bureau. American Community Survey, 2013 American Community Survey 5-Year Estimates, Table S1501. <http://factfinder2.census.gov>. Accessed December 23, 2014.
- [9] US Census Bureau. American Community Survey, 2014 American Community Survey 5-Year Estimates, Table S1501. <http://factfinder2.census.gov>. Accessed December 8, 2015.
- [10] Minnesota Population Center. 1980 Census Summary Tape File 1, Table NT8. National Historical Geographic Information System: Version 2.0. Minneapolis, MN: University of Minnesota 2011. <http://www.nhgis.org>. Accessed January 13, 2016.
- [11] National Center for Health Statistics. United States Bridged-Race Intercensal Population Estimates 1990-1999. http://www.cdc.gov/nchs/nvss/bridged_race.htm. Accessed November 21, 2011.
- [12] National Center for Health Statistics. United States Bridged-Race Intercensal Population Estimates 2000-2009. http://www.cdc.gov/nchs/nvss/bridged_race.htm. Accessed October 30, 2012.
- [13] National Center for Health Statistics. United States Vintage 2014 Bridged-Race Postcensal Population Estimates 2010-2014. http://www.cdc.gov/nchs/nvss/bridged_race.htm. Accessed December 18, 2015.
- [14] US Census Bureau. Intercensal County Estimates by Age, Sex, Race: 1980-1989. <http://www.census.gov/popest/data/counties/asrh/1980s/PE-02.html>. Accessed January 8, 2015.
- [15] US Census Bureau. TIGER/Line Shapefile, 2013 Cartographic Boundary File, State-County for United States, 1:20,000,000. <https://catalog.data.gov/dataset/2013-cartographic-boundary-file-state-county-for-united-states-1-20000000>. Accessed February 2, 2015.
- [16] US Census Bureau. TIGER/Line Shapefile, 2012, Series Information File for the Nation, Current American Indian/Alaska Native/Native Hawaiian Areas (AIANNH) National Shapefile. <http://catalog.data.gov/dataset/tiger-line-shapefile-2012-series-information-file-for-the-nation-current-american-indian-alaska>. Accessed February 10, 2015.
- [17] Minnesota Population Center. Summary Tape File 3, Table NT69. National Historical Geographic Information System: Version 2.0. Minneapolis, MN: University of Minnesota 2011. <http://www.nhgis.org>. Accessed November 12, 2015.
- [18] US Census Bureau. Small Area Income and Poverty Estimates. <https://www.census.gov/did/www/saipe/data/statecounty/data/index.html>. Accessed December 28, 2015.
- [19] US Bureau of Labor Statistics. Consumer Price Index: All Urban Consumers History, All Items 1913-2015. <http://www.bls.gov/data/>. Accessed March 25, 2015.

eTable 2: Counties combined to ensure historically stable units of analysis.

State	Group	Areas
Alaska	1	Kusilvak Census Area (2158), Wade Hampton Census Area (2270)*
	2	Kobuk Census Area (2140)*, Northwest Arctic Borough (2188)
	3	Aleutian Islands Census Area (2010)*, Aleutians East Borough (2013), Aleutians West Census Area (2016)
	4	Dillingham Census Area (2070), Lake and Peninsula Borough (2164)
	5	Denali Borough (2068), Yukon-Koyukuk Census Area (2290)
	6	Hoonah-Angoon Census Area (2105), Skagway Municipality (2230), Skagway-Yakutat-Angoon Census Area (2231)*, Skagway-Hoonah-Angoon Census Area (2232)*, Yakutat City and Borough (2282)
	7	Ketchikan Gateway Borough (2130), Petersburg Borough (2195), Prince of Wales-Hyder Census Area (2198), Prince of Wales-Outer Ketchikan Census Area (2201)*, Wrangell City and Borough (2275), Wrangell-Petersburg Census Area (2280)*
Arizona	1	La Paz County (4012), Yuma County (4027)
Colorado	1	Adams County (8001), Arapahoe County (8005), Boulder County (8013), Broomfield County (8014), Denver County (8031), Jefferson County (8059), Weld County (8123)
Florida	1	Dade County (12025)*, Miami-Dade County (12086)
Hawaii	1	Kalawao County (15005), Maui County (15009)
Maryland	1	Montgomery County (24031), Prince George's County (24033)
Montana	1	Park County (30067), Yellowstone National Park (30113)*
New Mexico	1	Cibola County (35006), Valencia County (35061)
South Dakota	1	Oglala Lakota County (46102), Shannon County (46113)*
	2	Jackson County (46071), Washabaugh County (46131)*
Virginia	1	Fairfax County (51059), Fairfax City (51600)
	2	Rockingham County (51165), Harrisonburg City (51660)
	3	James City County (51095), Williamsburg City (51830)
	4	Prince William County (51153), Manassas City (51683), Manassas Park City (51685)
	5	Rockbridge County (51163), Buena Vista City (51530)
	6	Spotsylvania County (51177), Fredericksburg City (51630)
	7	Augusta County (51015), Staunton City (51790), Waynesboro City (51820)
	8	Pittsylvania County (51143), Danville City (51590)
	9	Greensville County (51081), Emporia City (51595)
	10	Albemarle County (51003), Charlottesville City (51540)
	11	Bedford County (51019), Bedford City (51515)*
	12	Halifax County (51083), South Boston City (51780)*
	13	Southampton County (51175), Franklin City (51620)
	14	Alleghany County (51005), Clifton Forge City (51560)*
	15	York County (51199), Newport News City (51700)

*County no longer exists due to boundary or name change.

The census bureau maintains a list of substantial county boundary changes (<https://www.census.gov/geo/reference/county-changes.html>). These changes include (1) the creation of a new county from part of one or more other counties; (2) the absorption of one county into another; or (3) a redrawing of boundaries that transfers some population from one county to another. For the purposes of this analysis, a consistent set of areas were created by combining any “related” counties, i.e., counties that have at different points in time between 1980 and 2014 included the same physical area. This impacts a total of 63 counties that currently exist as well as 14 counties that formerly existed, which were combined into 31 areas for analysis as listed above. As a consequence of these combinations, 3,110 unique areas were analyzed: 3,079 individual counties and these 31 groups of counties.

eTable 3: GBD cause list and associated ICD9 and ICD10 codes.

Cause	Level	ICD9	ICD10
Communicable, maternal, neonatal, and nutritional diseases	1	001-001.9, 002.0-030.9, 032-034.9, 036-036.40, 036.5, 036.8-037.9, 039-039.4, 039.8-040, 040.1-041.09, 042-066.9, 070-070.21, 070.3-070.31, 070.4-070.43, 070.49-070.53, 070.59-074.1, 074.20, 074.3-075.9, 078.4-078.7, 079-079.7, 080-083.9, 084.0-084.5, 084.7-084.9, 085.0, 086-088.9, 090-101.6, 104-104.9, 120-124.9, 125.4-125.9, 127-127.1, 128-129.0, 136-136.29, 137-139.0, 244.2, 260-263.9, 265-269.9, 280.1-280.8, 281.0-281.9, 320.0-320.89, 321-323.9, 381-383.9, 390-390.9, 392, 392.9, 461-461.9, 464.0, 464.01, 464.11-464.2, 464.21, 464.31-464.4, 464.8-464.9, 466-469, 470.0, 475-475.9, 476.9, 480-482.89, 483.0-483.9, 484.0-484.7, 487-489, 613-614.9, 630-636.92, 638-638.92, 640-679.14, 716.0-716.09, 730.4-730.6, 760-760.64, 760.8-768, 768.2-770, 770.1-775, 775.4-779.34, 779.6-779.89, 787.91	A00-A00.9, A01.0-A14, A15-A28.9, A30-A30.9, A32-A39.4, A39.8-A39.9, A48.1-A48.2, A48.4-A48.52, A49.1, A50-A58, A60-A60.9, A63-A63.8, A65-A65.0, A68-A70, A74, A74.8-A75.9, A77-A96.9, A98-A98.8, B00-B06.9, B10-B10.89, B15-B17.9, B19-B27.99, B29.4, B33-B33.1, B33.3-B33.8, B47-B48.8, B50-B53.8, B55.0, B56-B57.5, B60-B60.8, B63, B65-B67.99, B69-B72.0, B74.3-B75, B77-B77.9, B83-B83.8, B90-B92, B94.1-B94.2, B95-B95.5, D50.1-D50.8, D51-D52.0, D52.8-D53.9, D64.3, D86.81, E00-E02, E40-E46.9, E51-E61.9, E63-E64.0, E64.2-E64.9, F07.1, G00.0-G00.8, G03-G03.8, G04-G05.8, G14-G14.6, H70-H70.93, I00, I02, I02.9, I98.0-I98.1, J01-J01.91, J02.0, J03.0-J03.01, J04.0, J05-J05.0, J05.11, J09-J15.8, J16-J16.9, J20-J21.9, J36-J36.0, K67.0-K67.8, K74.7-K74.8, K93.0, M03.1, M12.1-M12.19, M49.0-M49.1, M73.0-M73.1, M89.6-M89.69, N70-N71.9, N73-N74.8, N96, N98-N98.9, O00-O07.9, O09-O16.9, O20-O26.93, O28-O36.93, O40-O48.1, O60-O77.9, O80-O92.79, O96-P04.2, P04.5-P05.9, P07-P15.9, P19-P22.9, P23.0-P23.4, P24-P29.9, P35-P37.2, P37.5-P39.9, P50-P61.9, P70, P70.3-P72.9, P74-P78.9, P80-P81.9, P83-P84, P90-P94.9, P96, P96.3-P96.4, P96.8-P96.89, R19.7
HIV/AIDS and tuberculosis	2	010-019.9, 042-044.9, 137-137.9, 138.0-138.9, 730.4-730.6	A10-A14, A15-A19.9, B20-B24.9, B90-B90.9, K67.3, K93.0, M49.0, P37.0
Tuberculosis	3-4	010-019.9, 137-137.9, 138.0-138.9, 730.4-730.6	A10-A14, A15-A19.9, B90-B90.9, K67.3, K93.0, M49.0, P37.0
HIV/AIDS	3	042-044.9	B20-B24.9
HIV/AIDS - Tuberculosis	4		B20.0
HIV/AIDS resulting in other diseases	4	042.0-042.9, 043.0-043.9, 044.1-044.9	B20.1-B23.9, B24.0
Diarrhea, lower respiratory, and other common infectious diseases	2	001-001.9, 002.0-009.9, 032-033.9, 036-036.40, 036.5, 036.8-037.9, 047-049.9, 052-053.9, 055-055.9, 062-064.9, 073.0-073.6, 139.0, 320.0-320.89, 321-323, 323.1, 323.4-323.9, 381-383.9, 461-461.9, 464.0, 464.01, 464.11-464.2, 464.21, 464.31-464.4, 464.8-464.9, 466-469, 470.0, 475-475.9, 476.9, 480-482.89, 483.0-483.9, 484.0-484.4, 484.6-484.7, 487-489, 771.3, 787.91	A00-A00.9, A01.0-A09.9, A33-A37.91, A39-A39.4, A39.8-A39.9, A48.1, A70, A83-A87.9, B01-B02.9, B05-B05.9, B94.1, D86.81, F07.1, G00.0-G00.8, G03-G03.8, G04-G05.8, H70-H70.93, J01-J01.91, J04.0, J05-J05.0, J05.11, J09-J15.8, J16-J16.9, J20-J21.9, J36-J36.0, P23.0-P23.4, P35.8, R19.7
Diarrheal diseases	3-4	001-001.9, 003-006.9, 007.4-007.8, 008.01-008.02, 008.04, 008.2-009.9, 787.91	A00-A00.9, A02-A04.1, A04.3, A04.5-A07, A07.2-A07.4, A08-A09.9, R19.7
Intestinal infectious diseases	3	002.0-002.9, 007-007.3, 007.9-008.00, 008.03, 008.09-008.1	A01.0-A01.4, A04.2, A04.4, A07.0-A07.1, A07.8-A07.9
Typhoid fever	4	2	A01.0-A01.09
Paratyphoid fever	4	002.1-002.9	A01.1-A01.4
Other intestinal infectious diseases	4	007-007.3, 007.9-008.00, 008.03, 008.09-008.1	A04.2, A04.4, A07.0-A07.1, A07.8-A07.9
Lower respiratory infections	3-4	073.0-073.6, 466-469, 470.0, 480-482.89, 483.0-483.9, 484.1-484.2, 484.6-484.7, 487-489	A48.1, A70, J09-J15.8, J16-J16.9, J20-J21.9, P23.0-P23.4
Upper respiratory infections	3-4	461-461.9, 464.0, 464.01, 464.11-464.2, 464.21, 464.31-464.4, 464.8-464.9, 475-475.9, 476.9	J01-J01.91, J04.0, J05-J05.0, J05.11, J36-J36.0
Otitis media	3-4	381-383.9	H70-H70.93
Meningitis	3	036-036.40, 036.5, 036.8-036.9, 047-049.9, 320.0-320.89, 321-322.9	A39-A39.4, A39.8-A39.9, A87-A87.9, D86.81, G00.0-G00.8, G03-G03.8

eTable 3: GBD cause list and associated ICD9 and ICD10 codes (continued).

Cause	Level	ICD9	ICD10
Pneumococcal meningitis	4	320.1	G00.1
H influenzae type B meningitis	4	320	G00.0
Meningococcal meningitis	4	036-036.40, 036.5, 036.8-036.9	A39-A39.4, A39.8-A39.9
Other meningitis	4	047-049.9, 320.2-320.89, 321-322.9	A87-A87.9, D86.81, G00.2-G00.8, G03-G03.8
Encephalitis	3-4	062-064.9, 139.0, 323, 323.4-323.9	A83-A86.4, B94.1, F07.1, G04-G05.8
Diphtheria	3-4	032-032.9	A36-A36.9
Whooping cough	3-4	033-033.9, 484.3-484.4	A37-A37.91
Tetanus	3-4	037-037.9, 771.3	A33-A35.0
Measles	3-4	055-055.9, 323.1, 484.0	B05-B05.9
Varicella and herpes zoster	3-4	052-053.9	B01-B02.9, P35.8
Neglected tropical diseases and malaria	2	030-030.9, 060-061.8, 065-066.9, 071-071.9, 080, 080.2-083.9, 084.0-084.5, 084.7-084.9, 085.0, 086-088.9, 120-124.9, 125.4-125.9, 127-127.1, 128-129.0	A30-A30.9, A68-A68.9, A69.2-A69.9, A75-A75.9, A77-A79.9, A82-A82.9, A90-A96.9, A98-A98.8, B33.0-B33.1, B50-B53.8, B55.0, B56-B57.5, B60-B60.8, B65-B67.99, B69-B72.0, B74.3-B75, B77-B77.9, B83-B83.8, B92, P37.1
Malaria	3-4	084.0-084.5, 084.7-084.9	B50-B53.8
Chagas disease	3-4	086-086.2, 086.9	B57-B57.5
Leishmaniasis	3	85	B55.0
Visceral leishmaniasis	4	85	B55.0
African trypanosomiasis	3-4	086.3-086.5	B56-B56.9
Schistosomiasis	3-4	120-120.9	B65-B65.9
Cysticercosis	3-4	123.1	B69-B69.9
Cystic echinococcosis	3-4	122-122.4, 122.8-122.9	B67-B67.4, B67.8-B67.99
Dengue	3-4	061-061.8	A90-A91.9
Yellow fever	3-4	060-060.9	A95-A95.9
Rabies	3-4	071-071.9	A82-A82.9
Intestinal nematode infections	3	127	B77-B77.9
Ascariasis	4	127	B77-B77.9
Ebola	3-4		A98.4
Other neglected tropical diseases	3-4	065-066.9, 080, 080.2-083.9, 087-088.9, 122.5-122.7, 123-123.0, 123.2-124.9, 125.4-125.9, 127, 127.1, 128-129.0	A68-A68.9, A69.2-A69.9, A75-A75.9, A77-A79.9, A92-A94.0, A96-A96.9, A98-A98.3, A98.5-A98.8, B33.0-B33.1, B60-B60.8, B67.5-B67.7, B70-B72.0, B74.3-B75, B83-B83.8, P37.1
Maternal disorders	2	630-636.92, 638-638.92, 640-679.14	N96, N98-N98.9, O00-O07.9, O09-O16.9, O20-O26.93, O28-O36.93, O40-O48.1, O60-O77.9, O80-O92.79, O96-O99.91
Maternal hemorrhage	3-4	640-641.93, 661-661.93, 665, 666-666.9	O20-O20.9, O43.2-O43.239, O44-O46.93, O62-O62.9, O67-O67.9, O70, O72-O72.3
Maternal sepsis and other maternal infections	3-4	659.3-659.33, 670-670.9	O23-O23.93, O85-O86.89, O91-O91.23
Maternal hypertensive disorders	3-4	642-642.94	O10-O16.9
Maternal obstructed labor and uterine rupture	3-4	652-653.93, 660-660.93, 665.0-665.34	O32-O33.9, O64-O66.9, O71-O71.9
Maternal abortion, miscarriage, and ectopic pregnancy	3-4	630-636.92, 638-638.92, 646.3-646.33	N96, O00-O07.9
Indirect maternal deaths	3-4	646-646.24, 646.4-649.9, 674-674.94	O24-O25.3, O98-O99.91
Late maternal deaths	3-4		O96-O97.9
Maternal deaths aggravated by HIV/AIDS	3-4		
Other maternal disorders	3-4	643-645.23, 650-651.93, 654-659.23, 659.4-659.93, 662-664.94, 665.4-665.94, 667-669.94, 671-673.9, 675-679.14	N98-N98.9, O09-O09.93, O21-O22.93, O26-O26.93, O28-O31.8, O34-O36.93, O40-O43.199, O43.8-O43.93, O47-O48.1, O60-O61.9, O63-O63.9, O68-O69.9, O70.0-O70.9, O73-O77.9, O80-O84.9, O87-O90.9, O92-O92.79
Neonatal disorders	2	760-760.64, 760.8-768, 768.2-770, 770.1-771, 771.4-775, 775.4-779.34, 779.6-779.89	P00-P04.2, P04.5-P05.9, P07-P15.9, P19-P22.9, P24-P29.9, P36-P36.9, P38-P39.9, P50-P61.9, P70, P70.3-P72.9, P74-P78.9, P80-P81.9, P83-P84, P90-P94.9, P96, P96.3-P96.4, P96.8-P96.89
Neonatal preterm birth complications	3-4	761.0-761.1, 765-765.9, 769-769.9, 770.2-770.9, 776.6, 777.5-777.6	P01.0-P01.1, P07-P07.39, P22-P22.9, P25-P28.9, P61.2, P77-P77.9

eTable 3: GBD cause list and associated ICD9 and ICD10 codes (continued).

Cause	Level	ICD9	ICD10
Neonatal encephalopathy due to birth asphyxia and trauma	3-4	761.7-763.9, 767-768, 768.2-768.9, 770.1-770.18, 772.1-772.9, 779.0-779.2	P01.7, P02-P03.9, P10-P15.9, P20-P21.9, P24-P24.9, P90-P91.9
Neonatal sepsis and other neonatal infections	3-4	771.4-771.9	P36-P36.9, P38-P39.9
Hemolytic disease and other neonatal jaundice	3-4	773-774.9	P55-P59.9
Other neonatal disorders	3-4	760-760.64, 760.8-761, 761.2-761.6, 764-764.99, 766-766.9, 770, 771, 772-772.0, 775, 775.4-776.5, 776.7-777.4, 777.7-779, 779.3-779.34, 779.6-779.89	P00-P01, P01.2-P01.6, P01.8-P01.9, P04-P04.2, P04.5-P05.9, P08-P09, P19-P19.9, P29-P29.9, P50-P54.9, P60-P61.1, P61.3-P61.9, P70, P70.3-P72.9, P74-P76.9, P78-P78.9, P80-P81.9, P83-P84, P92-P94.9, P96, P96.3-P96.4, P96.8-P96.89
Nutritional deficiencies	2	244.2, 260-263.9, 265-269.9, 280.1-280.8, 281.0-281.9, 716.0-716.09	D50.1-D50.8, D51-D52.0, D52.8-D53.9, D64.3, E00-E02, E40-E46.9, E51-E61.9, E63-E64.0, E64.2-E64.9, M12.1-M12.19
Protein-energy malnutrition	3-4	260-263.9	E40-E46.9, E64.0
Iodine deficiency	3-4	244.2	E00-E02
Iron-deficiency anemia	3-4	280.1-280.8	D50.1-D50.8, D64.3
Other nutritional deficiencies	3-4	265-269.9, 281.0-281.9, 716.0-716.09	D51-D52.0, D52.8-D53.9, E51-E61.9, E63-E64, E64.2-E64.3, M12.1-M12.19
Other communicable, maternal, neonatal, and nutritional diseases	2	020-029, 034-034.9, 039-039.4, 039.8-040, 040.1-041.09, 045-046.9, 050-051.9, 054-054.9, 056-059.9, 070-070.21, 070.3-070.31, 070.4-070.43, 070.49-070.53, 070.59-070.9, 072-073, 073.7-074.1, 074.20, 074.3-075.9, 078.4-078.7, 079-079.7, 080.0, 090-101.6, 104-104.9, 136-136.29, 138, 139, 323.0-323.02, 323.2-323.3, 390-390.9, 392, 392.9, 484.5, 613-614.9, 771.0-771.2	A20-A28.9, A32-A32.9, A38-A38.9, A48.2, A48.4-A48.52, A49.1, A50-A58, A60-A60.9, A63-A63.8, A65-A65.0, A69-A69.1, A74, A74.8-A74.9, A80-A81.9, A88-A89.9, B00-B00.9, B03-B04, B06-B06.9, B10-B10.89, B15-B17.9, B19-B19.9, B25-B27.99, B29.4, B33, B33.3-B33.8, B47-B48.8, B63, B91, B94.2, B95-B95.5, G14-G14.6, I00, I02, I02.9, I98.0-I98.1, J02.0, J03.0-J03.01, K67.0-K67.2, K67.8, K74.7-K74.8, M03.1, M49.1, M73.0-M73.1, M89.6-M89.69, N70-N71.9, N73-N74.8, P35-P35.3, P35.9, P37, P37.2, P37.5-P37.9
Sexually transmitted diseases excluding HIV	3	054.1, 090-099.9, 613-614.9	A50-A58, A60-A60.9, A63-A63.8, B63, I98.0, K67.0-K67.2, M03.1, M73.0-M73.1, N70-N71.9, N73-N74.8
Syphilis	4	090-097.9	A50-A53.9, I98.0, K67.2, M03.1, M73.1
Chlamydial infection	4	099, 099.1-099.6	A55-A56.8, K67.0
Gonococcal infection	4	098-098.9	A54-A54.9, K67.1, M73.0
Other sexually transmitted diseases	4	099.0, 099.8-099.9	A57-A58, A63-A63.8
Hepatitis	3-4	070-070.21, 070.3-070.31, 070.4-070.43, 070.49-070.53, 070.59-070.9	B15-B17.9, B19-B19.9, B94.2, P35.3
Other infectious diseases	3-4	020-029, 034-034.9, 039-039.4, 039.8-040, 040.1-041.09, 045-046.9, 050-051.9, 054-054.0, 054.10-054.9, 056-059.9, 072-073, 073.7-074.1, 074.20, 074.3-075.9, 078.4-078.7, 079-079.7, 080.0, 100-101.6, 104-104.9, 136-136.29, 138, 139, 323.0-323.02, 323.2-323.3, 390-390.9, 392, 392.9, 484.5, 771.0-771.2	A20-A28.9, A32-A32.9, A38-A38.9, A48.2, A48.4-A48.52, A49.1, A65-A65.0, A69-A69.1, A74, A74.8-A74.9, A80-A81.9, A88-A89.9, B00-B00.9, B03-B04, B06-B06.9, B10-B10.89, B25-B27.99, B29.4, B33, B33.3-B33.8, B47-B48.8, B91, B95-B95.5, G14-G14.6, I00, I02, I02.9, I98.1, J02.0, J03.0-J03.01, K67.8, K74.7-K74.8, M49.1, M89.6-M89.69, P35-P35.2, P35.9, P37, P37.2, P37.5-P37.9
Non-communicable diseases	1	035-035.9, 036.41-036.43, 036.6, 070.22-070.23, 070.32-070.33, 070.44, 070.54, 074.2, 074.21-074.23, 102-103.9, 133-133.6, 135-135.9, 136.6, 140-148.9	A39.5-A39.53, A46-A46.0, A66-A67.9, B18-B18.9, B33.2-B33.24, B86, C0-C13.9, C15-C25.9, C3-C34.92, C37-C38.8, C4-C41.9, C43-C45.9

eTable 3: GBD cause list and associated ICD9 and ICD10 codes (continued).

Cause	Level	ICD9	ICD10
Non-communicable diseases (continued)	1	150-158.9, 160-164.9, 170-175.9, 180-183.8, 184.0-184.4, 184.8, 185-186.9, 187.1-187.8, 188-188.9, 189.0-189.8, 190-194.8, 200-208.92, 209.0-209.17, 209.21-209.27, 209.31-209.57, 209.61, 209.63-209.67, 210.0-210.9, 211.0-211.8, 212.0-212.8, 213-213.9, 217-220.9, 221.0-221.8, 222.0-222.8, 223.0-223.89, 224-228.9, 229.0, 229.8, 230.1-230.8, 231.0-231.2, 232-232.9, 233.0-233.2, 233.31-233.32, 233.4-233.5, 233.7, 234.0-234.8, 235.0, 235.4, 235.6-235.8, 236.0-236.2, 236.4-236.5, 236.7, 236.91-237.3, 237.5-237.9, 238.0-238.5, 239.2-239.4, 239.6, 240-243.9, 244.0-244.1, 244.3-244.8, 245-246.9, 250-259.9, 270-273.9, 275-276, 277-277.2, 277.4-277.9, 278.0-278.8, 282-284.9, 286-286.5, 286.7-289.7, 290-292.9, 294.1-295.95, 303-303.93, 304.0-304.83, 305-305.93, 307.1, 307.51, 307.54, 327.2-327.8, 330-331.2, 331.5-337.9, 340-341.9, 345-345.91, 349-349.8, 353.6-353.9, 356-356.9, 357.0-357.7, 358-359.9, 376.0-376.1, 391-391.9, 392.0, 393-398.99, 402-404.93, 410-414.9, 416.1, 417-417.9, 420-423, 423.1-425.9, 427-427.32, 427.6-427.89, 429.0-429.1, 430-435.9, 437.0-437.2, 437.4-437.8, 441-443.9, 446-457.9, 459, 459.1-459.39, 470, 470.9-474.9, 476-476.1, 477-479, 490-504.9, 506-506.9, 508-509, 515, 516-517.8, 518.6-518.7, 518.9, 519.0-519.4, 530-536.1, 536.4-536.49, 537-537.6, 537.8-537.84, 538-543.9, 550-553.6, 555-558.9, 560-560.39, 560.8-560.9, 562-562.13, 564-564.7, 565-566.9, 569.0-569.44, 569.5-569.71, 569.84-569.85, 571-571.9, 572.3-572.9, 573.0-573.4, 573.8-577.9, 579-583.9, 585-585.9, 588-590.9, 592-593.89, 594-599.69, 599.8-599.89, 601-602.9, 604-604.99, 608.2-608.24, 610-610.9, 617-618.9, 620-620.9, 621.4-621.9, 622.3-622.7, 629-629.81, 680-689, 694-695.59, 707-707.9, 710-711.99, 714-714.33, 714.8-714.9, 728.86, 728.88, 730.1-730.19, 732-732.9, 733.0-733.19, 740-749.04, 749.2-758.9, 759.0-759.89, 760.7-760.79	C47-C54.9, C56-C57.8, C58-C58.0, C60-C63.8, C64-C67.9, C68.0-C68.8, C69-C75.8, C81-C86.6, C88-C96.9, D00.00-D00.2, D01.0-D01.3, D02.0-D02.3, D03-D06.9, D07.0-D07.2, D07.4-D07.5, D09.0, D09.2-D09.3, D09.8, D10.0-D10.7, D11-D12.9, D13.0-D13.7, D14.0-D14.32, D15-D16.9, D22-D27.9, D28.0-D28.7, D29.0-D29.8, D30.0-D30.8, D31-D36, D36.1-D36.7, D37.01-D37.5, D38.0-D38.5, D39.1-D39.2, D39.8, D40.0-D40.8, D41.0-D41.8, D42-D43.9, D44.0-D44.8, D45-D45.9, D47-D47.0, D47.2-D47.9, D48.0-D48.62, D49.2-D49.4, D49.6, D49.81, D52.1, D55-D58.9, D59.0-D59.3, D59.5-D59.6, D60-D61.9, D63.1, D64.0, D64.4, D66-D67, D68.0-D69.8, D70-D75.89, D76-D78.89, D86-D86.8, D86.82-D86.9, D89-D89.3, E03-E07.1, E09-E14.9, E15.0, E16.0-E16.9, E20-E34.8, E36-E36.8, E65-E68, E70-E85.29, E87.71, E88-E89.9, F00-F03.91, F06.2, F10-F16.99, F18-F29.9, F50.0-F50.5, G10-G13.8, G20-G26.0, G30-G31.9, G35-G37.9, G40-G41.9, G45-G46.8, G47.3-G47.39, G61-G61.9, G70-G73.7, G90-G90.9, G93.7, G95-G95.9, G97-G97.9, H05.0-H05.119, I01-I01.9, I02.0, I05-I09.9, I11-I13.9, I20-I25.9, I27.1, I28-I28.8, I30-I31.1, I31.8-I43.9, I47-I48.92, I51.0-I51.5, I60-I61.9, I62.0-I62.03, I63-I63.9, I65-I66.9, I67.0-I67.3, I67.5-I67.7, I68.0-I68.2, I69.0-I69.398, I70.2-I70.799, I71-I73.9, I77-I89.9, I91.9, I95.2-I95.3, I97-I98, I98.2, I98.9, J30-J35.9, J37-J47.9, J60-J63.8, J65-J68.9, J70-J70.9, J82, J84-J84.9, J91-J92.9, J95-J95.9, K20-K29.91, K31-K31.89, K35-K38.9, K40-K46.9, K50-K52.9, K55-K62.9, K63.5, K64-K64.9, K66.8, K67, K68-K68.9, K70-K70.9, K71.3-K71.51, K71.7, K72.1-K74.69, K74.9, K75.2-K77.8, K80-K83.9, K85-K86.9, K90-K91.9, K92.8-K92.89, K94-K95.89, L00-L05.92, L08-L08.9, L10-L14.0, L51-L51.9, L88-L89.95, L93-L93.2
Non-communicable diseases (continued)	1	775.0-775.3, 779.4-779.5, 780.57, 780.59, 780.62-780.63, 786.03, 787.1, 788.0, 790.2-790.22, 790.3, 798-798.0, E850-E850.29, E850.9-E854.39, E860-E860.19	L97-L98.499, M00-M03.0, M03.2-M03.6, M05-M09.8, M30-M36.8, M40-M43.19, M65-M65.08, M71.0-M71.19, M80-M82.8, M86.3-M86.49, M87-M87.19, M88-M89.09, M89.5-M89.59, M89.7-M89.9, N00-N08.8, N10-N12.9, N14-N16.8, N18-N18.9, N20-N23.0, N25-N32.0, N32.3-N32.4, N34-N34.3, N36-N36.9, N39-N39.2, N41-N41.9, N44-N44.04, N45-N45.9, N49-N49.9, N60-N60.99, N65-N65.1, N72-N72.0, N75-N77.8, N80-N81.9, N83-N83.9, N84.0-N84.1, N87-N87.9, N99-N99.9, P04.3-P04.49, P70.0-P70.2, P96.0-P96.2, P96.5, Q00-Q07.9, Q10.4-Q18.9, Q20-Q28.9, Q30-Q36, Q37-Q45.9, Q50-Q87.89, Q89-Q89.8, Q90-Q93.9, Q95-Q99.8, R50.2, R50.82-R50.83, R73-R73.9, R78.0-R78.5, R95, X45-X45.9

eTable 3: GBD cause list and associated ICD9 and ICD10 codes (continued).

Cause	Level	ICD9	ICD10
Neoplasms	2	140-148.9, 150-158.9, 160-164.9, 170-175.9, 180-183.8, 184.0-184.4, 184.8, 185-186.9, 187.1-187.8, 188-188.9, 189.0-189.8, 190-194.8, 200-208.92, 209.0-209.17, 209.21-209.27, 209.31-209.57, 209.61, 209.63-209.67, 210.0-210.9, 211.0-211.8, 212.0-212.8, 213-213.9, 217-217.8, 219.0, 220-220.9, 221.0-221.8, 222.0-222.8, 223.0-223.89, 224-228.9, 229.0, 229.8, 230.1-230.8, 231.0-231.2, 232-232.9, 233.0-233.2, 233.31-233.32, 233.4-233.5, 233.7, 234.0-234.8, 235.0, 235.4, 235.6-235.8, 236.1-236.2, 236.4-236.5, 236.7, 236.91-237.3, 237.5-237.9, 238.0-238.5, 239.2-239.4, 239.6, 569.0, 569.43-569.44, 569.84-569.85, 610-610.9	C0-C13.9, C15-C25.9, C3-C34.92, C37-C38.8, C4-C41.9, C43-C45.9, C47-C54.9, C56-C57.8, C58-C58.0, C60-C63.8, C64-C67.9, C68.0-C68.8, C69-C75.8, C81-C86.6, C88-C96.9, D00.00-D00.2, D01.0-D01.3, D02.0-D02.3, D03-D06.9, D07.0-D07.2, D07.4-D07.5, D09.0, D09.2-D09.3, D09.8, D10.0-D10.7, D11-D12.9, D13.0-D13.7, D14.0-D14.32, D15-D16.9, D22-D24.9, D26.0, D27-D27.9, D28.0-D28.1, D28.7, D29.0-D29.8, D30.0-D30.8, D31-D36, D36.1-D36.7, D37.01-D37.5, D38.0-D38.5, D39.1-D39.2, D39.8, D40.0-D40.8, D41.0-D41.8, D42-D43.9, D44.0-D44.8, D45-D45.9, D47-D47.0, D47.2-D47.9, D48.0-D48.62, D49.2-D49.4, D49.6, D49.81, K31.7, K62.0-K62.1, K63.5, N60-N60.99, N84.0-N84.1, N87-N87.9
Lip and oral cavity cancer	3-4	140-145.9, 210.0-210.6, 235.0	C0-C08.9, D00.00-D00.07, D10.0-D10.5, D11-D11.9, D37.01-D37.04, D37.09
Nasopharynx cancer	3-4	147-147.9, 210.7-210.9	C11-C11.9, D00.08, D10.6, D37.05
Other pharynx cancer	3-4	146-146.9, 148-148.9	C09-C10.9, C12-C13.9, D10.7
Esophageal cancer	3-4	150-150.9, 211.0, 230.1	C15-C15.9, D00.1, D13.0
Stomach cancer	3-4	151-151.9, 209.23, 209.63, 211.1, 230.2	C16-C16.9, D00.2, D13.1, D37.1
Colon and rectum cancer	3-4	153-154.9, 209.1-209.17, 209.5-209.57, 211.3-211.4, 230.3-230.6	C18-C21.9, D01.0-D01.3, D12-D12.9, D37.3-D37.5
Liver cancer	3-4	155-155.9, 211.5	C22-C22.9, D13.4
Gallbladder and biliary tract cancer	3-4	156-156.9, 209.25-209.27, 209.65-209.67	C23-C24.9, D13.5
Pancreatic cancer	3-4	157-157.9, 211.6-211.7	C25-C25.9, D13.6-D13.7
Larynx cancer	3-4	161-161.9, 212.1, 231.0, 235.6	C32-C32.9, D02.0, D14.1, D38.0
Tracheal, bronchus, and lung cancer	3-4	162-162.9, 209.21, 209.61, 212.2-212.3, 231.1-231.2, 235.7	C33-C34.92, D02.1-D02.3, D14.2-D14.32, D38.1
Malignant skin melanoma	3-4	172-172.9	C43-C43.9, D03-D03.9, D22-D23.9, D48.5
Non-melanoma skin cancer	3	173-173.99, 222.4, 232-232.9, 238.2	C44-C44.99, D04-D04.9, D49.2
Non-melanoma skin cancer (squamous-cell carcinoma)	4	173-173.99, 222.4, 232-232.9, 238.2	C44-C44.99, D04-D04.9, D49.2
Breast cancer	3-4	174-175.9, 217-217.8, 233.0, 238.3, 239.3, 610-610.9	C50-C50.929, D05-D05.92, D24-D24.9, D48.6-D48.62, D49.3, N60-N60.99
Cervical cancer	3-4	180-180.9, 219.0, 233.1	C53-C53.9, D06-D06.9, D26.0
Uterine cancer	3-4	182-182.8, 233.2	C54-C54.9, D07.0-D07.2, N87-N87.9
Ovarian cancer	3-4	183-183.0, 220-220.9, 236.2	C56-C56.9, D27-D27.9, D39.1-D39.12
Prostate cancer	3-4	185-185.9, 222.2, 236.5	C61-C61.9, D07.5, D29.1, D40.0
Testicular cancer	3-4	186-186.9, 222.0, 222.3, 236.4	C62-C62.92, D29.2-D29.8, D40.1-D40.8
Kidney cancer	3-4	189.0-189.1, 209.24, 209.64, 223.0-223.1, 236.91	C64-C65.9, D30.0-D30.12, D41.0-D41.12
Bladder cancer	3-4	188-188.9, 223.3, 233.7, 236.7, 239.4	C67-C67.9, D09.0, D30.3, D41.4-D41.8, D49.4
Brain and nervous system cancer	3-4	191-192.9	C70-C72.9
Thyroid cancer	3-4	193-193.9, 226-226.9	C73-C73.9, D09.3, D09.8, D34-D34.9, D44.0
Mesothelioma	3-4	158.9, 163-163.9, 212.4	C45-C45.9
Hodgkin lymphoma	3-4	201-201.98	C81-C81.99
Non-Hodgkin lymphoma	3-4	200-200.9, 202-202.98	C82-C86.6, C96-C96.9
Multiple myeloma	3-4	203-203.9	C88-C90.9
Leukemia	3	204-208.92	C91-C95.92
Acute lymphoid leukemia	4	204.0-204.02	C91.0-C91.02
Chronic lymphoid leukemia	4	204.1-204.12	C91.1-C91.12
Acute myeloid leukemia	4	205.0-205.02, 205.3-205.32, 206.0-206.02, 207.0	C92.0-C92.02, C92.3-C92.62, C93.0-C93.02, C94.0-C94.02, C94.2-C94.22, C94.4-C94.5
Chronic myeloid leukemia	4	205.1-205.12, 206.1-206.12, 207.1	C92.1-C92.12

eTable 3: GBD cause list and associated ICD9 and ICD10 codes (continued).

Cause	Level	ICD9	ICD10
Other neoplasms	3-4	152-152.9, 158-158.8, 160-160.9, 164-164.9, 170-171.9, 181-181.9, 182.9, 183.2-183.8, 184.0-184.4, 184.8, 187.1-187.8, 189.2-189.8, 190-190.9, 194-194.8, 209.0-209.03, 209.22, 209.31-209.43, 211.2, 211.8, 212.0, 212.5-212.8, 213-213.9, 221.0-221.8, 222.1, 222.8, 223.2, 223.8-223.89, 224-225.9, 227-228.9, 229.0, 229.8, 230.7-230.8, 233.31-233.32, 233.4-233.5, 234.0-234.8, 235.4, 235.8, 236.1, 236.99-237.3, 237.5-237.9, 238.0-238.1, 238.4-238.5, 239.2, 239.6, 569.0, 569.43-569.44, 569.84-569.85	C17-C17.9, C3-C31.9, C37-C38.8, C4-C41.9, C47-C5, C51-C52.9, C57-C57.8, C58-C58.0, C60-C60.9, C63-C63.8, C66-C66.9, C68.0-C68.8, C69-C7, C74-C75.8, D07.4, D09.2-D09.22, D13.2-D13.39, D14.0, D15-D16.9, D28.0-D28.1, D28.7, D29.0, D30.2-D30.22, D30.4-D30.8, D31-D33.9, D35-D36, D36.1-D36.7, D37.2, D38.2-D38.5, D39.2, D39.8, D41.2-D41.3, D42-D43.9, D44.1-D44.8, D45-D45.9, D47-D47.0, D47.2-D47.9, D48.0-D48.4, D49.6, D49.81, K31.7, K62.0-K62.1, K63.5, N84.0-N84.1
Cardiovascular diseases	2	036.41-036.43, 036.6, 074.2, 074.21-074.23, 391-391.9, 392.0, 393-398.99, 402-402.91, 410-414.9, 417-417.9, 420-423, 423.1-425.9, 427-427.32, 427.6-427.89, 429.0-429.1, 430-435.9, 437.0-437.2, 437.5-437.8, 441-443.9, 447-454.9, 456, 456.3-457.9, 459, 459.1-459.39	A39.5-A39.53, B33.2-B33.24, D86.85, G45-G46.8, I01-I01.9, I02.0, I05-I09.9, I11-I11.9, I20-I25.9, I28-I28.8, I30-I31.1, I31.8-I43.9, I47-I48.92, I51.0-I51.5, I60-I61.9, I62.0-I62.03, I63-I63.9, I65-I66.9, I67.0-I67.3, I67.5-I67.6, I68.0-I68.2, I69.0-I69.398, I70.2-I70.799, I71-I73.9, I77-I83.93, I86-I89.9, I91.9, I98
Rheumatic heart disease	3-4	391-391.9, 392.0, 393-398.99	I01-I01.9, I02.0, I05-I09.9
Ischemic heart disease	3-4	410-414.9	I20-I25.9
Cerebrovascular disease	3	430-435.9, 437.0-437.2, 437.5-437.8	G45-G46.8, I60-I61.9, I62.0-I62.03, I63-I63.9, I65-I66.9, I67.0-I67.3, I67.5-I67.6, I68.1-I68.2, I69.0-I69.398
Ischemic stroke	4	433-435.9, 437.0-437.1, 437.5-437.8	G45-G46.8, I63-I63.9, I65-I66.9, I67.2-I67.3, I67.5-I67.6, I69.3-I69.398
Hemorrhagic stroke	4	430-432.9, 437.2	I60-I61.9, I62.0-I62.03, I67.0-I67.1, I68.1-I68.2, I69.0-I69.298
Hypertensive heart disease	3-4	402-402.91	I11-I11.9
Cardiomyopathy and myocarditis	3-4	036.43, 036.6, 074.23, 422-422.99, 425-425.9, 429.0-429.1	A39.52, B33.2-B33.24, D86.85, I40-I43.9, I51.4-I51.5
Atrial fibrillation and flutter	3-4	427.3-427.32	I48-I48.92
Aortic aneurysm	3-4	441-441.9	I71-I71.9
Peripheral vascular disease	3-4	443.0-443.9	I70.2-I70.799, I73-I73.9
Endocarditis	3-4	036.42, 074.22, 421-421.9, 424.9-424.91	A39.51, I33-I33.9, I38-I39.9
Other cardiovascular and circulatory diseases	3-4	036.41, 074.2, 074.21, 417-417.9, 420-420.99, 423, 423.1-424.8, 424.99, 427-427.2, 427.6-427.89, 442-443, 447-454.9, 456, 456.3-457.9, 459, 459.1-459.39	A39.5-A39.50, A39.53, I28-I28.8, I30-I31.1, I31.8-I32.8, I34-I37.9, I47-I47.9, I51.0-I51.3, I68.0, I72-I72.9, I77-I83.93, I86-I89.9, I91.9, I98
Chronic respiratory diseases	2	135-135.9, 136.6, 327.2-327.8, 470, 470.9-474.9, 476-476.1, 477-479, 490-504.9, 506-506.9, 508-509, 515, 516-517.8, 518.6, 518.9, 519.1-519.4, 780.57, 786.03	D86-D86.2, D86.89-D86.9, G47.3-G47.39, J30-J35.9, J37-J47.9, J60-J63.8, J65-J68.9, J70-J70.1, J70.8-J70.9, J82, J84-J84.9, J91-J92.9
Chronic obstructive pulmonary disease	3-4	490-492.9, 494-494.9, 496-499	J40-J44.9, J47-J47.9
Pneumoconiosis	3	500-504.9	J60-J63.8, J65-J65.0, J92.0
Silicosis	4	502-502.9, 503.0, 503.9	J62-J62.9
Asbestosis	4	501	J61-J61.0, J92.0
Coal workers pneumoconiosis	4	500-500.9, 501.0-501.9	J60-J60.0
Other pneumoconiosis	4	503, 503.1, 504-504.9	J63-J63.8, J65-J65.0
Asthma	3-4	493-493.92	J45-J46.9
Interstitial lung disease and pulmonary sarcoidosis	3-4	135-135.9, 136.6, 515, 516-516.9	D86-D86.2, D86.89-D86.9, J84-J84.9
Other chronic respiratory diseases	3-4	327.2-327.8, 470, 470.9-474.9, 476-476.1, 477-479, 495-495.9, 506-506.9, 508-509, 517-517.8, 518.6, 518.9, 519.1-519.4, 780.57, 786.03	G47.3-G47.39, J30-J35.9, J37-J39.9, J66-J68.9, J70-J70.1, J70.8-J70.9, J82, J91-J92, J92.9
Cirrhosis and other chronic liver diseases	2-4	070.22-070.23, 070.32-070.33, 070.44, 070.54, 456.0-456.21, 571-571.9, 572.3-572.9, 573.0-573.3, 573.8-573.9	B18-B18.9, I85-I85.9, I98.2, K70-K70.9, K71.3-K71.51, K71.7, K72.1-K74.69, K74.9, K75.8-K76.0, K76.6-K76.7, K76.9

eTable 3: GBD cause list and associated ICD9 and ICD10 codes (continued).

Cause	Level	ICD9	ICD10
Digestive diseases	2	455-455.9, 530-536.1, 537-537.6, 537.8-537.84, 538, 540-543.9, 550-551.1, 551.3-552.1, 552.3-553.6, 555-558.9, 560-560.39, 560.8-560.9, 562-562.13, 564-564.1, 564.5-564.7, 565-566.9, 569.1-569.42, 569.5, 569.7-569.71, 573.4, 574-577.9, 579-579.2, 579.4-579.9, 787.1	I84-I84.9, K20-K29.91, K31-K31.6, K31.8-K31.89, K35-K38.9, K40-K42.9, K44-K46.9, K50-K52.9, K55-K62, K62.2-K62.6, K62.8-K62.9, K64-K64.9, K66.8, K67, K68-K68.9, K75.2-K75.4, K76.1-K76.5, K76.8-K76.89, K77-K77.8, K80-K83.9, K85-K86.9, K90-K90.9, K92.8-K92.89, M09.1
Peptic ulcer disease	3-4	531-534.91	K25-K28.9, K31, K31.1-K31.6, K31.8, K31.82-K31.89
Gastritis and duodenitis	3-4	535-535.9	K29-K29.91
Appendicitis	3-4	540-542.9	K35-K37.9, K38.3-K38.9
Paralytic ileus and intestinal obstruction	3-4	560-560.39, 560.8-560.9	K56-K56.9
Inguinal, femoral, and abdominal hernia	3-4	550-551.1, 551.3-552.1, 552.3-553.03, 553.6	K40-K42.9, K44-K46.9
Inflammatory bowel disease	3-4	555-556.9, 558-558.9, 569.5	K50-K52.9, M09.1
Vascular intestinal disorders	3-4	557-557.9	K55-K55.9
Gallbladder and biliary diseases	3-4	574-576.9	K80-K83.9
Pancreatitis	3-4	577-577.9, 579.4	K85-K86.9
Other digestive diseases	3-4	455-455.9, 530-530.9, 536-536.1, 537-537.6, 537.8-537.84, 538, 543-543.9, 553.1-553.3, 562-562.13, 564-564.1, 564.5-564.7, 565-566.9, 569.1-569.42, 569.7-569.71, 573.4, 579-579.2, 579.8-579.9, 787.1	I84-I84.9, K20-K24, K31.0, K31.81-K31.819, K38-K38.2, K57-K62, K62.2-K62.6, K62.8-K62.9, K64-K64.9, K66.8, K67, K68-K68.9, K75.2-K75.4, K76.1-K76.5, K76.8-K76.89, K77-K77.8, K90-K90.9, K92.8-K92.89
Neurological disorders	2	290-290.9, 294.1-294.9, 330-331.2, 331.5-337.9, 340-341.9, 345-345.91, 349, 349.2-349.8, 353.6-353.9, 356-356.9, 357.0-357.1, 357.3-357.4, 357.7, 358-359.9, 728.86, 728.88, 775.2	F00-F03.91, G10-G13.8, G20-G21.0, G21.2-G24, G24.1-G25.0, G25.2-G25.3, G25.5, G25.8-G26.0, G30-G31.1, G31.8-G31.9, G35-G37.9, G40-G41.9, G61-G61.9, G70-G72, G72.2-G73.7, G90-G90.9, G95-G95.9, M33-M33.99
Alzheimer disease and other dementias	3-4	290-290.9, 294.1-294.9, 331-331.2	F00-F03.91, G30-G31.1, G31.8-G31.9
Parkinson disease	3-4	332-332.9	G20-G21.0, G21.2-G22.0
Epilepsy	3-4	345-345.91	G40-G41.9
Multiple sclerosis	3-4	340-340.9	G35-G35.9
Motor neuron disease	3-4	335-335.29, 335.8-335.9	G12.2-G12.9
Other neurological disorders	3-4	330-330.9, 331.5-331.9, 333-334.9, 335.3, 336-337.9, 341-341.9, 349, 349.2-349.8, 353.6-353.9, 356-356.9, 357.0-357.1, 357.3-357.4, 357.7, 358-359.9, 728.86, 728.88, 775.2	G10-G12.1, G13-G13.8, G23-G24, G24.1-G25.0, G25.2-G25.3, G25.5, G25.8-G26.0, G36-G37.9, G61-G61.9, G70-G72, G72.2-G73.7, G90-G90.9, G95-G95.9, M33-M33.99
Mental and substance use disorders	2	291-292.9, 295-295.95, 303-303.93, 304.0-304.83, 305-305.93, 307.1, 307.51, 307.54, 357.5, 760.7-760.79, 780.59, 790.3, E850-E850.29, E850.9-E854.39, E860-E860.19	F06.2, F10-F16.99, F18-F29.9, F50.0-F50.5, G31.2, G72.1, P04.3-P04.49, P96.1, Q86.0, R78.0-R78.5, X45-X45.9
Schizophrenia	3-4	295-295.95	F06.2, F20-F23.9, F25-F29.9
Alcohol use disorders	3-4	291-291.9, 303-303.93, 305.0-305.03, 357.5, 790.3, E860-E860.19	F10-F10.99, G31.2, G72.1, P04.3, Q86.0, R78.0, X45-X45.9
Drug use disorders	3	292-292.9, 304.0-304.83, 305, 305.1-305.93, 760.7-760.79, E850-E850.29	F11-F16.99, F18-F19.99, P04.4-P04.49, P96.1, R78.1-R78.5
Opioid use disorders	4	304.0-304.03, 305.5-305.53, E850.0-E850.29	F11-F11.99, P96.1, R78.1
Cocaine use disorders	4	304.2-304.23, 305.6-305.63	F14-F14.99, R78.2
Amphetamine use disorders	4	304.4-304.43, 305.7-305.73	F15-F15.99
Other drug use disorders	4	292-292.9, 304.1-304.13, 304.5-304.83, 305, 305.1-305.13, 305.3-305.43, 305.8-305.93	F13-F13.99, F16-F16.99, F18-F19.99, R78.3-R78.5
Eating disorders	3	307.1, 307.51, 307.54	F50.0-F50.5
Anorexia nervosa	4	307.1, 307.54	F50.0-F50.1
Bulimia nervosa	4	307.51	F50.2-F50.5

eTable 3: GBD cause list and associated ICD9 and ICD10 codes (continued).

Cause	Level	ICD9	ICD10
Diabetes, urogenital, blood, and endocrine diseases	2	218-219, 219.1-219.9, 236.0, 240-243.9, 244.0-244.1, 244.3-244.8, 245-246.9, 250-259.9, 270-273.9, 275-276, 277-277.2, 277.4-277.9, 278.0-278.8, 282-284.9, 286-286.5, 286.7-289.7, 349.0-349.1, 357.2, 357.6, 403-404.93, 518.7, 519.0-519.09, 536.4-536.49, 539-539.9, 551.2-551.29, 552.2-552.29, 564.2-564.4, 569.6-569.69, 579.3, 580-583.9, 585-585.9, 588-590.9, 592-593.89, 594-599.69, 599.8-599.89, 601-602.9, 604-604.99, 608.2-608.24, 617-618.9, 620-620.9, 621.4-621.9, 622.3-622.7, 629-629.81, 775.0-775.1, 775.3, 779.4-779.5, 780.62-780.63, 788.0, 790.2-790.22	D25-D26, D26.1-D26.9, D28.2, D52.1, D55-D58.9, D59.0-D59.3, D59.5-D59.6, D60-D61.9, D63.1, D64.0, D64.4, D66-D67, D68.0-D69.8, D70-D75.89, D76-D78.89, D86.8, D86.82-D86.84, D86.86-D86.87, D89-D89.3, E03-E07.1, E09-E14.9, E15.0, E16.0-E16.9, E20-E34.8, E36-E36.8, E65-E68, E70-E85.29, E87.71, E88-E89.9, G21.1-G21.19, G24.0-G24.09, G25.1, G25.4, G25.6-G25.79, G72.0, G93.7, G97-G97.9, I12-I13.9, I95.2-I95.3, I97-I97.9, I98.9, J70.2-J70.5, J95-J95.9, K43-K43.9, K62.7, K91-K91.9, K94-K95.89, M87.1-M87.19, N00-N08.8, N10-N12.9, N14-N16.8, N18-N18.9, N20-N23.0, N25-N32.0, N32.3-N32.4, N34-N34.3, N36-N36.9, N39-N39.2, N41-N41.9, N44-N44.04, N45-N45.9, N49-N49.9, N65-N65.1, N72-N72.0, N75-N77.8, N80-N81.9, N83-N83.9, N99-N99.9, P70.0-P70.2, P96.2, P96.5, R50.2, R50.82-R50.83, R73-R73.9
Diabetes mellitus	3-4	250-250.39, 250.5-250.99, 357.2, 775.0-775.1, 790.2-790.22	E10-E10.11, E10.3-E11.1, E11.3-E12.1, E12.3-E13.11, E13.3-E14.1, E14.3-E14.9, P70.0-P70.2, R73-R73.9
Acute glomerulonephritis	3-4	580-580.9	N00-N01.9
Chronic kidney disease	3	250.4-250.49, 403-404.93, 581-583.9, 585-585.9, 589-589.9	D63.1, E10.2-E10.29, E11.2-E11.29, E12.2, E13.2-E13.29, E14.2, I12-I13.9, N02-N08.8, N15.0, N18-N18.9
Chronic kidney disease due to diabetes mellitus	4	250.4-250.49	E10.2-E10.29, E11.2-E11.29, E12.2, E13.2-E13.29, E14.2
Chronic kidney disease due to hypertension	4	403-404.93	I12-I13.9
Chronic kidney disease due to glomerulonephritis	4	581-583.9	N03-N06.9
Chronic kidney disease due to other causes	4	589-589.9	N02-N02.9, N07-N08.8, N15.0
Urinary diseases and male infertility	3	588-588.9, 590-590.9, 592-593.89, 594-596.81, 596.89-598.1, 598.8-599.69, 599.8-599.89, 601-602.9, 604-604.99, 608.2-608.24, 788.0	N10-N12.9, N15, N15.1-N16.8, N20-N23.0, N25-N32.0, N32.3-N32.4, N34-N34.3, N36-N36.9, N39-N39.2, N41-N41.9, N44-N44.04, N45-N45.9, N49-N49.9
Interstitial nephritis and urinary tract infections	4	590-590.9, 595-595.9, 597-597.9, 599.0	N10-N12.9, N15, N15.1-N16.8, N30-N30.91, N34-N34.3, N39.0-N39.2
Urolithiasis	4	592-592.9, 594-594.9, 788.0	N20-N23.0
Other urinary diseases	4	588-588.9, 593-593.89, 596-596.81, 596.89-596.9, 598-598.1, 598.8-599, 599.1-599.69, 599.8-599.89, 601-602.9, 604-604.99, 608.2-608.24	N25-N29.8, N31-N32.0, N32.3-N32.4, N36-N36.9, N39, N41-N41.9, N44-N44.04, N45-N45.9, N49-N49.9
Gynecological diseases	3	218-219, 219.1-219.9, 236.0, 256.4, 617-618.9, 620-620.9, 621.4-621.9, 622.3-622.7, 629-629.81	D25-D26, D26.1-D26.9, D28.2, E28.2, N72-N72.0, N75-N77.8, N80-N81.9, N83-N83.9
Uterine fibroids	4	218-219, 219.1-219.9, 236.0	D25-D26, D26.1-D26.9, D28.2
Polycystic ovarian syndrome	4	256.4	E28.2
Endometriosis	4	617-617.9	N80-N80.9
Genital prolapse	4	618-618.9	N81-N81.9
Other gynecological diseases	4	620-620.9, 621.4-621.9, 622.3-622.7, 629-629.81	N72-N72.0, N75-N77.8, N83-N83.9
Hemoglobinopathies and hemolytic anemias	3	282-284.9	D55-D58.9, D59.1, D59.3, D59.5, D60-D61.9, D64.0, D64.4
Thalassemias	4	282.4-282.49	D56-D56.9
Sickle cell disorders	4	282.6-282.68	D57-D57.219, D57.4-D57.819
G6PD deficiency	4	282.2-282.3	D55-D55.2
Other hemoglobinopathies and hemolytic anemias	4	282-282.1, 282.69-284.9	D55.3-D55.9, D58-D58.9, D59.1, D59.3, D59.5, D60-D61.9, D64.0, D64.4

eTable 3: GBD cause list and associated ICD9 and ICD10 codes (continued).

Cause	Level	ICD9	ICD10
Endocrine, metabolic, blood, and immune disorders	3-4	240-243.9, 244.0-244.1, 244.3-244.8, 245-246.9, 251-256.39, 256.8-259.9, 270-273.9, 275-276, 277-277.2, 277.4-277.9, 278.0-278.8, 286-286.5, 286.7-289.7, 349.0-349.1, 357.6, 518.7, 519.0-519.09, 536.4-536.49, 539-539.9, 551.2-551.29, 552.2-552.29, 564.2-564.4, 569.6-569.69, 579.3, 596.82-596.83, 598.2, 775.3, 779.4-779.5, 780.62-780.63	D52.1, D59.0, D59.2, D59.6, D66-D67, D68.0-D69.8, D70-D75.89, D76-D78.89, D86.8, D86.82-D86.84, D86.86-D86.87, D89-D89.3, E03-E07.1, E09-E09.9, E15.0, E16.0-E16.9, E20-E28.1, E28.3-E34.8, E36-E36.8, E65-E68, E70-E85.29, E87.71, E88-E89.9, G21.1-G21.19, G24.0-G24.09, G25.1, G25.4, G25.6-G25.79, G72.0, G93.7, G97-G97.9, I95.2-I95.3, I97-I97.9, I98.9, J70.2-J70.5, J95-J95.9, K43-K43.9, K62.7, K91-K91.9, K94-K95.89, M87.1-M87.19, N14-N14.4, N65-N65.1, N99-N99.9, P96.2, P96.5, R50.2, R50.82-R50.83
Musculoskeletal disorders	2	416.1, 437.4, 446-446.9, 695.4-695.59, 710-711.99, 714-714.33, 714.8-714.9, 730.1-730.19, 732-732.9, 733.0-733.19	I27.1, I67.7, L93-L93.2, M00-M03.0, M03.2-M03.6, M05-M09.0, M09.2-M09.8, M30-M32.9, M34-M36.8, M40-M43.19, M65-M65.08, M71.0-M71.19, M80-M82.8, M86.3-M86.49, M87-M87.09, M88-M89.09, M89.5-M89.59, M89.7-M89.9
Rheumatoid arthritis	3-4	714-714.33, 714.8-714.9	M05-M06.9, M08.0-M08.89
Other musculoskeletal disorders	3-4	416.1, 437.4, 446-446.9, 695.4-695.59, 710-711.99, 730.1-730.19, 732-732.9, 733.0-733.19	I27.1, I67.7, L93-L93.2, M00-M03.0, M03.2-M03.6, M07-M08, M08.9-M09.0, M09.2-M09.8, M30-M32.9, M34-M36.8, M40-M43.19, M65-M65.08, M71.0-M71.19, M80-M82.8, M86.3-M86.49, M87-M87.09, M88-M89.09, M89.5-M89.59, M89.7-M89.9
Other non-communicable diseases	2	035-035.9, 102-103.9, 133-133.6, 376.0-376.1, 680-689, 694-695.3, 707-707.9, 740-749.04, 749.2-758.9, 759.0-759.89, 798-798.0	A46-A46.0, A66-A67.9, B86, D86.3, H05.0-H05.119, L00-L05.92, L08-L08.9, L10-L14.0, L51-L51.9, L88-L89.95, L97-L98.499, P96.0, Q00-Q07.9, Q10.4-Q18.9, Q20-Q28.9, Q30-Q36, Q37-Q45.9, Q50-Q86, Q86.1-Q87.89, Q89-Q89.8, Q90-Q93.9, Q95-Q99.8, R95
Congenital anomalies	3	740-749.04, 749.2-758.9, 759.0-759.89	P96.0, Q00-Q07.9, Q10.4-Q18.9, Q20-Q28.9, Q30-Q36, Q37-Q45.9, Q50-Q86, Q86.1-Q87.89, Q89-Q89.8, Q90-Q93.9, Q95-Q99.8
Neural tube defects	4	740-741.93, 742.0	Q00-Q01.9, Q05-Q05.9
Congenital heart anomalies	4	745-747.9	Q20-Q28.9
Cleft lip and cleft palate	4	749-749.04, 749.2-749.25	Q35-Q36, Q37-Q37.9
Down syndrome	4	758	Q90-Q90.9
Other chromosomal abnormalities	4	758, 758.1-758.6, 758.8-758.9	Q91-Q93.9, Q95-Q95.9, Q97-Q97.9, Q99-Q99.8
Other congenital anomalies	4	742, 742.1-744.9, 748-748.9, 749.6-757.9, 759.0-759.89	P96.0, Q02-Q04.9, Q06-Q07.9, Q10.4-Q18.9, Q30-Q34.9, Q38-Q45.9, Q50-Q86, Q86.1-Q87.89, Q89-Q89.8
Skin and subcutaneous diseases	3	035-035.9, 102-103.9, 133-133.6, 680-689, 694-695.3, 707-707.9	A46-A46.0, A66-A67.9, B86, D86.3, L00-L05.92, L08-L08.9, L10-L14.0, L51-L51.9, L88-L89.95, L97-L98.499
Cellulitis	4	681-682.9	L03-L03.91
Pyoderma	4	035-035.9, 102-103.9, 680-680.9, 683-689	A46-A46.0, A66-A67.9, L00-L02.93, L04-L05.92, L08-L08.9, L88, L97-L98.499
Decubitus ulcer	4	707-707.9	L89-L89.95
Other skin and subcutaneous diseases	4	694-695.3	D86.3, L10-L14.0, L51-L51.9
Sudden infant death syndrome	3-4	798-798.0	R95

eTable 3: GBD cause list and associated ICD9 and ICD10 codes (continued).

Cause	Level	ICD9	ICD10
Injuries	1	E800-E800.3, E801-E801.3, E802-E802.3, E803-E803.3, E804-E804.3, E805-E805.3, E806-E806.3, E807-E807.3, E810.0-E810.7, E811.0-E811.7, E812.0-E812.7, E813.0-E813.7, E814.0-E814.7, E815.0-E815.7, E816.0-E816.7, E817.0-E817.7, E818.0-E818.7, E819.0-E819.7, E820.0-E820.7, E821.0-E821.7, E822.0-E822.7, E823.0-E823.7, E824.0-E824.7, E825.0-E825.7, E826.0-E826.4, E827.0-E827.4, E828.0-E828.4, E829.0-E829.4, E830-E838.9, E840-E849.9, E850.3-E850.89, E854.8, E856-E857.09, E860.2-E869.99, E870-E876.9, E878-E879.9, E880-E886.99, E888-E928.89, E929.1-E929.5, E930-E979.9, E990-E999.1	V00-V86.99, V87.2-V87.3, V88.2-V88.3, V90-V98.8, W00-W46.2, W49-W62.9, W64-W70.9, W73-W75.9, W77-W81.9, W83-W94.9, W97.9, W99-X06.9, X08-X39.9, X46-X47, X47.1-X47.8, X48-X48.9, X50-X54.9, X57-X58.9, X60-Y08.9, Y35-Y84.9, Y87.0-Y87.1, Y88-Y88.3, Y89.0-Y89.1
Transport injuries	2	E800-E800.3, E801-E801.3, E802-E802.3, E803-E803.3, E804-E804.3, E805-E805.3, E806-E806.3, E807-E807.3, E810.0-E810.7, E811.0-E811.7, E812.0-E812.7, E813.0-E813.7, E814.0-E814.7, E815.0-E815.7, E816.0-E816.7, E817.0-E817.7, E818.0-E818.7, E819.0-E819.7, E820.0-E820.7, E821.0-E821.7, E822.0-E822.7, E823.0-E823.7, E824.0-E824.7, E825.0-E825.7, E826.0-E826.4, E827.0-E827.4, E828.0-E828.4, E829.0-E829.4, E830-E838.9, E840-E849.9, E929.1	V00-V86.99, V87.2-V87.3, V88.2-V88.3, V90-V98.8
Road injuries	3	E800.3, E801.3, E802.3, E803.3, E804.3, E805.3, E806.3, E807.3, E810.0-E810.6, E811.0-E811.7, E812.0-E812.7, E813.0-E813.7, E814.0-E814.7, E815.0-E815.7, E816.0-E816.7, E817.0-E817.7, E818.0-E818.7, E819.0-E819.7, E820.0-E820.6, E821.0-E821.6, E822.0-E822.7, E823.0-E823.7, E824.0-E824.7, E825.0-E825.7, E826.0-E826.1, E826.3-E826.4, E827.0, E827.3-E827.4, E828.0, E828.4, E829.0-E829.4	V01-V04.99, V06-V80.929, V82-V82.9, V87.2-V87.3
Pedestrian road injuries	4	E811.7, E812.7, E813.7, E814.7, E815.7, E816.7, E817.7, E818.7, E819.7, E822.7, E823.7, E824.7, E825.7, E826.0, E827.0, E828.0, E829.0	V01-V04.99, V06-V09.9
Cyclist road injuries	4	E800.3, E801.3, E802.3, E803.3, E804.3, E805.3, E806.3, E807.3, E810.6, E811.6, E812.6, E813.6, E814.6, E815.6, E816.6, E817.6, E818.6, E819.6, E820.6, E821.6, E822.6, E823.6, E824.6, E825.6, E826.1	V10-V19.9
Motorcyclist road injuries	4	E810.2-E810.3, E811.2-E811.3, E812.2-E812.3, E813.2-E813.3, E814.2-E814.3, E815.2-E815.3, E816.2-E816.3, E817.2-E817.3, E818.2-E818.3, E819.2-E819.3, E820.2-E820.3, E821.2-E821.3, E822.2-E822.3, E823.2-E823.3, E824.2-E824.3, E825.2-E825.3	V20-V29.9
Motor vehicle road injuries	4	E810.0-E810.1, E811.0-E811.1, E812.0-E812.1, E813.0-E813.1, E814.0-E814.1, E815.0-E815.1, E816.0-E816.1, E817.0-E817.1, E818.0-E818.1, E819.0-E819.1, E820.0-E820.1, E821.0-E821.1, E822.0-E822.1, E823.0-E823.1, E824.0-E824.1, E825.0-E825.1	V30-V79.9, V87.2-V87.3

eTable 3: GBD cause list and associated ICD9 and ICD10 codes (continued).

Cause	Level	ICD9	ICD10
Other road injuries	4	E810.4-E810.5, E811.4-E811.5, E812.4-E812.5, E813.4-E813.5, E814.4-E814.5, E815.4-E815.5, E816.4-E816.5, E817.4-E817.5, E818.4-E818.5, E819.4-E819.5, E820.4-E820.5, E821.4-E821.5, E822.4-E822.5, E823.4-E823.5, E824.4-E824.5, E825.4-E825.5, E826.3-E826.4, E827.3-E827.4, E828.4, E829.4	V80-V80.929, V82-V82.9
Other transport injuries	3-4	E800-E800.2, E801-E801.2, E802-E802.2, E803-E803.2, E804-E804.2, E805-E805.2, E806-E806.2, E807-E807.2, E810.7, E820.7, E821.7, E826.2, E827.2, E828.2, E830-E838.9, E840-E849.9, E929.1	V00-V00.898, V05-V05.99, V81-V81.9, V83-V86.99, V88.2-V88.3, V90-V98.8
Unintentional injuries	2	E850.3-E850.89, E854.8, E856-E857.09, E860.2-E869.99, E870-E876.9, E878-E879.9, E880-E886.99, E888-E906.99, E910-E928.89, E929.2-E929.5, E930-E949.9	W00-W46.2, W49-W62.9, W64-W70.9, W73-W75.9, W77-W81.9, W83-W94.9, W97.9, W99-X06.9, X08-X32.9, X39-X39.9, X46-X47, X47.1-X47.8, X48-X48.9, X50-X54.9, X57-X58.9, Y38.9-Y84.9, Y88-Y88.3
Falls	3-4	E880-E886.99, E888-E888.9, E929.3	W00-W19.9
Drowning	3-4	E910-E910.99	W65-W70.9, W73-W74.9
Fire, heat, and hot substances	3-4	E890-E899.09, E924-E924.99, E929.4	X00-X06.9, X08-X19.9
Poisonings	3-4	E850.3-E850.89, E854.8, E856-E857.09, E860.2-E869.99, E929.2	X46-X47, X47.1-X47.8, X48-X48.9
Exposure to mechanical forces	3	E913-E913.19, E916-E922.99, E928.1-E928.7	W20-W38.9, W40-W43.9, W45.0-W45.2, W46-W46.2, W49-W52, W75-W75.9
Unintentional firearm injuries	4	E922-E922.99, E928.7	W32-W34.9
Unintentional suffocation	4	E913-E913.19	W75-W75.9
Other exposure to mechanical forces	4	E916-E921.99, E928.1-E928.6	W20-W31.9, W35-W38.9, W40-W43.9, W45.0-W45.2, W46-W46.2, W49-W52
Adverse effects of medical treatment	3-4	E870-E876.9, E878-E879.9, E930-E949.9	Y38.9-Y84.9, Y88-Y88.3
Animal contact	3	E905-E906.99	W52.0-W62.9, W64-W64.9, X20-X29.9
Venomous animal contact	4	E905-E905.99	X20-X29.9
Non-venomous animal contact	4	E906-E906.99	W52.0-W62.9, W64-W64.9
Foreign body	3	E911-E912.09, E913.8-E915.09	W44-W45, W45.3-W45.9, W78-W80.9, W83-W84.9
Pulmonary aspiration and foreign body in airway	4	E911-E912.09, E913.8-E913.99	W78-W80.9, W83-W84.9
Foreign body in other body part	4	E914-E915.09	W44-W45, W45.3-W45.9
Environmental heat and cold exposure	3-4	E900-E902.99, E926-E926.99, E929.5	W88-W94.9, W97.9, W99-W99.9, X30-X32.9, X39-X39.9
Other unintentional injuries	3-4	E903-E904.99, E913.2-E913.39, E923-E923.99, E925-E925.99, E927-E928.09, E928.8-E928.89	W39-W39.9, W77-W77.9, W81-W81.9, W85-W87.9, X50-X54.9, X57-X58.9
Self-harm and interpersonal violence	2	E950-E969	X60-Y08.9, Y87.0-Y87.1
Self-harm	3-4	E950-E959	X60-X84.9, Y87.0
Interpersonal violence	3	E960-E969	X85-Y08.9, Y87.1
Assault by firearm	4	E965-E965.4	X93-X94.0, X94.3-X94.7, X94.9-X95.9, X96.5
Assault by sharp object	4	E966	X99-X99.9
Assault by other means	4	E960-E964, E965.5-E965.9, E967-E969	X85-X92.9, X94.1-X94.2, X94.8, X96-X96.4, X96.6-X98.9, Y00-Y08.9, Y87.1
Forces of nature, war, and legal intervention	2	E907-E909.9, E970-E979.9, E990-E999.1	X33-X38.9, Y35-Y38.893, Y89.0-Y89.1
Exposure to forces of nature	3-4	E907-E909.9	X33-X38.9
Collective violence and legal intervention	3-4	E970-E979.9, E990-E999.1	Y35-Y38.893, Y89.0-Y89.1

eTable 3: GBD cause list and associated ICD9 and ICD10 codes (continued).

Cause	Level	ICD9	ICD10
Garbage Code		000-000.9, 002, 031-031.9, 038-038.9, 039.6, 040.0, 041.1-041.9, 067-069, 076-078.3, 078.8-078.9, 079.8-079.99, 084, 084.6, 085, 085.1-085.9, 089-089.9, 105-119, 125-125.3, 126-126.9, 127.2-127.9, 130-132.9, 133.8-134.9, 136.3-136.5, 136.8-136.9, 139.1-139.9, 149-149.9, 159-159.9, 165-169, 176-179.9, 183.9-184, 184.5, 184.9, 187, 187.9, 189, 189.9, 194.9-199.9, 209, 209.2-209.20, 209.29-209.30, 209.6-209.60, 209.62, 209.69-210, 211, 211.9-212, 212.9, 214-216.9, 221, 221.9-222, 222.9-223, 223.9, 229, 229.1, 229.9-230.0, 230.9-231, 231.8-231.9, 233, 233.3-233.30, 233.39, 233.6, 233.9-234, 234.9-235, 235.1-235.3, 235.5, 235.9-236, 236.3, 236.6, 236.9-236.90, 237.4, 238, 238.6-239.1, 239.5, 239.7-239.9, 244, 244.9, 247-249.91, 264-264.9, 274-274.9, 276.0-276.9, 277.3-277.39, 278, 279-280.0, 280.9-281, 285-285.9, 286.6, 289.8-289.9, 293-294.0, 296-302.9, 304, 304.9-304.93, 306-307.0, 307.2-307.50, 307.52-307.53, 307.59-320, 320.9, 324-327.19, 328-329, 331.3-331.4, 338-339.89, 342-344.9, 346-348.9, 349.81-353.5, 354-355.9, 357, 357.8-357.9, 360-376, 376.10-380.9, 384-389.9, 399-401.9, 405-409.4, 415-416.0, 416.2-416.9, 418-419.9, 423.0, 426-426.9, 427.4-427.5, 427.9-429, 429.2-429.9, 436-437, 437.3, 437.9-440.9, 444-445.89, 458-458.9, 459.0, 459.5-460.9, 462-464, 464.00, 464.1-464.10, 464.20, 464.3-464.30, 464.5-464.51, 465-465.9, 482.9-483, 484, 484.8-486.9, 505-505.9, 507-507.9, 510-514.9, 515.0-515.9, 518-518.53, 518.8-518.89, 519, 519.8-529.9, 536.2-536.3, 536.8-536.9, 537.7, 537.89-537.9, 544-549, 553.8-553.9, 559-559.0, 560.4-560.7, 561, 562.2-563, 564.8-564.9, 567-569, 569.49, 569.79-569.83, 569.86-570.9, 572-572.2, 573	A01, A14.9, A29, A31-A31.9, A40-A45.9, A47-A48.0, A48.3, A48.8-A49.02, A49.2-A49.9, A59-A59.9, A61-A62, A64-A64.0, A71-A73, A74.0, A76, A97, A99-A99.0, B07-B09, B11-B14, B28-B29, B30-B32.4, B34-B46.9, B49-B49.9, B54-B55, B55.1-B55.9, B58-B59.9, B61-B62, B64, B68-B68.9, B73-B74.2, B76-B76.9, B78-B82.9, B83.9-B85.4, B87-B89, B93-B94.0, B94.8-B94.9, B95.6-B99.9, C14-C14.9, C26-C29, C35-C36, C39-C39.9, C42, C46-C46.9, C55-C55.9, C57.9, C59-C6, C63.9, C68, C68.9, C75.9-C80.9, C87, C97-D00.0, D01, D01.4-D02, D02.4-D02.9, D07, D07.3-D07.39, D07.6-D09, D09.1-D09.19, D09.7, D09.9-D10, D10.9, D13, D13.9-D14, D14.4, D17-D21.9, D28, D28.9-D29, D29.9-D30, D30.9, D36.0, D36.9-D37.0, D37.6-D38, D38.6-D39.0, D39.7, D39.9-D40, D40.9-D41, D41.9, D44, D44.9, D46-D46.9, D47.1, D48, D48.7-D49.1, D49.5, D49.7-D49.8, D49.89-D50.0, D50.9, D54, D59, D59.4, D59.8-D59.9, D62-D63.0, D63.8-D64, D64.1-D64.2, D64.8-D65.9, D68, D69.9, D75.9, D79-D85, D87-D88, D89.8-D99, E07.8-E08.9, E15, E16, E17-E19, E34.9-E35.8, E37-E39, E47-E50.9, E62, E64.1, E69, E85.3-E87.70, E87.79-E87.99, E90-E998, F04-F06.1, F06.3-F07.0, F07.2-F09.9, F17-F17.9, F30-F50, F50.8-G00, G00.9-G02.8, G03.9, G06-G09.9, G15-G19, G27-G29, G32-G34, G38-G39, G42-G44.89, G47-G47.29, G47.4-G60.9, G62-G69, G74-G89.4, G91-G93.6, G93.8-G94.8, G96-G96.9, G98-H05, H05.12-H69.93, H71-H99, I00.0, I03-I04, I10-I10.9, I14-I19, I26-I27.0, I27.2-I27.9, I28.9-I29.9, I31.2-I31.4, I44-I46.9, I49-I51, I51.6-I59, I62, I62.1-I62.9, I64-I64.9, I67, I67.4, I67.8-I68

eTable 3: GBD cause list and associated ICD9 and ICD10 codes (continued).

Cause	Level	ICD9	ICD10
Garbage Code (continued)		573.5, 578-578.9, 584-584.9, 586-587.9, 591-591.9, 593.9, 599.7-599.72, 599.9-600.91, 603-603.9, 605-608.1, 608.3-609, 611-612.1, 615-616.9, 619-619.9, 621-621.35, 622-622.2, 622.8-628.9, 629.89-629.9, 637-637.92, 639-639.9, 690-693.9, 695.8-706.9, 708-709.9, 712-713.8, 714.4, 715-716, 716.1-728.85, 728.87, 728.89-730.09, 730.2-730.39, 730.7-731.9, 733, 733.2-739.9, 749.1-749.14, 759, 759.9, 770.0, 779.9-780.56, 780.58, 780.6-780.61, 780.64-786.02, 786.04-787.04, 787.2-787.9, 787.99-788, 788.1-790.1, 790.29, 790.4-797.9, 798.1-E80, E800.8-E800.9, E801.8-E801.9, E802.8-E802.9, E803.8-E803.9, E804.8-E804.9, E805.8-E805.9, E806.8-E806.9, E807.8-E810, E810.8-E811, E811.8-E812, E812.8-E813, E813.8-E814, E814.8-E815, E815.8-E816, E816.8-E817, E817.8-E818, E818.8-E819, E819.8-E820, E820.8-E821, E821.8-E822, E822.8-E823, E823.8-E824, E824.8-E825, E825.8-E826, E826.8-E827, E827.8-E828, E828.8-E829, E829.8-E83, E839, E85, E855-E855.99, E858-E859, E87, E877, E88, E887-E887.09, E928.9-E929.0, E929.8-E929.9, E980-E989	I68.8-I69, I69.4-I70.1, I70.8-I70.92, I74-I76, I90, I92-I95.1, I95.8-I96.9, I98.4-I98.8, I99-J00.0, J02, J02.8-J03, J03.8-J04, J04.1-J04.31, J05.1-J05.10, J06-J08, J15.9, J17-J19.6, J22-J29, J48-J59, J64-J64.9, J69-J69.9, J71-J81.9, J83, J85-J90.9, J93-J94.9, J96-K19, K30, K31.9-K34, K39, K47-K49, K53-K54, K63-K63.4, K63.8-K63.9, K65-K66.1, K66.9, K69, K71-K71.2, K71.6, K71.8-K72.01, K75-K75.1, K78-K79, K84, K87-K89, K92-K92.2, K92.9-K93, K93.1-K93.8, K96-K99, L06-L07, L09, L15-L50.9, L52-L87.9, L90-L92.9, L94-L96, L98.5-L99.8, M04, M10-M12.09, M12.2-M29, M37-M39, M43.2-M49, M49.2-M64, M65.1-M71, M71.2-M73, M73.8-M79.9, M83-M86.29, M86.5-M86.9, M87.2-M87.9, M89.1-M89.49, M90-M99.9, N09, N13-N13.9, N17-N17.9, N19-N19.9, N24, N32.1-N32.2, N32.8-N33.8, N35-N35.9, N37-N38, N39.3-N40.9, N42-N43.42, N44.1-N44.8, N46-N48.9, N50-N59, N61-N64.9, N66-N69, N78-N79, N82-N82.9, N84, N84.2-N86, N88-N95.9, N97-N97.9, O08-O08.9, O17-O19, O27, O37-O39, O49-O59, O78-O79, O93-O95.9, P06, P16-P18, P23, P23.5-P23.9, P30-P34.2, P37.3-P37.4, P40-P49, P62-P69, P73, P79, P82, P85-P89, P96.9-P99.9, Q08-Q10.3, Q19, Q29, Q36.0-Q36.9, Q46-Q49, Q88, Q89.9, Q94, Q99.9-R19.6, R19.8-R50.1, R50.8-R50.81, R50.84-R72.9, R74-R78, R78.6-R94.8, R95.0-T71.161, T71.163-U03, U05-U99, V87-V87.1, V87.4-V88.1, V88.4-V89.9, V99-V99.0, W47-W48, W63, W71-W72, W76-W76.9, W82, W95-W97, W98, X07, X40-X44.9, X47.0, X47.9, X49-X49.9, X55-X56, X59-X59.9, Y09-Y34.9, Y85-Y87, Y87.2, Y89, Y89.9-Y99.9

eTable 4: Observed deaths due to infectious diseases by cause, United States, 1980-2014.*

Cause	Deaths	% of All Deaths	% of Infectious Deaths
Lower respiratory infections	2,984,602	3.71	73.12
HIV/AIDS	571,550	0.71	14.00
Diarrheal diseases	135,479	0.17	3.32
Other infectious diseases	115,247	0.14	2.82
Hepatitis	85,420	0.11	2.09
Meningitis	75,350	0.09	1.85
Tuberculosis	61,794	0.08	1.51
Encephalitis	23,462	0.03	0.57
Varicella and herpes zoster	8,532	0.01	0.21
Sexually transmitted diseases excluding HIV	7,751	0.01	0.19
Neglected tropical diseases and malaria	5,090	0.01	0.12
Upper respiratory infections	2,466	0.00	0.06
Otitis media	1,656	0.00	0.04
Intestinal infectious diseases	1,244	0.00	0.03
Tetanus	744	0.00	0.02
Whooping cough	618	0.00	0.02
Measles	457	0.00	0.01
Diphtheria	82	0.00	0.00

*National Vital Statistics System. Multiple Cause of Death Data File. (1980-2014).

eTable 5: Diarrheal diseases and associated ICD9 and ICD10 codes.

ICD Revision	ICD Code	Cause
ICD9	001	Cholera
ICD9	001.0	Cholera due to vibrio cholerae
ICD9	001.1	Cholera due to vibrio cholerae el tor
ICD9	001.9	Cholera unspecified
ICD9	003.8	Other specified salmonella infections
ICD9	003.9	Salmonella infection, unspecified
ICD9	004	Shigellosis
ICD9	004.0	Shigella dysenteriae
ICD9	004.1	Shigella flexneri
ICD9	004.2	Shigella boydii
ICD9	004.3	Shigella sonnei
ICD9	004.8	Other specified shigella infections
ICD9	004.9	Shigellosis unspecified
ICD9	005	Other food poisoning (bacterial)
ICD9	005.0	Staphylococcal food poisoning
ICD9	005.1	Botulism food poisoning
ICD9	005.2	Food poisoning due to Clostridium perfringens (C. welchii)
ICD9	005.3	Food poisoning due to other Clostridia
ICD9	005.4	Food poisoning due to Vibrio parahaemolyticus
ICD9	005.8	Other bacterial food poisoning
ICD9	005.81	Food poisoning due to Vibrio vulnificus
ICD9	005.89	Other bacterial food poisoning
ICD9	005.9	Food poisoning, unspecified
ICD9	006	Amebiasis
ICD9	006.0	Acute amebic dysentery without mention of abscess
ICD9	006.1	Chronic intestinal amebiasis without mention of abscess
ICD9	006.2	Amebic nondysenteric colitis
ICD9	006.3	Amebic liver abscess
ICD9	006.4	Amebic lung abscess
ICD9	006.5	Amebic brain abscess
ICD9	006.6	Amebic skin ulceration
ICD9	006.7	Amoebic skin ulceration
ICD9	006.8	Amebic infection of other sites
ICD9	006.9	Amebiasis unspecified
ICD9	007.4	Cryptosporidiosis
ICD9	007.5	Cyclosporiasis
ICD9	007.7	Cryptosporidiosis
ICD9	007.8	Other specified protozoal intestinal diseases
ICD9	008.01	Intestinal infection due to enteropathogenic E. coli
ICD9	008.02	Intestinal infection due to enterotoxigenic E. coli
ICD9	008.04	Intestinal infection due to enterohemorrhagic E. coli
ICD9	008.2	Intestinal infection due to aerobacter aerogenes
ICD9	008.3	Intestinal infection due to proteus (mirabilis) (morganii)
ICD9	008.4	Intestinal infection due to other specified bacteria
ICD9	008.41	Intestinal infection due to staphylococcus
ICD9	008.42	Intestinal infection due to pseudomonas

eTable 5: Diarrheal diseases and associated ICD9 and ICD10 codes (continued).

ICD Revision	ICD Code	Cause
ICD9	008.43	Intestinal infection due to campylobacter
ICD9	008.44	Intestinal infection due to yersinia enterocolitica
ICD9	008.45	Intestinal infection due to Clostridium difficile
ICD9	008.46	Intestinal infection due to other anaerobes
ICD9	008.47	Intestinal infection due to other gram-negative bacteria
ICD9	008.49	Intestinal infection due to other organisms
ICD9	008.5	Bacterial enteritis, unspecified
ICD9	008.6	Enteritis due to specified virus
ICD9	008.61	Enteritis due to rotavirus
ICD9	008.62	Enteritis due to adenovirus
ICD9	008.63	Enteritis due to norwalk virus
ICD9	008.64	Enteritis due to other small round viruses [SRV's]
ICD9	008.65	Enteritis due to calicivirus
ICD9	008.66	Enteritis due to astrovirus
ICD9	008.67	Enteritis due to enterovirus nec
ICD9	008.69	Enteritis due to other viral enteritis
ICD9	008.8	Intestinal infection due to other organism, not elsewhere classified
ICD9	009	Ill-defined intestinal infections
ICD9	009.0	Infectious colitis, enteritis, and gastroenteritis
ICD9	009.1	Colitis, enteritis, and gastroenteritis of presumed infectious origin
ICD9	009.2	Infectious diarrhea
ICD9	009.3	Diarrhea of presumed infectious origin
ICD9	787.91	Diarrhea
ICD10	A00	Cholera
ICD10	A00.0	Cholera due to Vibrio cholerae 01, biovar cholerae
ICD10	A00.1	Cholera due to Vibrio cholerae 01, biovar eltor
ICD10	A00.9	Cholera, unspecified
ICD10	A02	Other salmonella infections
ICD10	A02.0	Salmonella enteritis
ICD10	A02.8	Other specified salmonella infections
ICD10	A02.9	Salmonella infection, unspecified
ICD10	A03	Shigellosis
ICD10	A03.0	Shigellosis due to Shigella dysenteriae
ICD10	A03.1	Shigellosis due to Shigella flexneri
ICD10	A03.2	Shigellosis due to Shigella boydii
ICD10	A03.3	Shigellosis due to Shigella sonnei
ICD10	A03.8	Other shigellosis
ICD10	A03.9	Shigellosis, unspecified
ICD10	A04	Other bacterial intestinal infections
ICD10	A04.0	Enteropathogenic Escherichia coli infection
ICD10	A04.1	Enterotoxigenic Escherichia coli infection
ICD10	A04.2	Enteroinvasive Escherichia coli infection
ICD10	A04.3	Enterohemorrhagic Escherichia coli infection
ICD10	A04.4	Other intestinal Escherichia coli infections
ICD10	A04.5	Campylobacter enteritis
ICD10	A04.6	Enteritis due to Yersinia enterocolitica

eTable 5: Diarrheal diseases and associated ICD9 and ICD10 codes (continued).

ICD Revision	ICD Code	Cause
ICD10	A04.7	Enterocolitis due to <i>Clostridium difficile</i>
ICD10	A04.8	Other specified bacterial intestinal infections
ICD10	A04.9	Bacterial intestinal infection, unspecified
ICD10	A05	Other bacterial foodborne intoxications, not elsewhere classified
ICD10	A05.0	Foodborne staphylococcal intoxication
ICD10	A05.1	Botulism food poisoning
ICD10	A05.2	Foodborne <i>Clostridium perfringens</i> [<i>Clostridium welchii</i>] intoxication
ICD10	A05.3	Foodborne <i>Vibrio parahaemolyticus</i> intoxication
ICD10	A05.4	Foodborne <i>Bacillus cereus</i> intoxication
ICD10	A05.5	Foodborne <i>Vibrio vulnificus</i> intoxication
ICD10	A05.8	Other specified bacterial foodborne intoxications
ICD10	A05.9	Bacterial foodborne intoxication, unspecified
ICD10	A06	Amebiasis
ICD10	A06.0	Acute amebic dysentery
ICD10	A06.1	Chronic intestinal amebiasis
ICD10	A06.2	Amebic nondysenteric colitis
ICD10	A06.3	Ameboma of intestine
ICD10	A06.4	Amebic liver abscess
ICD10	A06.5	Amebic lung abscess
ICD10	A06.6	Amebic brain abscess
ICD10	A06.7	Cutaneous amebiasis
ICD10	A06.8	Amebic infection of other sites
ICD10	A06.81	Amebic cystitis
ICD10	A06.82	Other amebic genitourinary infections
ICD10	A06.89	Other amebic infections
ICD10	A06.9	Amebiasis, unspecified
ICD10	A07	Other protozoal intestinal diseases
ICD10	A07.2	Cryptosporidiosis
ICD10	A07.3	Isosporiasis
ICD10	A07.4	Cyclosporiasis
ICD10	A08	Viral and other specified intestinal infections
ICD10	A08.0	Rotaviral enteritis
ICD10	A08.1	Acute gastroenteropathy due to Norwalk agent and other small round viruses
ICD10	A08.11	Acute gastroenteropathy due to Norwalk agent
ICD10	A08.19	Acute gastroenteropathy due to other small round viruses
ICD10	A08.2	Adenoviral enteritis
ICD10	A08.3	Other viral enteritis
ICD10	A08.31	Calicivirus enteritis
ICD10	A08.32	Astrovirus enteritis
ICD10	A08.39	Other viral enteritis
ICD10	A08.4	Viral intestinal infection, unspecified
ICD10	A08.5	Other specified intestinal infections
ICD10	A08.8	Other specified intestinal infections
ICD10	A09	Infectious gastroenteritis and colitis, unspecified
ICD10	R19.7	Diarrhea, unspecified