
National Health Statistics Reports

Number 136 ■ December 30, 2019

The *International Classification of Diseases, 10th Revision, Clinical Modification (ICD–10–CM)* External Cause-of-injury Framework for Categorizing Mechanism and Intent of Injury

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Abstract

Background—External cause-of-injury frameworks, or matrices, based on the *International Classification of Diseases (ICD)* provide standardized categories for reporting injuries by mechanism and intent of injury. In 2014, the National Center for Health Statistics (NCHS) and the National Center for Injury Prevention and Control (NCIPC) published a proposed external cause-of-injury matrix for use with data coded using the *ICD, 10th Revision, Clinical Modification (ICD–10–CM)*. At the time the proposed matrix was developed, ICD–10–CM coded data were not available to evaluate the performance of the proposed matrix. When data became available, NCHS and NCIPC collaborated with the Council of State and Territorial Epidemiologists and state and local health departments to evaluate the proposed matrix to identify any changes needed before finalization. This report describes the results of that evaluation.

Methods—With guidance from NCHS and NCIPC, state and local injury epidemiologists from five jurisdictions analyzed their hospital discharge and emergency department administrative claims data. The epidemiologists applied the ICD–9–CM matrix to ICD–9–CM coded data and the 2014 proposed ICD–10–CM matrix to ICD–10–CM coded data for similar time periods (e.g., January through December). The numbers for each mechanism and intent category in each of the two matrices were calculated and compared, and major differences were explored.

Results—Based on the findings, several adjustments were made to the original placement of codes in the 2014 proposed ICD–10–CM external cause-of-injury matrix. These changes involved codes related to Drowning/submersion, Firearm, Motor vehicle–Traffic, Overexertion, and Unspecified mechanisms. In addition, new external cause codes not available at the time the 2014 proposed matrix was developed were added to create the 2019 final matrix.

Conclusions—The 2019 final ICD–10–CM external cause-of-injury matrix provides standard categories for reporting injuries by mechanism and intent of injury. Use of this tool promotes consistency for comparisons across populations and over time.

Keywords: injury surveillance • injury morbidity • external cause matrix

Introduction

External cause-of-injury frameworks, or matrices, provide standardized categories for reporting injuries by mechanism and intent of injury (1–4). The use of these matrices promotes consistency when monitoring injury events over time and across data sources.

The external cause-of-injury matrices (hereafter referred to as the external cause matrix) are based on external cause-of-injury codes from the *International Classification of Diseases (ICD)*. ICD is a classification system developed and published by the World Health Organization to promote international comparability in the collection, classification, and presentation of mortality statistics (5). In the United States, the *ICD, Ninth Revision (ICD–9)* was used to classify mortality data from 1979 through 1998 and the *ICD, 10th Revision (ICD–10)* from 1999 forward. Clinical modifications of ICD have also been developed for use with morbidity data (6,7). Though structurally similar to ICD for mortality, the clinical modifications provide an expanded set of codes needed for capturing the detailed information obtained in clinical settings. In the United States, the *ICD, Ninth Revision, Clinical Modification*



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Table A. Basic structure of the 2014 proposed ICD–10–CM external cause-of-injury matrix for categorizing mechanism and intent of injury

Mechanism of injury	Intent of injury				
	Unintentional	Intentional self-harm	Assault	Undetermined	Legal intervention/war operations
Cut/pierce	†	†	†	†	†
Drowning/submersion	†	†	†	†	...
Fall	†	†	†	†	...
Fire/burn	†	†	†	†	†
Fire/flame	†	†	†	†	†
Hot object/substance	†	†	†	†	...
Firearm	†	†	†	†	†
Machinery	†
All transportation [‡]	†	†	†	†	†
Motor vehicle–Traffic (MVT)	†	†	†	†	...
MVT–Occupant	†	†	†
MVT–Motorcyclist	†
MVT–Pedal cyclist	†
MVT–Pedestrian	†	...	†
MVT–Other [‡]	†
MVT–Unspecified	†	†	...
Motor vehicle–Nontraffic [‡]	†
Pedal cyclist, other	†
Pedestrian, other	†
Other land transport [‡]	†	†	†
Other transport	†	†	†	...	†
Natural/environmental	†	†	†	†	...
Bites/stings, nonvenomous [‡]	†	...	†
Bites/stings, venomous [‡]	†	†	†	†	...
Natural/environmental, other	†	†	†	†	...
Overexertion	†
Poisoning	†	†	†	†	†
Drug [‡]	†	†	†	†	...
Nondrug [‡]	†	†	†	†	†
Struck by/against	†	†	†	...	†
Suffocation	†	†	†	†	†
Other specified	†	†	†	†	†
Other specified, child/adult abuse [‡]	†
Other specified, foreign body [‡]	†
Other specified, classifiable	†	†	†	†	†
Other specified, not elsewhere classifiable	†	†	†	†
Unspecified	†	†	...	†

† Indicates that relevant ICD–10–CM external cause-of-injury codes exist for this cell.

... Category not applicable (no relevant ICD–10–CM external cause-of-injury codes exist for this cell).

‡ New mechanism category in the 2014 proposed ICD–10–CM external cause matrix that is not found in the ICD–9–CM external cause matrix.

NOTE: ICD–10–CM is the *International Classification of Diseases, 10th Revision, Clinical Modification*.

SOURCES: National Center for Health Statistics and National Center for Injury Prevention and Control.

(ICD–9–CM) was used to classify morbidity data from October 1, 1979 through September 30, 2015. External cause matrices have been developed for ICD–9 and ICD–10 for use with mortality data (2,3) and for ICD–9–CM for use with morbidity data (4). These matrices have been used extensively for more than 20 years.

Beginning on October 1, 2015, the U.S. Department of Health and Human Services required all hospitals and health care providers covered by the Health Insurance Portability and Accountability Act to use the *ICD, 10th Revision, Clinical Modification* (ICD–10–CM) rather than ICD–9–CM to report medical information in administrative data (6,7). In anticipation of this change, in 2014,

the National Center for Health Statistics (NCHS) and the National Center for Injury Prevention and Control (NCIPC) published a proposed ICD–10–CM external cause matrix for presenting injury data using ICD–10–CM external cause-of-injury codes (1).

The process for developing the 2014 proposed external cause matrix has been described in detail elsewhere (1) and is briefly outlined here. The process involved creating the general structure of the matrix (columns and rows) and then placing the ICD–10–CM external cause-of-injury codes in a given mechanism-by-intent cell within the matrix.

The general structure of the 2014 proposed ICD–10–CM external cause matrix is shown in [Table A](#). Column

headings indicate the intent of injury and row labels indicate the mechanism of injury. In developing the proposed matrix, aspects of both the ICD–9–CM external cause matrix for morbidity data (4) and the ICD–10 external cause matrix for mortality data (3) were considered. However, the expanded detail in the ICD–10–CM external cause-of-injury codes allowed the addition of new mechanism categories in the 2014 proposed ICD–10–CM external cause matrix. For example, compared with the ICD–9–CM external cause matrix, the 2014 proposed ICD–10–CM external cause matrix has 10 additional mechanism categories.

The five intent categories are Unintentional, Intentional self-harm,

Table B. Codes included in the ICD–10–CM external cause-of-injury matrix

ICD–10–CM code	External cause
V00–V99	Transport accidents
W00–X58	Other external causes of accidental injury
X71–X83	Intentional self-harm
X92–Y09	Assault
Y21–Y33	Event of undetermined intent
Y35–Y38	Legal intervention, operations of war, military operations and terrorism
T14.91	Suicide attempt
T15–T19	Effects of foreign body entering through natural orifice
T36–T50 with a 6th character of 1, 2, 3, or 4 (exceptions: T36.9, T37.9, T39.9, T41.4, T42.7, T43.9, T45.9, T47.9, and T49.9, which are included if the code has a 5th character of 1, 2, 3, or 4)	Poisoning by drugs, medicaments, and biological substances
T51–T65	Toxic effects of substances chiefly nonmedicinal as to source
T71	Asphyxiation
T73	Effects of deprivation
T74, T76	Adult and child abuse, neglect, and other maltreatment, confirmed or suspected
T75.0–T75.4	Effects of lightning, effects of drowning, effects of vibration, motion sickness, electrocution

NOTE: ICD–10–CM is the *International Classification of Diseases, 10th Revision, Clinical Modification*.

SOURCES: National Center for Health Statistics and National Center for Injury Prevention and Control.

Assault, Undetermined, and Legal intervention/war operations. The 14 major mechanism categories are Cut/pierce, Drowning/submersion, Fall, Fire/burn, Firearm, Machinery, All transportation, Natural/environmental, Overexertion, Poisoning, Struck by/against, Suffocation, Other specified, and Unspecified. Five of the 14 major mechanism categories are further divided into subcategories (Table A).

Chapter 20 of the ICD–10–CM tabular list contains codes that describe the external causes of morbidity (7); however, only a subset of these external cause-of-injury codes are used for injury surveillance for public health purposes. This subset includes all V, W, and X codes and Y00–Y38 (Table B). Additionally, several nature-of-injury (diagnosis) T codes from Chapter 19 of the ICD–10–CM also convey injury mechanism and intent information. These include T codes for poisoning, toxic effects, asphyxiation, child and adult abuse and maltreatment, suicide attempt, and effects of various other external causes. Table B summarizes the V, W, X, Y, and T codes included in the 2014 proposed ICD–10–CM external cause matrix.

The process for placing individual V, W, X, Y, and T codes in a given mechanism-by-intent cell in the 2014 proposed ICD–10–CM external cause matrix involved the use of General Equivalence Mappings (GEMs), a tool produced by NCHS and the Centers for Medicare & Medicaid Services (CMS)

to assist in translating between different versions of the clinical modifications of ICD (8). GEMs were used to identify “equivalent” ICD–9–CM codes for each ICD–10–CM code. In determining the placement of an ICD–10–CM code in a given mechanism-by-intent cell in the 2014 proposed ICD–10–CM external cause matrix, consideration was given to where similar codes had been placed in the ICD–10 external cause matrix for mortality, and “equivalent” ICD–9–CM codes had been placed in the ICD–9–CM external cause matrix for morbidity.

Because ICD–10–CM contains codes not found in either ICD–9–CM or ICD–10, a set of guiding principles was also used to determine code placement (Technical Notes). These guiding principles took into consideration the differences among ICD–10–CM, ICD–9–CM, and ICD–10 codes. Using the guiding principles, NCIPC and NCHS staff independently reviewed and placed each code in a mechanism-by-intent cell, then discussed discrepancies to reach consensus on placement of the codes. In many instances, compatibility with the ICD–10 external cause matrix for mortality took precedence over compatibility with the ICD–9–CM external cause matrix (e.g., transportation-related events) because of the importance of using ICD–10 and ICD–10–CM for international comparisons of trends in fatal and nonfatal injury rates (1).

At the time the 2014 proposed ICD–10–CM external cause matrix was

developed, ICD–10–CM coded data were not available to evaluate the proposed code placements. When ICD–10–CM coded administrative data became available, NCHS and NCIPC collaborated with the Council of State and Territorial Epidemiologists (CSTE), state and local health departments, and others to evaluate the 2014 proposed ICD–10–CM external cause matrix. This evaluation focused on: (a) comparability in numbers between the ICD–9–CM external cause matrix and the 2014 proposed ICD–10–CM external cause matrix for each mechanism and intent category, and (b) determining whether any external cause-of-injury codes should be moved to a different mechanism-by-intent cell. This report highlights the adjustments made to the 2014 proposed ICD–10–CM external cause matrix based on the evaluation and presents the 2019 final external cause matrix.

Methods

With guidance from NCHS and NCIPC, injury epidemiologists from five state and local health departments analyzed ICD–10–CM coded hospital discharge or emergency department (ED) administrative claims data from their jurisdictions. The data are based on the universal billing form (UB–04) (9). The epidemiologists applied the ICD–9–CM external cause matrix to ICD–9–CM coded administrative claims data for time periods before October 2015 and the 2014 proposed ICD–10–CM external

cause matrix to ICD–10–CM coded administrative claims data for periods after October 2015. The months used in the two time periods were the same (e.g., January through December). Numbers of events (i.e., hospitalizations or ED visits) for each mechanism and intent category using the two matrices were calculated and compared. Differences in the results from the two matrices (i.e., substantially higher or lower numbers using the 2014 proposed ICD–10–CM external cause matrix compared with using the ICD–9–CM external cause matrix) observed by multiple jurisdictions were explored further to identify possible explanations. Exploration included such approaches as examining the number of records for the individual codes included in the mechanism-by-intent cell, as well as review and reconsideration of the guiding principles that had directed initial code placement.

Additionally, subject matter experts from NCHS, NCIPC, and CSTE reviewed code descriptions, coding guidelines, updates to the ICD–10–CM code set (7), and other materials to identify possible needed changes to the 2014 proposed ICD–10–CM external cause matrix. This resulted in several additions, deletions, and the movement of codes, as described in the next section.

Results

The information provided here focuses on those mechanism and intent categories for which multiple codes were moved or new codes added. Minimal or no changes in the original code placement were made for the major mechanism categories of Cut/pierce, Fall, Fire/burn, Machinery, Poisoning, Struck by/against, Suffocation, and Other specified. In describing a particular cell of the matrix, the intent (e.g., Unintentional) is named first, and the mechanism (e.g., Fall) is named second (e.g., Unintentional, Fall).

Drowning/submersion

In comparing the numbers from the 2014 proposed ICD–10–CM external cause matrix to those from

the ICD–9–CM external cause matrix, three of five jurisdictions noted a 27%–67% decrease in the number of hospitalizations or ED visits due to Drowning/submersion when using the 2014 proposed ICD–10–CM external cause matrix. Further exploration identified two issues, one involving code placement and one involving code inclusion, that contributed to the lower numbers.

With regard to code placement, in order to align with the ICD–10 external cause matrix for mortality, all external cause-of-injury codes in V90, Drowning and submersion due to accident to watercraft and V92, Drowning and submersion due to accident on board watercraft, without accident to watercraft had been placed in Unintentional, Other transport in the 2014 proposed ICD–10–CM external cause matrix. This differed from the placement of “equivalent” codes in the ICD–9–CM external cause matrix. Equivalent codes in ICD–9–CM, E830, Accident to watercraft causing submersion and E832, Other accidental submersion or drowning in water transport accident were placed in Unintentional, Drowning/submersion in the ICD–9–CM external cause matrix. With regard to code inclusion, the ICD–10–CM code T75.1, Unspecified effects of drowning and nonfatal submersion was not included in the 2014 proposed ICD–10–CM external cause matrix.

Further analysis from three jurisdictions showed that drowning related to watercraft comprised 10%–27% of all drowning cases, and that another 16%–38% of all drowning cases were identified by T75.1 only (i.e., no other external cause-of-injury code for drowning or submersion). For a complete count of injury events involving drowning and submersion, and for consistency with the ICD–9–CM matrix, a decision was made to: (a) move all V90 and V92 codes from Unintentional, Other transport to Unintentional, Drowning/submersion, and (b) add T75.1 to the ICD–10–CM external cause matrix. Because T75.1 does not specify the intent of injury, T75.1 was placed in Undetermined, Drowning/submersion.

With this change, the ICD–10–CM matrix for morbidity differs from the

ICD–10 matrix for mortality. In the 2019 final ICD–10–CM external cause matrix, V90 and V92 codes are included in Unintentional, Drowning/submersion, rather than in Unintentional, Other transport, as in the ICD–10 matrix.

Firearm

The ICD–10–CM external cause-of-injury codes for unintentional (accidental) firearm injuries (W32, W33, and W34) include codes for injuries resulting from discharge of the firearm and for injuries resulting from malfunction of the firearm. Separate codes for “firearm malfunction” did not exist in ICD–9–CM or ICD–10. In developing the 2014 proposed ICD–10–CM external cause matrix, the codes for accidental firearm discharge (W32.0, W33.00–W33.09, W34.00, and W34.09) were placed in Unintentional, Firearm while the codes for firearm malfunction (W32.1, W33.10–W33.19, W34.10, and W34.19) were placed in Unintentional, Other specified, classifiable.

Data from five jurisdictions showed that only a small percentage of injuries involving firearms were due to firearm malfunction (0.9%–2.4%). Although the percentage was small, a decision was made to move the codes for injuries due to firearm malfunction from Unintentional, Other specified, classifiable to Unintentional, Firearm.

With this change, the Firearm mechanism row reflects a complete count of injuries resulting from firearms, regardless of whether the injury resulted from discharge of the firearm or malfunction of the firearm.

Motor vehicle–Traffic

The Motor vehicle–Traffic (MVT) mechanism category of the 2014 proposed ICD–10–CM external cause matrix includes several subcategories that identify the type of person who was injured (i.e., Occupant, Motorcyclist, Pedal cyclist, Pedestrian, Other, and Unspecified). This is similar to the ICD–9–CM external cause matrix. However, a new category, MVT–Other, is included in the 2014 proposed ICD–10–CM external cause matrix.

Analysis of data from four jurisdictions showed that the percentage of Unintentional, MVT records in the MVT–Unspecified subcategory was approximately 2–3 times higher using the 2014 proposed ICD–10–CM external cause matrix compared with the ICD–9–CM external cause matrix (14%–22% of Unintentional, MVT records in the ICD–10–CM external cause matrix compared with 5%–9% of Unintentional, MVT records in the ICD–9–CM external cause matrix). This is likely due to the greater level of detail required for medical records coders to assign MVT codes in ICD–10–CM compared with ICD–9–CM. In ICD–10–CM, the assignment of a specific external cause-of-injury code for a motor vehicle traffic event depends on knowing the role of the person who was injured (e.g., driver, passenger, motorcyclist, pedal cyclist, and pedestrian) and the type of vehicle(s) involved. For example, for a medical records coder to assign the external cause code V43.51, Car driver injured in collision with sport utility vehicle in traffic accident, the documentation in the medical record would need to include information that: (a) the person who was injured was the driver of a car, (b) the other vehicle involved in the accident was a sport utility vehicle, and (c) the event happened on a public roadway. If this level of detailed information is not provided in the medical record, then a less specific code, such as V87.0–V87.8 (codes for “person injured” without identifying a specific role for the injured person) or V89.2, Person injured in unspecified motor vehicle accident, traffic will be assigned. Exact wording matters. For example, the word “vehicle” is not assumed to mean “motor vehicle,” and a “motor vehicle” is not assumed to specifically mean a car. “MVA,” an acronym frequently used in medical records for “motor vehicle accident,” provides no detail about the types of vehicles involved or the role of the person who was injured.

In the 2014 proposed ICD–10–CM external cause matrix, V87.0–V87.8 and V89.2 were placed in the Unintentional, MVT–Unspecified subcategory. Upon further review of the descriptions of

these codes, a decision was made to move V87.0–V87.8 and V89.2 to the subcategory of Unintentional, MVT–Occupant. This decision was based on several considerations. First, for V87.0–V87.8, although the injured person’s role is not identified, the types of vehicles are. Because the V87.0–V87.8 codes reflect collisions involving two types of vehicles, the injured person is assumed to be an occupant of one of those vehicles. Second, for V89.2, because of the widespread use of the acronym MVA in medical documentation, the assumption is that these records also reflect events in which the person injured was an occupant of a motor vehicle. It is assumed that if the person’s role had been motorcyclist, pedal cyclist, or pedestrian, this would likely be documented as such in the medical record, and the record would be given an external cause-of-injury code reflecting that role.

With this change, the ICD–10–CM external cause matrix differs from both the ICD–9–CM and ICD–10 external cause matrices. In the 2019 final ICD–10–CM external cause matrix, V87.0–V87.8 and V89.2 are included in Unintentional, MVT–Occupant, while in the ICD–10 external cause matrix for mortality, these codes are included in Unintentional, MVT–Unspecified.

MVT–Pedestrian

In comparing the numbers from the 2014 proposed ICD–10–CM external cause matrix to those from the ICD–9–CM external cause matrix, data from five jurisdictions showed that, while the total number of records for all pedestrian events (summation of Unintentional, MVT–Pedestrian and Unintentional, Pedestrian, other) was similar, there was a shift in the percentage of records found in each subcategory. Compared with the results from the ICD–9–CM matrix, the ICD–10–CM matrix showed a lower percentage of records in Unintentional, MVT–Pedestrian (46%–71% of all pedestrian events using the ICD–10–CM matrix compared with 85%–95% using the ICD–9–CM matrix) and a higher percentage of records in Unintentional, Pedestrian, other (29%–54% of all pedestrian events using the ICD–10–CM

matrix compared with 5%–15% using the ICD–9–CM matrix).

To explore possible reasons for the differences, the numbers and code descriptions for each individual code assigned to the Unintentional, MVT–Pedestrian and Unintentional, Pedestrian, other categories were reviewed. This review suggested that the code V09.3, Pedestrian injured in unspecified traffic accident had been incorrectly assigned to Unintentional, Pedestrian, other. In developing the 2014 proposed ICD–10–CM external cause matrix, V09.3 was placed in Unintentional, Pedestrian, other to match the placement of the GEMs equivalent code in ICD–9–CM, E829.0, other road vehicle accidents, pedestrian in the ICD–9–CM matrix. However, V09.3 in ICD–10–CM is not exactly equivalent to E829.0 in ICD–9–CM in that V09.3 involves a traffic accident, while E829.0 reflects a nontraffic event. A decision was made to move V09.3 from Unintentional, Pedestrian, other to Unintentional, MVT–Pedestrian.

With this change, the ICD–10–CM external cause matrix for morbidity differs from the ICD–10 external cause matrix for mortality. In the 2019 final ICD–10–CM external cause matrix, V09.3 is included in Unintentional, MVT–Pedestrian, while in the ICD–10 external cause matrix, V09.3 is included in Unintentional, Pedestrian, other.

MVT–Pedal cyclist

In comparing the numbers from the 2014 proposed ICD–10–CM external cause matrix to those from the ICD–9–CM external cause matrix, data from five jurisdictions showed that, while the total number of records for all pedal cyclist events (summation of Unintentional, MVT–Pedal cyclist and Unintentional, Pedal cyclist, other) was similar, there was a shift in the percentage of records found in each subcategory. Compared with the results from the ICD–9–CM external cause matrix, the 2014 proposed ICD–10–CM external cause matrix showed a higher percentage of records in Unintentional, MVT–Pedal cyclist (25%–48% of all pedal cyclist events using the ICD–10–CM matrix compared with

9%–33% using the ICD–9–CM matrix) and a lower percentage of records in Unintentional, Pedal cyclist, other (52%–75% of all pedal cyclist events using the ICD–10–CM matrix compared with 67%–91% using the ICD–9–CM matrix).

To explore possible reasons for the differences observed, the numbers and code descriptions for each individual code assigned to the Unintentional, MVT–Pedal cyclist and Unintentional, Pedal cyclist, other categories were reviewed. This review suggested that the code V19.9, Pedal cyclist (driver) (passenger) injured in unspecified traffic accident accounted for the differences observed. In this instance, it was thought that V19.9 was correctly placed and should remain in Unintentional, MVT–Pedal cyclist.

With this placement, the number of records in Unintentional, MVT–Pedal cyclist found using the ICD–10–CM matrix is likely to be higher than the number found using the ICD–9–CM matrix. Additionally, the ICD–10–CM matrix for morbidity differs from the ICD–10 matrix for mortality. In the 2019 final ICD–10–CM external cause matrix, V19.9 is included in Unintentional, MVT–Pedal cyclist, while in the ICD–10 external cause matrix for mortality, V19.9 is included in Unintentional, Pedal cyclist, other.

Overexertion

At the time the 2014 proposed ICD–10–CM external cause matrix was developed, the number of ICD–10–CM codes related to overexertion was very limited compared with the number of overexertion codes in ICD–9–CM. In ICD–9–CM, several codes (E927.0–.4, .8, .9) were used to classify overexertion associated with strenuous movement, prolonged static position, excessive physical exertion from prolonged activity, and cumulative trauma from repetitive motion. Only two types of ICD–10–CM codes were considered to be conceptually equivalent to the ICD–9–CM overexertion codes: W18.4, Slipping, tripping and stumbling without falling and T73.3, Exhaustion due to excessive exertion.

In comparing the numbers from the 2014 proposed ICD–10–CM external cause matrix to those from the ICD–9–CM external cause matrix, data from four jurisdictions showed a 90%–97% decrease in the number of records in Unintentional, Overexertion.

In September 2015, new external cause codes for overexertion and strenuous or repetitive movements were proposed to the ICD–10 Coordination and Maintenance Committee, the organization that annually updates the ICD–10–CM code set and coding guidelines (10,11). The proposal was accepted and the new codes (X50) went into effect beginning October 1, 2016. The X50 codes (X50.0, X50.1, X50.3, and X50.9) are included in Unintentional, Overexertion in the 2019 final ICD–10–CM external cause matrix.

With the addition of the X50 codes, the Overexertion mechanism category of the 2019 final ICD–10–CM external cause matrix more closely aligns with the codes for Overexertion found in the ICD–9–CM and ICD–10 matrices.

Unspecified mechanism

In ICD–10 for mortality, there are two external cause-of-injury codes for unintentional injury events in which the mechanism of injury is not well identified: X58, Exposure to other specified factors and X59, Exposure to unspecified factors. In the ICD–10 external cause matrix for mortality, X58 is placed in Unintentional, Other specified, classifiable and X59 is placed in Unintentional, Unspecified.

In creating the ICD–10–CM code set, X59 was deactivated and therefore not available for use with morbidity data. X58, which includes such events described as “Accident, not otherwise specified” and “Exposure, not otherwise specified” is used for unintentional injury events involving both “other specified” or “unspecified” mechanisms.

In developing the 2014 proposed ICD–10–CM external cause matrix, X58 was placed in Unintentional, Natural/environmental. This appears to have been in error. Because X58 is used for unintentional injury events for which the mechanism is not specified, a decision was made to move X58 from Unintentional, Natural/environmental

to Unintentional, Unspecified to better reflect how X58 is used in morbidity data.

With this change, the ICD–10–CM matrix for morbidity differs from the ICD–10 matrix for mortality. In the 2019 final ICD–10–CM external cause matrix for morbidity, X58 is included in Unintentional, Unspecified, while in the ICD–10 external cause matrix for mortality, X58 is included in Unintentional, Other specified, classifiable.

New external cause-of-injury codes

Each year, the ICD–10 Coordination and Maintenance Committee updates the ICD–10–CM code set, coding guidelines, and associated materials (10). With these annual updates, there have been several additions and deletions to the external cause-of-injury codes in the ICD–10–CM code set since the 2014 proposed ICD–10–CM external cause matrix was developed. Adjustments have been made to the 2014 proposed ICD–10–CM external cause matrix to reflect these modifications to the ICD–10–CM code set. A list of all changes made to the 2014 proposed ICD–10–CM external cause matrix to generate the 2019 final matrix, including additions, deletions, and movement of codes, is provided in [Table I](#).

2019 final ICD–10–CM external cause-of-injury matrix

The changes noted above were used to update the 2014 proposed ICD–10–CM external cause matrix to create the 2019 final matrix. Spreadsheets showing the placement of each individual external cause-of-injury code in the matrix are available at the NCHS Injury Data and Resources, Tools and Frameworks website (https://www.cdc.gov/nchs/injury/injury_tools.htm) in the ICD–10–CM section under External Cause-of-injury Matrices. Because of the complexities, nuances, and yearly updates to the matrix, any analysis using the 2019 final external cause matrix should rely on the spreadsheets available at the NCHS

Injury Data and Resources website to ensure that all external cause-of-injury codes are included and that individual codes are appropriately grouped by mechanism and intent of injury. For demonstration purposes, [Table II](#) summarizes the codes included in each mechanism-by-intent cell in the 2019 final ICD-10-CM external cause matrix as of October 1, 2019.

Discussion

External cause-of-injury frameworks, or matrices, are an essential tool for standardizing the reporting of injuries by mechanism and intent of injury. The use of these frameworks promotes consistency, accuracy, and uniformity when monitoring injury events over time and across data sets.

During the development of the 2014 proposed ICD-10-CM external cause matrix, ICD-10-CM coded data were not available to evaluate the decisions made in placing each external cause-of-injury code in a given mechanism-by-intent cell. As ICD-10-CM coded data became available, it was possible to evaluate the performance of the 2014 proposed ICD-10-CM external cause matrix. The evaluation involved comparing numbers for each mechanism-by-intent category using the 2014 proposed ICD-10-CM external cause matrix with those obtained using the ICD-9-CM matrix, a framework that has been in use for the past 20 years.

This report summarizes several issues identified in the evaluation process. As a result of the evaluation, some external cause-of-injury codes have been moved to a different mechanism-by-intent cell in the 2019 final ICD-10-CM external cause matrix and several codes have been added. With these modifications, the location of some codes in the 2019 final ICD-10-CM external cause matrix for morbidity differs from where a similar code is placed in the ICD-10 external cause matrix for mortality. For example, in the 2019 final ICD-10-CM external cause matrix (morbidity):

- All V90 and V92 codes are included in Unintentional, Drowning/submersion. In the ICD-10 external

cause matrix (mortality), these codes are included in Unintentional, Other transport.

- V87.0–V87.8 and V89.2 are included in Unintentional, MVT–Occupant. In the ICD-10 external cause matrix, these codes are included in Unintentional, MVT–Unspecified.
- V09.3 is included in Unintentional, MVT–Pedestrian. In the ICD-10 external cause matrix, V09.3 is included in Unintentional, Pedestrian, other.
- V19.9 is included in Unintentional, MVT–Pedal cyclist. In the ICD-10 external cause matrix, V19.9 is included in Unintentional, Pedal cyclist, other.
- X58 is included in Unintentional, Unspecified. In the ICD-10 external cause matrix, X58 is included in Unintentional, Other specified, classifiable.

These differences in code placement should be considered when making comparisons between the number of deaths identified using data coded in ICD-10 and the number of nonfatal injuries (e.g., hospitalizations and ED visits) identified using data coded in ICD-10-CM for certain injury mechanisms.

In evaluating the 2014 ICD-10-CM proposed external cause matrix, comparisons were made between the numbers and percentages obtained from applying the ICD-9-CM external cause matrix to ICD-9-CM coded data and the 2014 proposed ICD-10-CM external cause matrix to ICD-10-CM coded data for similar time periods. The purpose of the comparison was not to identify shifts in trends during the transition from ICD-9-CM to ICD-10-CM but rather to identify possible adjustments needed in the placement of individual ICD-10-CM codes to specific mechanism-by-intent cells of the matrix. The results from any analysis of trends using injury data across the transition (October 1, 2015) should be considered with caution because of the major differences between the ICD-9-CM and ICD-10-CM code sets and coding guidelines (12). Differences between ICD-9-CM and ICD-10-CM codes used for injury surveillance have

been described in detail elsewhere (13), and include such considerations as:

- The number of external cause-of-injury codes in ICD-10-CM is nearly six times that in ICD-9-CM. ICD-10-CM includes codes for new concepts not found in ICD-9-CM (e.g., codes for injuries resulting from use of a pedestrian conveyance and unique codes for suspected versus confirmed child or adult abuse or neglect).
- Some of the external cause-of-injury codes in ICD-9-CM are now captured as nature-of-injury codes (T codes) in ICD-10-CM (e.g., codes for poisoning, asphyxiation, effects of lightning, and effects of vibration).
- Changes in the coding guidelines may result in higher rates of unintentional injury using ICD-10-CM compared with ICD-9-CM. In ICD-9-CM, the coding guidelines indicate that if the intent of the injury is unknown or not specifically stated, the intent should be coded as undetermined intent (14). In ICD-10-CM, the coding guidelines indicate that if the intent of the injury is unknown or unspecified, the intent should be coded as accidental intent (unintentional) (15).
- Slight differences in the wording of injury descriptions could result in differences in assignment of a given code by medical records coders. For example, in ICD-9-CM, injuries resulting from use of machinery are described as “Accidents caused by machinery,” while in ICD-10-CM, they are described as “Contact with [machinery].”
- The ICD-10-CM external cause matrix includes 10 mechanism categories not found in the ICD-9-CM external cause matrix.

Because of the substantial differences between ICD-9-CM and ICD-10-CM, both in terms of the external cause-of-injury codes and the corresponding external cause-of-injury matrices, trend analysis using ICD-9-CM coded data for some years and ICD-10-CM coded data for other years is not recommended without

significant additional analysis and a clear understanding of possible coding issues that might contribute to the differences observed.

In using the 2019 ICD–10–CM external cause-of-injury matrix, researchers and epidemiologists should consider that:

- Each year, NCHS and CMS update the ICD–10–CM code set to add or delete codes, revise descriptions, modify notes on inclusion and exclusion, and make other adjustments as needed. Because the ICD–10–CM code set is updated annually, the ICD–10–CM external cause matrix will continually require updating to address any relevant changes or additions resulting from modifications to the ICD–10–CM code set. Spreadsheets found at the NCHS Injury Data and Resources, Tools and Frameworks website (https://www.cdc.gov/nchs/injury/injury_tools.htm) will provide the latest updates to the ICD–10–CM external cause matrix.
- The performance of the 2019 final ICD–10–CM external cause matrix should continue to be monitored and adjusted, if needed, to address any limitations identified.

Conclusions

The 2019 final ICD–10–CM external cause matrix provides standard groupings for reporting injuries by mechanism and intent of injury when analyzing data coded using ICD–10–CM. Use of this tool by injury epidemiologists and researchers will promote consistency, allowing comparison across different study populations and over time.

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Technical Notes

Guiding principles for determining placement of codes in the 2014 proposed ICD–10–CM external cause-of-injury matrix

In developing the 2014 proposed *International Classification of Diseases, 10th Revision, Clinical Modification* (ICD–10–CM) external cause matrix (1), guiding principles for placing individual ICD–10–CM codes in mechanism-by-intent cells in the external cause matrix were developed to achieve, as much as possible, consistency with placement of the ICD–10 codes in the ICD–10 external cause matrix (3). In the United States, the ICD–10 external cause matrix is used as the standard for presenting injury mortality data. Consistency in these two matrices will help provide reasonable comparability for presenting injury morbidity statistics based on ICD–10–CM external cause code sets and mortality statistics based on ICD–10 external cause code sets.

ICD–10–CM has substantially more external cause codes than ICD–10. In most cases, the first three digits, and sometimes the fourth digit, of the external cause code (for brevity, called the parent code) are the same for ICD–10 and ICD–10–CM. However, ICD–10–CM external cause codes have many more subcategories usually defined by the fourth through sixth digits of the external cause code. This extended code (for brevity, called the child code) allows for greater specificity in external cause classification in injury morbidity data systems than in injury mortality data systems. Sometimes the definition of an ICD–10–CM child code warrants its placement in a different mechanism-by-intent cell in the ICD–10–CM external cause matrix than indicated by its ICD–10 parent code. Therefore, the following guiding principles were used to place individual codes in the 2014 proposed ICD–10–CM external cause matrix.

Principal 1

Each ICD–10–CM child code was initially placed in the same mechanism-by-intent cell in the 2014 proposed ICD–10–CM external cause matrix as the parent code in the ICD–10 external cause matrix. Then, each child code was assessed to determine whether it should remain in that cell or be moved to a different mechanism-by-intent cell.

- a. The child code remained in the original mechanism-by-intent cell if it was a subset of the parent code. For example:
 - i. W50.3XX, Accidental bite by another person. In the 2014 proposed ICD–10–CM external cause matrix, the parent code W50, Hit, struck, kicked, twisted, bitten or scratched by another person was placed in Unintentional, Struck by/against. W50.3XX is a subset of W50 and remained with its parent code in Unintentional, Struck by/against.
 - b. The child code was moved if it provided detail or specificity that supported logical placement in a different mechanism-by-intent cell. For example:
 - i. Y02.0XX, Assault by pushing or placing victim in front of motor vehicle. In the ICD–10 external cause matrix, the parent code Y02, Assault by pushing or placing victim before moving object was placed in Assault, Other specified, classifiable. Because of the additional detail provided in the child code (i.e., specific mention of motor vehicle), Y02.0XX was moved to Assault, Motor vehicle–Traffic (MVT)–Pedestrian in the 2014 proposed ICD–10–CM external cause matrix.
 - ii. Y36.92X, War operations involving friendly fire. In the ICD–10 external cause matrix, the parent code Y36, War operations was placed in Legal intervention/war operations, Unspecified. Because of the additional detail provided in the child code (i.e., involvement of friendly fire), Y36.92X was moved to Legal intervention/war operations, Firearm in the 2014 proposed ICD–10–CM external cause matrix.

- c. The child code was moved if it reflected a different mechanism from the parent code. For example:
 - i. W16.511, Jumping or diving into swimming pool striking water surface causing drowning and submersion. In the ICD–10 external cause matrix, the parent code W16, Diving or jumping into water causing injury other than drowning or submersion is placed in Unintentional, Fall. Because a different mechanism, drowning and submersion, is specified in the child code, W16.511 was moved to Unintentional, Drowning/submersion in the 2014 proposed ICD–10–CM external cause matrix.
 - ii. Y24.0XX, Airgun discharge, undetermined intent. In the ICD–10 external cause matrix, the parent code Y24, Other and unspecified firearm discharge, undetermined intent was placed in Undetermined, Firearm. Because an airgun (i.e., BB or pellet gun) is not considered a firearm, Y24.0XX was moved to Undetermined, Other specified, classifiable in the 2014 proposed ICD–10–CM external cause matrix.

Principal 2

ICD–10–CM codes that did not have a parent code in ICD–10 were placed in the 2014 proposed ICD–10–CM external cause matrix based on the injury description.

- a. V00, Pedestrian conveyance accident codes did not have a parent code in ICD–10. Unlike all other V codes, which were placed in transportation categories, the V00 codes were placed in other relevant unintentional categories based on the injury description. For example:
 - i. V00.01X, Pedestrian on foot injured in collision with roller skater. There is no parent code in ICD–10. Based on the injury description (i.e., no mention of a motor vehicle, no mention of traffic or nontraffic, but mention of the broad concept of one person being unintentionally struck by another), V00.01X was placed in Unintentional, Struck by/against.

Principal 3

ICD–10–CM T codes were included if:

(a) the T code was associated with an ICD–10 external cause-of-injury code that had been deactivated in ICD–10–CM; or (b) the T code contained a digit or description indicating the intent of injury (e.g., abuse, neglect, or suicide attempt).

- a. T codes were initially placed in the ICD–10–CM external cause matrix based on the location of the deactivated ICD–10 external cause-of-injury code in the ICD–10 external cause matrix. For example:
 - i. T75.00X, Unspecified effects of lightning. The deactivated code from ICD–10 associated with this ICD–10–CM code is X33, Victim of lightning. In the ICD–10 external cause matrix, X33 is placed in Unintentional, Natural/environmental. Therefore, T75.00X was also placed in Unintentional, Natural/environmental, other in the 2014 proposed ICD–10–CM external cause matrix.
- b. Some T codes provide more specificity or include a different mechanism than the deactivated ICD–10 code. Using the same logic as described in Principle 1b or 1c, these T codes were moved to a different category in the ICD–10–CM external cause matrix. For example:
 - i. T17.200, Unspecified foreign body in pharynx causing asphyxiation. Using Principle 3a, this code was initially placed in Unintentional, Other specified, classifiable in the 2014 proposed ICD–10–CM external cause matrix, consistent with placement of the deactivated ICD–10 code W44, Foreign body entering into or through eye or natural orifice. However, because a different mechanism (i.e., asphyxiation) is specified, T17.200 was moved to Unintentional, Suffocation.

Table I. Modifications made to the 2014 proposed ICD–10–CM external cause-of-injury matrix, as of October 1, 2019

Code	Description	Modification made	Intent category in 2014 proposed matrix	Mechanism category in 2014 proposed matrix	Intent category in 2019 final matrix	Mechanism category in 2019 final matrix
Codes deleted from the matrix						
V47.01X	Driver of sport utility vehicle injured in collision with fixed or stationary object in nontraffic accident	Deleted from ICD–10–CM and from the matrix in October 2016	Unintentional	Motor vehicle–Nontraffic	Deleted from matrix	Deleted from matrix
V47.02X	Driver of other type of car injured in collision with fixed or stationary object in nontraffic accident	Deleted from ICD–10–CM and from the matrix in October 2016	Unintentional	Motor vehicle–Nontraffic	Deleted from matrix	Deleted from matrix
V47.11X	Passenger of sport utility vehicle injured in collision with fixed or stationary object in nontraffic accident	Deleted from ICD–10–CM and from the matrix in October 2016	Unintentional	Motor vehicle–Nontraffic	Deleted from matrix	Deleted from matrix
V47.12X	Passenger of other type of car injured in collision with fixed or stationary object in nontraffic accident	Deleted from ICD–10–CM and from the matrix in October 2016	Unintentional	Motor vehicle–Nontraffic	Deleted from matrix	Deleted from matrix
V47.31X	Unspecified occupant of sport utility vehicle injured in collision with fixed or stationary object in nontraffic accident	Deleted from ICD–10–CM and from the matrix in October 2016	Unintentional	Motor vehicle–Nontraffic	Deleted from matrix	Deleted from matrix
V47.32X	Unspecified occupant of other type of car injured in collision with fixed or stationary object in nontraffic accident	Deleted from ICD–10–CM and from the matrix in October 2016	Unintentional	Motor vehicle–Nontraffic	Deleted from matrix	Deleted from matrix
V47.51X	Driver of sport utility vehicle injured in collision with fixed or stationary object in traffic accident	Deleted from ICD–10–CM and from the matrix in October 2016	Unintentional	MVT–Occupant	Deleted from matrix	Deleted from matrix
V47.52X	Driver of other type of car injured in collision with fixed or stationary object in traffic accident	Deleted from ICD–10–CM and from the matrix in October 2016	Unintentional	MVT–Occupant	Deleted from matrix	Deleted from matrix
V47.61X	Passenger of sport utility vehicle injured in collision with fixed or stationary object in traffic accident	Deleted from ICD–10–CM and from the matrix in October 2016	Unintentional	MVT–Occupant	Deleted from matrix	Deleted from matrix
V47.62X	Passenger of other type of car injured in collision with fixed or stationary object in traffic accident	Deleted from ICD–10–CM and from the matrix in October 2016	Unintentional	MVT–Occupant	Deleted from matrix	Deleted from matrix
V47.91X	Unspecified occupant of sport utility vehicle injured in collision with fixed or stationary object in traffic accident	Deleted from ICD–10–CM and from the matrix in October 2016	Unintentional	MVT–Occupant	Deleted from matrix	Deleted from matrix
V47.92X	Unspecified occupant of other type of car injured in collision with fixed or stationary object in traffic accident	Deleted from ICD–10–CM and from the matrix in October 2016	Unintentional	MVT–Occupant	Deleted from matrix	Deleted from matrix
W45.1XX	Paper entering through skin	Deleted from ICD–10–CM and from the matrix in October 2016	Unintentional	Cut/pierce	Deleted from matrix	Deleted from matrix
W45.2XX	Lid of can entering through skin	Deleted from ICD–10–CM and from the matrix in October 2016	Unintentional	Cut/pierce	Deleted from matrix	Deleted from matrix
T75.0XX	Effects of lightning	Deleted from the matrix in 2016 when more specific lightning codes became available	Unintentional	Natural/environmental	Deleted from matrix	Deleted from matrix
T75.2XX	Effects of vibration	Deleted from matrix in 2016 when more specific vibration codes became available	Unintentional	Natural/environmental	Deleted from matrix	Deleted from matrix

Table I. Modifications made to the 2014 proposed ICD–10–CM external cause-of-injury matrix, as of October 1, 2019—Con.

Code	Description	Modification made	Intent category in 2014 proposed matrix	Mechanism category in 2014 proposed matrix	Intent category in 2019 final matrix	Mechanism category in 2019 final matrix
Codes added to the matrix						
V47.0XX	Car driver injured in collision with fixed or stationary object in nontraffic accident	Added to ICD–10–CM and to matrix in October 2016	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Unintentional	Motor vehicle–Nontraffic
V47.1XX	Car passenger injured in collision with fixed or stationary object in nontraffic accident	Added to ICD–10–CM and to matrix in October 2016	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Unintentional	Motor vehicle–Nontraffic
V47.3XX	Unspecified car occupant injured in collision with fixed or stationary object in nontraffic accident	Added to ICD–10–CM and to matrix in October 2016	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Unintentional	Motor vehicle–Nontraffic
V47.5XX	Car driver injured in collision with fixed or stationary object in traffic accident	Added to ICD–10–CM and to matrix in October 2016	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Unintentional	MVT–Occupant
V47.6XX	Car passenger injured in collision with fixed or stationary object in traffic accident	Added to ICD–10–CM and to matrix in October 2016	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Unintentional	MVT–Occupant
V47.9XX	Unspecified car occupant injured in collision with fixed or stationary object in traffic accident	Added to ICD–10–CM and to matrix in October 2016	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Unintentional	MVT–Occupant
W26.2XX	Contact with edge of stiff paper	Added to ICD–10–CM and to matrix in October 2016	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Unintentional	Cut/pierce
W26.8XX	Contact with other sharp object(s), not elsewhere classified	Added to ICD–10–CM and to matrix in October 2016	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Unintentional	Cut/pierce
W26.9XX	Contact with unspecified sharp object(s)	Added to ICD–10–CM and to matrix in October 2016	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Unintentional	Cut/pierce
X50.0XX	Overexertion from strenuous movement or load	Added to ICD–10–CM and to matrix in October 2016	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Unintentional	Overexertion
X50.1XX	Overexertion from prolonged static or awkward postures	Added to ICD–10–CM and to matrix in October 2016	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Unintentional	Overexertion
X50.3XX	Overexertion from repetitive movements	Added to ICD–10–CM and to matrix in October 2016	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Unintentional	Overexertion
X50.9XX	Other and unspecified overexertion or strenuous movements or postures	Added to ICD–10–CM and to matrix in October 2016	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Unintentional	Overexertion
T75.20X	Unspecified effects of vibration	Added to matrix in 2016	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Unintentional	Natural/ environmental, other
T75.21X	Pneumatic hammer syndrome	Added to matrix in 2016	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Unintentional	Natural/ environmental, other
T75.22X	Traumatic vasospastic syndrome	Added to matrix in 2016	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Unintentional	Natural/ environmental, other
T75.23X	Vertigo from infrasound	Added to matrix in 2016	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Unintentional	Natural/ environmental, other
T75.29X	Other effects of vibration	Added to matrix in 2016	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Unintentional	Natural/ environmental, other
T75.00X	Unspecified effects of lightning	Added to matrix in 2016	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Unintentional	Natural/ environmental, other
T75.01X	Shock due to being struck by lightning	Added to matrix in 2016	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Unintentional	Natural/ environmental, other

See footnote at end of table.

Table I. Modifications made to the 2014 proposed ICD–10–CM external cause-of-injury matrix, as of October 1, 2019—Con.

Code	Description	Modification made	Intent category in 2014 proposed matrix	Mechanism category in 2014 proposed matrix	Intent category in 2019 final matrix	Mechanism category in 2019 final matrix
Codes added to the matrix—Con.						
T75.09X	Other effects of lightning	Added to matrix in 2016	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Unintentional	Natural/environmental, other
T63.003	Toxic effect of unspecified snake venom, assault	Added to matrix in 2016	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Assault	Bites/stings, venomous
V86.05X	Driver of a 3- or 4-wheeled ATV injured in traffic accident	Added to ICD–10–CM and to matrix in October 2017	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Unintentional	MVT–Occupant
V86.15X	Passenger of a 3- or 4-wheeled ATV injured in traffic accident	Added to ICD–10–CM and to matrix in October 2017	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Unintentional	MVT–Occupant
V86.25X	Person on outside of a 3- or 4-wheeled ATV injured in traffic accident	Added to ICD–10–CM and to matrix in October 2017	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Unintentional	MVT–Occupant
V86.35X	Unspecified occupant of a 3- or 4-wheeled ATV injured in traffic accident	Added to ICD–10–CM and to matrix in October 2017	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Unintentional	MVT–Occupant
V86.45X	Person injured while boarding or alighting from a 3- or 4-wheeled ATV	Added to ICD–10–CM and to matrix in October 2017	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Unintentional	Other land transport
V86.55X	Driver of a 3- or 4-wheeled ATV injured in nontraffic accident	Added to ICD–10–CM and to matrix in October 2017	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Unintentional	Motor vehicle–Nontraffic
V86.65X	Passenger of a 3- or 4-wheeled ATV injured in nontraffic accident	Added to ICD–10–CM and to matrix in October 2017	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Unintentional	Motor vehicle–Nontraffic
V86.75X	Person on outside of a 3- or 4-wheeled ATV injured in nontraffic accident	Added to ICD–10–CM and to matrix in October 2017	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Unintentional	Motor vehicle–Nontraffic
V86.95X	Unspecified occupant of a 3- or 4-wheeled ATV injured in nontraffic accident	Added to ICD–10–CM and to matrix in October 2017	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Unintentional	Motor vehicle–Nontraffic
V86.06X	Driver of dirt bike or motor/cross bike injured in traffic accident	Added to ICD–10–CM and to matrix in October 2017	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Unintentional	MVT–Occupant
V86.16X	Passenger of dirt bike or motor/cross bike injured in traffic accident	Added to ICD–10–CM and to matrix in October 2017	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Unintentional	MVT–Occupant
V86.26X	Person on outside of dirt bike or motor/cross bike injured in traffic accident	Added to ICD–10–CM and to matrix in October 2017	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Unintentional	MVT–Occupant
V86.36X	Unspecified occupant of dirt bike or motor/cross bike injured in traffic accident	Added to ICD–10–CM and to matrix in October 2017	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Unintentional	MVT–Occupant
V86.46X	Person injured while boarding or alighting from a dirt bike or motor/cross bike	Added to ICD–10–CM and to matrix in October 2017	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Unintentional	Other land transport
V86.56X	Driver of dirt bike or motor/cross bike injured in nontraffic accident	Added to ICD–10–CM and to matrix in October 2017	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Unintentional	Motor vehicle–Nontraffic
V86.66X	Passenger of dirt bike or motor/cross bike injured in nontraffic accident	Added to ICD–10–CM and to matrix in October 2017	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Unintentional	Motor vehicle–Nontraffic
V86.76X	Person on outside of dirt bike or motor/cross bike injured in nontraffic accident	Added to ICD–10–CM and to matrix in October 2017	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Unintentional	Motor vehicle–Nontraffic

See footnote at end of table.

Table I. Modifications made to the 2014 proposed ICD–10–CM external cause-of-injury matrix, as of October 1, 2019—Con.

Code	Description	Modification made	Intent category in 2014 proposed matrix	Mechanism category in 2014 proposed matrix	Intent category in 2019 final matrix	Mechanism category in 2019 final matrix
Codes added to the matrix—Con.						
V86.96X	Unspecified occupant of dirt bike or motor/cross bike injured in nontraffic accident	Added to ICD–10–CM and to matrix in October 2017	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Unintentional	Motor vehicle–Nontraffic
T43.641	Poisoning by ecstasy, accidental (unintentional)	Added to ICD–10–CM and to matrix in October 2018	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Unintentional	Poisoning, drug
T43.642	Poisoning by ecstasy, intentional self-harm	Added to ICD–10–CM and to matrix in October 2018	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Intentional self-harm	Poisoning, drug
T43.643	Poisoning by ecstasy, assault	Added to ICD–10–CM and to matrix in October 2018	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Assault	Poisoning, drug
T43.644	Poisoning by ecstasy, undetermined	Added to ICD–10–CM and to matrix in October 2018	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Undetermined	Poisoning, drug
Y076	Multiple perpetrators of maltreatment and neglect	Added to ICD–10–CM and to matrix in October 2018	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Assault	Other specified, classifiable
T74.51X	Adult forced sexual exploitation, confirmed	Added to ICD–10–CM and to matrix in October 2018	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Assault	Other specified, child/adult abuse
T74.52X	Child sexual exploitation, confirmed	Added to ICD–10–CM and to matrix in October 2018	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Assault	Other specified, child/adult abuse
T74.61X	Adult forced labor exploitation, confirmed	Added to ICD–10–CM and to matrix in October 2018	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Assault	Other specified, child/adult abuse
T74.62X	Child forced labor exploitation, confirmed	Added to ICD–10–CM and to matrix in October 2018	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Assault	Other specified, child/adult abuse
T76.51X	Adult forced sexual exploitation, suspected	Added to ICD–10–CM and to matrix in October 2018	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Assault	Other specified, child/adult abuse
T76.52X	Child sexual exploitation, suspected	Added to ICD–10–CM and to matrix in October 2018	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Assault	Other specified, child/adult abuse
T76.61X	Adult forced labor exploitation, suspected	Added to ICD–10–CM and to matrix in October 2018	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Assault	Other specified, child/adult abuse
T76.62X	Child forced labor exploitation, suspected	Added to ICD–10–CM and to matrix in October 2018	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Assault	Other specified, child/adult abuse
T76.51X	Adult forced sexual exploitation, suspected	Added to ICD–10–CM and to matrix in October 2018	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Assault	Other specified, child/adult abuse
T76.52X	Child sexual exploitation, suspected	Added to ICD–10–CM and to matrix in October 2018	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Assault	Other specified, child/adult abuse
T76.61X	Adult forced labor exploitation, suspected	Added to ICD–10–CM and to matrix in October 2018	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Assault	Other specified, child/adult abuse
T76.62X	Child forced labor exploitation, suspected	Added to ICD–10–CM and to matrix in October 2018	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Assault	Other specified, child/adult abuse
T50.911	Poisoning by multiple unspecified drugs, medicaments and biological substances, accidental (unintentional)	Added to ICD–10–CM and to matrix in October 2019	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Unintentional	Poisoning, drug

Table I. Modifications made to the 2014 proposed ICD–10–CM external cause-of-injury matrix, as of October 1, 2019—Con.

Code	Description	Modification made	Intent category in 2014 proposed matrix	Mechanism category in 2014 proposed matrix	Intent category in 2019 final matrix	Mechanism category in 2019 final matrix
Codes added to the matrix—Con.						
T50.912	Poisoning by multiple unspecified drugs, medicaments and biological substances, intentional self-harm	Added to ICD–10–CM and to matrix in October 2019	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Intentional self-harm	Poisoning, drug
T50.913	Poisoning by multiple unspecified drugs, medicaments and biological substances, assault	Added to ICD–10–CM and to matrix in October 2019	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Assault	Poisoning, drug
T50.914	Poisoning by multiple unspecified drugs, medicaments and biological substances, undetermined	Added to ICD–10–CM and to matrix in October 2019	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Undetermined	Poisoning, drug
Y35.009	Legal intervention involving unspecified firearm discharge, unspecified person injured	Added to ICD–10–CM and to matrix in October 2019	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Legal intervention/war operations	Firearm
Y35.019	Legal intervention involving injury by machine gun, unspecified person injured	Added to ICD–10–CM and to matrix in October 2019	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Legal intervention/war operations	Firearm
Y35.029	Legal intervention involving injury by handgun, unspecified person injured	Added to ICD–10–CM and to matrix in October 2019	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Legal intervention/war operations	Firearm
Y35.039	Legal intervention involving injury by rifle pellet, unspecified person injured	Added to ICD–10–CM and to matrix in October 2019	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Legal intervention/war operations	Firearm
Y35.049	Legal intervention involving injury by rubber bullet, unspecified person injured	Added to ICD–10–CM and to matrix in October 2019	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Legal intervention/war operations	Other specified, classifiable
Y35.099	Legal intervention involving other firearm discharge, unspecified person injured	Added to ICD–10–CM and to matrix in October 2019	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Legal intervention/war operations	Firearm
Y35.109	Legal intervention involving unspecified explosives, unspecified person injured	Added to ICD–10–CM and to matrix in October 2019	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Legal intervention/war operations	Other specified, classifiable
Y35.119	Legal intervention involving injury by dynamite, unspecified person injured	Added to ICD–10–CM and to matrix in October 2019	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Legal intervention/war operations	Other specified, classifiable
Y35.129	Legal intervention involving injury by explosive shell, unspecified person injured	Added to ICD–10–CM and to matrix in October 2019	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Legal intervention/war operations	Other specified, classifiable
Y35.199	Legal intervention involving other explosives, unspecified person injured	Added to ICD–10–CM and to matrix in October 2019	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Legal intervention/war operations	Other specified, classifiable
Y35.209	Legal intervention involving unspecified gas, unspecified person injured	Added to ICD–10–CM and to matrix in October 2019	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Legal intervention/war operations	Poisoning, nondrug
Y35.219	Legal intervention involving injury by tear gas, unspecified person injured	Added to ICD–10–CM and to matrix in October 2019	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Legal intervention/war operations	Poisoning, nondrug
Y35.299	Legal intervention involving other gas, unspecified person injured	Added to ICD–10–CM and to matrix in October 2019	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Legal intervention/war operations	Poisoning, nondrug
Y35.309	Legal intervention involving unspecified blunt objects, unspecified person injured	Added to ICD–10–CM and to matrix in October 2019	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Legal intervention/war operations	Struck by/against
Y35.319	Legal intervention involving baton, unspecified person injured	Added to ICD–10–CM and to matrix in October 2019	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Legal intervention/war operations	Struck by/against
Y35.399	Legal intervention involving other blunt objects, unspecified person injured	Added to ICD–10–CM and to matrix in October 2019	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Legal intervention/war operations	Struck by/against
Y35.409	Legal intervention involving unspecified sharp objects, unspecified person injured	Added to ICD–10–CM and to matrix in October 2019	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Legal intervention/war operations	Cut/pierce

See footnote at end of table.

Table I. Modifications made to the 2014 proposed ICD–10–CM external cause-of-injury matrix, as of October 1, 2019—Con.

Code	Description	Modification made	Intent category in 2014 proposed matrix	Mechanism category in 2014 proposed matrix	Intent category in 2019 final matrix	Mechanism category in 2019 final matrix
Codes added to the matrix—Con.						
Y35.419	Legal intervention involving bayonet, unspecified person injured	Added to ICD–10–CM and to matrix in October 2019	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Legal intervention/war operations	Cut/pierce
Y35.499	Legal intervention involving other sharp objects, unspecified person injured	Added to ICD–10–CM and to matrix in October 2019	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Legal intervention/war operations	Cut/pierce
Y35.819	Legal intervention involving manhandling, unspecified person injured	Added to ICD–10–CM and to matrix in October 2019	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Legal intervention/war operations	Struck by/against
Y35.831	Legal intervention involving a conducted energy device, law enforcement official injured	Added to ICD–10–CM and to matrix in October 2019	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Legal intervention/war operations	Other specified, classifiable
Y35.832	Legal intervention involving a conducted energy device, bystander injured	Added to ICD–10–CM and to matrix in October 2019	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Legal intervention/war operations	Other specified, classifiable
Y35.833	Legal intervention involving a conducted energy device, suspect injured	Added to ICD–10–CM and to matrix in October 2019	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Legal intervention/war operations	Other specified, classifiable
Y35.839	Legal intervention involving a conducted energy device, unspecified person injured	Added to ICD–10–CM and to matrix in October 2019	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Legal intervention/war operations	Other specified, classifiable
Y35.99X	Legal intervention, means unspecified, unspecified person injured	Added to ICD–10–CM and to matrix in October 2019	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Legal intervention/war operations	Unspecified
T75.4XX	Electrocution	Added to the matrix in October 2019, for consistency with the addition of the new codes Y35.831–Y35.839 for injuries from legal intervention involving a conducted energy device	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Unintentional	Other specified, classifiable
T75.1XX	Unspecified effects of drowning and nonfatal submersion	Added to matrix in October 2019	Not in 2014 proposed matrix	Not in 2014 proposed matrix	Undetermined	Drowning/submersion

Table I. Modifications made to the 2014 proposed ICD–10–CM external cause-of-injury matrix, as of October 1, 2019—Con.

Code	Description	Modification made	Intent category in 2014 proposed matrix	Mechanism category in 2014 proposed matrix	Intent category in 2019 final matrix	Mechanism category in 2019 final matrix
Codes moved within the matrix						
X58	Exposure to other specified factors	Moved to Unintentional, Unspecified	Unintentional	Natural/environmental	Unintentional	Unspecified
Y37.300	Military operations involving unspecified fire, conflagration and hot substance, military personnel	Moved to Legal intervention/war operations, Fire/flame	Legal intervention/war operations	Other specified, classifiable	Legal intervention/war operations	Fire/flame
All V90 codes	Codes related to drowning/submersion due to accident to watercraft	Moved to Unintentional, Drowning/submersion	Unintentional	Other transport	Unintentional	Drowning/submersion
All V92 codes	Codes related to drowning/submersion due to accident on board watercraft, without accident to watercraft	Moved to Unintentional, Drowning/submersion	Unintentional	Other transport	Unintentional	Drowning/submersion
W32.1XX	Accidental handgun malfunction	Moved to Unintentional, Firearm	Unintentional	Other specified, classifiable	Unintentional	Firearm
All W33.1	Accidental rifle, shotgun and larger firearm malfunction	Moved to Unintentional, Firearm	Unintentional	Other specified, classifiable	Unintentional	Firearm
W34.10X	Accidental malfunction from unspecified firearms or gun	Moved to Unintentional, Firearm	Unintentional	Other specified, classifiable	Unintentional	Firearm
W34.19X	Accidental malfunction from other specified firearms	Moved to Unintentional, Firearm	Unintentional	Other specified, classifiable	Unintentional	Firearm
V87.0–V87.8	Traffic accident of specified type but victim's mode of motor vehicle transport unknown	Moved to Unintentional, MVT–Occupant	Unintentional	MVT–Unspecified	Unintentional	MVT–Occupant
V89.2XX	Person injured in unspecified motor-vehicle accident, traffic	Moved to Unintentional, MVT–Occupant	Unintentional	MVT–Unspecified	Unintentional	MVT–Occupant
V09.3XX	Pedestrian injured in unspecified traffic accident	Moved to Unintentional, MVT–Pedestrian	Unintentional	Pedestrian, other	Unintentional	MVT–Pedestrian
Y36.90X	War operations, unspecified	Moved to Legal Intervention/war operations, Unspecified	Legal intervention/war operations	Other specified, classifiable	Legal intervention/war operations	Unspecified
X82.1XX	Intentional collision of motor vehicle with train	Moved to Intentional self-harm, MVT–Occupant	Intentional self-harm	MVT–Other	Intentional self-harm	MVT–Occupant
Y37.7X0	Military operations involving chemical weapons and other forms of unconventional warfare, military personnel	Moved to Legal intervention/war operations; Poisoning, nondrug	Legal intervention/war operations	Other specified, classifiable	Legal intervention/war operations	Poisoning, nondrug
Y37.7X1	Military operations involving chemical weapons and other forms of unconventional warfare, civilian	Moved to Legal intervention/war operations; Poisoning, nondrug	Legal intervention/war operations	Other specified, classifiable	Legal intervention/war operations	Poisoning, nondrug
Y36.6X0	War operations involving biological weapons, military personnel	Moved to Legal intervention/war operations; Other specified, classifiable	Legal intervention/war operations	Poisoning, nondrug	Legal intervention/war operations	Other specified, classifiable
Y36.6X1	War operations involving biological weapons, civilian	Moved to Legal intervention/war operations; Other specified, classifiable	Legal intervention/war operations	Poisoning, nondrug	Legal intervention/war operations	Other specified, classifiable
Y36.890	Unspecified war operations occurring after cessation of hostilities, military personnel	Moved to Legal intervention/war operations, Unspecified	Legal intervention/war operations	Other specified, classifiable	Legal intervention/war operations	Unspecified
Y36.891	Unspecified war operations occurring after cessation of hostilities, civilian	Moved to Legal intervention/war operations, Unspecified	Legal intervention/war operations	Other specified, classifiable	Legal intervention/war operations	Unspecified
Y38.6X1	Terrorism involving biological weapons, public safety official injured	Moved to Assault; Other specified, classifiable	Assault	Poisoning, nondrug	Assault	Other specified, classifiable
Y38.6X2	Terrorism involving biological weapons, civilian injured	Moved to Assault; Other specified, classifiable	Assault	Poisoning, nondrug	Assault	Other specified, classifiable
Y38.6X3	Terrorism involving biological weapons, terrorist injured	Moved to Assault; Other specified, classifiable	Assault	Poisoning, nondrug	Assault	Other specified, classifiable

SOURCES: National Center for Health Statistics and National Center for Injury Prevention and Control.

Table II. 2019 final ICD–10–CM external cause-of-injury matrix for reporting mechanism and intent of injury (for demonstration purposes)

Mechanism of injury	Intent of injury					
	All	Unintentional	Intentional self-harm	Assault	Undetermined	Legal intervention/ war operations
Cut/pierce	W25–W29, W45, W46, X78, X99, Y28, Y35.4	W25–W29, W45, W46	X78	X99	Y28	Y35.4
Drowning/submersion	T75.1, V90†, V92†, [W16] (with 6th character = 1), W16.41, W16.91, W22.041, W65–W74, X71, X92, Y21	V90†, V92†, [W16] (with 6th character = 1), W16.41, W16.91, W22.041, W65–W74	X71	X92	Y21, T75.1	...
Fall	[V00] (with 6th character = 1), W00–W15, [W16] (with 6th character = 2), W16.42, W16.92, W17, W18.1–W18.3, W19, X80, Y01, Y30	[V00] (with 6th character = 1), W00–W15, [W16] (with 6th character = 2), W16.42, W16.92, W17, W18.1–W18.3, W19	X80	Y01	Y30	...
Fire/burn	T54.1–T54.9, X00–X19, X76, X77, X97, X98, Y26, Y27, Y36.30, Y36.33, Y36.39, Y37.30, Y37.33, Y37.39, Y38.3	T54.1X1, T54.2X1, T54.3X1, T54.91, X00–X19	T54.1X2, T54.2X2, T54.3X2, T54.92, X76, X77	T54.1X3, T54.2X3, T54.3X3, T54.93, X97, X98, Y38.3	T54.1X4, T54.2X4, T54.3X4, T54.94, Y26, Y27	Y36.30, Y36.33, Y36.39, Y37.30, Y37.33, Y37.39
Fire/flame	X00–X08, X76, X97, Y26, Y36.30, Y36.33, Y36.39, Y37.30, Y37.33, Y37.39, Y38.3	X00–X08	X76	X97, Y38.3	Y26	Y36.30, Y36.33, Y36.39, Y37.30, Y37.33, Y37.39
Hot object/substance	T54.1–T54.9, X10–X19, X77, X98, Y27	T54.1X1, T54.2X1, T54.3X1, T54.91, X10–X19	T54.1X2, T54.2X2, T54.3X2, T54.92, X77	T54.1X3, T54.2X3, T54.3X3, T54.93, X98	T54.1X4, T54.2X4, T54.3X4, T54.94, Y27	...
Firearm	W32, W33, W34.00, W34.09, W34.10, W34.19, X72, X73, X74.8, X74.9, X93, X94, X95.8, X95.9, Y22, Y23, Y24.8, Y24.9, Y35.00–Y35.03, Y35.09, Y36.42, Y36.43, Y36.92, Y37.42, Y37.43, Y37.92, Y38.4	W32, W33, W34.00, W34.09, W34.10, W34.19	X72, X73, X74.8, X74.9	X93, X94, X95.8, X95.9, Y38.4	Y22, Y23, Y24.8, Y24.9	Y35.00–Y35.03, Y35.09, Y36.42, Y36.43, Y36.92, Y37.42, Y37.43, Y37.92
Machinery	W24, W30, W31	W24, W30, W31	...	...	...	...
All transportation	V01–V89, V91, V93–V99, X81.0, X81.1, X82, X83.0, Y02.0, Y02.1, Y03, Y08.81, Y32, Y36.1, Y37.1, Y38.1	V01–V89, V91, V93–V99	X81.0, X81.1, X82, X83.0	Y02.0, Y02.1, Y03, Y08.81, Y38.1	Y32	Y36.1, Y37.1
Motor vehicle–Traffic (MVT)	[V02–V04] (with 4th character = 1, 9), V09.2, V09.3, [V12–V14] (with 4th character = 3, 4, 5, 9), V19.4–V19.6, V19.9, [V20–V28] (with 4th character = 3, 4, 5, 9), V29.4–V29.9, [V30–V79] (with 4th character = 4, 5, 6, 7, 8, 9), [V83–V86] (with 4th character = 0, 1, 2, 3), V80.3–V80.5, V81.1, V82.1, V87.0–V87.8†, V89.2†, X81.0, X82, Y02.0, Y03, Y32	[V02–V04] (with 4th character = 1, 9), V09.2, V09.3, [V12–V14] (with 4th character = 3, 4, 5, 9), V19.4–V19.6, V19.9, [V20–V28] (with 4th character = 3, 4, 5, 9), V29.4–V29.9, [V30–V79] (with 4th character = 4, 5, 6, 7, 8, 9), [V83–V86] (with 4th character = 0, 1, 2, 3), V80.3–V80.5, V81.1, V82.1, V87.0–V87.8†, V89.2†	X81.0, X82	Y02.0, Y03	Y32	...
MVT–Occupant	[V30–V79] (with 4th character = 4, 5, 6, 7, 8, 9), [V83–V86] (with 4th character = 0, 1, 2, 3), V87.0–V87.8†, V89.2†, X82, Y03.8	[V30–V79] (with 4th character = 4, 5, 6, 7, 8, 9), [V83–V86] (with 4th character = 0, 1, 2, 3), V87.0–V87.8†, V89.2†	X82	Y03.8	...	...
MVT–Motorcyclist	[V20–V28] (with 4th character = 3, 4, 5, 9), V29.4–V29.9	[V20–V28] (with 4th character = 3, 4, 5, 9), V29.4–V29.9	...	...	...	...
MVT–Pedal cyclist	[V12–V14] (with 4th character = 3, 4, 5, 9), V19.4–V19.6, V19.9†	[V12–V14] (with 4th character = 3, 4, 5, 9), V19.4–V19.6, V19.9†	...	...	...	...
MVT–Pedestrian	[V02–V04] (with 4th character = 1, 9), V09.2, V09.3†, Y02.0, Y03.0	[V02–V04] (with 4th character = 1, 9), V09.2, V09.3†	...	Y02.0, Y03.0	...	...
MVT–Other	V80.3–V80.5, V81.1, V82.1, X81.0	V80.3–V80.5, V81.1, V82.1	X81.0	...	...	...
MVT–Unspecified	Y32	...	...	...	Y32	...

See footnotes at end of table.

Table II. 2019 final ICD-10-CM external cause-of-injury matrix for reporting mechanism and intent of injury (for demonstration purposes)—Con.

Mechanism of injury	All	Intent of injury				
		Unintentional	Intentional self-harm	Assault	Undetermined	Legal intervention/ war operations
Motor vehicle–Nontraffic	[V20–V29] (with 4th character = 0, 1, 2), V29.3, [V30–V79] (with 4th character = 0, 1, 2, 3), V81.0, V82.0, V84.5–V84.9, V85.5–V85.9, [V86.5–V86.7, V86.9] (with 5th character = 1, 4, 5, 6), V88.0–V88.8, V89.0	[V20–V29] (with 4th character = 0, 1, 2), V29.3, [V30–V79] (with 4th character = 0, 1, 2, 3), V81.0, V82.0, V84.5–V84.9, V85.5–V85.9, [V86.5–V86.7, V86.9] (with 5th character = 1, 4, 5, 6), V88.0–V88.8, V89.0	...	...	...	...
Pedal cyclist, other	V10, V11, [V12–V14] (with 4th character = 0, 1, 2), V15–V18, V19.0–V19.3, V19.8	V10, V11, [V12–V14] (with 4th character = 0, 1, 2), V15–V18, V19.0–V19.3, V19.8	...	...	...	...
Pedestrian, other.	V01, V02.0, V03.0, V04.0, V05, V06, V09.0, V09.1, V09.9	V01, V02.0, V03.0, V04.0, V05, V06, V09.0, V09.1, V09.9	...	...	...	...
Other land transport	V80.0–V80.2, V80.6–V80.9, V81.2–V81.9, V82.2–V82.9, V83.4–V83.9, V84.4, V85.4, V86.4, [V86.5–V86.9] (with 5th character = 2, 3, 9), V87.9, V88.9, V89.1, V89.3, V89.9, X81.1, Y02.1	V80.0–V80.2, V80.6–V80.9, V81.2–V81.9, V82.2–V82.9, V83.4–V83.9, V84.4, V85.4, V86.4, [V86.5–V86.9] (with 5th character = 2, 3, 9), V87.9, V88.9, V89.1, V89.3, V89.9	X81.1	Y02.1	...	...
Other transport	V91, V93–V99, X83.0, Y08.81, Y36.1, Y37.1, Y38.1	V91, V93–V99	X83.0	Y08.81, Y38.1	...	Y36.1, Y37.1
Natural/environmental.	T63, T65.82, T73.0–T73.2, T73.8, T73.9, T75.0, T75.2, T75.3, W42, W53–W64, W92–W94, W99, X30–X39, X52, X83.2	[T63.0–T63.8] (with 6th character = 1), T63.91, T65.821, T73.0–T73.2, T73.8, T73.9, T75.0, T75.2, T75.3, W42, W53–W64, W92–W94, W99, X30–X39, X52	[T63.0–T63.8] (with 6th character = 2), T63.92, T65.822, X83.2	[T63.0–T63.8] (with 6th character = 3), T63.93, T65.823	[T63.0–T63.8] (with 6th character = 4), T63.94, T65.824	...
Bites and stings, nonvenomous . . .	[W53, W55, W56, W58, W59, W61] (with 5th character = 1), W54.0, W57	[W53, W55, W56, W58, W59, W61] (with 5th character = 1), W54.0, W57	...	...	...	...
Bites and stings, venomous	T63.0–T63.6, T63.8, T63.9	[T63.0–T63.6, T63.8] (with 6th character = 1), T63.91	[T63.0–T63.6, T63.8] (with 6th character = 2), T63.92	[T63.0–T63.6, T63.8] (with 6th character = 3), T63.93	[T63.0–T63.6, T63.8] (with 6th character = 4), T63.94	...
Natural/environmental, other	T63.7, T65.82, T73.0–T73.2, T73.8, T73.9, T75.0, T75.2, T75.3, W42, [W53] (with 5th character = 9), W54.1, W54.8, W55.03, W55.09, [W55.1–W56.8] (with 5th character = 2, 9), [W58, W59, W61] (with 5th character = 2, 3, 9), W60, W62, W64, W92–W94, W99, X30–X39, X52, X83.2	T63.711, T63.791, T65.821, T73.0–T73.2, T73.8, T73.9, T75.0, T75.2, T75.3, W42, [W53] (with 5th character = 9), W54.1, W54.8, W55.03, W55.09, [W55.1–W56.8] (with 5th character = 2, 9), [W58, W59, W61] (with 5th character = 2, 3, 9), W60, W62, W64, W92–W94, W99, X30–X39, X52	T63.712, T63.792, T65.822, X83.2	T63.713, T63.793, T65.823	T63.714, T63.794, T65.824	...
Overexertion	T73.3, W18.4, X50	T73.3, W18.4, X50	...	...	...	...

See footnotes at end of table.

Table II. 2019 final ICD–10–CM external cause-of-injury matrix for reporting mechanism and intent of injury (for demonstration purposes)—Con.

Mechanism of injury	All	Intent of injury					Legal intervention/ war operations
		Unintentional	Intentional self-harm	Assault	Undetermined		
Poisoning	[T36–T53, T55–T62, T65.0X–T65.81, T65.83, T65.89] (with 6th character = 1, 2, 3, 4), [T36.9, T37.9, T39.9, T41.4, T42.7, T43.9, T45.9, T47.9, T49.9, T51.9, T52.9, T53.9, T56.9, T57.9, T58.0, T58.1, T58.9, T59.9, T60.9, T61.0, T61.1, T61.9, T62.9, T64, T65.9] (with 5th character = 1, 2, 3, 4), T54.0, Y35.2, Y36.7, Y37.7, Y38.7	[T36–T53, T55–T62, T65.0X–T65.81, T65.83, T65.89] (with 6th character = 1), [T36.9, T37.9, T39.9, T41.4, T42.7, T43.9, T45.9, T47.9, T49.9, T51.9, T52.9, T53.9, T56.9, T57.9, T58.0, T58.1, T58.9, T59.9, T60.9, T61.0, T61.1, T61.9, T62.9, T64, T65.9] (with 5th character = 1), T54.0X1	[T36–T53, T55–T62, T65.0X–T65.81, T65.83, T65.89] (with 6th character = 2), [T36.9, T37.9, T39.9, T41.4, T42.7, T43.9, T45.9, T47.9, T49.9, T51.9, T52.9, T53.9, T56.9, T57.9, T58.0, T58.1, T58.9, T59.9, T60.9, T61.0, T61.1, T61.9, T62.9, T64, T65.9] (with 5th character = 2), T54.0X2	[T36–T53, T55–T62, T65.0X–T65.81, T65.83, T65.89] (with 6th character = 3), [T36.9, T37.9, T39.9, T41.4, T42.7, T43.9, T45.9, T47.9, T49.9] (with 5th character = 3), T54.0X3, Y38.7	[T36–T53, T55–T62, T65.0X–T65.81, T65.83, T65.89] (with 6th character = 4), [T36.9, T37.9, T39.9, T41.4, T42.7, T43.9, T45.9, T47.9, T49.9] (with 5th character = 4), T54.0X4	Y35.2, Y36.7, Y37.7	
Drug	[T36–T50] (with 6th character = 1, 2, 3, 4), [T36.9, T37.9, T39.9, T41.4, T42.7, T43.9, T45.9, T47.9, T49.9] (with 5th character = 1, 2, 3, 4)	[T36–T50] (with 6th character = 1), [T36.9, T37.9, T39.9, T41.4, T42.7, T43.9, T45.9, T47.9, T49.9] (with 5th character = 1)	[T36–T50] (with 6th character = 2), [T36.9, T37.9, T39.9, T41.4, T42.7, T43.9, T45.9, T47.9, T49.9] (with 5th character = 2)	[T36–T50] (with 6th character = 3), [T36.9, T37.9, T39.9, T41.4, T42.7, T43.9, T45.9, T47.9, T49.9] (with 5th character = 3)	[T36–T50] (with 6th character = 4), [T36.9, T37.9, T39.9, T41.4, T42.7, T43.9, T45.9, T47.9, T49.9] (with 5th character = 4)	...	
Nondrug	T51–T53, T54.0, T55–T62, T64, 65.0X–T65.81, T65.83, T65.89, T65.9, Y35.2, Y36.7, Y37.7, Y38.7	[T51–T53, T55–T62, T65.0X–T65.81, T65.83, T65.89] (with 6th character = 1), [T51.9, T52.9, T53.9, T56.9, T57.9, T58.0, T58.1, T58.9, T59.9, T60.9, T61.0, T61.1, T61.9, T62.9, T64, T65.9] (with 5th character = 1), T54.0X1	[T51–T53, T55–T62, T65.0X–T65.81, T65.83, T65.89] (with 6th character = 2), [T51.9, T52.9, T53.9, T56.9, T57.9, T58.0, T58.1, T58.9, T59.9, T60.9, T61.0, T61.1, T61.9, T62.9, T64, T65.9] (with 5th character = 2), T54.0X2	[T51–T53, T55–T62, T65.0X–T65.81, T65.83, T65.89] (with 6th character = 3), [T51.9, T52.9, T53.9, T56.9, T57.9, T58.0, T58.1, T58.9, T59.9, T60.9, T61.0, T61.1, T61.9, T62.9, T64, T65.9] (with 5th character = 3), T54.0X3, Y38.7	[T51–T53, T55–T62, T65.0X–T65.81, T65.83, T65.89] (with 6th character = 4), [T51.9, T52.9, T53.9, T56.9, T57.9, T58.0, T58.1, T58.9, T59.9, T60.9, T61.0, T61.1, T61.9, T62.9, T64, T65.9] (with 5th character = 4), T54.0X4	Y35.2, Y36.7, Y37.7	
Struck by/against	V00.0, [V00.1–V00.8] (with 6th character = 2), W18.0, W20, W21, W22.01–W22.03, W22.042, W22.09, W22.1, W22.8, W50–W52, X79, Y00, Y04, Y08.0, Y29, Y35.3, Y35.81, Y36.44, Y37.44	V00.0, [V00.1–V00.8] (with 6th character = 2), W18.0, W20, W21, W22.01–W22.03, W22.042, W22.09, W22.1, W22.8, W50–W52	X79	Y00, Y04, Y08.0	Y29	Y35.3, Y35.81, Y36.44, Y37.44	
Suffocation	[T17] (with 6th character = 0), T71, Y36.46, Y36.47, Y37.46, Y37.47	[T17] (with 6th character = 0), [T71] (with 6th character = 1), T71.20, T71.21, T71.29, T71.9	[T71] (with 6th character = 2)	[T71] (with 6th character = 3)	[T71] (with 6th character = 4)	Y36.46, Y36.47, Y37.46, Y37.47	

See footnotes at end of table.

Table II. 2019 final ICD–10–CM external cause-of-injury matrix for reporting mechanism and intent of injury (for demonstration purposes)—Con.

Mechanism of injury	All	Intent of injury				
		Unintentional	Intentional self-harm	Assault	Undetermined	Legal intervention/ war operations
Other specified	T15, T16, T17.0, T17.1, [T17.20–T17.99] (with 6th character = 8), T18, T19, T74, T75.4, T76, [V00] (with 6th character = 8), W23, W34.01, W34.11, W35–W40, W49, W85–W90, X74.0, X75, X81.8, X83.1, X83.8, X95.0, X96, Y02.8, Y07, Y08.89, Y24.0, Y25, Y31, Y33, Y35.04, Y35.1, Y35.83, Y35.89, Y36.0, Y36.2, Y36.31, Y36.32, Y36.41, Y36.45, Y36.49, Y36.5, Y36.6, Y36.81–Y36.88, Y36.91, Y37.0, Y37.2, Y37.31, Y37.32, Y37.41, Y37.45, Y37.49, Y37.5, Y37.6, Y37.91, Y38.0, Y38.2, Y38.5, Y38.6, Y38.81, Y38.89, Y38.9	T15, T16, T17.0, T17.1, [T17.2–T17.9] (with 6th character = 8), T18, T19, T75.4, [V00] (with 6th character = 8), W23, W34.01, W34.11, W35–W40, W49, W85–W90	X74.0, X75, X81.8, X83.1, X83.8	T74, T76, X95.0, X96, Y02.8, Y07, Y08.89, Y38.0, Y38.2, Y38.5, Y38.6, Y38.81, Y38.89, Y38.9	Y24.0, Y25, Y31, Y33	Y35.04, Y35.1, Y35.83, Y35.89, Y36.0, Y36.2, Y36.31, Y36.32, Y36.41, Y36.45, Y36.49, Y36.5, Y36.6, Y36.81–Y36.88, Y36.91, Y37.0, Y37.2, Y37.31, Y37.32, Y37.41, Y37.45, Y37.49, Y37.5, Y37.6, Y37.91
Other specified, child/adult abuse	T74, T76	...	...	T74, T76	...	...
Other specified, foreign body	T15, T16, T17.0, T17.1, [T17.2–T17.9] (with 6th character = 8), T18, T19	T15, T16, T17.0, T17.1, [T17.2–T17.9] (with 6th character = 8), T18, T19	...	...	...	...
Other specified, classifiable	T75.4, [V00] (with 6th character = 8), W23, W34.01, W34.11, W35–W40, W49, W85–W90, X74.0, X75, X81.8, X83.1, X95.0, X96, Y02.8, Y07, Y24.0, Y25, Y31, Y35.04, Y35.1, Y35.83, Y36.0, Y36.2, Y36.31, Y36.32, Y36.41, Y36.45, Y36.49, Y36.5, Y36.6, Y36.81–Y36.88, Y36.91, Y37.0, Y37.2, Y37.31, Y37.32, Y37.41, Y37.45, Y37.49, Y37.5, Y37.6, Y37.91, Y38.0, Y38.2, Y38.5, Y38.6, Y38.81, Y38.89, Y38.9	T75.4, [V00] (with 6th character = 8), W23, W34.01, W34.11, W35–W40, W49, W85–W90	X74.0, X75, X81.8, X83.1	X95.0, X96, Y02.8, Y07, Y38.0, Y38.2, Y38.5, Y38.6†, Y38.81, Y38.89, Y38.9	Y24.0, Y25, Y31	Y35.04, Y35.1, Y35.83, Y36.0, Y36.2, Y36.31, Y36.32, Y36.41, Y36.45, Y36.49, Y36.5, Y36.6, Y36.81–Y36.88, Y36.91, Y37.0, Y37.2, Y37.31, Y37.32, Y37.41, Y37.45, Y37.49, Y37.5, Y37.6, Y37.91
Other specified, not elsewhere classifiable	X83.8, Y08.89, Y33, Y35.89	...	X83.8	Y08.89	Y33	Y35.89
Unspecified	T14.91, X58†, Y09, Y35.9, Y36.89, Y36.90, Y37.90, Y38.80	X58†	T14.91	Y09, Y38.80	...	Y35.9, Y36.89, Y36.90, Y37.90
All	T14.91, T15–T19, [T36–T65] (with 6th character = 1, 2, 3, or 4), [T36.9, T37.9, T39.9, T41.4, T42.7, T43.9, T45.9, T47.9, T49.9, T51.9, T52.9, T53.9, T54.9, T56.9, T57.9, T58.0, T58.1, T58.9, T59.9, T60.9, T61.0, T61.1, T61.9, T62.9, T63.9, T64, T65.9] (with 5th character = 1, 2, 3, or 4), T71, T73, T74, T76, T75.0–T75.4, V00–V99, W00–W99, X00–X58, X71–X83, X92–X99, Y00–Y09, Y21–Y33, Y35–Y38	T15–T19, [T36–T65, T71] (with 6th character = 1), [T36.9, T37.9, T39.9, T41.4, T42.7, T43.9, T45.9, T47.9, T49.9, T51.9, T52.9, T53.9, T54.9, T56.9, T57.9, T58.0, T58.1, T58.9, T59.9, T60.9, T61.0, T61.1, T61.9, T62.9, T63.9, T64, T65.9] (with 5th character = 1), T71.20, T71.21, T71.29, T71.9, T73, T75.0, T75.2–T75.4, V00–V99, W00–W99, X00–X58	T14.91, [T36–T65, T71] (with 6th character = 2), [T36.9, T37.9, T39.9, T41.4, T42.7, T43.9, T45.9, T47.9, T49.9, T51.9, T52.9, T53.9, T54.9, T56.9, T57.9, T58.0, T58.1, T58.9, T59.9, T60.9, T61.0, T61.1, T61.9, T62.9, T63.9, T64, T65.9] (with 5th character = 2), X71–X83	[T36–T65, T71] (with 6th character = 3), [T36.9, T37.9, T39.9, T41.4, T42.7, T43.9, T45.9, T47.9, T49.9, T51.9, T52.9, T53.9, T54.9, T56.9, T57.9, T58.0, T58.1, T58.9, T59.9, T60.9, T61.0, T61.1, T61.9, T62.9, T63.9, T64, T65.9] (with 5th character = 3), T74, T76, X92–X99, Y00–Y09, Y38	[T36–T65, T71] (with 6th character = 4), [T36.9, T37.9, T39.9, T41.4, T42.7, T43.9, T45.9, T47.9, T49.9, T51.9, T52.9, T53.9, T54.9, T56.9, T57.9, T58.0, T58.1, T58.9, T59.9, T60.9, T61.0, T61.1, T61.9, T62.9, T63.9, T64, T65.9] (with 5th character = 4), T75.1, Y21–Y33	Y35–Y37

† Differs from placement of comparable code in ICD–10 external cause matrix for mortality.
 ... Category not applicable (no relevant ICD–10–CM external cause-of-injury codes).

NOTES: ICD–10–CM is the *International Classification of Diseases, 10th Revision, Clinical Modification*. Within a cell of the matrix, when only a subset of ICD–10–CM codes are included, the additional digits in parentheses () apply to the preceding code or range of codes in brackets []. This table is for demonstration purposes only. Because of the annual updates to the ICD–10–CM code set, any analysis using the 2019 final external cause matrix should rely on the spreadsheets available at the NCHS Injury Data and Resources website at: https://www.cdc.gov/nchs/injury/injury_tools.htm to ensure that all external cause-of-injury codes are included and that individual codes are appropriately grouped by mechanism and intent of injury.

SOURCES: National Center for Health Statistics and National Center for Injury Prevention and Control.

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National Health Statistics Reports ■ Number 136 ■ December 30, 2019

Acknowledgments

The authors acknowledge the contributions of the Council of State and Territorial Epidemiologists and injury epidemiologists from state and local health departments, particularly from Kansas, Massachusetts, Montana, New York state, North Carolina, the Southern Nevada Health District, and Virginia, for their assistance with data analysis and discussion in finalizing the ICD-10-CM external cause-of-injury matrix for injury morbidity.

Suggested citation

Hedegaard H, Johnson RL, Garnett MF, Thomas KE. The International Classification of Diseases, 10th Revision, Clinical Modification (ICD-10-CM) external cause-of-injury framework for categorizing mechanism and intent of injury. National Health Statistics Reports; no 136. Hyattsville, MD: National Center for Health Statistics. 2019.

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DHHS Publication No. 2020-1250 • CS313438