NEMSIS V3 Case Definition

Motor Vehicle Crash—Pedestrian

Date

May 27, 2025 (refactored ICD-10 code regular expressions)
August 26, 2021

Definition

The patient was a pedestrian injured in a motor vehicle crash.

Criteria Description

Patient care reports where:

- cause of injury is pedestrian injured in collision with a motor vehicle

Pseudocode

Patient care reports where:

eInjury.01 Cause of Injury:

Added by NEMSIS (see Discussion)	Code	Description
Y	V02	Pedestrian injured in collision with two- or three-wheeled motor vehicle
Y	V02.1	Pedestrian injured in collision with two- or three-wheeled motor vehicle in traffic accident
	V02.10*	Pedestrian on foot injured in collision with two- or three-wheeled motor vehicle in traffic accident
	V02.11*	Pedestrian on roller-skates injured in collision with two- or three-wheeled motor vehicle in traffic accident
	V02.12*	Pedestrian on skateboard injured in collision with two- or three-wheeled motor vehicle in traffic accident
Y	V02.13	Pedestrian on standing micro-mobility pedestrian conveyance injured in collision with two- or three-wheeled motor vehicle in traffic accident
	V02.131*	Pedestrian on standing electric scooter injured in collision with two- or three-wheeled motor vehicle in traffic accident

Added by NEMSIS (see Discussion)	*Code*	*Description*
	V02.138*	Pedestrian on other standing micro-mobility pedestrian conveyance injured in collision with two- or three-wheeled motor vehicle in traffic accident
	V02.19*	Pedestrian with other conveyance injured in collision with two- or three-wheeled motor vehicle in traffic accident
Y	V02.9	Pedestrian injured in collision with two- or three-wheeled motor vehicle, unspecified whether traffic or nontraffic accident
	V02.90*	Pedestrian on foot injured in collision with two- or three-wheeled motor vehicle, unspecified whether traffic or nontraffic accident
	V02.91*	Pedestrian on roller-skates injured in collision with two- or three-wheeled motor vehicle, unspecified whether traffic or nontraffic accident
	V02.92*	Pedestrian on skateboard injured in collision with two- or three-wheeled motor vehicle, unspecified whether traffic or nontraffic accident
Y	V02.93	Pedestrian on standing micro-mobility pedestrian conveyance injured in collision with two- or three-wheeled motor vehicle, unspecified whether traffic or nontraffic accident
	V02.931*	Pedestrian on standing electric scooter injured in collision with two- or three wheeled motor vehicle, unspecified whether traffic or nontraffic accident
	V02.938*	Pedestrian on other standing micro-mobility pedestrian conveyance injured in collision with two- or three wheeled motor vehicle, unspecified whether traffic or nontraffic accident
	V02.99*	Pedestrian with other conveyance injured in collision with two- or three-wheeled motor vehicle, unspecified whether traffic or nontraffic accident
Y	V03	Pedestrian injured in collision with car, pick-up truck or van
Y	V03.1	Pedestrian injured in collision with car, pick-up truck or van in traffic accident
	V03.10*	Pedestrian on foot injured in collision with car, pick-up truck or van in traffic accident
	V03.11*	Pedestrian on roller-skates injured in collision with car, pick-up truck or van in traffic accident
	V03.12*	Pedestrian on skateboard injured in collision with car, pick-up truck or van in traffic accident
Y	V03.13	Pedestrian on standing micro-mobility pedestrian conveyance injured in collision with car, pick-up or van in traffic accident
	V03.131*	Pedestrian on standing electric scooter injured in collision with car, pick-up or van in traffic accident
	V03.138*	Pedestrian on other standing micro-mobility pedestrian conveyance injured in collision with car, pick-up or van in traffic accident
	V03.19*	Pedestrian with other conveyance injured in collision with car, pick-up truck or van in traffic accident
Y	V03.9	Pedestrian injured in collision with car, pick-up truck or van, unspecified whether traffic or nontraffic accident
	V03.90*	Pedestrian on foot injured in collision with car, pick-up truck or van, unspecified whether traffic or nontraffic accident

Added by NEMSIS (see Discussion)	Code	Description
	V03.91*	Pedestrian on roller-skates injured in collision with car, pick-up truck or van, unspecified whether traffic or nontraffic accident
	V03.92*	Pedestrian on skateboard injured in collision with car, pick-up truck or van, unspecified whether traffic or nontraffic accident
Y	V03.93	Pedestrian on standing micro-mobility pedestrian conveyance injured in collision with car, pick-up or van, unspecified whether traffic or nontraffic accident
	V03.931*	Pedestrian on standing electric scooter injured in collision with car, pick-up or van, unspecified whether traffic or nontraffic accident
	V03.938*	Pedestrian on other standing micro-mobility pedestrian conveyance injured in collision with car, pick-up or van, unspecified whether traffic or nontraffic accident
	V03.99*	Pedestrian with other conveyance injured in collision with car, pick-up truck or van, unspecified whether traffic or nontraffic accident
Y	V04	Pedestrian injured in collision with heavy transport vehicle or bus
Y	V04.1	Pedestrian injured in collision with heavy transport vehicle or bus in traffic accident
	V04.10*	Pedestrian on foot injured in collision with heavy transport vehicle or bus in traffic accident
	V04.11*	Pedestrian on roller-skates injured in collision with heavy transport vehicle or bus in traffic accident
	V04.12*	Pedestrian on skateboard injured in collision with heavy transport vehicle or bus in traffic accident
Y	V04.13	Pedestrian on standing micro-mobility pedestrian conveyance injured in collision with heavy transport vehicle or bus in traffic accident
	V04.131*	Pedestrian on standing electric scooter injured in collision with heavy transport vehicle or bus in traffic accident
	V04.138*	Pedestrian on other standing micro-mobility pedestrian conveyance injured in collision with heavy transport vehicle or bus in traffic accident
	V04.19*	Pedestrian with other conveyance injured in collision with heavy transport vehicle or bus in traffic accident
Y	V04.9	Pedestrian injured in collision with heavy transport vehicle or bus, unspecified whether traffic or nontraffic accident
	V04.90*	Pedestrian on foot injured in collision with heavy transport vehicle or bus, unspecified whether traffic or nontraffic accident
	V04.91*	Pedestrian on roller-skates injured in collision with heavy transport vehicle or bus, unspecified whether traffic or nontraffic accident
	V04.92*	Pedestrian on skateboard injured in collision with heavy transport vehicle or bus, unspecified whether traffic or nontraffic accident
Y	V04.93	Pedestrian on standing micro-mobility pedestrian conveyance injured in collision with heavy transport vehicle or bus, unspecified whether traffic or nontraffic accident
	V04.931*	Pedestrian on standing electric scooter injured in collision with heavy transport vehicle or bus, unspecified whether traffic or nontraffic accident

Added by NEMSIS (see Discussion)	Code	Description
	V04.938*	Pedestrian on other standing micro-mobility pedestrian conveyance injured in collision with heavy transport vehicle or bus, unspecified whether traffic or nontraffic accident
	V04.99*	Pedestrian with other conveyance injured in collision with heavy transport vehicle or bus, unspecified whether traffic or nontraffic accident
Y	V09.2	Pedestrian injured in traffic accident involving other and unspecified motor vehicles
	V09.20*	Pedestrian injured in traffic accident involving unspecified motor vehicles
	V09.21*	Pedestrian injured in traffic accident involving military vehicle
	V09.29*	Pedestrian injured in traffic accident involving other motor vehicles
	V09.3*	Pedestrian injured in unspecified traffic accident

XPath Code

```
/EMSDataSet/Header/PatientCareReport
  [
    eInjury/eInjury.01[matches(., '^((V0[2-4](\.[19].*)?)|(V09\.2([019].*)?)|
      (V09\.3.*))$')]
  ]
```

SAS Code

```
proc sql;
  create table MotorVehicleCrashPedestrianKey as
  select distinct pcrKey from
    (
      select pcrKey from memsis.factPcrCauseOfInjury where prxmatch(
        '/^((V0[2-4](\.[19].*)?)|(V09\.2([019].*)?)|(V09\.3.*))$/', eInjury_01)
    )
  ;
quit;
```

Discussion

For all "crash" case definitions, the following apply:

The *ANSI D.16-2017 Manual on Classification of Motor Vehicle Traffic Crashes* glossary, "Characteristics of Motor Vehicle Traffic Crashes," was consulted in the development of the motor vehicle crash case definitions, with differences noted below. (Text in *italics* is quoted from ANSI D.16-2017.)

Motor vehicle traffic crashes have a number of characteristics that are used to distinguish between motor vehicle traffic crashes and other events such as noncrashes, aircraft or railway accidents and other motor vehicles, cataclysms, and nontraffic crashes. The questions below address all the distinguishing characteristics of motor vehicle traffic crashes. If the answer to each of the questions below is "yes," then the incident is a motor vehicle traffic crash.

1. *Did the incident include one or more occurrences of injury (2.3.1) or damage (2.3.7)?*
   - It is assumed that injury occurred, since we are looking at eInjury.01 Cause of Injury. Damage-only crashes are out of scope from a NEMSIS perspective.
2. *Was there at least one occurrence of injury or damage which was not a direct result of a cataclysm (2.4.5 Cataclysm and 2.4.9 Transport crash)?*
   - This information is unlikely to be reliably available in NEMSIS data.
3. *Did the incident involve one or more motor vehicles (2.2.7)?*
   - Cases that are specifically reported as not including a motor vehicle are excluded. However, sometimes EMS uses more generic ICD-10-CM codes that do not indicate whether a motor vehicle was involved. The case definitions for pedestrian crash and bicycle crash may include cases that did not specify whether a motor vehicle was involved.
4. *Of the motor vehicles involved, was at least one in-transport (2.2.34)?*
   - This information is unavailable in the NEMSIS data.
5. *Was the incident an unstabilized situation (2.4.4)?*
   - This information is unavailable in the NEMSIS data.
6. *Did the unstabilized situation originate on a trafficway (2.2.1) or did injury or damage occur on a trafficway?*
   - Cases that are specifically reported as "non-traffic" are excluded. However, sometimes EMS uses more generic ICD-10-CM codes that do not indicate whether a crash was "traffic" or "non-traffic." The case definitions may include cases that did not specify whether a crash was "traffic" or "non-traffic."
   - The terms "traffic" and "non-traffic" are not further defined in ICD-10-CM. EMS may not interpret the terms in the same way as ANSI D.16-2017.
7. *If the incident involved a railway train (2.2.5) in-transport, did a motor vehicle in-transport become involved prior to any injury or damage involving the train?*
   - The case definitions may include cases where a train was involved in the primary crash event.
8. *Is it true that neither an aircraft (2.1.5) in-transport nor a watercraft (2.1.6) in-transport was involved in the incident?*
   - The case definitions may include cases where an aircraft or watercraft was involved, but not cases where the patient was an aircraft or watercraft occupant.

The intent of the "crash" case definitions is to cast a wide net. Users of the case definitions may choose to narrow the criteria for their specific purposes. For example,

- To identify fatal crashes in a manner similar to the Fatality Analysis Reporting System, the case definition could be narrowed to only include patients who died during the EMS call. However, this would exclude patients who survived to the hospital and died later because of the crash.
- To identify traffic crashes more strictly, the case definition could be narrowed to only include ICD-10 codes labeled as "traffic". However, this would exclude records where the report did not

specify whether the crash was traffic or non-traffic. Also, it is unlikely that EMS providers are highly trained on the differences between "traffic" and "non-traffic".

- To identify only those crashes involving motor vehicles more strictly, the case definitions for pedestrian and bicycle crashes could be narrowed to only include records where the ICD-10 code indicates that a motor vehicle was involved. However, this would exclude records where the report did not specify whether a motor vehicle was involved.

The ICD-10-CM codes selected for the case definitions for crashes are based on the lists provided in the *CDC NCHS 2020 ICD-10-CM External Cause of Injury Matrix for Causes other than Poisoning*. The NEMSIS case definitions for crashes implement the criteria in the CDC ICD-10 matrix, with the following exceptions and refinements:

- The NEMSIS case definitions do not distinguish between accidental, self-harm, assault, undetermined intent, and legal intervention/war operations. Applicable codes from all intent categories are included in the NEMSIS case definitions.
- NEMSIS data sometimes includes non-billable ICD-10-CM codes. The NEMSIS case definitions account for the non-billable codes and include the ones that would be consistent with the intent of the CDC criteria.

The CDC Injury Matrix label for this case definition is "MVT-Pedestrian".

Codes for "Pedestrian on standing electric scooter" and "Pedestrian on other standing micro-mobility pedestrian conveyance" were added to the CDC criteria in October 2020 and are included in this NEMSIS case definition.

References

ANSI D.16-2017 Manual on Classification of Motor Vehicle Traffic Crashes. transportation.gov/sites/dot.gov/files/docs/resources/government/traffic-records/304331/ansid16-2017.pdf.

ICD Injury Matrices. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention (CDC). cdc.gov/nchs/injury/injury_matrices.htm.