Burn Model System
National Data and Statistical Center

STANDARD OPERATING PROCEDURE (SOP) #106

SOP #106	**Title**: Collecting Cause of Death Variables
Approved: BMS Project Directors	**Effective Date**: 3/12/2015
Attachments: 1. ICD-10 Coding for Death Variables 2. Guidelines for Coding Cause of Death	**Revised Date**: 8/10/2026
Forms: None	**Review Date**: 10/3/2025
Review Committee: BMS Project Directors	

Introduction:

The Burn Model System (BMS) Centers use an established set of rules including procedural steps for collecting cause of death during Form I or Form II data collection for the BMS National Database (NDB).

Purpose:

To institute a standard procedure for collection of cause of death data when a participant enrolled in the NDB expires. These guidelines are intended to promote consistent assignment of the underlying cause of death for research and surveillance purposes. They supplement, but do not replace, the official ICD-10 coding conventions and applicable national mortality coding guidelines. When official coding guidance conflicts with these examples, the official guidance should take precedence.

Scope:

BMS and BMS longitudinal follow-up centers that collect follow-up data for the NDB.

Responsibilities:

BMS staff responsible for Form I and Form II data collection for the NDB (e.g., BMS researchers or clinicians, research assistants, study coordinators).

Procedures:

1. Centers enter death variables (primary cause of death, secondary cause of death, and external cause of death) to the Patient Status Form in the NDB when notified of a participant's death or when a search of an online death index (SSDI or Genealogy - at each eligible required follow-up time-point) indicates a participant's death.
    a. Cause of death is obtained through the medical record, if applicable. Death certificates can also be requested from the vital statistics agency where the death occurred (information for vital statistics agencies can be found here: http://www.cdc.gov/nchs/w2w.htm).
    b. Coding for death variables and guidelines for coding these variables is provided in the attachments, "ICD-10 Coding for Death Variables" and

"Guidelines for Coding Cause of Death."

2. If cause of death is unknown, the National Death Index can be searched. Cause of Death for participants who were not found in the NDI search is further searched for by the center using vital statistic agencies from the state where the death occurred. If an NDI search or a vital statistics search is not possible or not successful, Cause of Death will remain coded as unknown in the NDB.

Training requirements:

Staff persons who are responsible for data collection for BMS should be familiar with these criteria. On-going training will be conducted using online training modules and data collector teleconferences.

Compliance:

All data collectors are required to comply with these guidelines.

References:

None.

History:

12/14/2020: Reviewed by Project Directors.
10/3/2025: Reviewed by Project Directors.
8/10/2026: Updated from ICD-9 to ICD-10.

Review schedule:

At least every 5 years.

ICD-10 Coding for Death Variables

Use this document as a reference for coding cause of death using ICD-10 and External Causes of Morbidity Categories

For further information about external causes of morbidity codes, go to: https://www.icd10data.com/ICD10CM/Codes/V00-Y99

Online ICD-10 Coding Manual can be found here: https://www.icd10data.com/ICD10CM/Codes

ICD-10 External Causes of Morbidity, abbreviated:

ICD-10 Code Range	Description
V00–V09	Pedestrian injured in transport accident
V10–V19	Pedal cyclist injured in transport accident
V20–V29	Motorcycle rider injured in transport accident
V30–V39	Occupant of three-wheeled motor vehicle injured in transport accident
V40–V49	Car occupant injured in transport accident
V50–V59	Occupant of pick-up truck or van injured in transport accident
V60–V69	Occupant of heavy transport vehicle injured in transport accident
V70–V79	Bus occupant injured in transport accident
V80–V89	Other land transport accidents
V90–V94	Water transport accidents
V95–V97	Air and space transport accidents
V98–V99	Other and unspecified transport accidents
W00–W19	Falls
W20–W49	Exposure to inanimate mechanical forces
W50–W64	Exposure to animate mechanical forces
W65–W74	Accidental drowning and submersion
W75–W84	Other accidental threats to breathing
W85–W99	Exposure to electric current, radiation, temperature, and pressure extremes
X00–X09	Exposure to smoke, fire, and flames
X10–X19	Contact with heat and hot substances
X20–X29	Contact with venomous animals and plants
X30–X39	Exposure to forces of nature
X40–X49	Accidental poisoning by and exposure to noxious substances

X50–X57	Overexertion, travel, deprivation, and other accidental exposures
X58–X59	Other and unspecified accidental exposures
X60–X84	Intentional self-harm (suicide)
X85–Y09	Assault (homicide)
Y10–Y34	Events of undetermined intent
Y35–Y38	Legal intervention, operations of war, military operations, and terrorism
Y40–Y59	Drugs, medicaments, and biological substances causing adverse effects in therapeutic use
Y60–Y69	Misadventures to patients during medical and surgical care
Y70–Y82	Medical devices associated with adverse incidents
Y83–Y84	Medical and surgical procedures causing abnormal reaction or later complication without mention of misadventure
Y85–Y89	Sequelae (late effects) of external causes
Y90–Y99	Supplementary factors related to causes of morbidity (e.g., alcohol involvement, activity, place of occurrence, external status)

Common Categories Used in Mortality Coding

Manner of Death	**Typical ICD-10 External Cause Codes**
Accident	V00–X59
Intentional self-harm (Suicide)	X60–X84
Assault (Homicide)	X85–Y09
Undetermined intent	Y10–Y34
Legal intervention / War / Terrorism	Y35–Y38
Medical adverse effects / Complications	Y40–Y84

Notes:

- External cause codes (**V00–Y99**) are **supplementary codes** that describe **how the injury or poisoning occurred**, not the nature of the injury itself.
- The actual injury or poisoning should be coded first using the appropriate **S00–T88** code(s), with the external cause code(s) added when sufficient information is available.
- For mortality coding, external cause codes are used to classify the **manner of death** (accident, intentional self-harm, assault, undetermined intent, etc.) and should be

assigned whenever documentation supports their use.

- Multiple external cause codes may be appropriate if they describe different aspects of the event (e.g., mechanism, place of occurrence, activity at the time of injury).

GUIDELINES FOR CODING PRIMARY CAUSE OF DEATH

A. In general, cause of death on medical records will document the immediate cause of death followed by two or three lines under the heading "due to or as a consequence of." There will also be a line to document "other significant conditions."

As a general rule, the primary cause of death will be the cause entered alone on the lowest line of the "due to or as a consequence of" sequence unless it is unlikely that this condition gave rise to all the other conditions listed above it. *If you are uncertain about this, consult your center's medical professionals. An "Other significant condition" would be coded as a secondary cause of death unless it can be specifically linked to the causes listed above it, in which case it might be included in a combined primary cause of death.

Selection of the Primary Cause of Death
For example, consider the following cases:

1. **Immediate cause:** Cardiac arrest **(I46.9)**
   Due to or as a consequence of: [no data available]
   Due to or as a consequence of: [no data available]

Unless additional information can be acquired, select **cardiac arrest (I46.9)** because, unfortunately, it is the only option available.

2. **Immediate cause:** Cardiorespiratory arrest **(I46.9)**
   Due to or as a consequence of: Pneumonia **(J18.9)**
   Due to or as a consequence of:

Select **pneumonia (J18.9)** since it led to the cardiorespiratory arrest.

3. **Immediate cause:** Cardiorespiratory arrest **(I46.9)**
   Due to or as a consequence of: Sepsis, unspecified organism **(A41.9)**
   Due to or as a consequence of: Pneumonia, unspecified organism **(J18.9)**

Select **pneumonia (J18.9)** because it led to the other conditions. List **sepsis (A41.9)** as a secondary cause.

4. **Immediate cause:** Cardiorespiratory arrest **(I46.9)**
   Due to or as a consequence of: Atherosclerosis, unspecified **(I70.90)**
   Due to or as a consequence of:

Select **atherosclerosis (I70.90)** since it led to the cardiorespiratory arrest.

External Cause Codes
The use of **external cause codes (V00–Y99)** is very important because they distinguish accidents, intentional self-harm (suicide), assaults (homicide), and other external causes from natural causes of death.

If an injury or poisoning is reported, it should also be assigned an appropriate external cause code (V00–Y99) whenever sufficient information is available. When an external cause code applies, it should be treated as the primary cause for classifying the manner of death.

Unknown Cause of Death
When the medical record does not provide adequate information, code the cause of death as **Unknown**.

Frequently Encountered Causes of Death:

Condition	ICD-10 Code
Acute myocardial infarction	I21.9
Heart failure	I50.9
Cardiac arrest	I46.9
Pneumonia, unspecified	J18.9
Aspiration pneumonia	J69.0
Sepsis, unspecified	A41.9
Chronic obstructive pulmonary disease	J44.9
Acute respiratory distress syndrome	J80
Respiratory failure	J96.90
Alzheimer's disease	G30.9
Unspecified dementia	F03.90
Parkinson disease	G20
Stroke, unspecified	I64
Intracerebral hemorrhage	I61.9
Cerebral infarction	I63.9
Hypertension	I10
Type 2 diabetes mellitus	E11.9
Chronic kidney disease, Stage 5	N18.5
End-stage renal disease	N18.6
Acute kidney injury	N17.9
Malignant neoplasm of lung	C34.90
Malignant neoplasm of colon	C18.9
COVID-19	U07.1
Fall	W19
Motor vehicle traffic accident	V89.2
Accidental poisoning	X49
Intentional self-harm	X84
Assault	Y09