

## Key Points for Certification of Unexplained Infant Deaths

National Association of Medical Examiners Panel on Sudden Unexpected Death in Pediatrics. Unexplained Pediatric Deaths: Investigation, Certification, and Family Needs. Bundock E, Corey T, editors. San Diego: Academic Forensic Pathology International; c2019. 340 p.

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When cause of death cannot be determined, one of the following cause statements are recommended as applicable:

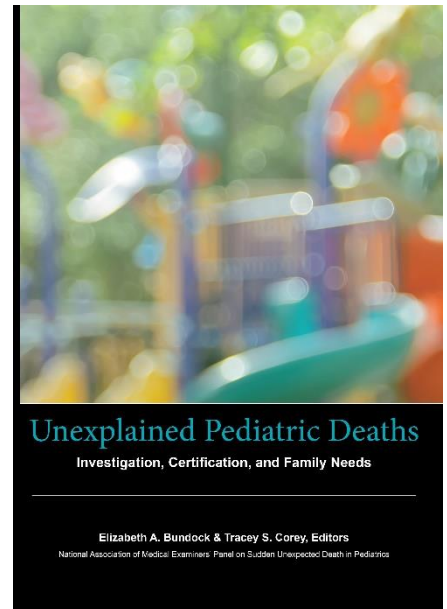
### Unexplained Sudden Death (No Identified Intrinsic or Extrinsic Factors)

- Infant less than one year of age in apparent good health that dies suddenly and unexpectedly.
- For Sleep Related Deaths:
- Placed alone, supine, in infant-specific sleep environment (e.g. crib, bassinet, portable crib, play pen) with flat, firm sleep surface, uncluttered by objects, and without potential areas of entrapment.
- Found unresponsive or dead, in the same sleep environment, with no obstruction of the nose and/or mouth or compression of neck/chest to cause asphyxia given the developmental abilities of the infant, as described by finder and demonstrated by doll reenactment.
- The infant was not overly dressed or bundled for the environmental temperature.
- Competent caregiver not impaired by drugs or alcohol.
- Physical findings on body and at scene consistent with history provided by caregiver.
- Completion of scene investigation and doll reenactment unless caregiver declines.
- Review of child medical records and family health history.
- Complete autopsy with histology, comprehensive toxicology testing (including vitreous chemistries if possible), and skeletal survey.
- No anatomic, metabolic, toxicologic, chemical, historical, or external cause of death identified. Genetic testing is recommended but not required for this certification.
- No extrinsic or intrinsic risk factors are identified.

### Unexplained Sudden Death (Intrinsic Factors Identified)

- A cause of death cannot be determined and criteria for Unexplained Sudden Death (No Identified Intrinsic or Extrinsic Factors) are not met due to
- intrinsic/natural abnormalities that are either known risk factors for sudden death (including, but not limited to, low birth weight, preterm birth, small for gestational age, concurrent non-lethal illness, febrile seizures)
- or are of unknown significance (including, but not limited, to mutations of unknown significance).
- Trauma and other unnatural etiologies are sufficiently excluded.

### Unexplained Sudden Death (Extrinsic Factors Identified)



- A cause of death cannot be determined and criteria for Unexplained Sudden Death (No Identified Intrinsic or Extrinsic Factors) are not met due to the presence of unintentional extrinsic factors that increase risk for unnatural death.
- This may include, but is not limited to, non-lethal injuries or injuries of unknown significance, non-lethal toxicologic findings of unknown significance, or circumstances otherwise concerning for unnatural death.

#### Unexplained Sudden Death (Intrinsic and Extrinsic Factors Identified)

- A cause of death cannot be determined and criteria for Unexplained Sudden Death (No Identified Intrinsic or Extrinsic Factors) are not met due to a combination of intrinsic and extrinsic factors as described above.

#### Undetermined (Not further specified)

- A cause of death cannot be determined due to circumstances or findings that make the above classifications inapplicable. Examples may include: Inconsistent histories and/or other evidence that raise uncertainty about manner of death, and competing causes of death
- Cases which remain undetermined but were not sudden.

#### Undetermined (Insufficient Data)

- A cause of death cannot be determined because investigation, death scene examination, or autopsy were substantially limited, incomplete, or insufficient. Examples may include legal/religious restrictions, delayed report of death that limits scene investigation, and/or decomposition.

#### Completing the Cause of Death Section on the Death Certificate:

1. Part 1 (Line 1A) will read EXACTLY as one of the below (DO NOT specify the exact risk factors- only note if intrinsic or extrinsic factors were present)

Unexplained Sudden Death (No Identified Intrinsic or Extrinsic Factors)

Unexplained Sudden Death (Intrinsic Factors Identified)

Unexplained Sudden Death (Extrinsic Factors Identified)

Unexplained Sudden Death (Intrinsic and Extrinsic Factors Identified)

Undetermined (Not further specified)

Undetermined (Insufficient Data)

2. Line 1B, 1C, 1D and Part 2 of Death Certificate are left blank

#### Completing the Manner of Death Section on the Death Certificate

Choosing between the manners of undetermined manner versus natural manner in unexplained sudden deaths or undetermined deaths is at the discretion of the certifier.

#### Criteria for certification of an infant death due to an asphyxia etiology are:

- The case must have a complete/full autopsy.
- Toxicology, histology, vitreous electrolytes, cultures, and review of medical history are to be performed, as necessary as determined by investigation and autopsy.

- The infant must have obstruction of both nose and mouth or compression of the neck or chest, that is reliably witnessed or demonstrated by doll reenactment, or other reliable evidence of overlay or entrapment.
- Asphyxiation must be probable given infant's age and stage of development.
- There cannot be a reasonable competing cause of death.

**IMPORTANT:** The specifics of the intrinsic and extrinsic factors are NOT listed on the death certificate but included in the autopsy synoptic report ONLY. Inclusion on the death certificate will affect your intended ICD coding of your certification intention.

Intrinsic Factors are

- natural conditions or risk factors associated with abnormal physiology or anatomy that are concerning as contributors to death but are insufficient as a cause . (e.g. low birth weight, preterm birth, small for gestational age, concurrent non-lethal illness, history of febrile seizures),
- or natural conditions of unknown significance (e.g. cardiac channelopathy or seizure gene variants of unknown significance).

Extrinsic Factors are:

- conditions in the child's immediate environment that are a potential threat to life but cannot be deemed the cause of death with reasonable certainty, (e.g. side or prone sleep if unable to roll to supine, over-bundling without documented hyperthermia, objects in immediate sleep environment, sleep environment not specifically designed for infant sleep, soft or excessive bedding, and sleep-surface sharing),
- injuries or toxicologic findings that are either non-lethal or of unknown lethality, or
- circumstances/findings otherwise concerning for unnatural death.

Example:

Death Certificate 3mo female sudden death after complete investigation:  
 COD: Unexplained Sudden Death (Intrinsic and Extrinsic Factors identified)  
 MOD: Undetermined

Within Synoptic Report:

Intrinsic Factor- Mild Bronchiolitis

Extrinsic Factor- Bedsharing in adult bed with unimpaired adult