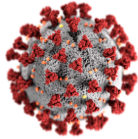


EVENT DEFINITION FORM

Event: Sudden death
Outcome/covariate: outcome
Version: 1
Status: final

Contributing authors

authors	Role	Date
Miriam Sturkenboom	draft	
Leila Belbachir	Medical review	August 22, 2020
Miriam & Leila	Review	August 25, 2020
Caitlin Dodd	Algorithm proposal	02-09-2020
Miriam Sturkenboom	Final codes	14-2-2021
Carlos Durán	Rev. narrow/possible assignment	29-03-2021
Miriam Sturkenboom	Inclusion of codes used in final ACCESS report	23-08-2021



1. Event definition

The diagnosis and definition of sudden death are variable, but the generally recognized definition is based on the length of time between the onset of symptoms and death [1,2]. The World Health Organization (WHO) definition of sudden death according to the International classification of diseases, version 10 (ICD-10) is death, non-violent and not otherwise explained, occurring less than 24 hours from the onset of symptoms [2]. Sudden death occurs in all age groups: in infants (where it is called sudden infant death syndrome), in children and youths, in adults and in the elderly

The most commonly proposed positions on when a human being dies are those of cardiopulmonary death, whole brain death, brainstem death and higher brain death but each of those may have counter-intuitive results. Death is an event that takes place at a set point in time, when the collection of bodily processes that maintains homeostasis finally cease.

Infants

The use of the term “sudden infant death syndrome” or “SIDS” should be restricted to deaths in the first year of life which remain unexplained after autopsy, i.e., meeting the criteria of level 1 or level 2 of diagnostic certainty and in the first year of life (BC definition Jorch et al. Vaccine 2007).

Level 1 of diagnostic certainty
(Unexplained after complete postmortem investigation)

Sudden death of any child under 2 years of age which remains unexplained^a after *excluding other causes of death*^b by

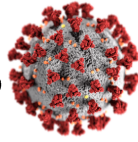
1. Review of clinical history^c AND
2. History of final events^c AND
3. Review of *complete autopsy* report with a standardized protocol^d that

includes

- Macroscopic examination AND
- Microscopic examination AND
- Microbiologic samples AND
- Toxicological samples AND
- Screen for metabolic diseases AND • Radiological studies

AND

4. Review of circumstances of death including examination of death scene performed by a suitably qualified person, such as homicide investigator or medical scene investigator or medical examiner^c



Level 2 of diagnostic certainty

(Unexplained after clinical and final event history and autopsy)

Sudden death of any child under 2 years of age which remains unexplained^a *after excluding other causes of death at least by*

1. Review of clinical history^c AND
2. History of final events^c AND
3. Review of incomplete^e autopsy result

Level 3 of diagnostic certainty

(Unexplained after clinical and final event history but without autopsy^f)

Sudden death of any child under 2 years of age which remains unexplained^a *after excluding other causes of death at least by*

1. Review of clinical history AND 2. History of final events

For any level of diagnostic certainty

Children under 2 years of age found unresponsive who are resuscitated and later die are included if they otherwise meet the criteria

For more detail see Jorch et al.

In an adult sudden death is defined as death within 24 hours after symptom onset

2. Synonyms / lay terms for the event

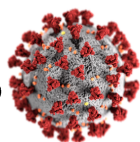
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4. Diagnostic tests that are specific for event

Autopsy

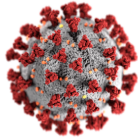
7. Setting (outpatient specialist, in-hospital, GP, emergency room) where condition will be most frequently /reliably diagnosed

Anywhere



8. Codes used in ACCESS

Coding system	Code	Code name	Concept	Concept name	Algorithm
ICD10/CM	R99	Ill defined death			narrow
ICD10/CM	R95	Sudden infant death syndrome	C0038644	Sudden infant death syndrome	Narrow
ICD10/CM	R96.0	Instantaneous death	C0021614	Instantaneous death	Narrow
ICD10/CM	R96.1	Death occurring less than 24 hours from onset of symptoms, not otherwise explained	C0277590	Death in less than 24 hours from onset of symptoms	Narrow
ICD9CM	798	Sudden death	C0038644	Sudden infant death syndrome	Narrow
ICPC2P	A96006	Death (sudden)	C0011071	Sudden death	Narrow
RCD2	22J4.	O/E - dead - sudden death	C0011071	Sudden death	Narrow
RCD2	R212.	[D]Death <24hr.from illn.start	C0277590	Death in less than 24 hours from onset of symptoms	Narrow
RCD2	R212z	[D]Death <24hr.from ill.NOS	C0277590	Death in less than 24 hours from onset of symptoms	Narrow
RCD2	RyuC.	[X]Oth sudden death,cause unkn	C0478196	Other sudden death, cause unknown	Narrow
RCD2	R213.	Unattended death			Narrow
RCD2	R210.	[D]Sudden infant death syndr.			Narrow
RCD2	R211.	instantaneous death			Narrow
RCD2	R2131	Found dead			Narrow
SCTSPA	26636000	muerte súbita	C0011071	Sudden death	Narrow
SCTSPA	49713007	muerte inesperada	C0277591	Unexpected death	Narrow
SCTSPA	50514002	muerte instantánea	C0021614	Instantaneous death	Narrow
SCTSPA	51178009	síndrome de muerte súbita del lactante	C0038644	Sudden infant death syndrome	Narrow
SCTSPA	53559009	muerte en menos de 24 horas desde la iniciación de los síntomas	C0277590	Death in less than 24 hours from onset of symptoms	Narrow
SCTSPA	207534005	[D]síndrome de muerte súbita infantil	C0038644	Sudden infant death syndrome	Narrow
SCTSPA	207535006	[D]muerte en cama para bebés	C0038644	Sudden infant death syndrome	Narrow
SCTSPA	207536007	[D]muerte en la cuna	C0038644	Sudden infant death syndrome	Narrow
SCTSPA	207538008	[D]síndrome de muerte súbita infantil, SAI	C0038644	Sudden infant death syndrome	Narrow
SCTSPA	207539000	[D]muerte instantánea	C0021614	Instantaneous death	Narrow
SCTSPA	207540003	[D]muerte en menos de 24 horas desde el comienzo de la enfermedad	C0277590	Death in less than 24 hours from onset of symptoms	Narrow
SCTSPA	207543001	[D]muerte antes de las 24 horas desde el comienzo de la enfermedad, SAI	C0277590	Death in less than 24 hours from onset of symptoms	Narrow
SCTSPA	207672009	[X]muerte súbita de otro tipo, causa desconocida	C0478196	Other sudden death, cause unknown	Narrow
SCTSPA	160957000	Sudden infant death (event)			Narrow
SNOMEDCT_US	15355001	[D]Unattended death			Narrow
SNOMEDCT_US	26636000	Sudden death	C0011071	Sudden death	Narrow

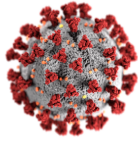


SNOMEDCT_US	49713007	Unexpected death	C0277591	Unexpected death	Narrow
SNOMEDCT_US	50514002	Instantaneous death	C0021614	Instantaneous death	Narrow
SNOMEDCT_US	50514002	[D]Instantaneous death			Narrow
SNOMEDCT_US	51178009	Sudden infant death syndrome	C0038644	Sudden infant death syndrome	Narrow
SNOMEDCT_US	53559009	Death in less than 24 hours from onset of symptoms	C0277590	Death in less than 24 hours from onset of symptoms	Narrow
SNOMEDCT_US	158718001	[D]Cot death	C0038644	Sudden infant death syndrome	Narrow
SNOMEDCT_US	158719009	[D]Instantaneous death	C0021614	Instantaneous death	Narrow
SNOMEDCT_US	158720003	[D]Death less than 24 hours from onset of illness	C0277590	Death in less than 24 hours from onset of symptoms	Narrow
SNOMEDCT_US	158723001	[D]Death less than 24 hours from onset of illness NOS	C0277590	Death in less than 24 hours from onset of symptoms	Narrow
SNOMEDCT_US	162855000	O/E - dead - sudden death			Narrow
SNOMEDCT_US	207534005	[D]Sudden infant death syndrome	C0038644	Sudden infant death syndrome	Narrow
SNOMEDCT_US	207535006	[D]Cot death	C0038644	Sudden infant death syndrome	Narrow
SNOMEDCT_US	207536007	[D]Crib death	C0038644	Sudden infant death syndrome	Narrow
SNOMEDCT_US	207538008	[D]Sudden infant death syndrome NOS	C0038644	Sudden infant death syndrome	Narrow
SNOMEDCT_US	207539000	[D]Instantaneous death	C0021614	Instantaneous death	Narrow
SNOMEDCT_US	207540003	[D]Death less than 24 hours from onset of illness	C0277590	Death in less than 24 hours from onset of symptoms	Narrow
SNOMEDCT_US	207543001	[D]Death less than 24 hours from onset of illness NOS	C0277590	Death in less than 24 hours from onset of symptoms	Narrow
SNOMEDCT_US	207671002	Cot death	C0038644	Sudden infant death syndrome	Narrow
SNOMEDCT_US	207672009	[X]Other sudden death, cause unknown	C0478196	Other sudden death, cause unknown	Narrow
SNOMEDCT_US	268923008	O/E - dead NOS			Narrow
SNOMEDCT_US	274641005	Instantaneous death	C0021614	Instantaneous death	Narrow
SNOMEDCT_US	274644002	[D]Sudden death, cause unknown			Narrow
SNOMEDCT_US	404684003	[X]Ill-defined and unknown causes of mortality			Narrow
SNOMEDCT_US	411881000000103	[D]Other and unknown causes of morbidity or mortality NOS			Narrow

9. Algorithm proposal

Broad Algorithm:

- Concept sets (Sudden_death, Sudden_infant_death, Unknown_cause_of_death)
- Index date = first occurrence of a code included in the concept sets (Sudden_death, Sudden_infant_death, Unknown_cause_of_death)

**Narrow Algorithm:**

- Concept sets (Sudden_death, Sudden_infant_death)
- Index date = first occurrence of a code included in the concept sets (Sudden_death, Sudden_infant_death)

10. References

1. Di Maio VJM, Di Maio DJ. Forensic pathology, 2nd ed. London, CRC Press, 2001.
2. International classification of diseases (ICD-10). Geneva, World Health Organization, 2005.
3. Jorch G, Tapiainen T, Bonhoeffer J, et al. Unexplained sudden death, including sudden infant death syndrome (SIDS), in the first and second years of life: case definition and guidelines for collection, analysis, and presentation of immunization safety data. *Vaccine*. 2007;25(31):5707-5716. doi:10.1016/j.vaccine.2007.02.068