

SwedPop Documentation

# Principles of Coding Historic Cause of Death

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# Historical causes of death

A cause of death can be defined as the chain of events leading to death. Causes of death can therefore be diseases, accidents and other external causes of death, injuries, poisoning, suicide and homicide. In the historical sources, the causes of death were recorded in the death and burial books and in parallel, in death certificates. For more information on reporting causes of death see Rogers (1999)<sup>1</sup>, and the National Board of Health and Welfare (2010)<sup>2</sup>.

From the 19th century onwards, there has been a major change in both medical terminology and diagnostics. This means that the cause of death information gradually changes over time. Examples include the existence of different names for the same disease as well as the use of archaic disease names that are no longer used in modern medical terminology. Who reported the death and, in particular, access to a physician, also creates differences in the historical cause of death material. With the aim of structure and make the information easily accessible for research, Swedpop has applied an international code system for historical causes of death, ICD10h, developed within the research network SHiP+ (Studying the history of Health in (Port) cities)<sup>3</sup>.

As a basic structure for ICD10h, the modern international classification system, ICD10 (version 2016)<sup>4</sup> has been used and adapted to work with the medical terms and designations used in the 19th and 20th centuries. For more information on the construction of the system, see Janssens (2021)<sup>5</sup>.

## ICD10h, a coding system adapted for coding historical causes of death

Trying to organize historical causes of death in a modern code system is no easy task. One difficulty faced is that the cause of death information provided in the historical sources was often of a symptom-describing nature rather than a clearly stated disease. Another difficulty is that the medical terminology and accuracy of the diagnoses have changed over time. Therefore, it is often a challenge to systematically interpret and translate the historical names of diseases that are registered in the sources.

This entails that an interpretation and approximation is at hand during the assignment of codes to historical causes of death. With the modern ICD10 system as a base, the historical cause of death information has been organized into a structure adapted to work with historical naming of diseases. It is important to note that when coding historical causes of death, it has not been possible to follow all the rules and guidelines that apply to the modern ICD10 system. In ICD10h coding, the rules of the ICD10 system have been used as a starting point. Instead of trying to apply these rules precisely, they have been extended to also include the sometimes vague and symptomatic causes of death used in historical contexts.

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<sup>1</sup> Rogers, J., (1999). Reporting causes of death in Sweden, 1750–1950. *Journal of the history of medicine and allied sciences*. 54(2): 190–209, <https://doi.org/10.1093/jhmas/54.2.190>.

<sup>2</sup>Befolkningsstatistik, Historik, produktionsmetoder och tillförlitlighet (2010) <https://www.socialstyrelsen.se/globalassets/sharepoint-dokument/artikelkatalog/statistik/2010-4-33.pdf>

<sup>3</sup>Forskarnätverket SHiP websida <https://www.ru.nl/rich/our-research/research-groups/radboud-group-historical-demography-family-history/networks/ship/>

<sup>4</sup> <https://icd.who.int/browse10/2016/en>

<sup>5</sup> Janssens, A. (2021). Constructing SHiP and an International Historical Coding System for Causes of Death. *Historical Life Course Studies*, 10, 64–70. <https://doi.org/10.51964/hlcs9569>

## The structure of ICD10h

The ICD10h code system has a structure that follows the ICD10 system's four-digit alphanumeric code extended by two decimal places. The purpose of this extension is to provide scope for assigning special codes to historical designations that are synonyms for the same disease, see the example of Typhoid fever in Table 1.

**Tabell 1. ICD10h codes for Typhoid fever**

ICD10	Modern description	ICD10h	historical description
A01.0	Typhoid and paratyphoid fevers <i>Febris typhoides et febris paratyphoides</i>	A01.000	typhoid fever
		A01.001	enteric fever
		A01.002	bilious fever
		A01.003	gastric fever
		A01.004	colonial fever
		A01.005	fog fever

The system also allows for geographical differences in the naming of diseases. The Swedish cause of death 'Slag', or 'Slaganfall', which was probably used to denote 'stroke' or 'sudden death', has been assigned its own specific ICD10h code under the stroke category I64.003, which is illustrated in Table 2. The cause of death 'Slag' was often used as a cause of death for adults as well as infants, and the placement under 'stroke' is thus an expanded interpretation of I64 and should of course be considered an approximate placement when used in analyses. During certain periods, there is a high incidence of death from the disease 'Slag' among infants, which in this context could be interpreted as 'sudden death'.

**Table 2. Specific ICD10h code for the Swedish term 'Slag, slaganfall'**

ICD10	ICD10 description	ICD10h	ICD10h description
I64	Stroke, not specified as haemorrhage or infarction <i>Apoplexia cerebri, haemorrhagia sive infarctu non indicato</i>	I64.000	Stroke
		I64.001	Apoplexy
		I64.002	strokes, multiple
		I64.003	Slag, slaganfall

**Table 3. Chapters and categories of the ICD10 system**

Chapter	Categories	Description
I	A00-B99	Certain infectious and parasitic diseases
II	C00-D48	Neoplasms
III	D50-D89	Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism
IV	E00-E90	Endocrine, nutritional and metabolic diseases
V	F00-F99	Mental and behavioural disorders
VI	G00-G99	Diseases of the nervous system
VII	H00-H59	Diseases of the eye and adnexa
VIII	H60-H95	Diseases of the ear and mastoid process
IX	I00-I99	Diseases of the circulatory system
X	J00-J99	Diseases of the respiratory system
XI	K00-K93	Diseases of the digestive system
XII	L00-L99	Diseases of the skin and subcutaneous tissue
XIII	M00-M99	Diseases of the musculoskeletal system and connective tissue
XIV	N00-N99	Diseases of the genitourinary system
XV	O00-O99	Pregnancy, childbirth and the puerperium
XVI	P00-P96	Certain conditions originating in the perinatal period
XVII	Q00-Q99	Congenital malformations, deformations and chromosomal abnormalities
XVIII	R00-R99	Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified
XIX	S00-T98	Injury, poisoning and certain other consequences of external causes
XX	V01-Y98	External causes of morbidity and mortality
XXI	Z00-Z99	Factors influencing health status and contact with health services
XXII	U00-U85	Codes for special purposes