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Causes of death statistics manual

2025 edition

MANUALS AND GUIDELINES

Causes of death statistics manual

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Contents

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Abbreviations and acronyms

COD	Cause of Death
CONVAL	Content Validation Service in EDAMIS
DSD	Data Structure Definition
DG SANTE	Directorate-General for Health and Food Safety
EC	European Commission
EDAMIS	Electronic Data Files Administration and Management Information
ESS	European Statistical System
ESS-MH	European Statistical System – Metadata Handler
EU	European Union
GEN	General – Used to describe the datafile 'General Mortality'
ICD	International Classification of Diseases
ISO	International Organization for Standardization
JRC	European Commission's Joint Research Centre
NUTS	Nomenclature of Territorial Units for Statistics
OECD	The Organisation for Economic Co-operation and Development
PYLL	Potential Years of Life Lost
Reporting countries	27 EU-MS, EFTA Countries, EU candidate countries
SBN	Stillbirths – used to describe the datafile 'Stillbirths'
SIMS	Single Integrated Metadata Structure
STRUVAL	Structural Validation Service in EDAMIS
UCOD	Underlying Cause of Death
WHO	World Health Organisation

1 Introduction

1.1. Aim

This manual provides the guidelines for data providers when transmitting data to Eurostat on Causes of Death (COD) in the statistical collection with the same name. The manual covers both the mandatory and voluntary data collection. This is not a legally binding document but is intended as an aid for data providers.

In this manual, guidelines are provided for the transmission and the validation of the data. They describe the elements involved in the workflow for causes of death data validation as well as the metadata and quality reporting.

1.2. Contacts

The contact point for this data collection is Eurostat, the statistical office of the European Union. Our mission is to provide high-quality statistics and data on Europe. Eurostat provides a multilingual user support service ([1]) that can answer your questions about European statistics.

1.3. Background

Statistics on causes of death are among the oldest medical statistics available. They provide information on developments over time and differences in causes of death between countries. These statistics play a key role in the general information system relating to the state of health in the EU.

Causes of death statistics may be used in the decision-making process for policies related to health and health care. They may also be used to determine which preventive and medical-curative measures might increase the life expectancy of the population, or where investments in research should be made to improve the overall health outcomes of a population.

The data collected by Eurostat refers to the underlying cause of death. The underlying cause of death (UCOD) is defined by the World Health Organisation (WHO) as 'the disease or injury which initiated the train of morbid events leading directly to death, or the circumstances of the accident or violence which produced the fatal injury'. Eurostat's causes of death statistics are built on the classifications set out by the WHO in the International Classification of Diseases (ICD).

Prior to 1995 Eurostat collected data on a shortlist of 11 groupings of causes of death as part of its demographic statistics. In 1995, EU countries were consulted on a proposal for a revised reporting on causes of death statistics. Countries welcomed the use of a shortlist as an important tool for international comparisons of mortality data, primarily for analysis at regional level and for the analysis of long-term results. With the assistance of the Task Force on Causes of Death and based on both

([1]) User support - Eurostat

national lists and specifications used by the WHO, a shortlist of 65 causes of death were selected. This formed the basis for the first reporting of these statistics from reference year 1994.

Eurostat, in collaboration with EU countries began working on a legal framework for the collection of causes of death statistics. An updated shortlist classified into 86 causes was developed and established in 2012 and is the current basis for the dissemination of causes of death statistics (Annex A).

1.4. Legal basis

Until reference year 2010, EU countries provided causes of death data on the basis of a gentlemen's agreement established in the framework of Eurostat's Working Group on Public Health Statistics.

As of reference year 2011, data are provided based on Regulation (EC) 1338/2008 ([2]) of the European Parliament and of the Council on Community statistics on public health and health and safety at work, implemented by Commission Regulation (EU) No 328/2011 ([3]) as regards statistics on causes of death.

Derogations to the above requirements are specified in Commission Implementing Decision (EU) 2011/222/EU ([4]) granting derogations to certain Member States with respect to the transmission of statistics pursuant to Regulation (EC) No 1338/2008 of the European Parliament and of the Council on Community statistics on public health and health and safety at work, as regards statistics on causes of death. All derogations ended on 31 December 2013.

Eurostat's technical group on causes of death statistics held a round table discussion in 2015 on the timeliness of transmitting these statistics and established a gentlemen's agreement to send data within T+18 months.

1.5. User needs

Statistics on the underlying causes of death provide information on mortality patterns. The statistics cater for the need to describe, compare, and analyse causes of death statistics on national and regional (NUTS2) level.

The main users of the data are European Commission Directorate General on Health and Food Safety (DG SANTE) in view of health policy papers and health strategies, and the Joint Research Centre (JRC) for different projects such as the European Cancer Information System ([5]). Other policymakers, national administrations, researchers, universities, private institutions, media, and the general public are other users of the statistics.

These statistics play a key role in the general information system relating to the state of health in the EU. They may be used to determine which preventive and medical-curative measures or which investment in research might increase the life expectancy of the population. On European level, there are no comprehensive and comparable morbidity statistics (Eurostat collaborated with countries on pilot studies to assess the feasibility of collecting morbidity statistics which ran from 2019-2021 ([6])). Therefore, data on causes of death are often used as a tool for evaluating health systems in the EU and policy makers may use them for evidence-based decision making in health policy. The EU promotes a comprehensive approach to tackling major and chronic diseases, through integrated action on risk factors across sectors and combined with efforts to strengthen health systems towards improved prevention and control.

([2]) Regulation (EC) No 1338/2008 of the European Parliament and of the Council of 16 December 2008 on Community statistics on public health and health and safety at work (Text with EEA relevance). EUR-Lex - 02008R1338-20210101 - EN - EUR-Lex (europa.eu)

([3]) Commission Regulation (EU) No 328/2011 of 5 April 2011 implementing Regulation (EC) No 1338/2008 of the European Parliament and of the Council on community statistics on public health and health and safety at work, as regards statistics on causes of death. Regulation - 328/2011 - EN - EUR-Lex (europa.eu)

([4]) 2011/222/EU: Commission Decision of 5 April 2011 granting derogations to certain Member States with respect to the transmission of statistics pursuant to Regulation (EC) No 1338/2008 of the European Parliament and of the Council on Community statistics on public health and health and safety at work, as regards statistics on causes of death (notified under document C (2011) 2057). Decision - 2011/222 - EN - EUR-Lex (europa.eu)

([5]) Cancer burden statistics and trends across Europe | ECIS (europa.eu)

([6]) Morbidity statistics in the EU – Report on pilot studies – 2023 edition. KS-FT-23-003; ISBN 978-92-68-08959-0; Morbidity statistics in the EU – Report on pilot studies – 2023 edition - Products Statistical reports - Eurostat (europa.eu)

Users can request customised data extractions at the level of the ICD codes via Eurostat's user support ([7]). They must provide information about the data they need such as the list of ICD-10 codes, by occurrence or by residence concept, NUTS level (by country or by region), age groups, etc. Users cannot request access to confidential data, and an anonymisation method is applied to ensure 'statistical confidentiality', more information on this can be found in Chapter 8.1: Confidentiality.

([7]) User support - Eurostat (europa.eu)

2 Methodology

2.1. General information

Statistics on Causes of Death (COD) are based on two pillars:

- medical information contained on death certificates, which may be used as a basis for ascertaining the cause of death; and
- the coding of causes of death following the International Statistical Classification of Diseases (ICD).

Countries are obligated to produce medical certificates on the underlying cause of death, according to rules specified by the WHO ([8]). This information is used to code the cause of death in statistics.

Data providers transmit data to Eurostat either as microdata, or as aggregated data. Eurostat validates the datafiles, applies confidentiality rules, and disseminates the data in its dissemination database.

General mortality, stillbirths and neonatal death data published in Eurostat's dissemination database are broken down by:

- Occurrence (all deaths occurring in a country) and residence (residence of the deceased, in one of the countries participating in the data collection),
- Sex (female, male, unknown),
- Age (age of the dead person or 5-year age groups),
- Cause of death (ICD codes aggregated according to a shortlist),
- Region/country of occurrence and residence,
- Year or month of death (month not provided by all countries).

For stillbirths and neonatal deaths, data are further broken down by age of the mother and parity.

2.2. Coverage

The data covers all registered deaths and stillbirths, of residents and non-residents, occurring in the country.

There are currently 34 countries submitting data on causes of death to Eurostat:

- All 27 EU countries,
- EFTA countries (Iceland, Liechtenstein, Norway, and Switzerland),
- Candidate countries and potential candidate countries (Serbia, Türkiye and Georgia).

([8]) Cause of death (who.int)

Data are also available at regional level. The regional breakdown is based on the Nomenclature of Territorial Units for Statistics (NUTS2), except for countries that do not have a NUTS2 breakdown ([9]). For countries with NUTS2 regions, Eurostat receives only the regional level data and uses them to compute the data at national level.

2.3. Statistical unit

The statistical unit for causes of death statistics is a death or a stillbirth (see Chapter 3.1: Definitions).

Data providers transmit the absolute number of deaths, and Eurostat computes all the other units/indicators for dissemination.

2.4. Statistical population

The statistical population is the population of a given country, including both residents and non-residents.

The data are published for two different populations. The first one captures deaths of residents of a country. The numbers for 'All deaths of residents in or outside their home country' are calculated by taking data for residents dying in their home country (for example, deaths reported by Latvia for Latvian residents dying in Latvia) and adding the number of deaths that were reported by other countries to have died in their country (for example deaths of Latvian residents dying in Germany and reported by Germany).

The second population captures all deaths occurring in a country. The numbers for 'All deaths reported in the country' includes all deaths that occurred in the reporting country, i.e., deaths of residents and non-residents in the reporting country.

2.5. Data sources

2.5.1. Administrative sources

The medical certification of death is an obligation in all EU countries. Deaths are reported by certifiers, in most cases a physician, recorded on a death certificate.

Causes of death statistics are based on the information provided on death certificates (administrative data). The objective of the medical death certificate is to allow the certifier to enter as clearly and completely as possible the cause of death, i.e., describing the sequence of diseases and conditions leading to the death, mentioning other contributing conditions etc. In most countries, the death certificates are forwarded to the statistical office or other institution for centralised coding.

Perinatal deaths (0 to 1 week) are documented by a specific form recommended by WHO. It is however less frequently applied.

2.5.2. Other sources

Some countries use secondary data sources to capture more detailed information or to check the data registered in the death certificates. This is then described in the national metadata.

2.6. Reference period

The reference period is the calendar year. Data by calendar month are provided by many countries, but not all, as it is not mandatory.

([9]) EU countries that do not have NUTS2 2024 regions are: Estonia, Cyprus, Latvia, Luxembourg, and Malta.

2.7. Reporting schedule

Reporting countries must provide the data specified in Article 4 of Commission Regulation (EU) 328/2011 to Eurostat within 24 months (T + 24 months) after the end of the reference year. Some transmit data to Eurostat within the voluntary deadline of 18 months (T+18) (see Chapter 1.4: Legal basis). Those that provide data by calendar month, provide it at the same time (i.e., there is only one annual reporting per country).

Each year, the annual data transmission shall be accompanied by national metadata, respecting the same deadline as for the data.

Each five years, when completing the national metadata report, data providers are required to complete additional concepts as part of a quality report. The next reference years when the quality concepts will be required are 2023, 2028, etc. The purpose of the quality report is to provide quality metadata, for use within countries to record quality problems and improvements, and by Eurostat to review and summarise quality across countries ([10]).

Annex G outlines the concepts to be reported in the annual national metadata report and in the quality report every 5 years.

FIGURE 1

Timeliness of data

Reporting schedule for causes of death statistics

T+60

- Commission Regulation (EC) No 1338/2008 on Community statistics on public health and health and safety at work states that countries shall provide a report on the quality of the data transmitted
- The quality report concepts shall be updated every 5 years and submitted with the metadata for that year (see Chapter 7.6 for more information)

T+24

- Regulation (EU) No 328/2011 on statistics on causes of death states that countries shall provide the causes of death data and metadata within 24 months after the end of the reference year
- Compulsory submission of data and metadata

T+18

- Gentlemen's agreement, agreed in Eurostat's Technical Group on Causes of Death 2015, to submit the data within T+18, if possible
- Gentlemen's agreement submission of data and metadata

([10]) European Statistical System handbook for quality and metadata reports 2021 edition
European Statistical System (ESS) Handbook for Quality and Metadata Reports — re-edition 2021 - Products Manuals and Guidelines - Eurostat (europa.eu)

3 Classifications (definitions)

3.1. Definitions

The definitions in Table 1 apply to the causes of death data collection, as specified in Regulation (EU) 328/2011.

TABLE 1

Definitions in causes of death statistics

Phrase/word	Meaning
death	means the permanent disappearance of all evidence of life at any time after live birth has taken place (post-natal cessation of vital functions without capability of resuscitation). This definition excludes stillbirths.
stillbirth	means foetal death, namely death prior to the complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of pregnancy. Death is indicated by the fact that after such separation from its mother the foetus does not breathe or show any other evidence of life, such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles.
gestational age	means the duration of gestation, measured from the first day of the last normal menstrual period. Gestational age is expressed in completed days or completed weeks.
neonatal death	means the death occurring among live births during the first 28 completed days of life (days 0-27).
parity	means the number of previous live births or stillbirths (0, 1, 2, 3 or more previous live births or stillbirths).
other deaths	means the deaths occurring after the neonatal death period from the 28th completed day of life onwards.
underlying cause of death	means the disease or injury which initiated the train of morbid events leading directly to death, or the circumstances of the accident or violence which produced the fatal injury.

Phrase/word	Meaning
resident	means 'usual resident' in the place where a person normally spends the daily period of rest, regardless of temporary absences for purposes of recreation, holidays, visits to friends and relatives, business, medical treatment, or religious pilgrimage.
microdata	shall mean individual statistical records.
transmission of confidential data	shall mean transmission between national authorities and the Union authority of confidential data which do not permit direct identification.

The following persons alone shall be considered to be usual residents of the geographical area in question:

i. those who have lived in their place of usual residence for a continuous period of at least 12 months before the reference date; or
ii. those who arrived in their place of usual residence during the 12 months before the reference date with the intention of staying there for at least 1 year.

Where the circumstances described in point (i) or (ii) cannot be established, 'usual residence' shall mean the place of legal or registered residence.

3.2. Classifications

3.2.1. International Classification of Diseases (ICD)

ICD is a medical classification established by the WHO to be used in epidemiology, health management and for clinical purposes. It is a system designed to map health conditions and assign a designated code which can be more easily used for statistical purposes. ICD provides a globally recognised format for reporting causes of death and establishing the underlying cause of death which promotes international comparability.

Since reference year 2014, all reporting data providers follow the ICD classification in its tenth revision (ICD-10 ([11])). ICD-10 contains 22 chapters in which diseases and other health conditions are categorised and classified into a single coded list of three-character categories, each of which can be further divided into up to 10 four-character subcategories. This alphanumeric code has a letter in the first position, followed by a number in the second, third and fourth positions. The fourth character follows a decimal point. Possible code numbers therefore range from A00.0 to Z99.9. Eurostat collects causes of death data at the ICD 4-character level code. Data providers should use ICD-10 codes belonging to a single revision year for their causes of death data for a specific reference year.

At the 72nd World Health Assembly in 2019, the WHO approved an eleventh revision of ICD (ICD-11 ([12])) and all WHO Member States are expected to eventually transition to this version for reporting death and illness.

3.2.2. European shortlist for causes of death statistics

The European shortlist for causes of death statistics (Annex A) groups the most relevant causes of deaths and is used for dissemination in Eurostat's dissemination database. The shortlist was established in 2012 and is maintained by Eurostat. It is based on the 3-digit level of the ICD-10 classification and categorises 86 causes under 17 different categories.

The shortlist provides a tool for international comparisons of mortality data, for example between data collected at the 3-digit level of ICD and at the 4-digit level. The shortlist is mapped to codes from previous versions of ICD, ICD-9 and ICD-8. This allows for the comparison of mortality data with previous versions of ICD, including historical comparisons and the analysis of long-term results such as retrospective studies.

([11]) ICD-10 Version:2019 (who.int)

([12]) ICD-11 (who.int)

The shortlist includes the causes of death most relevant for the EU and policy makers. The basis on which the causes were selected for this list were:

- of relevance with respect to EU mortality patterns,
- of relevance of national and sub-national health programmes,
- of relevance for disaggregation by regional (NUTS2) level,
- of special importance to mortality trends and projections,
- subject of 'frequently asked questions'.

The shortlist does not include codes for COVID-19; codes for COVID-19 were introduced by WHO as emergency codes and implemented by Eurostat as of reference year 2020 in collection and dissemination of data.

3.2.3. COVID-19 codes

Following the outbreak of the COVID-19 pandemic in 2020, the WHO established emergency codes for COVID-19 ([13]).

The emergency codes for COVID-19 in ICD-10, relevant for causes of death statistics, are:

- confirmed diagnosis of COVID-19 (virus identified)

  ICD10 code U07.1

- clinical or epidemiological diagnosis, whether suspected or probable of COVID-19 (virus not identified)

  ICD10 code U07.2

The WHO defines a death due to COVID-19 as a death resulting from a clinically compatible illness, in a probable or confirmed COVID-19 case, unless there is a clear alternative cause of death that cannot be related to COVID-19 disease (e.g., trauma). There should be no period of complete recovery from COVID-19 between illness and death.

A death due to COVID-19 may not be attributed to another disease (e.g., cancer) and should be counted independently of preexisting conditions that are suspected of triggering a severe course of COVID-19.

Additional codes were established to document or flag conditions that occur in the context of COVID-19. Eurostat disseminates these deaths as 'COVID-19 Other'. These additional codes include:

- Multisystem inflammatory syndrome associated with COVID-19, unspecified

  ICD10 code U10.9

- COVID-19 vaccines causing adverse effects in therapeutic use, unspecified

  ICD10 code U12.9

WHO recommends that the latter is used as an external cause code under Y59, "Other and unspecified vaccines and biological substances". However, Eurostat has chosen not to include it there in order to minimise revisions to the European shortlist before transitioning to ICD-11. Consequently, data providers reporting the ICD-10 code U12.9 are requested not to classify it as an external code. Eurostat incorporates it under 'COVID-19 Other' in dissemination.

Additional codes include U09.9 Post COVID-19 condition. Although WHO suggests that this U09.9 code may be utilised in mortality statistics, it should not be assigned as the underlying cause of death. This is because the Post COVID-19 condition (U09.9) would not have developed without COVID-19 being the primary cause. Consequently, instead of using code U09.9 as the underlying cause of death, data providers must utilise the U07.1 or U07.2 codes.

([13]) The WHO developed International guidelines for certification and classification (coding) of COVID-19 as cause of death.

3.2.4. Country and region classification

The NUTS classification (Nomenclature of territorial units for statistics ([14])) is a hierarchical system for dividing up the economic territory of the EU for the collection, development and harmonisation of European regional statistics, socio-economic analyses of the regions and framing of EU regional policies.

NUTS1: major socio-economic regions

NUTS2: basic regions for the application of regional policies

NUTS3: small regions for specific diagnoses

Eurostat collects causes of death statistics on the level of NUTS2 or NUTS0 (national level, for countries without NUTS2 regions). For countries with NUTS2 regions, Eurostat receives only the regional level data and uses them to compute the data at national level.

For countries not covered by this classification, please use the ISO two-letter codes (ISO alpha-2). For a list of these countries, please consult the 'Interinstitutional Style Guide' provided by the Publications Office of the European Union ([15]).

3.3. Measures

3.3.1. General mortality

General mortality is a measure of all the deaths reported in the country over the course of one calendar year, from all causes or due to a specific cause. It can also be segregated by age and sex. General mortality can be expressed as an absolute number, or as a rate. More information on how Eurostat disseminates causes of death data can be found in Chapter 8.6: Dissemination of tabular data.

3.3.2. Infant mortality

Infant mortality is a measure of the deaths in children under 1 year of age reported in the country over the course of one calendar year. Infant mortality includes several indicators which measure the death at a certain age. More information on how Eurostat disseminates these data can be found in Chapter 8.6.3: Infant, foetal, perinatal, and neonatal mortality rates.

3.4. Variables (data required)

There are compulsory variables in the causes of death data collection, and variables provided on a voluntary basis. Table 2 shows the variables and their status.

Whenever possible, statistics concerning deaths of residents dying abroad shall be included, on a voluntary basis.

For non-residents, only the country of residence needs to be reported, and not the region of residence.

For external causes of death, the place of occurrence ([16]) and the activity ([17]) may be provided on a voluntary basis. These should be provided according to the place of occurrence and activity code defined in Chapter XX of ICD10.

([14]) Overview - NUTS - Nomenclature of territorial units for statistics - Eurostat (europa.eu)

([15]) Publications Office – Interinstitutional Style Guide – Annex A5 – List of countries, territories and currencies (europa.eu)

([16]) Only applies for underlying cause of death in the range W00-Y34.

([17]) Only applies for underlying cause of death in the range V01-Y34.

TABLE 2

List of variables and their status as compulsory or voluntary

	Variables	Residents			Non-residents who died in the reporting country		
		Stillbirths	Neonatal deaths	Other deaths	Stillbirths	Neonatal deaths	Other deaths
1)	Year of death (date of occurrence)	C	C	C	C	C	C
2)	Sex	V	C	C	V	C	C
3)	Underlying cause of death ICD (4 digits)	V	C	C	V	C	C
4)	Age (0 days, 1, 2, 3, 4, 5, 6 days, 7-27 days, 28-365 days, 1 year, 2, 3, 4, 5-9, … 85-89, … 105+)	X	C	C	X	C	C
5)	Country of occurrence	V	C	C	V	C	C
6)	Region of occurrence (NUTS2)	V	C (*)	C (*)	V	C	C
7)	Region of residence (NUTS2)/Region of residence of the mother (NUTS2)	V	C	C	V	V	V
8)	Country of residence/Country of residence of the mother	X	X	X	V	C	C
9)	First group of stillbirths: – birth weight from 500 g to 999 g or when birth weight does not apply – gestational age from 22 to 27 completed weeks or when neither of the two applies – crown-heel length from 25 to 34 cm	V	X	X	V	X	X
10)	Second group of stillbirths: – birth weight of 1 000 g and more or when birth weight does not apply – gestational age after 27 completed weeks or when neither of the two applies – crown-heel length of 35 cm or more	V	X	X	V	X	X
11)	Age of mother by age group (less than 15 years of age, 5 years age groups thereafter up to 49 years of age and 50 years of age or more)	V	V	X	V	V	X
12)	Parity	V	V	X	V	V	X

N.B.: C - Compulsory; V - Voluntary; X - Not applicable. (*) Voluntary for residents dying abroad.

3.4.1. Stillbirths

For stillbirths at least one of three reporting criteria shall be applied in the following order: (1) birth weight; (2) gestational age; and (3) crown-heel length. Data collection shall be limited to the following groups:

- birth weight from 500 g to 999 g or when birth weight does not apply gestational age from 22 to 27 completed weeks, or when neither of the two applies crown-heel length from 25 to 34 cm (Variable 9); and
- birth weight of 1 000 g and more or when birth weight does not apply gestational age after 27 completed weeks or when neither of the two applies crown-heel length of 35 cm or more (Variable 10).

4 Data structure

4.1. Data structure definition

When transmitting data to Eurostat, data providers must follow a certain structure for each dataset. A Data Structure Definition (DSD) identifies the dimensions, attributes, and measures in a data set, and associates them with common code lists and concepts.

- dimensions - identify and describe the data (e.g., country or frequency),
- attributes - provide additional information about the data, such as whether they are estimates,
- measures- represent the phenomenon to be measured (the observation value).

This allows Eurostat and other international organisations to manage and automate the process of data exchange.

The harmonised and common dataset to be provided shall cover the characteristics of the deceased, the region, and the characteristics of the death, including the underlying cause of death.

4.2. Data requests

Data providers are required to submit two data files to Eurostat:

1. General mortality (GEN file). All deaths occurring in the country (residents and non-residents) broken down by country/region of residence, country/region of occurrence, sex, age, ICD code. For the external causes of death three optional variables are provided (injury code, place of occurrence and activity).
2. Stillbirths and neonatal deaths (SBN file) broken down by country/region of residence, country/region of occurrence, sex, age, ICD code, age of the mother and parity. For stillbirths, optional variables are provided (birth weight or gestational age or crown-heel length).

Please refer to Table 2 where the variables' status as compulsory or voluntary are indicated.

Data providers shall send data in one of the two transmission formats

1. microdata, meaning one record per death.
2. aggregated data, meaning tabulated data by age groups of 5 years.

Eurostat compiles and validates all the submitted datasets. The data are stored and treated in a secure confidential environment. The causes of death indicators and the EU aggregates are computed and finally disseminated in Eurostat's dissemination database. More information can be found in Chapter 8: Data Dissemination.

The file format is CSV, with a semicolon as separator, and without headers. Each dimension has one column in the file. It is necessary to include all dimensions, with empty cells for dimensions that are not available (when this is allowed). Failure to do so results in structural errors.

For the data transmission, data must be transmitted as integers. No letters, signs or symbols are allowed.

4.3. Data types

4.3.1. Microdata files

Microdata files: The record layouts are specified in Table 3 and Figure 2 for general mortality and Table 4 and Figure 3 for stillbirths and neonatal deaths. There are 11 dimensions/columns for the general mortality data file (GEN), and 13 for the stillbirths and neonatal death data file (SBN).

Detailed information about file layout specifications can be found in Annex B for microdata.

TABLE 3

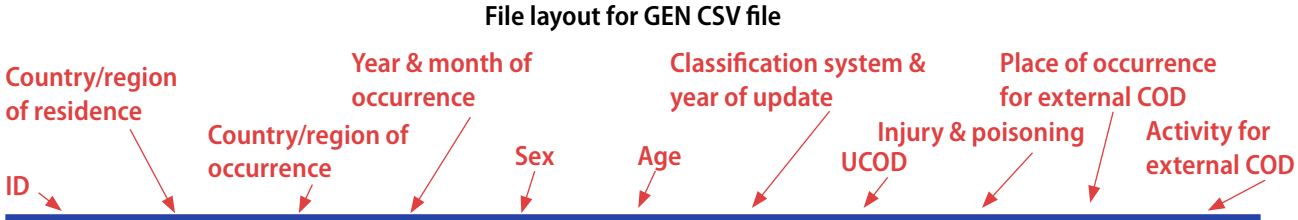
Record layout for general mortality microdata file

Column Number	Variable	Description
1	**ID**	ID code with max 8 characters
2	**Country/region of residence**	NUTS2 region (1)
3	**Country/region of occurrence**	NUTS2 region (1)
4	**Year and month of occurrence**	YYMM
5	**Sex**	Male = 1, Female = 2, Unknown = 9
6	**Age**	Age of deceased in ≤3 digits, preceded by 'D' if deceased is <1 year, and 'Y' if deceased is ≥1 year
7	**Classification system and year of update**	Format is 104YY. 104 = ICD-10 4 digits. YY = year of the ICD-10 update
8	**Underlying cause of death**	ICD10 code. Max 4-character code (2)
9	**Injury and poisoning**	Specific injury and poisoning ICD code (Chapter XIX, S-T codes)
10	**Place of occurrence for external causes of death**	Only for UCOD codes W00-Y34. If not available, use the value 9 (unspecified) (3)
11	**Activity for external causes of death**	Only for UCOD codes V01-Y34. If not available, use the value 9 (unspecified) (3)

(1) If the region is unknown report country abbreviation and 00 (for countries without NUTS2 regions) or 99 (for countries with NUTS2 regions).
(2) Use codes from Chapter XX to code external causes of death (not S-T codes from chapter XIX). For codes for external causes of death (W00-Y34) the place of occurrence should be provided in field (10).
(3) Possible values are given in Chapter XX of ICD10.

FIGURE 2

CSV file layout for general mortality microdata file



1	2	3	4	5	6	7	8	9	10	11
147172	C100	C100	2107	2	Y091	10421	I110			
149055	C100	C100	2111	2	Y078	10421	W10	S069	0	
146902	C100	C100	2107	2	Y088	10421	I619			
144477	C100	C100	2102	2	Y073	10421	C509			
144582	C100	C100	2102	1	Y089	10421	F03			

TABLE 4

Record layout for stillbirths and neonatal death microdata file

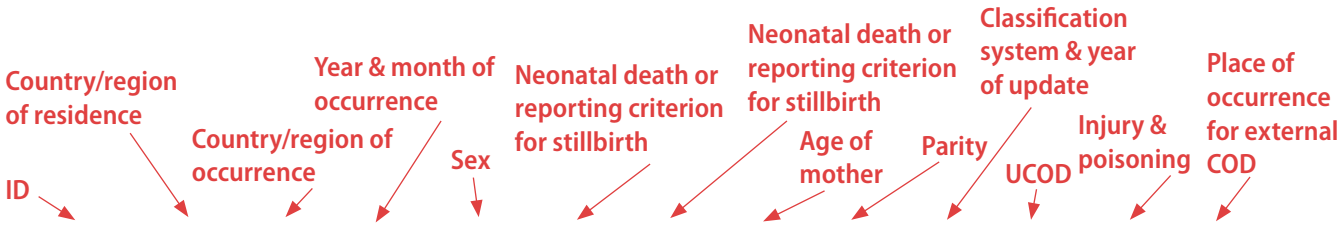
Column Number	Variable	Description
1	**ID**	ID code with max 8 characters
2	**Country/region of residence**	NUTS2 region([1])
3	**Country/region of occurrence**	NUTS2 region([1])
4	**Year and month of occurrence**	YYMM
5	**Sex**	Male = 1, Female = 2, Unknown = 9
6	**Neonatal death or reporting criterion for stillbirth**	SBW, SGA, SCH, S_UNK, or NND ([2])
7	**Reported value for stillbirth or neonatal death**	SBW = grams, SGA = weeks, SCH, or S_UNK = centimetres, NND = in days.
8	**Age of mother**	Single age of the mother. Unknown age should be coded 'UNK'
9	**Parity**	Number of previous live births or stillbirths. If unknown, the code 'UNK' should be used. ([3])
10	**Classification system and year of update**	Format is 104YY. 104 = ICD-10 4 digits. YY = year of the ICD-10 update
11	**Underlying cause of death**	ICD10 code. Max 4-character code ([4])
12	**Injury and poisoning**	Specific injury and poisoning ICD code (Chapter XIX, S-T codes)
13	**Place of occurrence for external causes of death**	Only for UCOD codes W00-Y34. If not available, use the value 9 (unspecified) ([5])

([1]) If the region is unknown report country abbreviation and 00 (for countries without NUTS2 regions) or 99 (for countries with NUTS2 regions).
([2]) SBW = stillbirth according to birth weight, SGA = stillbirth according to gestational age, SCH = stillbirth according to crown-heel length, S_UNK = stillbirth with unknown birth weight, gestational age, or crown-heel length, NND = Neonatal death.
([3]) Single number should be used, "MORE", or "3+" are not accepted.
([4]) Use codes from Chapter XX to code external causes of death (not S-T codes from chapter XIX). For codes for external causes of death (W00-Y34) the place of occurrence should be provided in field (10).
([5]) Possible values are given in Chapter XX of ICD10.

FIGURE 3

CSV file layout for stillbirths and neonatal death microdata file

File layout for SBN CSV file



1	2	3	4	5	6	7	8	9	10	11	12	13
21003776	C100	C100	2101	1	NND	0	37	1	10421	P220		
	C100	C100	2101	1	NND	1	37	1	10421	P220		
	C100	C100	2101	2	NND	7	34	1	10421	P220		
	C100	C100	2101	1	NND	0	24	1	10421	P220		
	C100	C100	2101	1	NND	0	24	0	10421	P220		
	C100	C100	2103	1	NND	10	UNK	1	10421	P220		
	C100	C100	2103	2	NND	26	34	1	10421	P220		
	C100	C100	2104	2	NND	1	33	0	10421	P220		
	C100	C100	2101	1	NND	0	36	0	10421	P220		
	C100	C100	2105	1	NND	10	30	3	10421	P220		
	C100	C100	2105	2	NND	10	30	0	10421	P220		

4.3.2. Files with aggregated data

Eurostat encourages data providers transmitting aggregated data to adopt the Year-Month format instead of solely submitting data in the Year format. This allows disseminating causes of death statistics also by month of occurrence, in addition to year.

Aggregated data files: The record layouts are specified in Table 5 for general mortality and in Table 6 for stillbirths and neonatal deaths. The number of dimensions/columns for general mortality files is 41 and for stillbirths and neonatal death files is 21.

Detailed information about file layout specifications can be found in Annex C for aggregated data.

TABLE 5

Record layout for general mortality aggregated data file

Column Number	Variable		Description
1	**Country/region of residence**		NUTS2 region (1)
2	**Country/region of occurrence**		NUTS2 region (2)
3	**Year and month of occurrence**		Format is: YYMM
4	**Classification system and year of update**		Format is 104YY. 104 = ICD-10 4 digits. YY = year of the ICD-10 update
5	**Underlying cause of death**		ICD10 code. Max 4-character code (2)
6	**Injury and poisoning**		Specific injury and poisoning ICD code (Chapter XIX, S-T codes)
7	**Sex**		Male = 1, Female = 2, Unknown = 9 (3)
8	**Number of deaths for age group**	**all ages**	Number of deaths
9		**0 days**	
10		**1 - 6 days**	
11		**7 - 27 days**	
12		**28 - 364 days**	
13		**Less than 1 year**	
14		**1 year**	
15		**2 years**	
16		**3 years**	
17		**4 years**	
18		**5 - 9 years**	
19		**10 - 14 years**	
20		**15 - 19 years**	
21		**20 - 24 years**	
22		**25 - 29 years**	
23		**30 - 34 years**	
24		**35 - 39 years**	

Column Number	Variable		Description
25	**Number of deaths for age group**	**40 - 44 years**	Number of deaths
26		**45 - 49 years**	
27		**50 - 54 years**	
28		**55 - 59 years**	
29		**60 - 64 years**	
30		**65 - 69 years**	
31		**70 - 74 years**	
32		**75 - 79 years**	
33		**80 - 84 years**	
34		**85 - 89 years**	
35		**90 - 94 years**	
36		**95 - 99 years**	
37		**100 - 104 years**	
38		**105 years or over**	
39		**Unknown age**	
40	**Place of occurrence for external causes of death**		Only for UCOD codes W00-Y34. If not available, use the value 9 (unspecified) ([4])
41	**Activity for external causes of death**		Only for UCOD codes V01-Y34. If not available, use the value 9 (unspecified) ([4])

([1]) If the region is unknown report country abbreviation and 00 (for countries without NUTS2 regions) or 99 (for countries with NUTS2 regions).
([2]) Use codes from Chapter XX to code external causes of death (not S-T codes from chapter XIX). For codes for external causes of death (W00-Y34) the place of occurrence should be provided in field (10).
([3]) There should be two records for each cause code, one for males and one for females, except for those causes applicable to one sex only.
([4]) Possible values are given in Chapter XX of ICD10.

TABLE 6

Record layout for stillbirths and neonatal death aggregated data file

Column Number	Variable		Description
1	**Country/region of residence**		NUTS2 region ([1])
2	**Country/region of occurrence**		NUTS2 region ([1])
3	**Year and month of occurrence**		Format is: YYMM
4	**Classification system and year of update**		Format is 104YY. 104 = ICD-10 4 digits. YY = year of the ICD-10 update
5	**Underlying cause of death**		ICD10 code. Max 4-character code ([2])
6	**Injury and poisoning**		Specific injury and poisoning ICD code (Chapter XIX, S-T codes)
7	**Sex**		Male = 1, Female = 2, Unknown = 9
8	**Age of mother**		Y_LT15 = Less than 15 years Y15-19 = Between 15 and 19 years Y20-24 = Between 20 and 24 years Y25-29 = Between 25 and 29 years Y30-34 = Between 30 and 34 years Y35-39 = Between 35 and 39 years Y40-44 = Between 40 and 44 years Y45-49 = Between 45 and 49 years Y_GE50 = 50 years or over UNK = Unknown age
9	**Parity**		Number of previous live births or stillbirths. If unknown, the code 'UNK' should be used ([3])
10	**Number of stillbirths**	**Total**	Total number. Cannot be empty
11		**1st group**	The number of stillbirths in the 1st group of stillbirths
12		**2nd group**	The number of stillbirths in the 2nd group of the stillbirth
13	**Number of deaths for age group**	**0 days**	Number of deaths
14		**1 day**	
15		**2 days**	
16		**3 days**	
17		**4 days**	
18		**5 days**	
19		**6 days**	
20		**7-27 days**	
21	**Place of occurrence for external causes of death**		Only for UCOD codes W00-Y34. If not available, use the value 9 (unspecified) ([4])

([1]) If the region is unknown report country abbreviation and 00 (for countries without NUTS2 regions) or 99 (for countries with NUTS2 regions).
([2]) Use codes from Chapter XX to code external causes of death (not S-T codes from chapter XIX). For codes for external causes of death (W00-Y34) the place of occurrence should be provided in field (10).
([3]) Single number should be used, "MORE", or "3+" are not accepted.
([4]) Possible values are given in Chapter XX of ICD10.

5 Data transmission

5.1. Deadlines

The compulsory deadline for data and metadata transmission is 31 December of the year 2 years after the reference year (T+24 months). Each five years the national metadata includes additional quality concepts (quality reporting).

Countries have agreed on a voluntary deadline for the submission of causes of death statistics, being 30 June, 18 months after the end of the reference year (T+18).

5.2. Completeness

It is expected that data for all variables are supplied in all relevant records. Each data provider will transmit the complete record with all fields in the specified order. Data providers are asked to respect the structural requirements (i.e., the number of columns) as documented in Chapter 6.2: Validation in EDAMIS.

5.3. Single entry point

Data providers must submit datasets through the Electronic Data Files Administration and Management Information System (EDAMIS). EDAMIS is the single-entry point for the transmission of all regular datasets to Eurostat and requires an EU login. It is a user-friendly, online portal that ensures an encrypted and secure channel for the transmission of data.

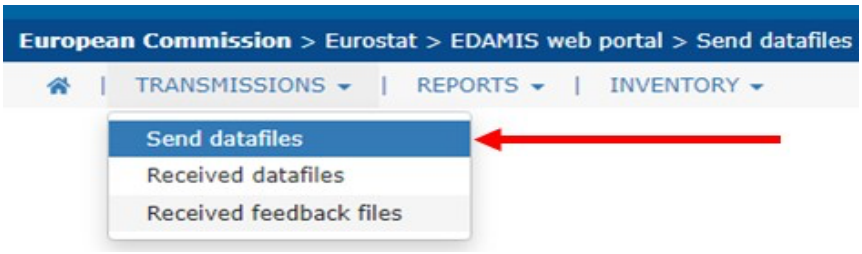
A user guide on how to send data with EDAMIS is available.

Data providers can also request support from their national transmission coordinator.

To start sending the causes of death datasets, please use the Transmissions/Send data files menu as illustrated in Figure 4.

FIGURE 4

Transmissions/Send data files menu EDAMIS



5.4. Datasets in EDAMIS

Data providers shall use the datasets below that correspond to their data format, microdata, or aggregated data.

- COD_GEN_A General mortality microdata
- COD_SBN_A Stillbirths and neonatal microdata
- COD_GENAGG_A General mortality aggregated data
- COD_SBNAGG_A Stillbirths and neonatal aggregated data

5.5. Data transmission workflow

Data providers are advised to adhere to a specific workflow when transmitting COD data. Below is a breakdown of the recommended steps:

Step 1: Data providers start by **pre-validating** the GEN and SBN datasets (COD_GEN_A, COD_GENAGG_A, COD_SBN_A, COD, SBNAGG_A) using the 'pre-validation' button in EDAMIS. The EDAMIS validation reports will indicate if the datasets are free of errors. Once these files pass the pre-validation step, data providers should proceed to step 2.

Step 2: Data providers should submit the file for **cross-validation (inter-service validation)**. This is done using the dataset 'COD_ISERVAL_N' and 'official transmission' button. Validation reports for this process will be accessible in EDAMIS. Upon receiving an error-free cross-validation report, data providers should move on to step 3.

Step 3: When the cross-validation (inter-series validation) of the GEN and SBN files is without errors, data providers shall prepare the two separate datafiles for official transmission. The **official transmission** of the data is done by using the 'official transmission' button on the individual datasets (COD_GEN_A, COD_GENAGG_A, COD_SBN_A, COD, SBNAGG_A). EDAMIS will provide validation reports for these transmissions. Data transmitted in this step marks the final stage of the data transmission. Eurostat will receive the data for further validation of the datasets.

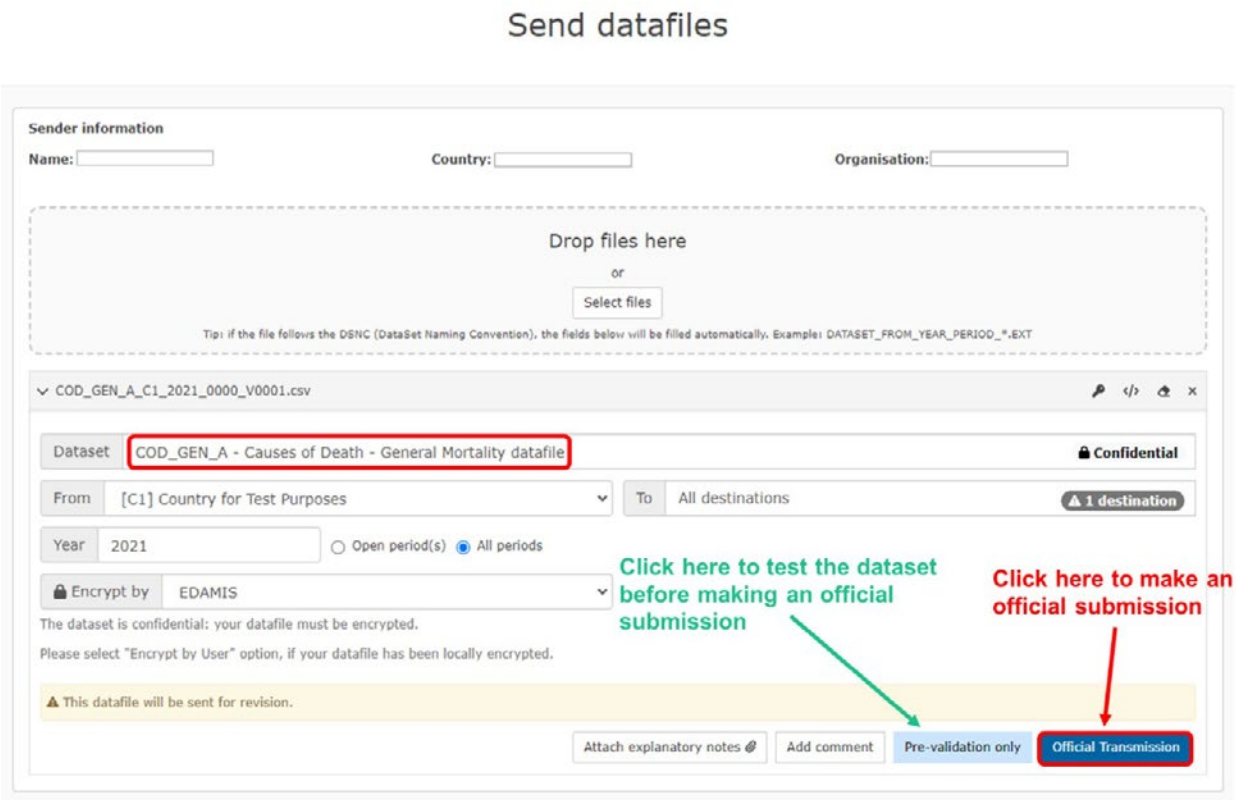
For a more detailed explanation of each step, please refer to chapters 5.5.1 to 5.5.4.

5.5.1. Pre-validation

Data providers can choose to send their GEN and SBN datasets for pre-validation before submitting them for official transmission to Eurostat (Figure 5). The pre-validation service offers the same validation rules as for official transmissions, but the pre-validated datasets will not be processed or disseminated by Eurostat. This service provides an easy way for data providers to test their data before official transmission and validation. The pre-validated datasets will be automatically deleted by Eurostat's systems after 3 days. For more information, please consult the 'EDAMIS – Pre-validation user guide': For the official transmission of data, please select the 'Official Transmission' option as depicted in Figure 5 and described in Chapter 5.5.3: Official transmission.

FIGURE 5

EDAMIS view for the transmission of data for 'Pre-validation' or 'Official submission'



It is highly recommended that data providers send their data files first for pre-validation to detect and correct any potential errors identified by EDAMIS.

Once a file is verified as error-free during the pre-validation step, the next step is cross-validation as described in Chapter 5.5.2 Cross-validation.

5.5.2. Cross-validation

After confirming the absence of errors in the general mortality (GEN) and stillbirths and neonatal (SBN) death files, and prior to sending them as official to Eurostat, data providers must conduct cross-validation checks (also known as inter-series validation) for neonatal deaths data. This step was previously carried out by Eurostat. Starting from the calendar year 2025 (reference year 2023), data providers will undertake these checks within an automated environment integrated into EDAMIS.

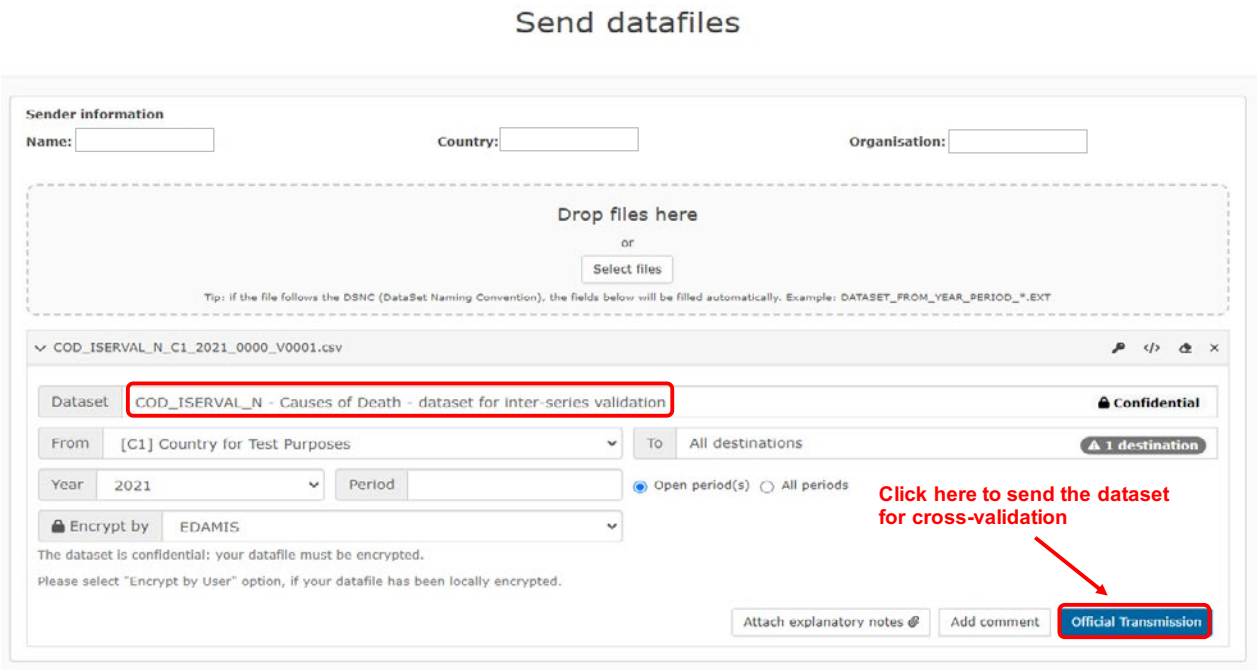
Neonatal deaths, defined as those occurring within 0 to 27 days, are reported in both GEN and SBN data files, prompting to verify that the neonatal deaths data are consistent across both datasets. This verification involves comparing variables such as residence, occurrence, cause of death, external cause, place of occurrence, sex, and age in days.

Data preparation and transmission for cross-validation is described in CIRCABC.

The file for cross-validation should be uploaded via the EDAMIS platform in the dataset 'COD_ISERVAL_N – Causes of Death – dataset for inter-series validation'. Select the country and year, then transmit the file choosing the 'Official Transmission' option (Figure 6). Using the 'Official Transmission' button for cross-validation (inter-series validation) allows Eurostat to consult the cross-validation reports for a longer time.

FIGURE 6

View in EDAMIS when transmitting the data for 'Cross-validation'



Email notifications

After a data file has been transmitted for cross-validation, EDAMIS generates email notifications to inform data providers of the process. These notifications confirm successful sending and delivery of the file to Eurostat and provide feedback regarding the results of the data cross-validation, which can be accessed through EDAMIS.

Table 7 illustrates an example of an email notification informing about the outcome of the cross-validation process. If the file passes validation successfully and is accepted by the system, this outcome will be noted in the 'Feedback comment' section of the notification. Conversely, if the file is rejected or contains warnings requiring attention, this information will also be conveyed in the 'Feedback comment' section, as in the example in Table 7.

TABLE 7

Example of emails sent through EDAMIS informing about the results of the cross-validation

EDAMIS4 - NOTIFICATION OF FEEDBACK DELIVERY	
FEEDBACK INFORMATION	
FEEDBACK COMMENT	[REJECTED - ERROR(s) FOUND] The submitted data failed validation. Please consult the validation report and submit an updated dataset.
PROVIDED DATE	2024-02-23T12:18
COUNTRY FROM	EU
COUNTRY TO	C1
DELIVERED FILE NAME	VAL-REPORT-OT-COD_ISERVAL_N_C1_2022_0001_V0001-ConfDataRemoved.html
FEEDBACK DOWNLOAD LINK	INTERNET TESTA CCN *Some of the data delivery links may only be accessible if you have access to the private TESTA / CCN networks*
FEEDBACK FILE NAME	VAL-REPORT-OT-COD_ISERVAL_N_C1_2022_0001_V0001-ConfDataRemoved.html
FEEDBACK NOTE FILE	
ORIGINAL DATA TRANSMISSION	
DATASET	COD_ISERVAL_N
YEAR	2022
PERIOD	0
COUNTRY FROM	C1
ORGANISATION	ORG1
SENDER MAIL	X.Y@ec.europa.eu
ORIGINAL DATA FILE NAME	COD_ISERVAL_N_C1_2022.csv
VERSION OF THE FILE DELIVERED	1.0
TRANSMISSION TYPE	Official transmission

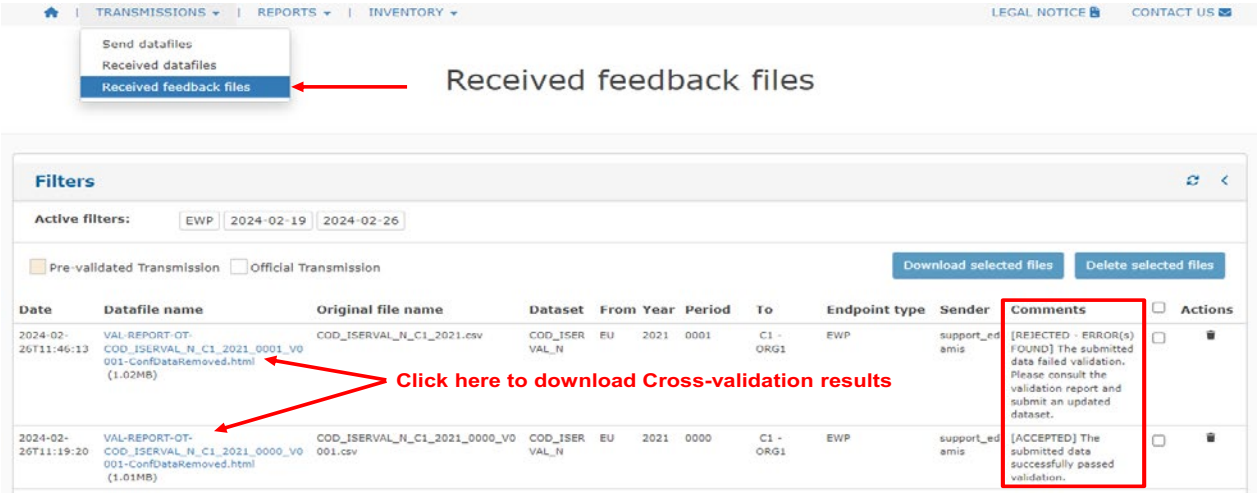
Additional information regarding the validation results can be found in the 'Feedback Download Link' section, particularly through the 'INTERNET TESTA CCN' link. Clicking on this link will redirect users to the EDAMIS dashboard, where the detailed cross-validation report is accessible (Figure 7).

Users can also access the status of the cross-validation via the 'Transmissions/Received feedback files' menu in EDAMIS (Figure 7). The cross-validation report can be downloaded from the 'Datafile name' column.

The information provided in the 'Comments' column provides a summary of the cross-validation results. In the example illustrated in Figure 7, one cross-validation was rejected due to identified errors, while the second cross-validation example was accepted.

FIGURE 7

EDAMIS dashboard with results of cross-validation

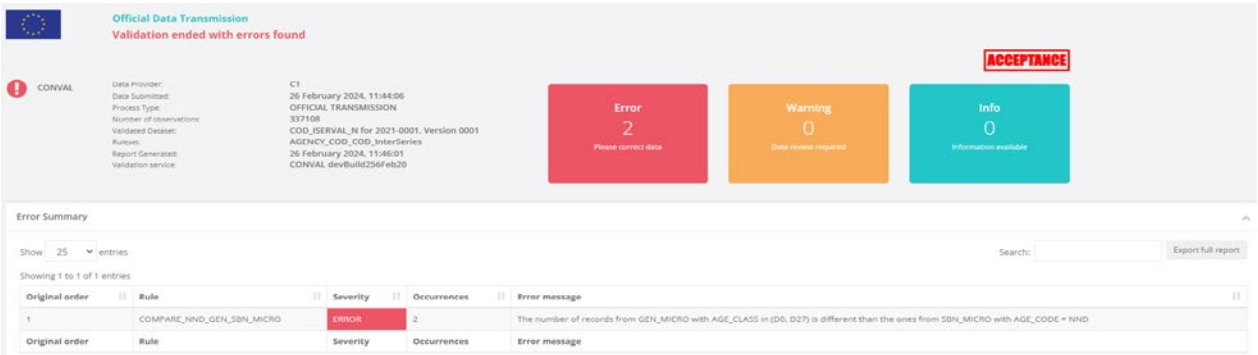


Interpreting cross-validation results

The cross-validation report (Figure 8) provides information on three key elements: information, errors, and warnings. This essential breakdown enables data users to quickly assess whether the dataset transmitted for cross-validation requires review (warnings), correction and resubmission (errors), or if no further action is needed (information) before sending the official versions of the GEN and SBN files in the respective datasets in EDAMIS. When the file is error-free, the two separate GEN and SBN files should be officially transmitted to Eurostat.

FIGURE 8

Example of a cross-validation report showing 2 errors



The validation report in Figure 8 shows that errors have led to the rejection of the cross-validation file. These errors must be corrected, and the revised data file should undergo cross-validation again to ensure that it is error-free.

Figure 9 shows an example of an error that occurred during the cross-validation process. According to the validation report, the number of records of neonatal deaths found in the SBN file differs from those found in the GEN file. In the first row, the

GEN file for specific variables contains 0 records (column D0_GEN), while the SBN file has 1 record (Column D0_SBN). Conversely, in the second row, there is 1 record for the GEN file but 0 records for the SBN file.

In addition, a comparison of rows 1 and 2 shows different values for the variable 'place of occurrence' (PLACE_OCCC column), where there is a '9' in the first row and '0' in the second row. This suggests that the 'PLACE_OCCC' column should be corrected to ensure consistency between the rows. By aligning the values in the PLACE_OCCC column, the error will be corrected, as the number of neonatal deaths in the GEN and SBN files will be consistent.

FIGURE 9

Example of an error in the cross-validation report

Rule: COMPARE_D0_GEN_SBN_AGGRE

Severity: ERROR

Occurrences: 2

Error Message: Invalid value for D0 in GEN_AGGRE data compared to the value of D0 in SBN_AGGRE data aggregated by AGE_MO_CODE and PARITY

Show 25 ˇ entries

Showing 1 of 2 of 2 entries

CO_RES	CO_OCC	ICD_CODE	INJU_CODE	SEX	PLACE_OCCC	D0_GEN	D0_SBN
C100	C100	Y09	S069	1	9	0.0	1.0
C100	C100	Y09	S069	1	0	1.0	0.0
CO_RES	CO_OCC	ICD_CODE	INJU_CODE	SEX	PLACE_OCCC	D0_GEN	D0_SBN

5.5.3. Official transmission

The data providers validate causes of death data through the pre-validation step and by conducting cross-validation to verify neonatal deaths (see sections above). Once both steps are error-free, the data provider can proceed to send the data as an official transmission using the 'Official transmission' button shown in Figure 5 of Chapter 5.5.1: Pre-validation.

5.5.4. Email notifications for 'Pre-validation' and 'Official transmission'

EDAMIS sends email notifications to data providers after transmitting a data file, both for pre-validation files and for official transmissions.

The notifications confirm the transfer and delivery of the data file to Eurostat (Figure 9). In addition, they offer feedback on file transfer and delivery process, including the details about the validation report generated, which can be accessed in EDAMIS (this point is discussed under Chapter 6: Data Validations).

TABLE 8

Example of an email sent through EDAMIS to acknowledge the transmission of the data file

EDAMIS4 - NOTIFICATION OF DATA TRANSFER	
PROVIDED DATE	2024-02-23T12:17
DATASET	COD_GEN_A
YEAR	2021
PERIOD	0
COUNTRY FROM	C1
ORGANISATION	ORG1
ORGANISATION NAME	Organisation for Test Purposes
SENDER NAME	XY
SENDER EMAIL	X.Y@ec.europa.eu
ORIGINAL DATA FILE	COD_GEN_A_C1_2021_0000_V0001.csv
COMMENT	
NOTE FILE	
TRANSMISSION TYPE	Official transmission

5.6. Datasets and file naming conventions

Files for pre-validation and official transmission:

The naming conventions for GEN and SBN files, whether for microdata or aggregated data, are as follows:

GEN files should be saved as 'COD_GEN_A_GEO_RefYear' for microdata (e.g., 'COD_GEN_A_BE_2022') and 'COD_GENAGG_A_GEO_RefYear' for aggregated data (e.g., 'COD_GENAGG_A_BE_2022').

Similarly, SBN files should be saved as 'COD_SBN_A_GEO_RefYear' for microdata (e.g., 'COD_SBN_A_BE_2022') and 'COD_SBNAGG_A_GEO_RefYear' for aggregated data (e.g., 'COD_SBNAGG_A_BE_2022').

6

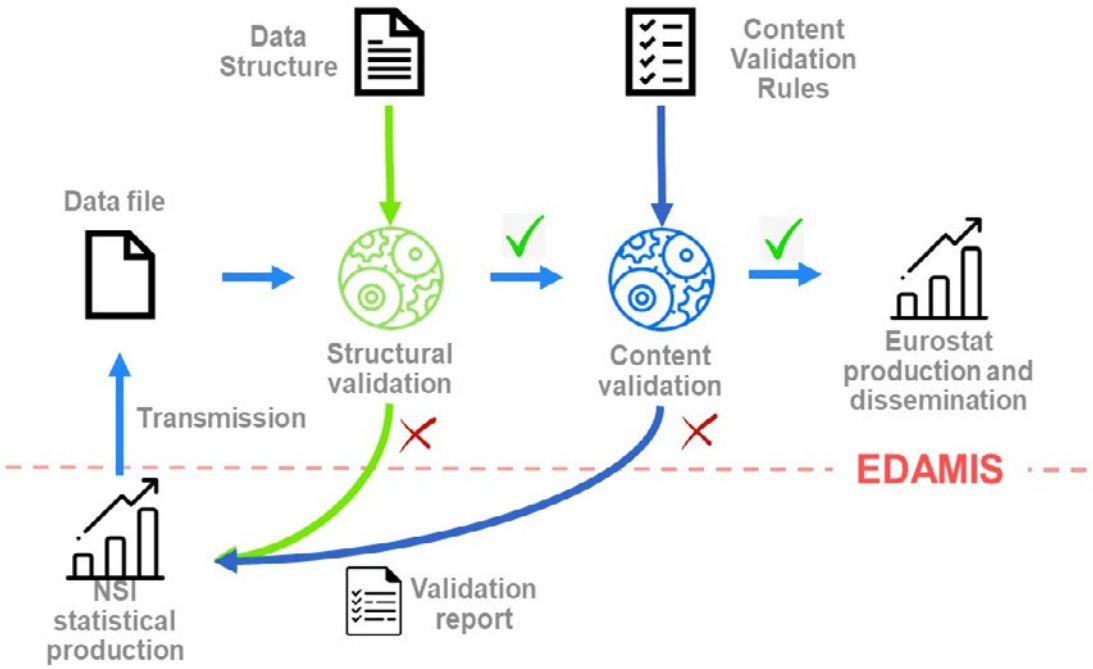
Data validations

6.1. Introduction

Validation is a key task performed in all statistical domains. Efficient data validation is essential for high quality statistics. Data validation is carried out by data providers before transmitting data to Eurostat, and by Eurostat upon receipt of data from them (Figure 10). These checks can be both automatic and manual.

FIGURE 10

Data validation process in EDAMIS



6.2. Validation in EDAMIS

Eurostat uses validation built into the EDAMIS platform, which offers user-friendly features and validation reports in human-readable format. Within this platform, data providers have the possibility to test their data before the official transmission and validation process through the pre-validation option in EDAMIS (see Chapter 5.5.1: Pre-validation).

The data files transmitted through EDAMIS are automatically decrypted and validated by the COOL tool running on Eurostat servers.

The validation occurs in two steps:

1. Structural validation (STRUVAL),
2. Content validation (CONVAL).

The data file will be validated both when it is uploaded in EDAMIS for pre-validation and for official transmission. The data file will first be validated by STRUVAL and, if no errors are encountered, then the file will be validated by CONVAL. In case there are errors in the structural validation, the content validation will not be done (see Table 9 for more information). The data providers must first correct all the structural errors and retransmit the file.

TABLE 9

Validation outcomes and the related EDAMIS comments

Validation Outcome	EDAMIS Comment
Validation successful: STRUVAL and CONVAL validations are both OK	[ACCEPTED] The submitted data successfully passed validation.
Validation unsuccessful: STRUVAL validation is OK, but CONVAL validation failed.	[REJECTED – ERROR(s) FOUND] The submitted data failed validation. Please consult the validation report and submit an updated dataset.
Validation unsuccessful: STRUVAL validation failed. CONVAL validation is not performed.	[REJECTED – STRUCTURAL ERROR(s) FOUND] The submitted data failed validation. Please consult the validation report and submit an updated dataset.
Validation under review by Eurostat: Warnings have been found and they are checked by Eurostat.	[UNDER REVIEW – WARNING(s) FOUND] Please consult the validation report and, if necessary, submit an updated dataset and/or provide explanation.
If Eurostat accepts the warnings, this indicates that the submitted data has successfully passed the validation.	[ACCEPTED – WARNING(s) FOUND] The submitted data successfully passed validation. Please consult the validation report and, if necessary, submit an updated dataset and/or provide explanation.
If Eurostat does not accept the warnings, this indicates that the submitted data failed validation. The country needs to correct the data and send revised version via EDAMIS.	[REJECTED – WARNING(s) FOUND] The submitted data failed validation. Please consult the validation report and, if necessary, submit an updated dataset and/or provide explanation.

6.3. Validation rules

Validation starts with the structural validation, which checks the following technical aspects: that the file format follows CSV, that semicolon is used as the separator, and that no headers are included. In addition, EDAMIS verifies the number of columns. Consequently, data providers must ensure that the causes of death datasets include all columns/dimensions, even

if certain columns lack data. This is why it is necessary to include the last columns in the datasets (injury code, place of occurrence and activity) even if they may not contain any data. Neglecting to include these columns may result in EDAMIS rejecting the file due to structural errors.

If a datafile successfully passes structural validation, the next step is content validation. Content validation rules are listed in Annex E for the different data formats and files.

- GEN microdata
- SBN microdata
- GEN aggregated data
- SBN aggregated data

Most of the validation rules refer to ICD codes, ICD-10 classification revision year, or the link between a disease and a certain age interval or sex. A list of list of valid ICD-10 codes as well as the links and constraints with the other dimensions can be found on CIRCABC in the file ICD10_VALID_UCOD.xsl.

Concerning the ICD revision year, please also note that the content validation tool validates ICD-10 codes based on the major revisions published by WHO for the years 1995, 1999, 2003, 2006, 2010, 2013, 2015, 2016, and 2019, as indicated in the ICD classification revision year mapping table (see Annex D). To ensure the validity of ICD-10 codes, it is highly recommended that data providers use codes belonging to a single revision year for their causes of death data for a specific reference year data. This avoids receiving errors or warnings in the validation report and if a country does not adhere to this practice, it may receive multiple messages. In the past, Eurostat has accepted causes of death data files with ICD-10 codes from different revision years and will continue to do so.

The country/region codes are also validated. With regards to the country codes used for the country/region of residence and occurrence, the NUTS classification at level 2 shall be used. For countries not covered by this classification, please use the ISO two-letter codes (ISO alpha-2). For a list of these countries, please consult the 'Interinstitutional Style Guide' provided by the Publications Office of the European Union ([18]).

6.4. Outcome of validations

6.4.1. Email notifications for validation

When a data file has been transmitted by a data provider, EDAMIS returns email notifications. These notifications confirm successful sending and delivery of the file to Eurostat, and provide feedback regarding the data validation results, which are accessible through a validation report within EDAMIS.

Table 10 displays an example of email notification illustrating the outcomes of the data validation process. If the file passes validation successfully and is accepted by the system, this outcome will be noted in the 'Feedback comment' section of the notification. Conversely, if the file is rejected or contains warnings requiring attention, this information will also be conveyed in the 'Feedback comment' section.

Additional information regarding the validation results is available within the 'Feedback Download Link' section, specifically through the 'INTERNET TESTA CCN' link. Clicking on this link will direct users to the EDAMIS dashboard, where the detailed validation report is accessible (this point is discussed in Chapter 6.4.2: Validation Reports.

([18]) Publications Office – Interinstitutional Style Guide – Annex A5 – List of countries, territories and currencies (europa.eu)

TABLE 10

Example of emails sent through EDAMIS informing about the results of the data validation

EDAMIS4 - NOTIFICATION OF FEEDBACK DELIVERY	
FEEDBACK INFORMATION	
FEEDBACK COMMENT	[ACCEPTED - INFO(s) FOUND] The submitted data successfully passed validation. Please consult the validation report for additional information.
PROVIDED DATE	2024-02-23T12 :18
COUNTRY FROM	EU
COUNTRY TO	C1
DELIVERED FILE NAME	VAL-REPORT-OT-COD_GEN_A_C1_2022_0000_V0001-ConfDataRemoved.html
FEEDBACK DOWNLOAD LINK	INTERNET TESTA CCN *Some of the data delivery links may only be accessible if you have access to the private TESTA / CCN networks*
FEEDBACK FILE NAME	VAL-REPORT-OT-COD_GEN_A_C1_2022_0000_V0001-ConfDataRemoved.html
FEEDBACK NOTE FILE	
ORIGINAL DATA TRANSMISSION	
DATASET	COD_GEN_A
YEAR	2022
PERIOD	0
COUNTRY FROM	C1
ORGANISATION	ORG1
SENDER MAIL	X.Y@ec.europa.eu
ORIGINAL DATA FILE NAME	COD_GEN_A_C1_2022_0000_V0001.csv
VERSION OF THE FILE DELIVERED	1.0
TRANSMISSION TYPE	Official transmission

6.4.2. Validation Reports

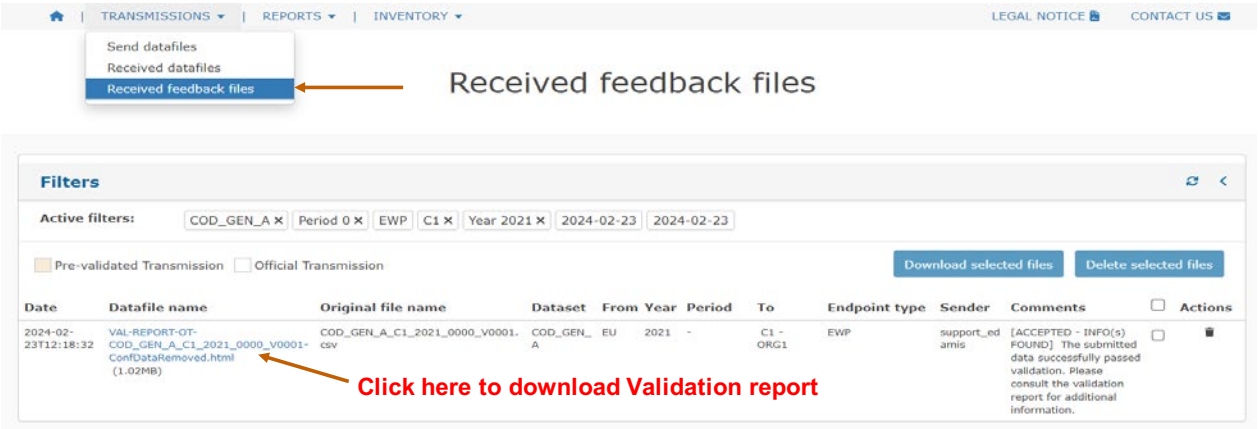
Accessing Validation Reports

Data providers have access to the validation report in a human-readable format in their EDAMIS dashboard.

After receiving the above notification email (Table 10), the validation report can be downloaded from the Transmission / Received feedback files menu in the column 'Datafile name'. The information available in the column 'Comments' gives an overview of the result of the validation (see Figure 11).

FIGURE 11

EDAMIS dashboard with validation report download option

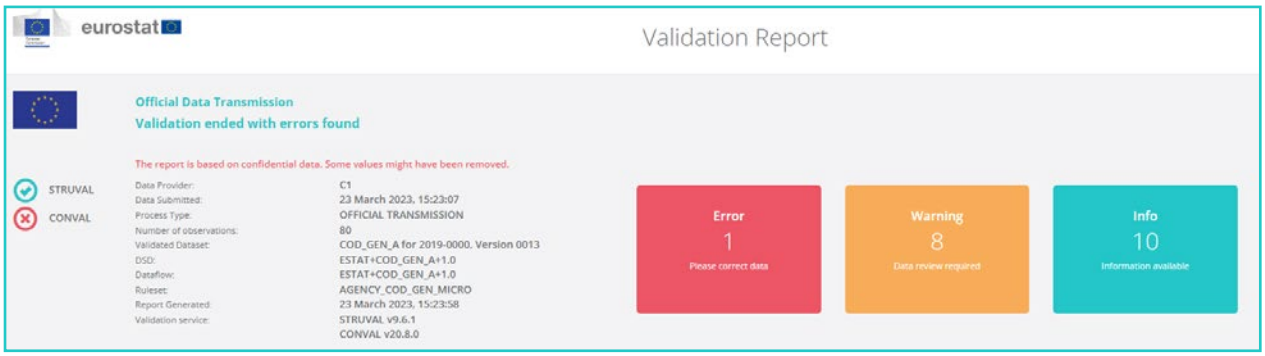


Interpreting Validation Report Results

The validation report comprises three sections: information, errors, and warnings, each essential to the data validation process (please see Figure 12). This fundamental breakdown enables data users to swiftly determine whether transmitted data needs to be reviewed (warnings), corrected and resent (errors), or if no further action is needed (information).

FIGURE 12

Example of data validation report for causes of death



Validation report's rules

As illustrated in Table 11, the validation report can be broken down into the following rules:

1. Validation information,
2. Calculation of ratios,
3. Additional details (varying based on the validation rules).

TABLE 11

Example of validation report rules

Original order	Rule	Severity
1	ALL_VALIDATION_INFO	INFO
2	CALCULATE_RATIOS	INFO
3	RECODIFY_ICD10_CODES_LOG	INFO
4	VALIDATE_ICD10_CODE_Condition_0	ERROR
5	VALIDATE_ICD10_CODE_Condition_2	WARNING

The first two elements are repeatedly used in each validation report.

1. The first element, ALL_VALIDATION_INFO, provides a general overview of the validation outcome.
2. The second element, CALCULATE_RATIOS, provides the ratio of some ICD-10 codes that should not be used often:

- RATIO_I: ill-defined codes
- RATIO_T: trivial codes
- RATIO_R: rare codes
- The detailed list of codes included in every ratio can be consulted in the sheet ICD10_CODES of the file 'ICD10_VALID_UCOD.xsl' by filtering the column CONTROL_ICD with the letters I, T and R.

The remaining elements relate to the validation process and correspond to the validation rules.

Severity of violations within the validation report's rules

In Figure 12, alongside the rules of the validation report, there is an additional column labelled 'Severity'. The information contained within the 'Severity' column holds significant importance, as it denotes the presence of inconsistencies in the report that necessitate correction. There are three types of severity:

- SEVERITY INFO: Provides information about the validation results.
- SEVERITY WARNING: Warns that the listed inconsistencies must be checked and either confirmed or fixed.
- SEVERITY ERROR: Indicates that all listed inconsistencies must be corrected.

When data providers receive EDAMIS email notifications, they are required to refer to the validation report and check for severity. If validation issues such as errors or warnings are identified, data providers must review the warnings, rectify the errors, and subsequently resend the corrected data files. The figures shown below offer examples of discrepancies (severity) that may appear in the validation report, each demanding a different action from the data provider's side.

Figure 13 provides an example of SEVERITY WARNING. In this case, the ICD-10 codes assigned to group P are recommended for an age threshold of AGE = 1, but they have been allocated to older age groups. This severity is marked as 'Warning', indicating that the records should be checked, and if necessary, corrected.

FIGURE 13

Example of SEVERITY WARNING

Rule: VALIDATE_ICD10_CODE_Condition_5

Severity: WARNING

Occurrences: 51

Error Message: Condition 5 is not valid: Invalid AGE_END for the ICD_CODE code

Show 25 ˇ entries

Showing 1 of 25 of 51 entries

ICD_CODE	AGE_CLASS	ICD10CODES.AGE_END[ICD_CODE]
P015	Y057	1
P112	Y055	1
P119	Y062	1
P119	Y057	1
P159	Y080	1
P209	Y027	1

Figure 14 illustrates an instance of SEVERITY ERROR. In this case, the error arises from using an invalid ICD-10 code. The validation report identifies the erroneous ICD-10 code, which is not listed as a valid code for the underlying cause of death (see Chapter 6.3: Validation rules). In this scenario, the error should be corrected by replacing the faulty code with a valid ICD-10 code.

FIGURE 14

Example of SEVERITY ERROR

Rule: VALIDATE_ICD10_CODE_Condition_0

Severity: ERROR

Occurrences: 1

Error Message: ICD code does not exist, or it does exist but cannot be used as underlying cause of death

Show 25 ˇ entries

Showing 1 of 1 of 1 entries

ICD_CODE
P015
ICD_CODE

Annex F contains list of frequent errors and warnings identified in previous data collections.

6.4.3. Successful Validation and Data Transmission Conclusion

Once the GEN and SBN files successfully pass through STRUVAL and CONVAL checks, the validation report confirms their acceptance (status: ACCEPTED), signifying the successful completion of the validation process for the transmitted files. This step also denotes the end of the data transmission process. Further validation and processing will take place in Eurostat and data providers will be informed of the outcome via email.

7

National reference metadata reports

7.1. Introduction to reference metadata

In line with the European Statistical System (ESS) standards, reporting countries are required to provide reference metadata in electronic form, in accordance with an agreed interchange standard.

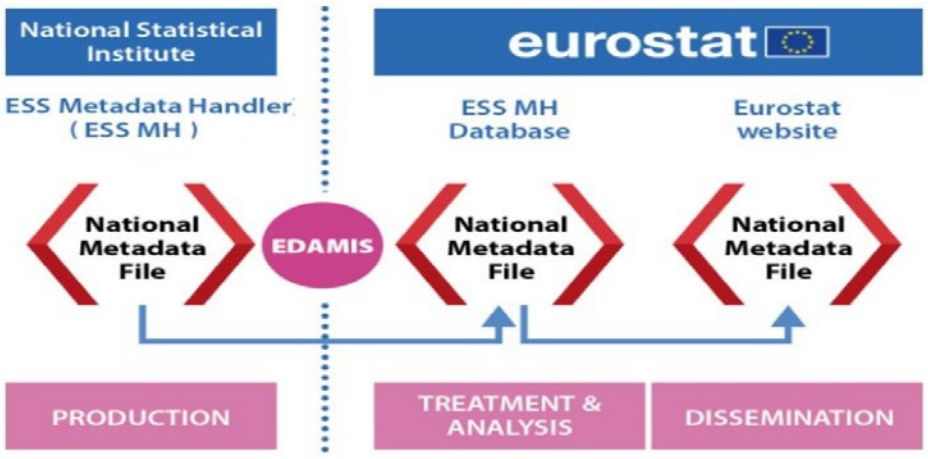
The conceptual framework agreed in the European Statistical System (ESS) is the Single Integrated Metadata Structure (SIMS) ([19]). This structure includes all statistical concepts of annual reference metadata and quality reports, and all concepts appear and are therefore reported only once (direct re-usability of existing information).

The annual reference metadata is a **user-oriented report**, comprising metadata, including quality metadata, that are intended for users of the statistical outputs, enabling them to assess whether the outputs are appropriate for the purposes they have in mind. The quality report, **producer report**, is described in Chapter 7.6: Metadata quality reports.

For further information on these topics, please refer to 'The ESS Handbook for Quality and Metadata Reports' ([20]), a recognised ESS standard. It aims to promote harmonised quality reporting across statistical processes and countries, and thus to facilitate cross-comparisons of processes and outputs.

FIGURE 15

Metadata process



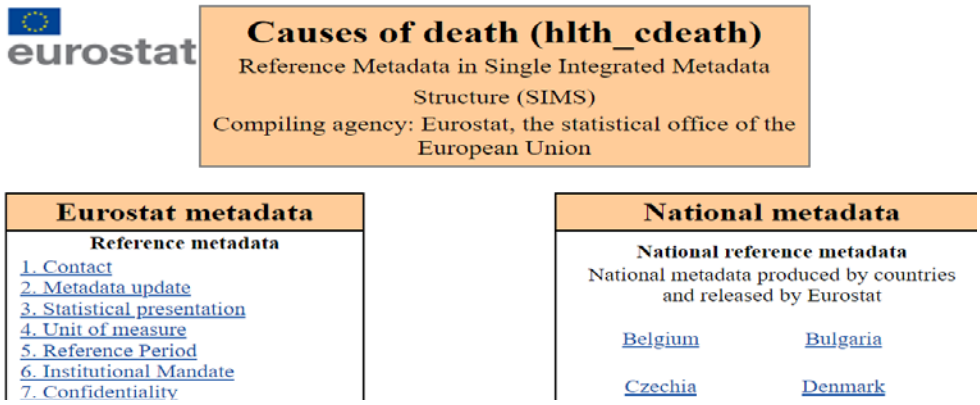
([19]) ESS-MH | Eurostat CROS (europa.eu)

([20]) European Statistical System (ESS) Handbook for Quality and Metadata Reports — re-edition 2021 - Products Manuals and Guidelines - Eurostat (europa.eu)

The metadata shall be provided to Eurostat through the single-entry point known as the Metadata handler (ESS-MH). This is a web application developed to support the production, management, exchange, and dissemination of metadata. Eurostat analyses and validates the national files, and they are then disseminated, attached to the European metadata file in Eurostat's dissemination database (Figure 16).

FIGURE 16

Example of online dissemination of national metadata in Eurostat's dissemination database



7.2. Reporting template for national reference metadata

The template for reporting reference metadata for causes of death statistics, following the SIMS structure, is included in Annex G. The SIMS structure splits the information required into 19 concepts with a few sub-concepts each. Eurostat proposes pre-filled text in a few sub-concepts with information that is generally applicable for most countries. Please note that prefilled text can be modified or deleted by the reporting country. Since the national reference metadata is primarily intended to inform the public, please write in an understandable way.

Guidelines accompany the SIMS template to provide further explanations (Annex G); these guidelines are also available in the Metadata handler.

Data providers that have been reporting COD metadata in SIMS structure can use previous years' metadata reports as templates. The information (that is still correct) can be reused in future reference years (there is a 'reuse function' by concept).

7.3. Dataset in the Metadata handler

The dataset in the Metadata handler for causes of death statistics is COD_CODNSI_A_XX_2021_0000 (XX will be your country code, e.g., AT, the year is the reference year).

7.4. How to complete the annual reference metadata

To access the Metadata handler, it is necessary to have an ECAS/EU-Login. The button 'Login' is on the left side of the screen.

The metadata file from the previous reference year will be available for your country in the Metadata handler, in the dataset mentioned above. A new SIMS file for a given reference year can be created from the SIMS file of the previous year by

clicking on the option 'Copy this metadata file to create a new one', which is available under the 'Actions' column in the ESS-MH. This creates a new file that contains all the content from the original file. The new file can then be edited to update with the metadata for the reference year in question.

Please refer to the Metadata handler User Guide for instructions on how to work with the Metadata handler. A simplified explanatory presentation is also available on CIRCABC.

It is important to write clearly and address the concept you are writing about. Please add a text in all concepts, using 'not applicable' or 'not available' where relevant. Do not write 'n.a.' or 'n.e.' or other ambiguous abbreviations. Do not paste directly from MS Word or Excel but use the 'Paste from Word' or 'Paste from Excel' buttons or write directly in the text box.

If editorial errors or broken links are found, Eurostat will not edit in your reference metadata file. If editorial changes are needed, you will be requested to revise and retransmit the file.

Add only information related to your country but not to any other countries or EU aggregates (EU_28 and EU27_2020). Calculations made by Eurostat, derived units disseminated in Eurostat's dissemination database as rates and percentages, or new indicators computed by Eurostat, e.g., avoidable mortality will be explained by Eurostat in the European metadata file. Therefore, please do not comment on them in the national metadata file.

7.5. Submitting annual reference metadata

Once you have filled in all the concepts and sub-concepts, click on the 'Summary' tab to view the final document. When you click on the 'Summary' tab, a pop-up message will appear indicating which mandatory concepts and sub-concepts still need to be completed, if any. You need to fill in all mandatory concepts and sub-concepts to send the file.

In the 'Summary' tab, the box 'for publication' should be ticked, indicating that the metadata document is designated for publishing. Please do not untick this box. Confidential information such as contact names will be marked with a lock icon to indicate that this information will not be available for the public in the disseminated metadata file. You can switch between 'Full View' and 'Disseminated view'; 'Full view' will display also concepts that are marked as 'restricted from publication', and 'Disseminated view' will display the document as it will appear on Eurostat's website.

If you scroll to the bottom of the page, a 'send' button will appear. Please click on this button to send the metadata file to Eurostat. Once sent, the file status will change from 'Draft' to 'Ready for validation'. You will receive email notifications when the file changes status and when it is transmitted. If you need to make any changes to a file that has already been sent for validation, you can use the 'recall' button under actions to recall the file to draft. You can then make any necessary amendments and resend the file.

7.6. Metadata quality reports

Every five years, when completing the metadata report, data providers are required to complete additional concepts as part of a quality report (also called producer report). This is a requirement under Commission Regulation (EC) No 1338/2008. The quality reporting concepts are included in the annual Single Integrated Metadata Structure (SIMS) ([21]) report and transmitted at the same time; these specific concepts only need to be updated every five years, while the rest of the report should be updated annually. For causes of death, the next reference year with additional quality reporting is 2023, followed by 2028, etc.

The purpose of the quality report is to provide quality metadata, for use within countries to record quality problems and improvements, and by Eurostat to review and summarise quality across countries.

Annex G outlines the concepts to be reported in the annual SIMS report and in the quality report every 5 years.

([21]) ESS-MH | Eurostat CROS (europa.eu)

8

Data dissemination

8.1. Confidentiality

Regulation (EC) No 223/2009 on European statistics lays down the rules and measures that shall apply to ensure that confidential data are exclusively used for statistical purposes and to prevent their unlawful disclosure.

Statistics on underlying causes of deaths can contain sensitive data. It is necessary to avoid the possibility of identification of the individual who has died, especially for causes of death with very small number of deaths and/or in small countries. Therefore, data are aggregated by ICD code and age group when they are disseminated in Eurostat's dissemination database.

Eurostat applies the k-confidentiality with k=4 to the causes of death statistics disseminated in Eurostat's dissemination database. In case the total number of deaths for any given combination of the dimensions GEO, YEAR, SEX and AGE_GROUP is from 1 to 3, then all the ICD categories for that combination are anonymised (value is replaced by ':' and the flag c is added). In addition, special measures for ensuring confidentiality may be taken for small countries.

8.2. Flags

Data submitted by data providers do not include flags. Flags are added by Eurostat before dissemination to indicate important information related to the data. The use of flags is described below and in Table 12.

TABLE 12

Dissemination flags

flag	Meaning
c	Confidential
d	Definition differs (further details in metadata)
e	Estimated data. Cannot be combined with the P- flag.
p	Provisional (only to be used for 1 year (N and n+1))

The c-flag is used when data has been anonymised to protect the statistical confidentiality of the data; this is typically applied to small counts.

The d-flag is used to indicate that the country is not adhering to the common definition of the variable concerned.

The e-flag is used when the country has applied an estimation method to the data provided.

The p-flag is intended for a period of maximum one year and only for the reference year which the collection concerns and the year after. It is used only for provisional data that are expected to be revised and replaced by final data in the near future (i.e., during the current data collection or in the next round). The p-flag cannot be combined with the e-flag.

8.3. Geographical concepts for data dissemination: deaths of residents and of non-residents

In Eurostat's dissemination database, the data are disseminated and broken down by two concepts: Country of occurrence and Country of residence.

Data by occurrence covers all deaths reported in a country (regardless of residency). The number for 'All deaths reported in the country (TOT_IN)' includes all deaths occurred in the reporting country, i.e., deaths of residents and non-residents in the reporting country. This variable is computed from the dataset submitted by the country and can be disseminated as soon as the indicators are computed by Eurostat.

Data by country of residence are all deaths among residents of the reporting country, in or outside their home country. Crude deaths rates and standardised deaths rates are calculated using data on deaths among residents of the reporting country.

The number for 'All deaths of residents in or outside their home country (TOT_RESID)' can be computed when data have been submitted by all the countries. It is calculated by taking data for residents dying in their home country (for example, deaths reported by Latvia for Latvian residents dying in Latvia) and adding the number of deaths that were reported by other countries to have died in their country (for example deaths of Latvian residents dying in Germany and reported by Germany). This variable cannot be computed until all the countries have submitted the data.

8.4. EU aggregates

EU aggregates are produced and disseminated by Eurostat. The absolute numbers for EU aggregates are the sum of the numbers provided by EU countries. The standardised rates use the total EU population.

If there is a lack of data for a specific EU country for a given reference year, EU aggregates will not be published for that year until the data is supplied by the respective country.

8.5. Dissemination shortlist

In Eurostat's dissemination database, data on the causes of death are disseminated according to the European shortlist (see Chapter 3.3.1: European shortlist for more information). The list was established in 2012. When the COVID-19 pandemic started in 2020, WHO allocated temporary ICD-10 codes, under the chapter U. In Eurostat's dissemination database, mortality data on COVID-19 is disseminated under three different codes:

- COVID-19, virus identified [U071]
- COVID-19, virus not identified [U072]
- COVID-19, other [U_COV19_OTH]
  - This is used for cases of a COVID-19 death that is not elsewhere defined.

For the total number of COVID-19 deaths, these three variables need to be added together. The variable *'All causes of death (A00-Y89) excluding S00-T98 [A-R_V-Y]'* includes deaths from COVID-19.

8.6. Dissemination of tabular data

Causes of death data are presented in terms of the number of deaths, as crude death rates and (age-) standardised death rates.

Data on infant and peri-neonatal deaths are presented in terms of the number of deaths and as mortality rates (per 1 000 births or per 1 000 live births). Infant mortality data are also presented with an analysis by age showing the proportion of deaths in each age group as a percentage of all deaths of infants.

For regional data, 3-year averages are also calculated from the annual data in order to eliminate outliers.

8.6.1. Crude death rate

The crude death rate describes mortality in relation to the total population. Expressed in deaths per 100 000 inhabitants, it is calculated as the number of deaths recorded in the population for a given period divided by the mid-year population in the same period and then multiplied by 100 000.

Crude death rates are calculated by Eurostat for 5-year age groups. The crude mortality rate is a good indicator of the general health status of a population and comparisons between countries and regions with similar age distributions are meaningful. The crude death rate for the total population (all ages) however, is a weighted average of the age-specific mortality rates. The weighting factor is the age distribution of the population whose mortality is being observed. Thus, the population structure strongly influences this indicator for broad age classes. In a relatively 'old' population, there will be more deaths than in a relatively 'young' population because mortality is higher among older age groups.

8.6.2. Standard population and standardised death rates

The use of a standard population is a very useful tool for comparisons of mortality rates, as well as other population-based rates as such disease incidence. Age standardisation is one of the key methods to control for different age distributions among populations or over time. As most causes of death vary significantly with people's age and sex, the use of standardised death rates improves comparability over time and allows rates for different geographical areas to be compared independently from the population's age structure. Comparing crude rates can in fact be misleading in terms of trends when the age composition in a population changes over time or when comparing groups or regions with different age-structure.

For Eurostat statistics concerning causes of death the European standard population is used to produce standardised death rates to compare mortality rates. The standardised death rate is a weighted average of age-specific mortality rates where the weighting factor is the age distribution of a standard reference population. Standardised death rates are calculated for the age group 0–64 ('premature death'), 65 and over, and for the total of all ages (the whole population).

The current European standard population is a revision of the former European standard population taking into account population projections that were made in 2010 for the period 2011–30. The current European standard population is an unweighted average of the individual populations of EU-27 ([22]) plus EFTA countries in each 5-year age band (with the exception of the age group under 5 and the highest age-group of 95 and over). It has been in use since the reference year 2011. The age breakdown of the European standard population can be found in Annex I.

8.6.3. Infant, foetal, perinatal, and neonatal mortality rates

Eurostat collects and publishes data on infant and peri-neonatal deaths, including stillbirths. Data on infant and peri-neonatal deaths are presented in terms of the number of deaths and as mortality rates (per 1 000 births or per 1 000 live births).

([22]) The European Standard population is based on the 27 EU Members in 2011, which includes the United Kingdom but excludes Croatia, which at the time was still a candidate country.

Infant mortality data are also presented with an analysis by age showing the proportion of deaths in each age group as a percentage of all deaths of infants. Infant mortality rates are calculated as the ratio of the number of deaths of children under one year of age to the number of live births. These values are expressed per 1 000 live births.

The neonatal mortality rate is calculated as the ratio of the number of deaths at age day 0 up to (and including) day 27 compared with the number of live births. The value is expressed per 1 000 live births. The number of these deaths that occurred on or before day 6 are considered to be early neonatal deaths. The early neonatal mortality rate is calculated as the ratio of the number of deaths at age day 0 up to (and including) day 6 compared with the number of live births. The value is expressed per 1 000 live births.

The late foetal mortality rate is calculated as the ratio of the number of stillbirths compared to the number of births. The value is expressed per 1 000 births.

The perinatal mortality rate is calculated as the number of stillbirths plus deaths at age day 0 up to (and including) day 6 divided by the number of births. The value is expressed per 1 000 births.

Peri-neonatal mortality is presented with analysis by age of the child, age of the mother and for the 3-year average, by parity (the number of previous births) of the mother.

Late foetal deaths are disseminated in two detailed groups, according to either birth weight, gestational age, or crown–heel length. The sum of the two groups is not necessarily equal to the total number of stillbirths, as stillbirths with unknown birth weight, gestational age, or crown–heel length are not reported in either of the two groups but are recorded in the total number of stillbirths.

8.7. Derived indicators

8.7.1. Potential years of life lost

Potential Years of Life Lost (PYLL) is an indicator estimating the potential years lost due to premature death, i.e., death before the age of 70. This measure is used to help quantify social and economic loss owing to premature death. It is calculated by summing the number of years between the age at death and 70 years for each premature death. PYLL rate is expressed per 100 000 age-standardised population under 70 years old.

8.7.2. Avoidable Mortality

Indicators of avoidable mortality can provide an indication of the quality and performance and effectiveness of health care systems and of (wider) public health policies. There are two aspects of avoidable mortality: preventable deaths and treatable deaths. Preventable and treatable causes of mortality are defined as follows:

- Preventable mortality: Causes of death that can be mainly avoided through effective public health and primary prevention interventions (i.e., before the onset of diseases/injuries, to reduce incidence).
- Treatable (or amenable) mortality: Causes of death that can be mainly avoided through timely and effective health care interventions, including secondary prevention and treatment (i.e., after the onset of diseases, to reduce case-fatality).

The age up to which a death can be considered avoidable is set at 74 years (inclusive) to reflect life expectancy. The list of diseases/conditions and the age limit reflect current health expectations, medical technology and knowledge, and developments in healthcare public policy. As such, they are subject to change. For example, the data since 2020 include COVID-19 as a preventable disease.

In 2018, the OECD and Eurostat worked together with an expert group to develop new lists of treatable and preventable causes of mortality. These lists built on earlier work carried out by researchers ([23]), by some OECD countries and by Eurostat. The new OECD-Eurostat lists were approved during the OECD Working Party on Health Statistics in October 2018 and during

([23]) Nolte, E., and M. McKee (2004), Does Health Care Save Lives? Avoidable Mortality Revisited, Nuffield Trust, London. and Nolte, E. M. McKee (2011), Variations in Amenable Mortality—Trends in 16 High-Income Nations, Health Policy, 103, 1: pp. 47–52.

the Eurostat Working Group on Public Health Statistics in December 2018. The list was slightly revised in November 2019 and again in 2020 with the addition of COVID-19 as a preventable COD. The complete list of diseases/conditions considered to cause avoidable deaths can be found in Annex H.

Note that some diseases/conditions are considered to be treatable and preventable. An example is ischaemic heart diseases, from which a death might be successfully avoided through timely and effective health care (for example through thrombolytic therapy) and/or through effective public health intervention to reduce the underlying risk factors (for example reduced salt intake).

The causes of death that can be both largely prevented and also treated once they have occurred are attributed to the preventable category on the rationale that if these diseases/conditions are prevented, there would be no need for treatment. The number of deaths for a specific disease/condition are generally not divided as being partly preventable and partly treatable given the lack of evidence to do this accurately and systematically. An exception is when there is no strong evidence of predominance, in which case a 50-50 allocation is used. As such any double-counting of the same death between the two lists is avoided, so that the number of deaths according to the two lists can be aggregated to provide a broad assessment of the relative importance of prevention and healthcare interventions in reducing the number of avoidable deaths.

Annual data on the two types of avoidable deaths are provided in absolute numbers and as standardised death rates (below 75 years of age). Since most causes of death vary significantly by age and according to sex, the use of standardised death rates improves comparability over time and between countries as death rates can be measured independently of a population's age structure.

8.8. Dissemination products

Eurostat publishes and disseminates causes of death data in several different formats.

- Regular or ad-hoc news releases (on-line).
- Statistics Explained Articles in the area of Health.
- Statistics explained articles are an online publishing platform and gateway to Eurostat's statistical information. They are interactive articles that allow users to seamlessly access information at various levels. They are published in all areas Eurostat works in and are updated regularly. Health in the European Union – facts and figures is an online publication that provide recent statistics on health focusing on different areas such as health status, health care and health determinants.
- Eurostat's dissemination database
- All of Eurostat's data are published under the relevant theme in Eurostat's dissemination database. Data collected on COD are disseminated under: Population and social conditions > Health > Causes of death.
- Metadata reports
- Metadata reports are published alongside statistical data.
- No microdata are disseminated publicly.
- According to Regulation (EC) 223/2009 on European Statistics, confidential microdata can be made available for research purposes, but strict protocols apply to external users accessing statistical microdata.

8.9. Pre-release access

Eurostat does not provide pre-release access to causes of death data.

Annex A. European Shortlist

CAUSES OF DEATH, "EUROPEAN SHORTLIST"
Final list – May 2012

Nr	Disease or external cause	ICD-10 code	ICD-9 code	ICD-8 code
	All causes of death	**A00-Y89**	**001-E999**	**000-E999**
1	***Infectious and parasitic diseases***	***A00-B99***	***001-139***	***000-136***
1.1	Tuberculosis	A15-A19, B90	010-018, 137	010-019
1.2	AIDS (HIV-disease)	B20-B24	042-044 (279.1)	—
1.3	Viral hepatitis	B15-B19, B94.2	70	70
1.4	Other infectious and parasitic diseases	A00-A09, A20-B09, B25-B89, B91-B94.1,	001-009, 020-041, 045-066, 071-136, 071-136	000-009, 020-068, B94.8-B99
2	***Neoplasms***	***C00-D48***	***140-239***	***140-239***
2.1	Malignant neoplasms	C00-C97	140-208	140-209
2.1.1	Malignant neoplasm of lip, oral cavity, pharynx	C00-C14	140-149	140-149
2.1.2	Malignant neoplasm of oesophagus	C15	150	150
2.1.3	Malignant neoplasm of stomach	C16	151	151
2.1.4	Malignant neoplasm of colon, rectum, and anus	C18-C21	153-154	153-154
2.1.5	Malignant neoplasm of liver and intrahepatic bile ducts	C22	155	155, 197.8
2.1.6	Malignant neoplasm of pancreas	C25	157	157
2.1.7	Malignant neoplasm of larynx	C32	161	161
2.1.8	Malignant neoplasm of trachea, bronchus, lung	C33-C34	162	162
2.1.9	Malignant melanoma of skin	C43	172	172
2.1.10	Malignant neoplasm of breast	C50	174-175	174
2.1.11	Malignant neoplasm of cervix uteri	C53	180	180
2.1.12	Malignant neoplasm of other and unspecified parts of uterus	C54-C55	179, 182	182
2.1.13	Malignant neoplasm of ovary	C56	183	183

Nr	Disease or external cause	ICD-10 code	ICD-9 code	ICD-8 code
2.1.14	Malignant neoplasm of prostate	C61	185	185
2.1.15	Malignant neoplasm of kidney	C64	189	189
2.1.16	Malignant neoplasm of bladder	C67	188	188
2.1.17	Malignant neoplasm of brain and central nervous system	C70-C72	191-192	191-192
2.1.18	Malignant neoplasm of thyroid	C73	193	193
2.1.19	Hodgkin disease and lymphomas	C81-C86	200-201	200-201
2.1.20	Leukaemia	C91-C95	204-208	204-208
2.1.21	Other malignant neoplasm of lymphoid and haematopoietic tissue	C88, C90, C96	202-203	202-203
2.1.22	Other malignant neoplasms	C17, C23-C24, C26-C31, C37-C41, C44-C49, C51-C52, C57-C60, C62-C63, C65-C66, C68-C69, C74-C80, C97	152, 156, 158-160, 163-171, 173, 181, 183.2-184, 186-187, 189.1-190, 194-199	152, 156, 158-160, 163-171, 173, 181, 183.1-184, 186-187, 189.1-190, 194-197.7, 197.9-199
2.2	Non-malignant neoplasms (benign and uncertain)	D00-D48	209-239	210-239
3	***Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism***	***D50-D89***	***280-289***	***280-289***
4	***Endocrine, nutritional, and metabolic diseases***	***E00-E89***	***240-279***	***240-279***
4.1	Diabetes mellitus	E10-E14	250	250
4.2	Other endocrine, nutritional, and metabolic diseases	E00-E07, E15-E89	240-246, 251-279	240-246, 251-279
5	***Mental and behavioural disorders***	***F01-F99***	***290-319***	***290-315***
5.1	Dementia	F01, F03	290	290
5.2	Alcohol abuse (including alcoholic psychosis)	F10*	291, 303	291, 303
5.3	Drug dependence, toxicomania	F11*-F16*, F18*- F19*	304-305	304-305
5.4	Other mental and behavioural disorders	F04-F09, F17*, F20-F99	292-302, 306-319	292-302, 306-315
6	***Diseases of the nervous system and the sense organs***	***G00-H95***	***320-389***	***320-389***
6.1	Parkinson's disease	G20	332	342
6.2	Alzheimer's disease	G30	331	—
6.3	Other diseases of the nervous system and the sense organs	G00-G12, G14, G21- G25, G31-H95	320-330, 331.1-331.9, 332.1-389	320-341, 343-389
7	***Diseases of the circulatory system***	***I00-I99***	***390-459***	***390-444.1, 444.3-458, 782.4***

Nr	Disease or external cause	ICD-10 code	ICD-9 code	ICD-8 code
7.1	Ischaemic heart diseases	I20-I25	410-414	410-414
7.1.1	Acute myocardial infarction	I21-I22	410-411	410-411
7.1.2	Other ischaemic heart diseases	I20, I23-I25	412-414	412-414
7.2	Other heart diseases	I30-I51	420-429	420-429
7.3	Cerebrovascular diseases	I60-I69	430-438	430-438
7.4	Other diseases of the circulatory system	I00-I15, I26-I28, I70-I99	390-405, 415-417, 440-459	390-404, 440-444.1, 444.3-458, 782.4
8	***Diseases of the respiratory system***	***J00-J99***	***460-519***	***460-519***
8.1	Influenza	J09-J11	487	470-474
8.2	Pneumonia	J12-J18	480-486	480-486
8.3	Chronic lower respiratory diseases	J40-J47	490-494, 496	491-493, 518
8.3.1	Asthma	J45-J46	493	493
8.3.2	Other chronic lower respiratory diseases	J40-J44, J47	490-492, 494, 496	491-492, 518
8.4	Other diseases of the respiratory system	J00-J06, J20-J39, J60-J99	460-478, 495, 500-519	460-466, 490, 500-517, 519
9	***Diseases of the digestive system***	***K00-K92***	***520-579***	***520-577, 444.2***
9.1	Ulcer of stomach, duodenum, and jejunum	K25-K28	531-534	531-534
9.2	Cirrhosis, fibrosis, and chronic hepatitis	K70, K73-K74	571	571
9.3	Other diseases of the digestive system	K00-K22, K29-K66, K71-K72, K75-K92	520-530, 535-570, 572-579	520-530, 535-570, 572-577, 444.2
10	***Diseases of the skin and subcutaneous tissue***	***L00-L99***	***680-709***	***680-709***
11	***Diseases of the musculoskeletal system/connective tissue***	***M00-M99***	***710-739***	***710-738***
11.1	Rheumatoid arthritis and osteoarthrosis	M05-M06, M15-M19	714-715	712-713
11.2	Other diseases of the musculoskeletal system/ connective tissue	M00-M02, M08-M13, M20-M99	710-712, 716-739	710-711, 714-738
12	***Diseases of the genitourinary system***	***N00-N99***	***580-629***	***580-629, 792***
12.1	Diseases of kidney and ureter	N00-N29	580-594	580-594
12.2	Other diseases of the genitourinary system	N30-N99	595-629	595-629, 792
13	***Complications of pregnancy, childbirth, and puerperium***	***O00-O99***	***630-676***	***630-678***
14	***Certain conditions originating in the perinatal period***	***P00-P96***	***760-779***	***760-779***
15	***Congenital malformations and chromosomal abnormalities***	***Q00-Q99***	***740-759***	***740-760***

Nr	Disease or external cause	ICD-10 code	ICD-9 code	ICD-8 code
16	***Symptoms, signs, ill-defined causes***	***R00-R99***	***780-799***	***780-782.3, 782.5-791, 793-796***
16.1	Sudden infant death syndrome	R95	798	-
16.2	Unknown and unspecified causes	R96-R99	798.1-9, 799.0,2-3,5-9	795-796
16.3	Other symptoms, signs, ill-defined causes	R00-R94	780-797, 799.1, 799.4	780-782.3, 782.5-791, 793-794
17	***External causes of morbidity and mortality***	***V01-Y89***	***E800-E999***	***E800-E1000***
17.1	Accidents	V01-X59, Y85-Y86	E800-E929	E800-E929, E940-E946
17.1.1	Transport accidents	V01-V99, Y85	E800-E848, E929.0-1	E800-E845, E940-E941
17.1.2	Accidental falls	W00-W19	E880-E888	E880-E887
17.1.3	Drowning and accidental submersion	W65-W74	E910	E911
17.1.4	Accidental poisoning	X40-X49	E850-E869	E850-E877
17.1.5	Other accidents	W75- X39, X50-59, Y86	E890-E909, E911-928, E929.2-9	E911-929, E942-E946
17.2	Suicide and intentional self-harm	X60-X84, Y87.0	E950-E959	E950-E959
17.3	Homicide, assault	X85-Y09, Y87.1	E960-E969	E960-E969
17.4	Events of undetermined intent	Y10-Y34, Y87.2	E980-E989	E980-E989
17.5	Other external causes of injury and poisoning	Y35-Y84, Y88-Y89	E930-E949, E970-E978, E990-E999	E930-E936, E943-E949, E970-E978, E990-E999

(*) From reference year 2006, ICD-10 codes from F10 to F19 having the 4th digit coded '0' (acute intoxication) are recoded to ICD-10 codes X41, X42, X44, X45, X46 or X49 with the 4th digit coded '9', according to the 2006 update of the ICD-10 classification.

Annex B. Specifications and record layouts for reporting causes of death statistics to EUROSTAT – micro data

The Annex B can be found on CIRCABC.

Annex C. Specifications and record layouts for reporting causes of death statistics to EUROSTAT – aggregated data

The Annex C can be found on CIRCABC.

Annex D. ICD classification revision year mapping

The ICD classification revision year mapping is available on CIRCABC.

Annex E. Validation rules

The CONVAL validation rules for all files can be found on CIRCABC.

Annex F. Frequent Errors

The list of frequent errors and warnings identified in previous data collections can be found on CIRCABC.

Annex G. SIMS Guidelines

The SIMS guidelines can be found on CIRCABC.

Annex H. OECD/Eurostat lists of avoidable mortality

Group	Causes of deaths	Preventable mortality	Treatable mortality	ICD-10 Code	Age threshold	Rationale for inclusion
Infectious diseases	Intestinal diseases	x		A00-A09	0-74	Most of these infections can be prevented through prevention measures (e.g., improve water and food safety)
	Diphtheria, Tetanus, Poliomyelitis	x		A35, A36, A80	0-74	Most of these infections can be prevented through vaccination.
	Whooping cough	x		A37	0-74	Most of these infections can be prevented through vaccination.
	Meningococcal infection	x		A39	0-74	Most of these infections can be prevented through vaccination.
	Sepsis due to streptococcus pneumonia and sepsis due to hemophilus influenzae	x		A40.3, A41.3	0-74	Most of these infections can be prevented through vaccination.
	Haemophilus influenza infections	x		A49.2	0-74	Most of these infections can be prevented through vaccination.
	Sexually transmitted infections (except HIV/AIDS)	x		A50-A60, A63, A64	0-74	These infections can be prevented through prevention measures.
	Varicella	x		B01	0-74	Most of these infections can be prevented through vaccination.
	Measles	x		B05	0-74	Most of these infections can be prevented through vaccination.

Group	Causes of deaths	Preventable mortality	Treatable mortality	ICD-10 Code	Age threshold	Rationale for inclusion
Infectious diseases	**Rubella**	x		B06	0-74	Most of these infections can be prevented through vaccination.
	Viral Hepatitis	x		B15-B19	0-74	This condition is preventable and will not require treatment if prevented.
	HIV/AIDS	x		B20-B24	0-74	This condition is preventable and will not require treatment if prevented.
	Malaria	x		B50-B54	0-74	This condition is preventable and will not require treatment if prevented.
	Haemophilus and pneumococcal meningitis	x		G00.0, G00.1	0-74	Most of these infections can be prevented through vaccination.
	Tuberculosis	x (50%)	x (50%)	A15-A19, B90, J65	0-74	Reduction in deaths from tuberculosis in several countries has been about evenly achieved through greater prevention (reduction in incidence) and earlier detection and more effective treatment (higher survival rates).
	Scarlet fever		x	A38	0-74	Case-fatality rates can be reduced through early detection and appropriate antibiotic treatment.
	Sepsis		x	A40 (excl. A40.3), A41 (excl. A41.3)	0-74	Case-fatality rates can be reduced through greater quality of care and reduced patient adverse events, and early detection and appropriate antibiotic treatment.
	Cellulitis		x	A46, L03	0-74	Case-fatality rates can be reduced through early detection and appropriate antibiotic treatment.
	Legionnaires disease		x	A48.1	0-74	Case-fatality rates can be reduced through early detection and appropriate antibiotic treatment.

Group	Causes of deaths	Preventable mortality	Treatable mortality	ICD-10 Code	Age threshold	Rationale for inclusion
Infectious diseases	**Streptococcal and enterococci infection**		x	A49.1	0-74	Case-fatality rates can be reduced through early detection and appropriate antibiotic treatment.
	Other meningitis		x	G00.2, G00.3, G00.8, G00.9	0-74	Case-fatality rates can be reduced through early detection and appropriate antibiotic treatment.
	Meningitis due to other and unspecified causes		x	G03	0-74	Case-fatality rates can be reduced through early detection and appropriate antibiotic treatment.
Cancer	**Lip, oral cavity, and pharynx cancer**	x		C00-C14	0-74	This condition can be largely prevented through prevention measures (e.g., reduce smoking).
	Oesophageal cancer	x		C15	0-74	This condition can be largely prevented through prevention measures (e.g., reduce smoking).
	Stomach cancer	x		C16	0-74	This condition can be largely prevented through prevention measures (e.g., reduce smoking and alcohol consumption, and improve nutrition).
	Liver cancer	x		C22	0-74	This condition can be largely prevented through prevention measures (e.g., reduce smoking and alcohol consumption).
	Lung cancer	x		C33-C34	0-74	This condition can be largely prevented through prevention measures (e.g., reduce smoking).
	Mesothelioma	x		C45	0-74	This condition can be largely prevented through prevention measures (e.g., reduce asbestos exposure).
	Skin (melanoma) cancer	x		C43	0-74	This condition can be largely prevented through prevention measures (e.g., reduce sun exposure).

Group	Causes of deaths	Preventable mortality	Treatable mortality	ICD-10 Code	Age threshold	Rationale for inclusion
Cancer	**Bladder cancer**	x		C67	0-74	This condition can be largely prevented through prevention measures (e.g., reduce smoking).
	Cervical cancer	x (50%)	x (50%)	C53	0-74	Cervical cancer can be prevented through vaccination and screening can also find pre-cancerous abnormalities that can be treated to prevent cancer, but five-year survival after cancer detection is also relatively high and rising.
	Colorectal cancer		x	C18-C21	0-74	Case-fatality rates have been reduced through earlier detection and treatment. Five-year survival after detection is relatively high and rising.
	Breast cancer (female only)		x	C50	0-74	Case-fatality rates have been reduced through earlier detection and treatment. Five-year survival after detection is relatively high and rising.
	Uterus cancer		x	C54, C55	0-74	Case-fatality rates have been reduced through earlier detection and treatment. Five-year survival after detection is relatively high and rising.
	Testicular cancer		x	C62	0-74	Case-fatality rates have been reduced through earlier detection and treatment. Five-year survival after detection is relatively high and rising.
	Thyroid cancer		x	C73	0-74	Case-fatality rates have been reduced through early detection and appropriate treatment.
	Hodgkin's disease		x	C81	0-74	Case-fatality rates have been reduced through early detection and appropriate treatment.

Group	Causes of deaths	Preventable mortality	Treatable mortality	ICD-10 Code	Age threshold	Rationale for inclusion
Cancer	Lymphoid leukaemia		x	C91.0, C91.1	0-74	Case-fatality rates have been reduced through early detection and appropriate treatment.
	Benign neoplasm		x	D10-D36	0-74	Case-fatality rates have been reduced through early detection and appropriate treatment.
Endocrine and metabolic diseases	Nutritional deficiency anaemia	x		D50-D53	0-74	This condition can be largely prevented through prevention measures (e.g., improve nutrition).
	Diabetes mellitus	x (50%)	x (50%)	E10-E14	0-74	Type 1 diabetes is not preventable, but appropriate treatments can reduce mortality. Type 2 diabetes is largely preventable (e.g., improve nutrition), but appropriate treatments can also reduce mortality.
	Thyroid disorders		x	E00-E07	0-74	Case-fatality rates can be reduced through early detection and appropriate treatment.
	Adrenal disorders		x	E24-E25 (except E24.4), E27	0-74	Case-fatality rates can be reduced through early detection and appropriate treatment.
Diseases of the nervous system	Epilepsy		x	G40, G41	0-74	Case-fatality rates can be reduced through early detection and appropriate treatment.
Diseases of the circulatory system	Aortic aneurysm	x (50%)	x (50%)	I71	0-74	This condition is both preventable through prevention measures (similar risk factors as for ischaemic heart diseases) and treatable.
	Hypertensive diseases	x (50%)	x (50%)	I10-I13, I15	0-74	This condition is both preventable through prevention measures (e.g., reduce smoking, improve nutrition and physical activity) and treatable.

Group	Causes of deaths	Preventable mortality	Treatable mortality	ICD-10 Code	Age threshold	Rationale for inclusion
Diseases of the circulatory system	**Ischaemic heart diseases**	x (50%)	x (50%)	I20-I25	0-74	Reduction in deaths from IHD over the past decades in several countries has been about evenly achieved through greater prevention (reduction in incidence) and earlier detection and more effective treatment (higher survival rates).
	Cerebrovascular diseases	x (50%)	x (50%)	I60-I69	0-74	Reduction in deaths from CVD over the past decades in several countries has been about evenly achieved through greater prevention (reduction in incidence) and earlier detection and more effective treatment (higher survival rates).
	Other atherosclerosis	x (50%)	x (50%)	I70, I73.9	0-74	This condition is both preventable through prevention measures (e.g. improve nutrition) and treatable.
	Rheumatic and other heart disease		x	I00-I09	0-74	Case-fatality rates can be reduced through appropriate treatment.
	Venous thrombo-embolism		x (*)	I26, I80, I82.9	0-74	The majority of venous thrombosis events result from hospitalisations. These cases are treatable to the extent that they are linked to the quality of care that people receive.
Diseases of the respiratory system	**Influenza**	x		J09-J11	0-74	Most of the deaths can be prevented through prevention measures (e.g., vaccination).
	Pneumonia due to Streptococcus pneumonia or Haemophilus influenza	x		J13-J14	0-74	Most of these infections can be prevented through vaccination.

Group	Causes of deaths	Preventable mortality	Treatable mortality	ICD-10 Code	Age threshold	Rationale for inclusion
Diseases of the respiratory system	Chronic lower respiratory diseases	x		J40-J44	0-74	This condition can be largely prevented through prevention measures (e.g., reduce smoking).
	Lung diseases due to external agents	x		J60-J64, J66-J70, J82, J92	0-74	This condition can be largely prevented through prevention measures (e.g., reduce exposure to chemical, gases and other agents).
	Upper respiratory infections		x	J00-J06, J30-J39	0-74	Case-fatality rates can be reduced through appropriate treatment.
	Pneumonia, not elsewhere classified or organism unspecified		x	J12, J15, J16-J18	0-74	Case-fatality rates can be reduced through early detection and appropriate antibiotic treatment.
	Acute lower respiratory infections		x	J20-J22	0-74	Case-fatality rates can be reduced through appropriate treatment.
	Asthma and bronchiectasis		x	J45-J47	0-74	Case-fatality rates can be reduced through appropriate treatment (e.g., medication).
	Adult respiratory distress syndrome		x	J80	0-74	Case-fatality rates can be reduced through appropriate treatment.
	Pulmonary oedema		x	J81	0-74	Case-fatality rates can be reduced through appropriate treatment.
	Abscess of lung and mediastinum pyothorax		x	J85, J86	0-74	Case-fatality rates can be reduced through appropriate treatment.
	Other pleural disorders		x	J90, J93, J94	0-74	Case-fatality rates can be reduced through appropriate treatment.
Diseases of the digestive system	Gastric and duodenal ulcer		x	K25-K28	0-74	Case-fatality rates can be reduced through early detection and appropriate treatment.
	Appendicitis		x	K35-K38	0-74	Case-fatality rates can be reduced through early detection and appropriate treatment.

Group	Causes of deaths	Preventable mortality	Treatable mortality	ICD-10 Code	Age threshold	Rationale for inclusion
Diseases of the digestive system	Abdominal hernia		x	K40-K46	0-74	Case-fatality rates can be reduced through early detection and appropriate treatment.
	Cholelithiasis and cholecystitis		x	K80-K81	0-74	Case-fatality rates can be reduced through early detection and appropriate treatment.
	Other diseases of gallbladder or biliary tract		x	K82-K83	0-74	Case-fatality rates can be reduced through early detection and appropriate treatment.
	Acute pancreatitis		x	K85.0,1,3,8,9	0-74	Case-fatality rates can be reduced through early detection and appropriate treatment.
	Other diseases of pancreas		x	K86.1,2,3,8,9	0-74	Case-fatality rates can be reduced through early detection and appropriate treatment.
Diseases of the genitourinary system	Nephritis and nephrosis		x	N00-N07	0-74	Case-fatality rates can be reduced through early detection and appropriate treatment.
	Obstructive uropathy		x	N13, N20-N21, N35	0-74	Case-fatality rates can be reduced through early detection and appropriate treatment.
	Renal failure		x	N17-N19	0-74	Case-fatality rates can be reduced through early detection and appropriate treatment.
	Renal colic		x	N23	0-74	Case-fatality rates can be reduced through early detection and appropriate treatment.
	Disorders resulting from renal tubular dysfunction		x	N25	0-74	Case-fatality rates can be reduced through early detection and appropriate treatment.
	Unspecified contracted kidney, small kidney of unknown cause		x	N26-N27	0-74	Case-fatality rates can be reduced through early detection and appropriate treatment.

Group	Causes of deaths	Preventable mortality	Treatable mortality	ICD-10 Code	Age threshold	Rationale for inclusion
Diseases of the genitourinary system	Inflammatory diseases of genitourinary system		x	N34.1, N70-N73, N75.0, N75.1, N76.4,6	0-74	Case-fatality rates can be reduced through early detection and appropriate treatment.
	Prostatic hyperplasia		x	N40	0-74	Case-fatality rates can be reduced through early detection and appropriate treatment.
Pregnancy, childbirth, and perinatal period	Tetanus neonatorum	x		A33	0-74	Most of these infections can be prevented through vaccination.
	Obstetrical tetanus	x		A34	0-74	Most of these infections can be prevented through vaccination.
	Pregnancy, childbirth, and the puerperium		x	O00-O99	0-74	Effective treatment is available in most cases to avoid maternal mortality.
	Certain conditions originating in the perinatal period		x	P00-P96	0-74	Case-fatality rates can be reduced through early detection and appropriate treatment.
Congenital malformations	Certain congenital malformations (neural tube defects)	x		Q00, Q01, Q05	0-74	These conditions can be prevented through prevention measures (improve maternal nutrition, e.g., folic acid consumption).
	Congenital malformations of the circulatory system (heart defects)		x	Q20-Q28	0-74	These conditions can be treated through surgical operations
Adverse effects of medical and surgical care	Drugs, medicaments, and biological substances causing adverse effects in therapeutic use		x (*)	Y40-Y59	0-74	These conditions are treatable through better drug prescription and adherence.
	Misadventures to patients during surgical and medical care		x (*)	Y60-Y69, Y83-Y84	0-74	These conditions are treatable through better quality of care that patients receive.

Group	Causes of deaths	Preventable mortality	Treatable mortality	ICD-10 Code	Age threshold	Rationale for inclusion
Adverse effects of medical and surgical care	**Medical devices associated with adverse incidents in diagnostic and therapeutic use**		x (*)	Y70–Y82	0-74	These conditions are treatable through better quality of care that patients receive.
Injuries	**Transport Accidents**	x		V01-V99	0-74	Deaths can be prevented through public health interventions (e.g., road safety measures).
	Accidental Injuries	x		W00-X39, X46-X59	0-74	Deaths can be prevented through public health interventions (e.g., injury prevention campaigns).
	Intentional self-harm	x		X66-X84	0-74	Deaths can be prevented through public health interventions (e.g., suicide prevention campaigns).
	Event of undetermined intent	x		Y16-Y34	0-74	Deaths can be prevented through public health interventions (e.g., harm prevention campaigns).
	Assault	x		X86-Y09	0-74	Deaths can be prevented through public health interventions.
Alcohol related and drug-related deaths	**Alcohol-related deaths**	x		E24.4, F10, G31.2, G62.1, G72.1, I42.6, K29.2, K70, K85.2, K86.0, Q86.0, R78.0, X45, X65, Y15	0-74	Deaths can be largely prevented through public health interventions (e.g., alcohol control policies).
		x		K73, K74.0 K74.2, K74.6	0-74	Deaths can be largely prevented through public health interventions (e.g., alcohol control policies).
	Drug-related deaths (**)	x		F11-F16, F18-F19, X40-X44, X85, Y10-Y14	0-74	Deaths can be largely prevented through public health interventions (e.g., drug control policies).
		x		X60-X64	0-74	Deaths can be largely prevented through public health interventions (e.g., drug control policies).

Group	Causes of deaths	Preventable mortality	Treatable mortality	ICD-10 Code	Age threshold	Rationale for inclusion
Provisional assignment of new diseases	**COVID-19**	x			0-74	Most of these infections and deaths can be prevented through prevention measures (including vaccination).

(*) Some of these conditions that are mainly acquired when people are hospitalised or in contact with health services might also be considered to be preventable, in the sense that the incidence of these health care-associated infections or health problems might be reduced through greater prevention in health care facilities.

(**) Drug-related deaths include both illegal and legal drugs.

Annex I. Proposed EU-27 + EFTA standard population

Age Group (years)	Standard Population (*)
0,0	1,000
1-4	4,000
5-9	5,500
10-14	5,500
15-19	5,500
20-24	6,000
25-29	6,000
30-34	6,500
35-39	7,000
40-44	7,000
45-49	7,000
50-54	7,000
55-59	6,500
60-64	6,000
65-69	5,500
70-74	5,000
75-79	4,000
80-84	2,500
85-89	1,500
90-94	800
95+	200
Total	100,000

(*) The European Standard population is based on the 27 EU Members in 2011, which includes the United Kingdom but excludes Croatia, which at the time was still a candidate country.

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Causes of death statistics manual

The manual is primarily aimed at national experts engaged in the production of causes of death statistics transmitted to Eurostat. The purpose is to provide information on the statistical processing of data, including transmission, validation, metadata and quality reporting.

For more information
https://ec.europa.eu/eurostat/

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