Death Statistics according to Cause of Death

Methodology

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1 Background

The deaths and Late Foetal Deaths Statistic according to cause of death have their own identity although they come under the remit of Vital Statistics which refer to births, marriages and deaths which have occurred in Spain and which make up one of the most traditional statistics elaborated by the National Statistics Institute (INE). The first volume was published in 1863 by the National General Board of Statistics and contains data on the period 1858 to 1861 which were obtained from parish registers. Since then uninterrupted information on demographic phenomena has been published in Spain during 1871-1885 when the civil register was implemented and from which successive data for these statistics was obtained.

The classification of deaths according to cause of death goes back to information from 1861-1870, thereby giving rise to what is currently known as the deaths statistics according to cause of death. This first classification only has five groups for causes and it was only as of the 1900 publication that the 14 group and 99 heading classification for causes of death by Dr. Bertillón, started to be used in Spain. This distribution was revised the same year during the first international conference for the revision of the causes of death classification in which a ten-year revision system was also approved.

The first three revisions were supervised by Dr. Bertillón. The next two were coordinated by the National Statistics Institute and Organisation for Hygiene of the League of Nations which were adopted in Spain in 1931 and 1941 respectively.

As of the 6th revision and up to the 10th, in force currently, responsibility for its preparation was given to the Provisional Committee of the World Health Organisation and was implemented in our country in 1951, 1961, 1968, 1980 and 1999 respectively and was known as the International Classification of Diseases (ICD).

Since its origin, the deaths statistic according to cause of death has been enriched with new classifications. Therefore, variables such as age, sex and province of registration were incorporated in 1903.However; the modifications which occurred as a consequence of the last reforms of the vital statistics as a whole are notable.

In 1957, with the introduction of the new civil register, the INE proposed a new collection system to deal with the growing demand for demographic-health information concerning death. For these purposes, some new statistical death and abortion gazettes which were more complete than the previous ones entered into force which were limited to collecting those data that appeared in the civil registry books. However, not all variables introduced could be used due to there being a high percentage of lack of response as a consequence of the difficulty some informants had in filling in completing them.

Due to these difficulties, in 1975 a new reform was carried out which considered three main aspects: The simplification of these bulletins, the change of some concepts and modification of results tables.

The most important conceptual variation is that which affects the statistical significance of born alive. Traditionally for vital statistics the legal criteria of born alive was used which is covered in article 30 of the civil code. A foetus will only be classified as alive if it had a human like appearance and lived for twenty-four complete hours outside the mother's womb. Consequently, in the deaths group, born alives and deaths before 24 hours were not included as these were registered as abortions in the civil register according to the previous definition.

Although the legal criteria are still maintained unaltered, as of 1975 births and deaths statistics have been adjusted to internationally recognised demographic concepts. As of this moment, a born alive is considered to be any foetus that is biologically born with life and therefore a death is counted as a foetus that is born alive and dies afterwards independent of the hours lived.

This change in criteria does not substantially influence global deaths figures but it does considerable modify some specific mortality tasks (infant, neonatal, perinatal, etc.) in such a way that prior to 1975 these health indicators were giving a skewed version of the real situation.

Subsequent to this reform, in 1980 the statistical birth and abortion bulletins were revised into a single birth bulletin where data on born alives and deaths before 24 hours were obtained.

Lastly, and carrying on the process of modernisation of Vital Statistics begun in 2007, a series of Death Statistics reforms affecting both forms and the obtaining of information circuit that came into force in 2009.

The objectives of said changes were as follows:

1. To improve the quality of information on causes of death, adapting the means of collection of said variables to the recommendations of the WHO and Eurostat. With this objective in mind, the two documents are brought together in those dealing with causes (the Medical Death Certificate and the Statistical Death Register) in a single form: CMD/BED.

2. Introduce ICT in the information collection process. In the case of deaths with Judicial Intervention, a web application is implemented in order to directly record information in the database to replace the document submitted previously to the Civil Registers (MNP52), thereby obtaining a greater degree of confidentiality in the transmission of sensitive information, such as cause of death, particularly in the case of external causes. In the case of CMD/BED, they are adapted to an optical character reading format, thereby streamlining the information capture process.

Using the data regarding deaths in 2011, the Death Statistics according to cause of death is carried out under the umbrella of Commission Regulation (EU) No. 328/2011 of April 5, 2011, which applies 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, with regard to statistics on cause of death. This regulation guarantees comparability between the member countries of the European Union.

With the deaths of 2020, the Institutes of Legal Medicine and Forensic Sciences (IMLCF) entered the information circuit. Through an application designed by the INE, they provide detailed information adjusted to the International Classification of Diseases (ICD-10) on the cause of death in the case of deaths with judicial intervention.

LEGAL REGULATIONS

On the subject of deaths, there is a specific regulation in the legislation on the Civil Register and its supplementary rules and those being developed.

Art. 5 of Civil Register Law 20/2011 provides for all acts with access to the Civil Register being noted, and art. 325 of the Civil Code sets out the compulsory nature of being recorded in the corresponding Civil Registers of the life events of the person. Thus all deaths must be recorded in the Civil Register of the municipality where the death occurred.

The National Statistics Institute, pursuant to article 20 of the Regulation of the Civil Register Law, approved by a Decree of 14 November 1958, receives from those in charge of Civil Registers, via their Provincial Delegations, bulletins containing births, marriages, deaths or other recordable events.

Furthermore, article 274 of the Regulation of the Civil Register Law indicates that "the staff who attended to the deceased in his or her last illness or any other who recognises the body will immediately send the Civil Register the death certificate in which, besides the name, surname (...) it will appear that there are unmistakeable signs of death, its cause and, with the accuracy that its recording requires, date, time and place of death"

2   Objectives

The statistic on causes of death constitutes one of the most important sources of health information.

Deaths are a consequence of a host of biological, economic, health-related or social causes. Therefore, it is necessary to have information available not only on the number of deaths that occur in a country over a certain period but also on all those circumstances which surround the event to facilitate action on the part of health administrations and the rest of society's forces.

This fact together with the scarce availability of reliable and exhaustive indicators to evaluate the level of the population's health has meant that demand for this statistic is still increasing. Its main objectives are the following:

1. To provide information on mortality based on the underlying cause of death according to the ICD, its distribution by age groups, sex and other classification variables.
2. Provide information on multiple causes of death.
3. To ascertain stillbirths by dealing with the cause of death according to the ICD.
4. To measure perinatal mortality thereby providing a basis with which to obtain indicators that facilitate evaluating the coverage and quality of health services.
5. To make it possible to construction historical series to study the evolution of the prevalence of certain causes of death as well as other studies which meet the requirements for information needs established by the health administrations.
6. To make territorial comparisons on the behaviour of mortality by causes of death groups.
7. To supply a basis with which to construction health indicators recommended by international organisations.

3 Variables: Definitions and concepts

The variables studied are deaths and late foetal deaths occurring in the reference year. Data provided will be in absolute values and in crude rates. Similarly, standardised rates and potential years of life lost are provided as derived indicators.

The classification variables are the underlying cause of death according to the International Classification of Diseases in its 10th edition (ICD-10), and according to socio-demographic variables: age (or weeks of gestation), sex, nationality, and place of residence, as well as the month of death and the size of the municipality.

Starting with the 2015 deaths, the classification variable "educational attainment level" is included[1]". In addition, standardised rates by level of studies are provided, taking the European standard population as the reference population.

With the 2016 deaths, information on multiple cause of death is introduced and with the publication of 2020, the place of occurrence of the death (hospital center, socio-sanitary residences, domicile and other place) is incorporated as a classification variable.

DEATH

As set our earlier, for the purposes of this statistic death is considered to be the death of any live person independently of the hours they have lived.

STILLBIRTH

From a theoretical perspective, a stillbirth is death before complete expulsion or extraction of a viable product of conception from its mother. This viability is precisely what serves to differentiate stillbirths from abortions. Traditionally, the World Health Organisation (WHO) has identified the viability of the foetus with those births that weighed at least 500g or with a gestational age of at least 22 weeks.

Although in Spain there is only an obligation to communicate foetal deaths of more than 180 days registration to the civil registry (art. 45 of Law of 8 June 1.957), for the purposes of this statistic, the criteria is considering a late foetal deaths those which are declared in the civil registry and meet the criteria mentioned in the previous paragraph or the data on weight and weeks of gestation are unknown.

MULTIPLE CAUSES OF DEATH

Multiple causes of death is understood to be the set of all diseases, morbid states or lesions that cause death or contribute to death and the circumstances of the accident or violence which produced these lesions.

These diseases or morbid states must be reported in sequential order on the different lines intended for this purpose in the medical death certificate (immediate cause, intermediate cause, initial or fundamental cause and other processes).
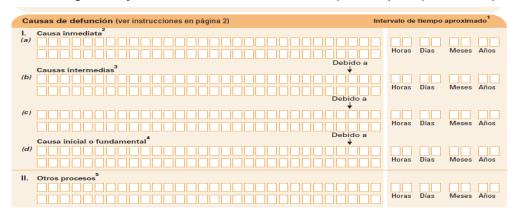
[1] See *"Method of assigning the level of education"* in the Death Statistics (Vital Statistics).

UNDERLYING CAUSE OF DEATH

The aim of public health programmes is to prevent the cause of all other disorders or conditions leading to death that have been reported on the medical death certificate. For this reason, the underlying cause of death is defined, according to the ICD, as the disease or injury that initiated the chain of pathological events leading directly to death, or the circumstances of the accident or violence that resulted in the fatal injury.

The determination of the underlying cause among all those reported in the CMD is governed by the rules established by the WHO in volume 2 of the ICD-10.

The section of the CMD in which the doctor reports on the causes of death consists of two parts. Part 1 contains the chain of events (illnesses or complications) that lead to death, including the underlying cause; that is, the cause that starts the chain of events. Part 2 includes other diseases that, without directly causing death, have contributed to it; these are generally comorbidities of the deceased person (multiple causes).

On a properly reported certificate, the underlying cause of death will match that reported by the physician on the line corresponding to the initial or fundamental cause. However, there are circumstances in which, for epidemiological reasons, the underlying cause is not the cause reported as initial or fundamental, but another cause reported more rigorously in the certificate, or the combination of other causes described.

These conditions are contained in the selection and modification rules established by the WHO in the ICD, and are mandatory.

The underlying cause, resulting from this process, is the one that will be used in tabulations and in the calculation of mortality indicators.

4 Collection and treatment of information

The information is obtained either through an administrative act (registration of the death or birth in the Civil Registry) or through a judicial act (communication of the burial order by the court that intervenes in cases where there are suspicions of unnatural deaths). The collection of information is carried out through the following documents: Medical Death Certificate/Statistical Death Bulletin (MDC/SDB), Judicial Statistical Death Register (JSDR) and the Statistical Birth Bulletin (SBB). There are Spanish versions and bilingual versions in co-official languages. The first collects the data of the deceased due to natural causes without the need for the intervention of a judge, while the second

is aimed at obtaining the information of the deceased due to causes that require judicial intervention because there are indications of possible accidental or violent causes. In the case of a late fetal death, in the absence of an official abortion certificate, the certification is incorporated into the SBB's text for the Declaration to the Register. In the case of those who die before 24 hours of life, the data are also collected through the SBB.

All persons resident in Spain are required by law to complete the Questionnaires for the Registration of Births, Marriages and Deaths at the Civil Registry.

The CMD/BED consists of a front page corresponding to the Medical Certificate, on which information pertaining to the cause of death appears, and which is completed by the certifying doctor in case of death not involving a court. The second page, which corresponds to the Statistical Bulletin, is completed by the notifying party, or otherwise by the person in charge of the Civil Registry, and the registration details by the person in charge of the Civil Registry.

Once the part corresponding to the Medical Certificate has been completed by the doctor certifying the death, the funeral home or the family submits the CMD/BED at the Civil Register of the municipality where the death occurred in order to register the deceased.

The BEDJ can be completed via a web application created by INE, which courts can access through the neutral judicial point. The application allows them to create a burial order. With the deaths of 2020, the Institutes of Legal Medicine and Forensic Sciences are incorporated into the information circuit, also providing information on the cause of death in deaths with judicial intervention through an application designed by the INE for this purpose.

The SBB are available in maternity hospital centre departments. The CMD/BED is distributed by Official Colleges of Doctors, not the INE, to pharmacies, funeral homes, etc.

The INE, in its dealings with Civil Registers, takes it upon itself to adopt the appropriate measures in order to guarantee coverage, quantity and timeliness of the information received from the latter, as well as to guarantee and generate from it, monthly files for recording each demographic phenomenon (deaths, marriages and births).

The Civil Register sends the batch to the INE Delegation during the month in which it was received, where revision, filtering, OCR scanning, coding and recording work for the demographic variables is started. As of 1994 the cause of death is also included for the SBB. This information is used for immediate update of other statistical files.

Subsequently, in the INE Central services, the files obtained from the recording are contrasted with those for recording deaths and births taken from the Civil Registers that are computerised and are supplied to the INE by the General Directorate of Registries and Notaries of the Ministry of Justice.

As of 1983, the INE has been establishing collaboration agreements with autonomous communities. Currently, these agreements include the coding process and recording/revision of health variables for deaths which occurred within their territorial remit. Therefore, the INE provide autonomous communities with the monthly information via a secure website where it is possible for them to perform the process of encoding and recording/revision of health variables.

It is necessary that the INE coordinates the coding work of all autonomous communities by advising and providing its technical support as well as carrying out a continued follow up with the objective of ensuring the homogeneity of criteria. Similarly, the recording process carried out by autonomous communities should fulfil the format and regulations established by the INE. To improve the quality of information, the autonomous communities also retrieve information through Forensic Medicine Institutes.

As from 2014 deaths, the International Automatic Coder IRIS is implemented, a system that allows the coding of multiple causes of death and the selection of the underlying cause of death. IRIS has a double objective:

1. Provide a system in which language-dependent aspects are separated from the software. All language-dependent aspects are stored in tables and databases that can be easily modified. This feature makes IRIS an automatic encoder for international use.

2. Improve national and international comparability. IRIS is based on the death certificate provided by the WHO and used in Spain. In addition, ICD-10 updates are incorporated into the IRIS tables within the deadlines established by the WHO

The treatment of the cause of death in the process for the elaboration of results tables is carried out exhaustively by studying all cases of possible incompatibilities between this and the rest of the demographic information. The primary data source is used, the statistical bulletin in such a way that reliability is as high as possible.

5   Scope of the statistic

POPULATION

This includes all deaths that occur in the country independent of the place of origin of the death. Deaths of Spaniards outside Spain are not included.

GEOGRAPHICAL

The deaths statistic according to cause of death covers the whole country.

TEMPORAL

The reference period is annual although information is provided by month of death.

6   Publication of results

The complete results on this statistic have been disseminated online (www.ine.es) in the section Inebase/Society/Health/ Statistics on Causes of Death

The tables present data on deaths by underlying cause at the national, Autonomous Community and provincial levels and are structured in the following order for each level:

general, infant and perinatal mortality tables and stillbirths tables. In addition, a group of tables is published with different mortality indicators (standardised rates and years of potential life lost).

With the 2016 deaths, tables on multiple coding are included.

At national level, 9 general mortality tables are provided. The first contains information on deaths by underlying cause of death (ICD-10 detailed list) classified by sex and age groups. The following ones use for their tabulation the short list of causes of death offering absolute and relative figures, and mortality tables[1]. The classification variables are age groups, sex, month of death, size of municipality, nationality, place of residence and educational attainment level.

20 tables are provided on general mortality on an autonomous level. The short list of causes of death is used for the tabulation. The first contains data from all autonomous communities classified by sex and age groups. The following contain deaths from each autonomous community of residence classified by provinces, sex and age groups.

On a provincial and provincial capital level a table on general mortality is included classified by province, sex and reduced list of causes of death.

For the tables relating to child mortality, perinatal mortality (minors 1 week old) and stillbirths, specific mortality lists are used. These tables are classified nationally according to specific age groups (in the case of stillbirths weeks of gestation are considered). Data are offered by sex and place of residence on an autonomous and provincial level.

In additions, beginning with the data from the year 2005, specific tables are published regarding deaths by suicide at national and autonomous level.

8 tables are provided on a national level; the last two with relative figures. The classification variables are sex, age, method employed, size of municipality of residence or of death, Spanish or foreign nationality and month of death.

At the Autonomous Community level, 4 tables are provided, classified by Autonomous Community of residence or death, sex, age and means employed.

As from 2016 data, three mortality tables on multiple cause of death are published at the national level. The first table presents the relationship between the underlying cause and the multiple causes by ICD-10 chapters. The second table provides information on the average number of multiple causes reported in the certificate according to the underlying cause (ICD-10 chapters) and the third table shows the distribution of the multiple causes with respect to the underlying cause (ICD-10 chapter) of the certificate in which they are reported.

Similarly, series from this statistic are available in the TEMPUS database which can be accessed on Internet (www.ine.es/inebase).

Included with the publication is a dynamic infographic on the 15 most frequent causes with a level of disaggregation by Autonomous Communities, as well as an infographic on daily deaths by place of occurrence.

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[1] Until 2021, mortality rates were calculated with the population as at 1 July of that year. Since 2022, mortality rates have been calculated with the average population between 1 January of the year being studied and 1 January of the following year.

On the other hand, the microdata anonymous file is also available once the data supply commitment conditions are signed.

For the purpose of comparing results, it should be borne in mind that in 2009 the Medical Death Certificate was modified, consolidating it with the Statistical Death Bulletin and adapting it to the recommendations of the WHO in the International Classification of Diseases. These changes and the adaptation of certifying physicians to the new model may have had an impact on the time series of the different causes of death.

7   Standardised rates

A fundamental objective for the statistical analysis of the mortality of a country is to be able to make comparisons between different geographical areas which meet the phenomenon under study in a different way.

Up to 1985 data was only published on proportional mortality, in other words mortality according to cause by 1000 deaths, as well as gross rates or the equivalent, deaths according to cause by 100,000 inhabitants. The indicators offer a summary of the frequency with which the phenomenon of mortality appears in the general population.

On a global scale, these rates have a descriptive value which is of undisputed interest given that they provide a measurement of the evolution of the phenomenon over time.

Gross mortality rates present however, a significant limitation when making comparisons between different groups that have different age structures, as is the case of the different autonomous communities.

Under these circumstances gross mortality rates may be reconstructed based on a common age and sex structure or on common mortality. Standardised rates may be obtained by the direct method in the first case and by the standardised mortality ratio in the second case.

This latter method, although it offers advantages for greater ease of calculation and giving lower standard errors than those provided by the direct method when low incidence and/or small population characteristics are applied, has the disadvantage that it only permits - through its own definition - establishing comparisons between each one of the different rates obtained with the one corresponding to the standard population but nor with each one of the remaining ones.

As the objective is to make comparison possible for mortality by cause (ICD chapters) between autonomous communities, the direct method has been used.

With the objective of verifying if the standardised rates from different autonomous communities are significantly different from a statistical point of view, variation coefficients have been calculated in all cases. In this way, the interpretation of these rates may vary for low incidence causes of death and autonomous communities with small population such as for example would be the case of Ceuta and Melilla for the cause of death, *congenital malformations, deformities and chromosomal anomalies.*

METHODOLOGY FOR CALCULATION OF STANDARDISED RATES

As from the 2011 deaths, the calculation of the indicator takes as a standard population the European population standard provided by Eurostat,[1] which allows for comparisons at territorial and temporary levels and between genders, considering a common population for both sexes. The indicators calculated with the deaths before 2011 consider as standard population the national population referred to 1 July 1999.

The standardised mortality rate by cause j for autonomous community k for sex l is given by:

$$TES_{kl}^{j} = \sum_{i} \frac{M_{kil}^{j} \ P_{i}^{s}}{P^{s}}$$

where:

M_{kil}^{j} represents the specific mortality rate by cause j in age group i, community k and sex l.

P_{i}^{s} is the standard population in age group i and sex l.

P^{s} is the standard population in all age groups and sex l.

Consequently, the number reflects the number of deaths expected to occur in the standard population if this population were subjected to specific mortality rates by cause j in community k and sex l.

As a measure of variability of each standardised rate, its corresponding variation coefficient has been obtained.

$$C.V_{\cdot kl}^{j} = \frac{S}{TES_{kl}^{j}}$$

S^2 is the variance of the standardised rate and the following is obtained:

$$S^2 = \sum_{i} \left[\frac{P_{il}^{s}}{P_{l}^{s}} \right]^{2} \cdot S^2 \left(M_{kil}^{j} \right)$$

where variance of the specific rate M_{kil}^{j} is:

$$S^2 \left(M_{kil}^{j} \right) = \frac{1}{P_{kil}} M_{kil}^{j} \left(1 - q_{kil}^{j} \right)$$

P_{kil} is the population in age group i, community k and sex l.

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[1] The change in the standard population introduced as of the 2011 deaths in the Death Statistics according to the cause of death in Spain coincides with the change in the standard population introduced by Eurostat, so that comparisons can be made at European level.

q_{kil}^j is the estimated probability of death by cause j in age group i, for community k and for sex l. The following is obtained:

$$q_{kil}^j = \frac{n_i M_{kil}^j}{1 + (n_i - a_{kil}) M_{kil}^j} \cdot \frac{D_{kil}^j}{D_{kil}}$$

n_i is the longitude of the nth age interval.

a_{kil} is the average number of years lived in the nth age interval by deaths in age group i, in community k and for sex l.

D_{kil}^j is the number of deaths by cause j in age group i in community k and for sex l.

D_{kil} is the number of deaths in age group i in community k and for sex l.

In the same way, the standardised rates of mortality by cause of death and level of studies allow carrying out statistical analyses of mortality and comparisons between different levels of studies, considering that each of these groups is distributed according to the same age and sex population structure.

For the calculation of the standardised rates, the variable level of studies has been distributed in four groups: Primary education or lower, First stage secondary education, Second stage secondary education and University studies.

The standardised mortality rate for the cause j, for the level of studies k, for the sex l, is given by:

$$TES_{kl}^j = \sum_i \frac{M_{kil}^j \; P_i^s}{P^s}$$

where:

M_{kil}^j represents the specific mortality rate from cause j, in the age group i, level of studies k and sex l.

P_i^s is the standard population in the age group i.

P^s is the standard population in all age groups.

The numerator reflects the number of deaths expected to occur in the standard population, if that population is subject to the specific mortality rates from cause j, for educational attainment k and sex l.

8 Potential years of life lost

Both crude and standardised mortality rates which facilitate making comparisons between different groups are affected by the major weight represented by deaths at an elderly age which does not facilitate evaluating the incidence of deaths at young ages.

From a health system point of view, the effect mortality has is different if it occurs at elderly ages. Therefore, it is necessary to measure premature mortality by means of an alternative indicator which detects the causes of death which could theoretically be avoided and which lead to a reduction in life expectancy of individuals.

Potential years of life lost (PYLL) has been selected as a measure of mortality which could theoretically be avoided. This bears in mind the years a person has to live if they die at an age which is not the habitual age for dying which has been theoretically set for this group.

The calculation of this indicator has been carried out, from the 2006 data, for the 1-79 age bracket (previously, the upper limit was considered 69 years) which implies to dispense, on the one hand, with the deaths occurred in the upper age ranges, and on the other hand with infant mortality, since the causes of death of the deceased aged less than one year, in general very specific, requiring a separate study.

METHODOLOGY FOR CALCULATING POTENTIAL YEARS OF LIFE LOST

For the calculation of PYLL the ICD chapters have been considered which refer to the national total and each one of the autonomous communities.

Results are expressed as:

– Total PYLL by cause j in Community k and sex l.

$$APVP_{kl}^{j} = \sum_{i} D_{kil}^{j} a_{i}$$

– Percentage of PYLL attributable to cause k in community k and sex l.

$$\frac{APVP_{kl}^{j}}{APVP_{kl}} \cdot 100 = \frac{\sum D_{kil}^{j} a_{i}}{\sum_{i} D_{kil} a_{i}} \cdot 100$$

– Adjusted rate (direct method) of PYLL by 1000 inhabitants by cause j in community k and sex l.

$$\sum_{i} a_{i} \cdot \frac{D_{kil}^{j}}{P_{kil}} \cdot \frac{P_{il}^{s}}{P_{l(1-79)}^{s}} \cdot 1000$$

– Average Nº of PYLL attributable to cause j in community k and sex l.

$$\frac{APVP_{kl}^{j}}{D_{kl}^{j}} \quad \frac{\sum_{i} D_{kil}^{j} a_{i}}{\sum_{i} D_{kil}^{j}}$$

where:

D_{kil}^{j} is the number of deaths by cause j in age group i in community k and with sex l.

D_{kil} is the number of deaths in age group i in community k and with sex l.

D^j_{kl} is the number of deaths by cause j in community k and with sex l in all age groups.

a_i is the number of remaining years from age i to the age limit considered.

P_{kil} is the population in age group i from community k and with sex l.

P_{s_i} is the standard population (national population referring to 1 July 1999) in age group i and sex l.

$P^s_{(1-79)}$ is the standard population aged 1-79 years old.

Methodological Annex

Find below information that should be taken into account when utilising and interpreting the data:

– Due to ICD-10 updates, from 2010 causes of death corresponding to codes C77-C79 and C97 will not present data as they are invalid codes as a underlying cause of death.

– Rubric M84.4 - 'Pathological fracture, not elsewhere classified' includes deaths from hip or lower limb fractures without a specified cause in people over 75 years old.

– Based on deaths in 2016, traffic accidents involving non-motorised vehicles, transport accidents not identified as being due to traffic or not and victims of traffic accidents who, at the time of the accident, were boarding or alighting the vehicle are included in group 090 of the reduced list. This way, this group includes all traffic accidents, hence the change in title to "Traffic accidents".

– After the entry into force of Organic Law 3/2021, of March 24, 2021, regulating euthanasia, and in the absence of an ICD-10 code that includes this type of death, the code Z418 is used to identify these cases, as is done in other European Union countries. The Z418 code cannot be a root cause. The Manual of good practices in euthanasia prepared by the Ministry of Health indicates that euthanasia must be reported as an immediate cause in the Medical Death Certificate (MDC). The code will appear in all cases in which the doctor has left it reflected in the MDC itself.

– In March 2020, two new codes were introduced in response to the emergence of COVID-19: "*U07.1 COVID-19, identified virus*" and "*U07.2 COVID-19, unidentified virus*".

– In late 2020, the WHO agreed on a set of additional categories in ICD-10 to document COVID-19-related conditions, immunisation against COVID-19, and adverse reactions to a COVID-19 vaccine. To achieve this, the following codes were introduced:

- U08.9 Personal COVID-19 history, unspecified
- U09.9 Post-COVID-19 health condition, unspecified
- U10.9 Multi-system inflammatory syndrome associated with COVID-19
- U11.9 Need for immunisation against COVID-19, unspecified
- U12.9 COVID-19 vaccines causing adverse effects in therapeutic use, unspecified

- These codes entered into force with the 2021 deaths. According to WHO guidelines, codes U10.9 and U12.9 may be a root cause while codes U08.9, U09.9 and U11.9 may only be coded as multiple causes.