

OECD Health Statistics 2016

Definitions, Sources and Methods

Maternal mortality

Number of maternal deaths, all causes, per 100 000 live births (ICD-10 codes O00-O99).

Note: The maternal mortality series records very small numbers so there may be large annual fluctuations, particularly in countries with low population levels.

Sources and Methods

Australia

Source: Australian Bureau of Statistics. Causes of Death, Australia. ABS Cat. No. 3303.0. Canberra: ABS and Australian Bureau of Statistics. Births, Australia. ABS Cat. No. 3301.0. Canberra: ABS.

Methodology: From 1999, deaths classified to ICD-10 codes O00-O99.

Further information: <http://www.abs.gov.au/>.

Austria

Source: Statistics Austria, Gesundheitsstatistisches Jahrbuch (Todesursachenstatistik).

Further information: http://www.statistik.at/web_en/.

Belgium

Source: Statistics Belgium (former National Statistical Institute).

Methodology: Since 2010, the official numbers for livebirths and deaths are coming from the Population National Register (and not exclusively from the civil registration). Livebirths and deaths of residents taking place in foreign countries are therefore included in the statistics.

Canada

Source: Statistics Canada, Canadian Vital Statistics Birth and Death Databases.

From 1991: Custom tabulations.


1960-1990: Selected Infant Mortality and Related Statistics, Canada, 1921-1990, Cat. No. 82-549.

Further information: <http://www.statcan.gc.ca/start-debut-eng.html>.

Chile

Source: National Committee of Vital Statistics, composed of the National Institute of Statistics (INE), the Ministry of Health (MINSAL, Department of Health Statistics and Information DEIS) and the National Service of Civil Identification Registry ("Servicio de Registro Civil e Identificación", SRCEI).

Methodology: Maternal deaths are monitored through a special review of all deaths of women aged 10 to 54 years old ("auditorías de muertes maternas").

 **Break in time series in 2009:** A more accurate process of deaths registry validations explains the increase in 2009.

Further information: http://www.deis.cl/?page_id=757.

Czech Republic

Source: Institute of Health Information and Statistics of the Czech Republic.

Methodology: Data are based on clinical data (these figures are higher than the figures based on general mortality data).

Further information: <http://www.uzis.cz/en>.

Denmark

Source: National Board of Health, Medical Birth Register.

Methodology: A maternal death is defined as a death which has an obstetric cause, which is related to birth or abortion or that is related to an obstetric diagnosis (chapter O in ICD-10) made maximum 42 days prior to death.

Further information: <http://www.sst.dk/English.aspx>.

Estonia

Source: WHO-Europe Health for All database.

Methodology: Annual reporting from health establishments (National Institute for Health Development) compared with causes of death data (Statistics Estonia, from 2008 National Institute for Health Development).

Finland

Source: Statistics Finland, Cause of death register.

Further information: http://www.stat.fi/index_en.html.

France

Sources:

- CépiDc of the **Institut national de la santé et de la recherche médicale** (Inserm) for the numbers of maternal deaths (ICD-10 codes O00-O99), medical causes of deaths.


- **Institut national de la statistique et des études économiques** (Insee) for the numbers of live births and the demographic situation in France.

Coverage: Since 2001, data include overseas departments.

Germany

Source: Federal Statistical Office, Statistics on the natural movement of the population and Statistics on the causes of death; Statistisches Bundesamt, *Fachserie 1, Reihe 1.1*, table 1.1.1 and Statistisches Bundesamt, *Fachserie 12, Reihe 4*, table 2.7.1.

Coverage: Data include the number of maternal deaths (ICD-10: O00-O99 Pregnancy, childbirth and the puerperium). Excluded are cases of late maternal deaths coded with ICD-10 O96 (Death from any obstetric cause occurring more than 42 days but less than one year after delivery) and O97 (Death from sequelae of obstetric causes).

 **Break in time series in 1998:** From the reporting year 1998, for the first time, data have been collected according to ICD-10. In the years before 1998, data have been collected according to ICD-9 and cases on late maternal deaths could not be separated.

 Until 1989, data refer to the Federal Republic of Germany; from 1990 onwards data refer to Germany after reunification.

Further information: <http://www.destatis.de> or <http://www.gbe-bund.de>.

Greece

Source: Hellenic Statistical Authority.

Further information: <http://www.statistics.gr/el/statistics/-/publication/SPO09/2013>.

Hungary

Source: Central Statistical Office (KSH), Demographic Yearbook.

Further information: <http://www.ksh.hu>.

Iceland

Source: Statistics Iceland, Deaths by sex, age and main causes of death 1981-2009, Register of causes of death. Directorate of Health, Register of Causes of Death as of 2011, Number of deaths by causes of death (ICD-10) 1996-2014. <http://www.landlaeknir.is/english/statistics/causes-of-death/>

Methodology:

- The maternal mortality series records very small numbers so there may be large annual fluctuations, particularly in countries with low population levels.
- Classification according to the 9th revision of the WHO's International Classification of Diseases (ICD-9) (1986-1995) and to its 10th revision (ICD-10) (1996-2004). The table shows main causes of death according to the European shortlist.
- Total figures deviate from previous publications (1981 the number of deaths increases by 3, by 2 in 1987 and declines by 2 in 1989). The European shortlist is available in the detailed information section for ICD-10, ICD-9 and ICD-8.

Further information: <http://www.statice.is/Statistics/Population/Births-and-deaths>.

Ireland

Source: Central Statistics Office.

Methodology:

- Figures prior to 2007 refer to ICD-9 630-676. From 2007, the figures refer to ICD-10 O00-O99.
- Data refer to direct maternal deaths.

Further information: <http://www.cso.ie/en/releasesandpublications/birthsdeathsandmarriages/>.

Israel

Source: Central Bureau of Statistics. Based on death registration.

Methodology:

- From 1998, deaths classified to ICD-10 codes O00-O99.
- For the years 1979-1997, death classified to ICD9 codes 630-676.
- For the years 1970-1978, death classified to ICD8 codes 640-679.
- The number of maternal deaths is relatively small and therefore subjected to large variance between the years.

Further information: http://www.cbs.gov.il/shnaton66/st_eng03.pdf.

Note: The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Italy

Source: ISTAT, Istituto Nazionale di Statistica (National Institute of Statistics), "Cause di morte" (disseminated annually by ISTAT, in Database I.Stat).

Methodology: Data refer to all deaths occurring in Italy (not only residents).

Further information: <http://dati.istat.it/?lang=en&SubSessionId=e2f87ed4-c69c-47df-9aca-49bbd4068673>.

Japan

Source: Ministry of Health, Labour and Welfare, Vital Statistics of Japan (published annually).

Further information: <http://www.mhlw.go.jp/english/database/db-hw/vs01.html> and <http://www.e-stat.go.jp/SG1/estat/eStatTopPortalE.do>.

Korea

Sources:

From 2009: National Statistical Office, Annual Report on the Cause of Death Statistics (based on vital registration).

1995- 2008: Ministry of Health and Welfare and Korea Institute for Health and Social Affairs, Maternal Mortality Survey Report.

Methodology: Total deaths of pregnant women, or deaths within 42 days of termination of pregnancy (caused by the pregnancy itself), divided by estimated total live births based on vital registration.

Further information: <http://kosis.kr>, http://english.mohw.go.kr/front_eng/index.jsp and <http://www.kihasa.re.kr/html/english/main.jsp>.

Luxembourg

Source: Ministry of Health, Health Directorate. Deaths registration system for the numerator; NSO (STATEC) for denominator.

Methodology:

Numerator: brute number of maternal deaths (<= 42 days post-partum) by ICD-10 O00-O99, residents only.

Denominator: number of live births from residents, in Luxembourg or abroad.

Further information: <http://www.ms.public.lu/fr/index.html>.

Mexico

Sources:

National Institute of Statistics (INEGI) / Ministry of Health. Database of mortality 1970-2014 and ENADID National Dynamic Demographic Survey 1992-1997.

National Population Council (CONAPO), Mexico 2013, Demographic estimations 1990-2009 and Population projections 2010-2030.

Maternal Mortality in 2000: estimates developed by WHO, UNICEF and UNFPA. Geneva 2004.

Methodology:

- Data refer to ICD-10 codes A34, D39.2, E23.0 (Sheehan syndrome only), F53, M83.0, O00-O95, O98-O99 and women with B20-B24 dying during pregnancy, labor or puerperium.
- According to the demographic surveys of 1992 and 1997, the under-registration of maternal mortality in Mexico is approximately 40%. This figure is similar to that which appeared in the WHO publication of maternal deaths in 2000. For this reason, the correction factor from the demographic surveys was used to correct the Maternal Mortality Ratio (MMR) from 1990 to 2001.
- Since 2002, the Ministry of Health has started applying a modified version of the Reproductive Age Mortality Studies Method (RAMOS) to examine maternal deaths certificates in all women of reproductive age, selecting and studying those with suspicious causes of maternal deaths. Thus, the problems concerning under-reporting and misclassification have been corrected. Maternal mortality ratio dating back to 2002 was modified because of new estimations of live births from the National Council of Population, as a result of the National Census in 2010.
- Before 2007, the MMR included all maternal deaths registered in the statistical year, despite the fact that some of them had occurred years before or had occurred in other countries but were registered in Mexico. Starting in 2007, the MMR only contains maternal deaths that occurred in the country and in the statistical year in the numerator.
- From 2011 information from birth certificates and administrative death records is used, corrected for underreporting.

Further information: <http://www.inegi.gob.mx/> and <http://www.salud.gob.mx/> (both in Spanish).

Netherlands

Source: Statistics Netherlands, Vademecum gezondheidsstatistiek Nederland, table 7.1.3/7.4, several issues.

Further information:

- Website: <http://www.cbs.nl>; statistical database: <http://statline.cbs.nl/StatWeb/?LA=en> (English) and <http://statline.cbs.nl/StatWeb/?LA=nl> (Dutch). Also see <https://www.cbs.nl/en-gb/our-services/methods/surveys/brief-survey-descriptions>.

- Tables in English:

<http://statline.cbs.nl/Statweb/publication/?DM=SLen&PA=7233ENG&D1=1090&D2=I&D3=0&D4=a&LA=EN&VW=T>.

- Tables in Dutch:

<http://statline.cbs.nl/Statweb/publication/?DM=SLNL&PA=7233&D1=1093&D2=I&D3=0&D4=a&HDR=G2,G1,G3&STB=T&VW=T>.

New Zealand

Source: Ministry of Health (National Collections).

- Data have been supplied according to the Direct Maternal Death definition which NZ uses:

"A direct maternal death is a death resulting from obstetric complications of the pregnant state (pregnancy, labour and the puerperium), from interventions, omissions, incorrect treatment or from a chain of events resulting from any of the above".

- Data supplied also includes Indirect Obstetric Deaths: "Those resulting from previous existing disease that developed during pregnancy and which was not due to direct obstetric causes, but which was aggravated by physiological effects of pregnancy."

- Note that due to the relatively small numbers of maternal deaths involved and NZ's small population, the death rate can fluctuate markedly from year to year, so caution should be exercised when making international comparisons.

- Note that due to the establishment of the Perinatal and Maternal Mortality Review Committee (PMMRC), more deaths have been identified as maternal deaths (PMMRC has access to multiple data sources, including the Ministry of Health, and sends its findings to the National Collections and Reporting team coders). The PMMRC is a statutory committee established under Section 59E of the New Zealand Health and Disability Amendment Act 2010. The Committee met for the first time in August 2005.

- Maternal mortality requires cause of death information to be available. The stages of processing cause of death data in NZ, including the extended length of time that some coronial inquiries can take, cause delays in provision of final mortality data.

Further information: <http://www.health.govt.nz/nz-health-statistics/national-collections-and-surveys/collections/mortality-collection> and <http://www.hqsc.govt.nz/our-programmes/mrc/pmmrc/>.

Norway

Source: Statistics Norway, Statistics on causes of death. Register of causes of death.

Coverage: The statistics on causes of death comprise all deaths, covering Norwegian residents, whether the person in question was a Norwegian citizen or not and irrespective of whether the deaths occurred in Norway or not.

Methodology:

- Statistics on causes of death have been published annually by Statistics Norway from 1925. Statistics Norway's Division for Health Statistics is the data processor for the Cause of Death Registry, which is owned by the Norwegian Institute of Public Health (FHI).

- ICD-10 was implemented in 1996.

Further information: http://www.ssb.no/dodsarsak_en.

Poland

Source: Central Statistical Office of Poland, published annually (Demographic Yearbook of Poland).

Methodology: The source of data on death is "Notification of death", secondarily used by national statistics.

Further information: <http://www.stat.gov.pl/english/>.

Portugal

Source: National Statistical Institute, Health Statistics (several issues).

Further information: <http://www.ine.pt>.

Slovak Republic

Source: Statistical Office of the Slovak Republic.

Further information: <http://portal.statistics.sk/showdoc.do?docid=6674> and <http://portal.statistics.sk/showdoc.do?docid=2434>.

Slovenia


Source: National Institute of Public Health, Slovenia, Perinatal information system of the Republic of Slovenia, Notification of death, Medical Certificate of Death and cause of Death.

Further information: <http://www.nijz.si/>.

Spain

Source: National Statistics Institute. Death statistics according to causes of death.

Methodology: Data apply exclusively to maternal deaths of residents in Spain and live births whose mother was a resident in Spain.

 **Break in time series:** Data for the period 1960-1979 may include deaths of non-residents in Spain (which occurred on the Spanish territory) and live births whose mother was a non-resident in Spain.

Further information: <http://www.ine.es/jaxi/menu.do?type=pcaxis&path=%2Ft15/p417&file=inebase&L=0>.

Sweden

Source: National Board of Health and Welfare.

Methodology:

- Statistics on causes of death were published annually by Statistics Sweden (SCB) between 1911-1993. The National Swedish Board of Health and Welfare has been responsible for the publication since 1994.
- The statistics on causes of death comprise all deaths, covering Swedish residents, whether the person in question was a Swedish citizen or not and irrespective of whether the deaths occurred in Sweden or not.
- ICD-10 was implemented in 1997.
- The numbers of maternal deaths were extracted from the online statistical database of the National Board of Health and Welfare.
- The numbers of live births were extracted from the online statistical database of Statistics Sweden.

Further information: <http://www.socialstyrelsen.se/english> and <http://www.scb.se>.

Switzerland

Source: Federal Statistical Office, Neuchâtel, Statistics of causes of death and Vital Statistics.

Further information: <http://www.bfs.admin.ch/bfs/portal/en/index.html>.

Turkey

Sources:

2007-2014: Ministry of Health, Public Health Institution of Turkey.

2006: ICON Institute and Hacettepe University Institute of Population Studies, National Maternal Mortality Study.

2002-2005: Projection results.

1998: Data based on hospital record survey results.

1990: Data based on projection.

1981: Data obtained by the Sister's method in the Turkey Population Survey.

1973: Data obtained by the Double Recording System in the Turkey Population Survey.

Methodology:

2007-2014: Data on number of maternal deaths are collected from the provinces by active surveillance. The figure referred to data which had been collected from all health care facilities (both public and private) and other government and local agencies (cemetery records, village headman offices and the Gendarmerie death records) that concerned maternal mortality.

2006: Confidence interval of the survey was found to be 95 % with the upper limit of maternal mortality ratio of 31.0 and the lower limit of maternal mortality ratio of 26.0.

2002-2005: Projection results according to National Maternal Mortality Study (2006) and Public Health Institution data.

Further information: <http://www.hips.hacettepe.edu.tr>.


United Kingdom

Source: Health & Social Care Information Centre (HSCIC) using data from:

From 1974:

- England and Wales: Office for National Statistics, Mortality Statistics: Childhood, infant and perinatal, England and Wales' annual reference volumes series DH2.

- Scotland: ISD Maternity. Annual Reports.


- Northern Ireland: Northern Ireland Statistics and Research Agency. Annual Reports.
1960-1973: Registrar General's annual Statistical Review of England and Wales (1960-1973).
Coverage:  1960-1973: Data cover only England and Wales.
Further information: <http://www.hscicic.gov.uk>.


United States

Sources:

1998 onwards: U.S. Department of Health and Human Services/Centers for Disease Control and Prevention/National Center for Health Statistics. Deaths: Final (several issues).
1980 to 1997: U.S. Department of Health and Human Services/Centers for Disease Control and Prevention/National Center for Health Statistics. Vital Statistics of the United States, Volume II, Mortality, and Part A (published annually).
1960-1979: U.S. Department of Health and Human Services/Centers for Disease Control and Prevention/National Center for Health Statistics. Vital Statistics of the United States, Vol. II Mortality. Unpublished data.

Coverage: National Vital Statistics Registration System.

 **Breaks in time series in 2003 and 1999:** There are breaks in time series due to changes in calculation methods.

-  The large increase in the maternal mortality rate in 2003 is most likely due to the increasing use by the U.S. of the new question format for deaths associated with pregnancy, childbirth, and the puerperium.
- The 2003 revision of the U.S. Standard Certificate of Death introduced a standard question format with categories designed to utilise additional codes available in ICD-10 for deaths associated with pregnancy, childbirth, and the puerperium. As States revise their certificates, most States are expected to introduce the standard item or replace pre-existing questions with the standard item, so that there will be wider adoption of a pregnancy status item across the country and greater standardisation of the particular item used. A separate pregnancy status item on the death certificate results in the identification of more maternal deaths.
- Changes have been made to the classification and coding of maternal deaths between ICD-9 and ICD-10, effective with mortality data for 1999. ICD-10 changes pertain to indirect maternal causes and timing of death relative to pregnancy. If only indirect maternal causes of death (i.e., a previously existing disease or a disease that developed during pregnancy that was not due to direct obstetric causes but was aggravated by physiologic effects of pregnancy) are reported in Part I, and pregnancy is reported in either Part I or Part II, ICD-10 classifies this as a maternal death. ICD-9 only classified the death as maternal if pregnancy was reported in Part I.
- Some U.S. States death certificates include a separate question regarding pregnancy status. A positive response to the question is interpreted as "pregnant", reported in Part II of the cause-of-death section of the death certificate. If the medical certifier did not specify when death occurred, relative to the pregnancy, it is assumed that the pregnancy terminated 42 days or less, prior to death. Under ICD-10, a new category has been added for deaths from maternal causes that occurred more than 42 days after delivery or termination of pregnancy (O96-O97). In 1999, there were 15 such deaths.

Further information:

- NCHS Vital Statistics website, <http://www.cdc.gov/nchs/nvss.htm>.
- Maternal mortality data from 2008 onwards are not currently available. The 2003 revision of the U.S. Standard Certificate of Death introduced a checkbox question format with categories to take advantage of additional codes available in ICD-10 for deaths with a connection to pregnancy, childbirth, and the puerperium. As the states of the United States revise their certificates, most states are adopting the checkbox format, resulting in wider adoption of a pregnancy status question nationwide, and greater standardisation of the particular question used. Recent data would be available as soon the majority of states adopt the new protocol and a national estimate would be reliable and statistically conceivable to be calculated.