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METADATA – CHILDREN HEALTH_ MORBIDITY AND MORTALITY

Description	• **Diabetes mellitus**: The diagnosed diabetes prevalence is estimated based on the number of insured people with the delivery of antidiabetics (ATC code A10) or with another diabetes referring nomenclature (diabetes convention, diabetes pass, diabetes care trajectory). Women who gave birth during the year under review are excluded in order to exclude gestational diabetes. (1,2) • **Mortality:** Mortality statistics measure the level and the patterns of deaths in the Belgian population. Age-adjusted rates are a way to make fairer comparisons between populations with different age distributions. Smoothed rates are used to reflect large fluctuations in yearly rates at regional levels, due to the small number of infant deaths. Meaningful comparisons of rates and trends by region are therefore best made using smoothed rates. In this overview, we use a moving average over a 5-year period.
Rationale	• **Diabetes mellitus** is a group of metabolic diseases characterized by hyperglycemia resulting from defects in insulin secretion, insulin action, or both. The chronic hyperglycemia of diabetes is associated with long-term damage, dysfunction, and failure of various organs, especially the eyes, kidneys, nerves, heart, and blood vessels. Diabetes is an important cause of morbidity. It is an important risk factor for cardio- and cerebrovascular disease and peripheral arterial disease. (1) • **Mortality:** The world has made remarkable progress in child survival in the past three decades (3). The probability of dying among children and youth aged 5–24 years was 16 deaths per 1,000 children aged 5 years in 2022 (3). Most of these deaths were concentrated in sub-Saharan Africa and Southern Asia (4). Ending preventable child deaths in every community will require targeted investments in available, accessible quality health care, including, for example, skilled health personnel at birth and preventive services such as vaccination (4).
Primary Data source	• **Diabetes mellitus**: Intermutualistic Agency (IMA) 2012-2022 • **Mortality:** Statbel causes of death register (https://statbel.fgov.be/en/themes/population/mortality-life-expectancy-and-causes-death/causes-death)
Indicator source	• **Diabetes mellitus**: BEBOD projection (Sciensano) • **Mortality:** Own calculations based on the Statbel cause of death and population databases
Periodicity	• BeBOD: every year • Statbel: every year
Calculation, technical definitions and limitations	• **Diabetes mellitus:** Person with a prescription for ATC codes A10A or A10B AND/OR with diabetes referring nomenclature (diabetes convention, diabetes pass, diabetes care trajectory) during the reference year for health insurance. Women who gave birth during the year under review are excluded to exclude gestational diabetes (1).

The IMA database contains the Pharmanet and GZSS datasets, as well as socio-demographic data for all Belgian citizens with (compulsory) health insurance. Health insurance data covers nearly 100% of the population. For research purposes, the IMA created the permanent sample (EPS), i.e., a sample of 1/40 of the IMA data, with an oversampling of 1/20 of the population older than 65 years. A legal framework regulates the modalities for using the EPS to study and monitor health care consumption and expenditure in Belgium. Data are available from 2002 onwards. In contrast to the Pharmanet dataset, the EPS data is a longitudinal dataset with a patient identifier that does not get deleted.

- **Mortality:** The population covers legally registered residents that include people registered in the National population Register (RN), in the register of foreigners, and in the register of European officials. The coupling between death certificates and the registers allows Statbel to exclude non-resident deaths in Belgium and include residents' deaths occurring abroad since 2010. Since no death certificate is available for the latest, the cause of death is unknown and they are registered with an ICD10 code of death “R99”.

  Death certificates are filled by doctors and municipality officers. Two regions (Brussels certificates are coded by Flanders) code the information provided in the medical certificate of cause of death into ICD codes. Then, data are pooled by Statbel and coupled with deaths registered in the RN since 2010.

  Causes of death data refer to the underlying cause, which – according to the World Health Organization (WHO) – is “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 (5).” To ensure comparability, the framework used is the WHO International Classification of Diseases 10th (ICD-10) (5). Flanders (including Brussels) and Wallonia code the underlying cause of death with the ICD-10 codes and rules, but their coding practices are slightly different and affect national comparability.

  The age-adjusted mortality rate is also expressed in deaths per 100,000 inhabitants. Age-specific mortality rates are a weighted average of age-specific mortality rates; they are weighted by the age distribution of a standard population to harmonize the comparison of mortality rates over time. We use the European Standard Population 2010 (ESP 2010) (6) as it allows comparability with EU statistics.

Limitations can be pointed out:

- **Diabetes mellitus**: despite showing high sensitivity and specificity, health insurance data remain administrative data that have to be used with caution for epidemiological purposes. Health insurance data may also yield false positives if patients who have no diabetes take antidiabetic treatment. For instance, metformin is sometimes used for indications other than diabetes. The proportion of false positives is however likely to be relatively small. Diabetic patients treated with diet only and without any nomenclature codes are excluded from the database. People who are not insured (e.g. homeless and undocumented people, foreigners with their official residence abroad) are not included. Health insurance data focus exclusively on reimbursed prescription drugs and medical services; they thus exclude non-reimbursed drugs. The database will not capture patients who do not consume reimbursed medication or care, leading to a potentially high number of false negatives when estimating disease prevalence. (1)

International comparability	• **Diabetes mellitus:** - Availability: Diabetes mellitus is part of the Belgian Health Examination Survey (EHIS) - Comparability: The general coverage of EHIS is the population aged 15 or over, unlike the IMA, in which the population included is aged 0 or over. EHIS concerns self-reported data, while IMA describes the prevalence of people with a medical prescription for antidiabetics. • **Mortality** - Availability: Crude and age-adjusted mortality rates for European countries are widely available in the Eurostat database (7) and OECD database (8). Both rates are available for most countries in the world in the Human Mortality Database (HMD). Under 75 mortality rates and PYLL have to be recalculated from the published age-specific rates. - Comparability: Differences in the coverage of residents dying abroad or non-residents dying in the reported country can slightly affect the comparability among countries. Variations in coding practices of causes of death between countries may affect the comparability of cause-specific mortality

References

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