



# ESC

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of Cardiology

## Definitions and sources

This document provides definitions and references for the data, presented at a country page at the ESC Atlas of Cardiology website. The variables are listed in order of their appearance (top to bottom) on the page.

Of note, contingent on the data availability some variables for some countries may be absent from the page, despite being mentioned in this document.

### **Mortality from different causes**

Definition. Number of deaths per cause as reported by country to WHO, represented as a percentage of deaths from all the causes for all the ages.

Of note, "Deaths due to nervous system disease" does not include deaths from stroke. Stroke is included in "Deaths due to CVD".

Data source. Based on raw detailed mortality data from the WHO Mortality Database <https://www.who.int/data/data-collection-tools/who-mortality-database>

### **Financial burden of CVD**

**Morbidity losses.** The costs associated with lost productivity due to morbidity were the costs associated with absence of work due to cardiovascular disease (CVD). Morbidity losses could occur due to: individuals taking absence from leave for a defined period of time; or individuals being declared incapacitated or disabled due to their condition, and therefore leaving the labour market.

Temporary absence from work due to CVD was evaluated by obtaining 24 country-specific overall annual days of sickness leave due to all conditions (irrespective of duration, 25 whether these were reimbursed, or covered by statutory sick pay), and then applying the proportion of 26 sickness leave that was attributable to CVD. For permanent absence from work due to CVD-related 27 incapacity/disability, country-specific information on the numbers of working-age individuals receiving incapacity or disability benefits and not being able to work due to all conditions was obtained, to which we 1 applied the proportion that was attributable to CVD. The total number of working days lost due to CVD were then multiplied by average daily earnings. However, as absent workers are likely to be replaced after some time, we used the 'friction period' approach, where costs are only counted during the time it takes to replace a worker and estimated that after 90 days an employee absent



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from work would be replaced. Therefore, for all permanent cases of disability/incapacity, or when the average spell of temporary sickness leave was more than 90 days, only the first 90 days of work absence were valued.

**Mortality losses.** Mortality costs were estimated as the lost earnings from death due to cardiovascular disease whilst in productive age.

**Mortality costs.** Mortality costs were estimated by using the age- and sex-specific number of CVD deaths to predict the working years lost at the time of death, adjusted for the age- and gender-specific probability of being employed. Mortality costs were calculated using the product of the adjusted working years lost and the average annual earnings of female and male workers. As these costs would have been incurred in future years, all future lost earnings were discounted to present values using a 3.5% annual rate.

**Healthcare costs.** The cardiovascular disease healthcare included primary care, accident and emergency (A&E) care, hospital care, outpatient care, and medications.

**Informal care costs.** Informal care costs were defined as the opportunity cost of unpaid care, i.e. the working or leisure time, valued in monetary terms that careers forgo to provide unpaid care for relatives/friends with cardiovascular disease.

**Social care costs** included the costs relating to nursing and residential care home institutionalization, and care at home, both of which are included in OECD's health accounting framework.

## Smoking

Definition. Daily smoking prevalence (% of total population aged 15+, age-standardized)

Data source. World Health Organization, Global Health Observatory Data Repository. [https://gateway.euro.who.int/en/indicators/hfa\\_421-3010-of-regular-daily-smokers-in-the-population-age-15plus/](https://gateway.euro.who.int/en/indicators/hfa_421-3010-of-regular-daily-smokers-in-the-population-age-15plus/)

## Obesity

Definition. Percentage of defined population with a body mass index (BMI) of 30 kg/m<sup>2</sup> or higher (age-standardized estimate) (%) 18+ years

Data source. World Health Organization, Global Health Observatory Data Repository. [https://www.who.int/data/gho/data/indicators/indicator-details/GHO/prevalence-of-obesity-among-adults-bmi-30-\(age-standardized-estimate\)-\(-\)](https://www.who.int/data/gho/data/indicators/indicator-details/GHO/prevalence-of-obesity-among-adults-bmi-30-(age-standardized-estimate)-(-))

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## **Binge drinking**

Definition. Heavy episodic drinking is defined as the proportion of adults (15+ years) who have had at least 60 grams or more of pure alcohol on at least one occasion in the past 30 days. A consumption of 60 grams of pure alcohol corresponds approximately to 6 standard alcoholic drinks.

Data source. World Health Organization, Global Health Observatory Data Repository. [https://www.who.int/data/gho/data/indicators/indicator-details/GHO/alcohol-heavy-episodic-drinking-\(15-\)-past-30-days-\(-\)-age-standardized-with-95-ci](https://www.who.int/data/gho/data/indicators/indicator-details/GHO/alcohol-heavy-episodic-drinking-(15-)-past-30-days-(-)-age-standardized-with-95-ci)

## **High blood pressure**

Definition. Percent of defined population with raised blood pressure (systolic blood pressure more than 140 OR diastolic blood pressure more than 90)

Data source. World Health Organization, Global Health Observatory Data Repository. [https://www.who.int/data/gho/data/indicators/indicator-details/GHO/raised-blood-pressure-\(sbp=140-or-dbp=90\)-\(age-standardized-estimate\)](https://www.who.int/data/gho/data/indicators/indicator-details/GHO/raised-blood-pressure-(sbp=140-or-dbp=90)-(age-standardized-estimate))

## **CVD mortality rate**

Premature deaths due to CVDs (crude rate per 100000); Deaths due to CVDs (crude rate per 100000); Deaths due to CVDs (age-standardized rate per 100000).

Data source. Based on raw detailed mortality data from the WHO Mortality Database <https://www.who.int/data/data-collection-tools/who-mortality-database>

## **GDP, PPP (international \$)**

Definition. PPP GDP is gross domestic product converted to international dollars using purchasing power parity rates. An international dollar has the same purchasing power over GDP as the U.S. dollar has in the United States. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data are in current international dollars.

Data source. The World Bank: World Development Indicators: <https://datatopics.worldbank.org/world-development-indicators>, Source: International Comparison Program, World Bank | World Development Indicators database, World Bank | Eurostat-OECD PPP Programme. License : CC BY-4.0

### **To reduce the burden of cardiovascular disease**

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## **Life expectancy at birth, total (years)**

Definition. The average number of years that a newborn could expect to live, if he or she were to pass through life exposed to the sex and age-specific death rates prevailing at the time of his or her birth, for a specific year, in a given country, territory or geographic area.

Data source. The World Bank: World Development Indicators: <https://datatopics.worldbank.org/world-development-indicators>, Source: (1) United Nations Population Division. World Population Prospects: 2022 Revision, or derived from male and female life expectancy at birth from sources such as: (2) Census reports and other statistical publications from national statistical offices, (3) Eurostat: Demographic Statistics, (4) United Nations Statistical Division. Population and Vital Statistics Reprot ( various years ), (5) U.S. Census Bureau: International Database, and (6) Secretariat of the Pacific Community: Statistics and Demography Programme. License : CC BY-4.0

## **Population aged 65 and above (% of total population)**

Definition. Population ages 65 and above (% of total population)

Data source. The World Bank: World Development Indicators: <https://datatopics.worldbank.org/world-development-indicators>, United Nations Population Division. World Population Prospects. License: CC BY-4.0

## **Total population**

Definition. Total population is based on the de facto definition of population, which counts all residents regardless of legal status or citizenship. The values shown are midyear estimates.

Data source. The World Bank: World Development Indicators: <https://datatopics.worldbank.org/world-development-indicators>, Source: (1) United Nations Population Division. World Population Prospects: 2022 Revision. (2) Census reports and other statistical publications from national statistical offices, (3) Eurostat: Demographic Statistics, (4) United Nations Statistical Division. Population and Vital Statistics Reprot ( various years ), (5) U.S. Census Bureau: International Database, and (6) Secretariat of the Pacific Community: Statistics and Demography Programme. License : CC BY-4.0

## **Cardiologists (total) (per million people)**

Definition. Total number of cardiologists (officially recognized) practicing in the country.

Data source. ESC Atlas in General Cardiology

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## **Heart transplantations (per million people)**

Definition. Total annual number of heart transplantations undertaken.

Data source. ESC Atlas in General Cardiology

## **Percutaneous aortic valve implantation (TAVI) (per million people)**

Definition. Total annual number of TAVI procedures performed in adult patients with aortic stenosis/regurgitation. Transapical and transfemoral interventions are included

Data source. ESC Atlas in General Cardiology; ESC Atlas in Interventional Cardiology

## **Percutaneous coronary interventions (PCI) (per million people)**

Definition. Total annual number of coronary interventions including balloon angioplasties, with or without stent. or scaffold implantation, including procedures that use coronary ablation techniques, etc.

Data source. ESC Atlas in General Cardiology; ESC Atlas in Interventional Cardiology

Notation and labeling in the graphs

- “Number of deaths” at the bottom of a pie chart refers to number of deaths from all the causes for all ages stratified by sex.
- “EU”, “ESC” labels represent respective median values.
- “High income” and “Middle income” refer to respective median values among ESC member countries within particular World Bank-defined income level.

## **Citation**

When sharing or redistributing text, graphs, data, screenshots of the visualizations from the ESC Atlas of Cardiology the following attribution should be used. “Downloaded from the ESC Atlas of Cardiology website [eatlas.escardio.org](http://eatlas.escardio.org). Accessed on: [date of access]. [data source information].” Data source information for a given variable can be found on the top of the page for that variable, below the definition.

Example of attribution of materials from age-standardized CVD mortality among females: “Downloaded from the ESC Atlas of Cardiology website [eatlas.escardio.org](http://eatlas.escardio.org). Accessed on:



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23.03.2023. Based on raw detailed mortality data from the WHO Mortality Database  
[https://www.who.int/data/data-collection-tools/who-mortality-database.](https://www.who.int/data/data-collection-tools/who-mortality-database)”

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