World Heart Report

Frequently Asked Questions

1. How were the data sources selected for this report?

Data sources were selected according to some key criteria. Primarily, sources needed to:

   a. Be well-utilized and reputable;
   b. Provide data according to sex, age and country, thereby allowing the report to explore how CVD and risk factors vary according to these factors, and ultimately allow more specific recommendations to be made.

Among sources that met these two criteria, those with the most complete and rich data (e.g. fewest gaps) were selected. In all cases, the most recent data available from the selected source was used.

2. Different geographical regions are discussed in this report. How were they selected?

Several different ways of grouping countries into regions exist. This report uses the regions used by the Global Burden of Disease study. This is a common regional grouping used when studying how health issues vary globally. For the purposes of this report it had several advantages, most notably that it includes two additional regions not used by other classifications commonly used in global health research – the Central Europe, Eastern Europe and Central Asia region, and the High-Income region. Using this classification therefore allows for more detailed comparison between regions and more specific recommendations to be made.

3. How were the risk factors presented in this report selected?

This report covers the six risk factors which are included in the [WHO NCD Global Monitoring Framework](#), namely harmful use of alcohol, physical inactivity, salt/sodium intake, tobacco use, raised blood pressure, and diabetes and obesity. The targets within this Framework are designed to help countries achieve the goal of reducing premature mortality from NCDs by 25% by 2025. Assessing the impact of these risk factors in different countries can therefore help policymakers and other stakeholders identify priorities for reducing CVD mortality. Two additional risk factors which are known major drivers of CVD, non-HDL cholesterol levels and air pollution, were also included due to their important impact in determining CVD prevalence and mortality.

4. How should the comparison of risk factors across countries and regions be interpreted?

This comparison gives an indicator of how the level of each risk factor included in the report in each country compares to other countries globally. Figure 2 in the Appendix colour codes country according to the quintile in which they fall for each risk factor. Those in the darkest red fall in the 20% of countries with the highest level of that given risk factor, and those in the lightest red fall into the 20% of countries with the lowest frequency.

This does not reflect the rates of CVD mortality, which is influenced by many factors. However, it can help policymakers identify which risk factors are particularly high in their countries, compared

to other countries, and suggest where further investigation and action may be needed to reduce risk.

5. How should the WHF Policy Index be interpreted?

The WHF Policy Index analyses to what extent countries have implemented eight key policies that are critical for CVD health. Policies were selected by the WHF Advocacy Committee. As with the risk factor comparison, it does not correlate to CVD mortality which is influenced by many different factors. It does however help policymakers identify critical policy gaps, which may be important focus areas to reduce CVD risk. It also allows comparison across countries, which may help identify best practices or examples from other settings that can help guide policy implementation.

Methodological supplement

General analytical approach

A comprehensive analysis of all CVD epidemiology and policies is beyond the scope of this report. It instead focuses on the overall burden and general trend in CVD mortality, reports some regional and sex differences where possible and explores relationships between some CVD epidemiological estimates with financial and policy indicators. Because of the nature of the report, it does not include uncertainty for the estimates. Data sources that are considered the most complete are prioritized, and that includes, as much as possible, sex specific data by country and region. For clarity in presentation, only one regional classification – that used by the Global Burden of Diease - is utilized, as unlike WHO regions, it includes Central Europe, Eastern Europe and Central Asia and the High-Income region as distinct regions, which allows more detailed comparison of mortality and risk factor rates across geographies.

Data sources

The main sources of data, as detailed below are the Global Burden of Disease Study, the NCD Risk Factor Collaboration, the NCD Countdown 2030 initiative, WHO and the World Bank.
For overall burden and trends in CVD mortality, estimates from the Global Burden of Disease from 1990 to 2019 were used (2019 is the last year for which estimates are available at the level of disaggregation needed for the report). For CVD premature mortality, data used is from 2015 from the NCD Countdown 2030 Collaborators on probability of dying between 30 years and 70 years of age from ischaemic heart disease, ischaemic stroke, haemorrhagic stroke, and other cardiovascular diseases. Although WHO has published the 2019 probability of premature mortality from NCDs it does not provide disaggregation by cause of death. The Current Health Expenditure (CHE) and Gross Domestic Product (GDP) data was obtained from the WHO Global Health Expenditure database.
For the CVD risk factors, this report used the latest data from the NCD Risk Factors Collaboration for diabetes (2014); raised blood pressure (2015); obesity/BMI (2016) and non-HDL cholesterol (2016). It also took from the GBD for tobacco (2016); sodium intake (2016); air pollution (2016); physical inactivity (2016); and alcohol consumption (2016).

The comparative frequency of risk factors by country and region was created using the same sources for CVD risks factors (see appendix 1). The WHF Policy Index was created using data from the World Health Organisation Global Health Observatory (WHO GHO).

While other sources of global estimates are available for some of the indicators used,this report used the most-utilized data sources and among those prioritised based on level of disaggregation (by sex, age, country). In addition, the report takes into account the following criteria: 1) completeness of data; 2) richness of the raw data informing the model; and 3) comparability of the estimates.

Definitions

Physical activity refers to any bodily movement produced by skeletal muscles including during leisure time, for transport to get to and from places, or as part of a person's work that requires energy expenditure. Some of the popular examples of physical activity include walking, cycling, wheeling, sports, active recreation and play. To improve their health, WHO recommends that individuals should engage in either 150 or more minutes of moderate-intensity physical activity per week or 75 or more minutes of vigorous-intensity physical activity per week or an equivalent combination of both. One of the metrics used for measuring physical activity is the Metabolic Equivalent of Task (MET). It is a metric that measures how much energy an activity consumes compared to being at rest. One MET is the amount of energy used while an individual is sitting quietly. The amount of MET minutes per week expresses how much energy one has expended while performing various activities throughout the whole week. A moderate-intensity activity results in at least 3 MET, and vigorous intensity provides at least 6 MET. Therefore, an individual needs at least 450 MET minutes per week to meet the WHO recommended physical activity levels. To achieve extra health benefits, an individual needs to achieve at least 900 MET minutes per week.

Sodium consumption: High consumption of sodium (>2 grams/day), mainly from dietary salt, and insufficient intake of potassium (less than 3.5 grams/day) contribute to high blood pressure and increase the risk of CVDs such as heart disease and stroke.

Alcohol Consumption: The level of alcohol consumption in a country can be measured using grams of alcohol consumed per day by current drinkers.

Tobacco smoking: According to WHO, "tobacco products include cigarettes, pipes, cigars, cigarillos, waterpipes (hookah, shisha), bidis, kretek, heated tobacco products, and all forms of smokeless (oral and nasal) tobacco but exclude e-cigarettes (which do not contain tobacco), "e-cigars", "e-hookahs", JUUL and "e-pipes""

Body mass index and obesity: A person's BMI is defined as their weight measured in kilograms divided by the square of their height measured in metres, and a person is defined as having obesity if they have a BMI of 30 kg/m^2 or higher.

Raised blood pressure: A person is defined as having raised blood pressure is they have a systolic blood pressure of 140 mm Hg or higher or diastolic blood pressure of 90 mm Hg or higher.

Diabetes: A person is identified as having diabetes is they have fasting plasma glucose equal to or higher than 7 mmol/L or previous diagnosis of diabetes or use of drugs to treat diabetes (insulin or oral hypoglycaemic medication)

Air pollution: A common proxy indicator for air pollution is particulate matter whose major components are sulfates, nitrates, ammonia, sodium chloride, black carbon, mineral dust and water. Ambient particulate matter pollution is the population-weighted annual average mass concentration of particles with an aerodynamic diameter less than 2·5 micrometres in a cubic metre of air

WHF Policy Index

The WHF Advocacy committee selected eight policy indicators that are considered the most relevant for countries to implement to ensure a healthy heart profile in the population. Complete information was available for 166 countries.

Code	Description	Source and year
P1	National tobacco control programmes	WHO Global Health Observatory - 2018
P2	Policy/strategy/action plan for CVD	WHO Global Health Observatory - 2021
P3	Operational Unit, Branch, or Dept. in Ministry of Health with responsibility for NCDs	WHO Global Health Observatory – 2021
P4	guidelines/protocols/standards for the management of cardiovascular diseases	WHO Global Health Observatory - 2021
P5	Policy/strategy/action plan to reduce physical inactivity	WHO Global Health Observatory - 2021
P6	Policy/strategy/action plan to reduce unhealthy diet related to NCDs	WHO Global Health Observatory - 2021
P7	Policy/strategy/action plan to reduce the harmful use of alcohol	WHO Global Health Observatory - 2021
P8	Availability of ACE inhibitors, Aspirin (100 mg) and Beta blockers in the public health sector	WHO Global Health Observatory – 2021

Table 2 - Regional classification (based on the Global Burden of Diseases regions)

Super Region	Region	Country
Central Europe, Eastern Europe, and Central Asia	Central Asia	Armenia Azerbaijan Georgia Kazakhstan Kyrgyzstan Mongolia

		Tajikistan
		Turkmenistan
		Uzbekistan
	Central Europe	Albania
		Bosnia and Herzegovina
		Bulgaria
		Croatia
		Czechia
		Hungary
		Montenegro
		North Macedonia
		Poland
		Romania
		Serbia
		Slovakia
		Slovenia
		Belarus
		Estonia
		Latvia
		Lithuania
		Republic of Moldova
		Russian Federation
		Ukraine
High-Income	Australasia	Australia
		New Zealand
	High-Income Asia Pacific	Brunei Darussalam
		Japan
		Republic of Korea
		Singapore
	High-Income North America	Canada
		United States of America
	Southern Latin America	Argentina
		Chile
		Uruguay
	Western Europe	Andorra
		Austria
		Belgium
		Cyprus
		Denmark
		Finland
		France
		Germany
		Greece

		Greenland
		Iceland
		Ireland
		Israel
		Italy
		Luxembourg
		Malta
		Monaco
		Netherlands
		Norway
		Portugal
		San Marino
		Spain
		Sweden
		Switzerland
		United Kingdom
Latin America and Caribbean	Andean Latin America	Bolivia (Plurinational State of)
		Ecuador
		Peru
	Caribbean	Antigua and Barbuda
		Bahamas
		Barbados
		Belize
		Bermuda
		Cuba
		Dominica
		Dominican Republic
		Grenada
		Guyana
		Haiti
		Jamaica
		Puerto Rico
		Saint Kitts and Nevis
		Saint Lucia
		Saint Vincent and the Grenadines
		Suriname
		Trinidad and Tobago
		United States Virgin Islands
	Central Latin America	Colombia
		Costa Rica
		El Salvador
		Guatemala
		Honduras
		Mexico
		Nicaragua
		Panama

		Venezuela (Bolivarian Republic of)
	Tropical Latin America	Brazil
		Paraguay
North Africa and Middle East	North Africa and Middle East	Afghanistan
		Algeria
		Bahrain
		Egypt
		Iran (Islamic Republic of)
		Iraq
		Jordan
		Kuwait
		Lebanon
		Libya
		Morocco
		Oman
		Palestine
		Qatar
		Saudi Arabia
		Sudan
		Syrian Arab Republic
		Tunisia
		Turkey
		United Arab Emirates
		Yemen
South Asia	South Asia	Bangladesh
		Bhutan
		India
		Nepal
		Pakistan
Southeast Asia, East Asia, and Oceania	East Asia	China
		Democratic People's Republic of Korea
		Taiwan (Province of China)
	Oceania	American Samoa
		Cook Islands
		Fiji
		French Polynesia
		Guam
		Kiribati
		Marshall Islands
		Micronesia (Federated States of)
		Nauru
		Niue

		Northern Mariana Islands Palau Papua New Guinea Samoa Solomon Islands Tokelau Tonga Tuvalu Vanuatu
	Southeast Asia	Cambodia Indonesia Lao People's Democratic Republic Malaysia Maldives Mauritius Myanmar Philippines Seychelles Sri Lanka Thailand Timor-Leste Viet Nam
Sub-Saharan Africa	Central Sub-Saharan Africa	Angola Central African Republic Congo Democratic Republic of the Congo Equatorial Guinea Gabon
	Eastern Sub-Saharan Africa	Burundi Comoros Djibouti Eritrea Ethiopia Kenya Madagascar Malawi Mozambique Rwanda Somalia South Sudan Uganda United Republic of Tanzania Zambia

	Southern Sub-Saharan Africa	Botswana Eswatini Lesotho Namibia South Africa Zimbabwe
	Western Sub-Saharan Africa	Benin Burkina Faso Cote d'Ivoire Cabo Verde Cameroon Chad Gambia Ghana Guinea Guinea-Bissau Liberia Mali Mauritania Niger Nigeria Sao Tome and Principe Senegal Sierra Leone Togo