International Agency for Research on Cancer
World Health Organization
UICC global cancer control
CANCER RESEARCH UK

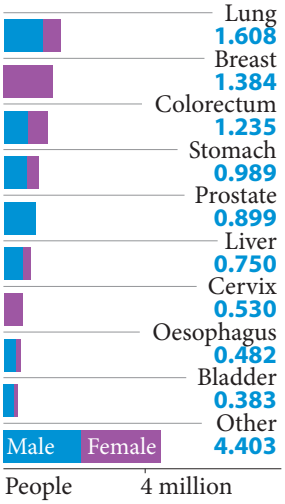
World cancer factsheet

August 2012

World cancer burden (2008)

Incidence

Cancer is a leading cause of disease worldwide. An estimated 12.7 million new cancer cases occurred in 2008. Lung, female breast, colorectal and stomach cancers accounted for 40% of all cases diagnosed worldwide. In men, lung cancer was the most common cancer (16.5% of all new cases in men). Breast cancer was by far the most common cancer diagnosed in women (23% of all new cases in women)[1].

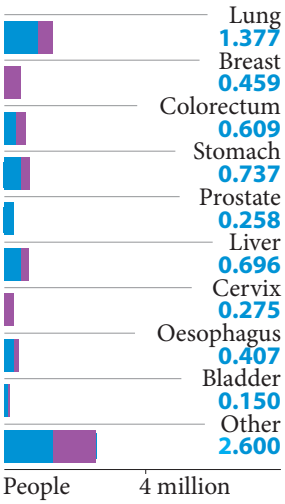


Incidence is the number of new cases arising in a given period in a specified population. Often given as an absolute number of cases per year or as a standardised rate per 100,000 (see final page glossary).

Mortality

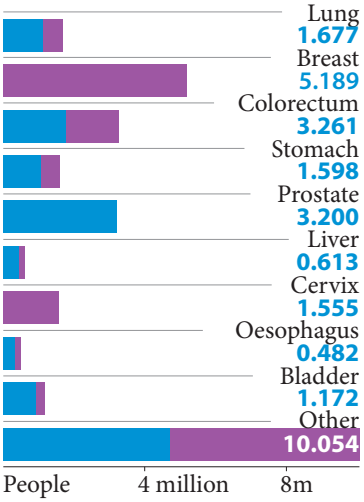
Cancer is a leading cause of death worldwide, with 7.6 million deaths (around 13% of all deaths) in 2008. Half of all cancer deaths each year are due to lung, stomach, liver, colorectal and female breast cancers[1].

Mortality is the number of deaths occurring in a given period in a specified population. Often given as an absolute number of deaths per year or as a standardised rate per 100,000.



Prevalence

Almost 29 million people diagnosed with cancer within the five years previously were alive at the end of 2008. Most were women after their breast cancer diagnosis (5.2 million), men and women after their colorectal cancer diagnosis (3.3 million), and men after their prostate cancer diagnosis (3.2 million)[1,2].

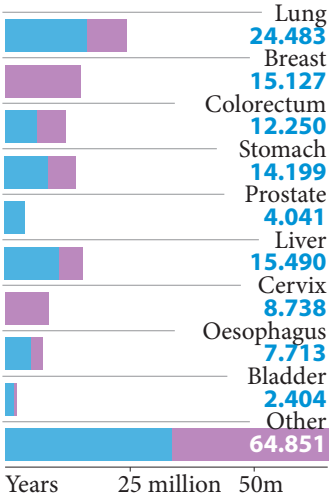


The *Prevalence* of a particular cancer is the number of persons in a defined population who have been diagnosed during a fixed time in the past with that type of cancer, and who are still alive at the end of a given year. Usually given as a number and a proportion per 100,000 persons.

Healthy Years of Life Lost

An estimated 169.3 million years of healthy life were lost globally because of cancer in 2008. Colorectal, lung, female breast and prostate cancers were the main contributors in most regions of the world, explaining 18%-50% of the total healthy years lost[3].

Healthy life years lost (or Disability Adjusted Life Years, DALYs) are the sum of life years lost to premature mortality (deaths before the age of 80 years for males and 82.5 for females) and the years lived with disability, given as a number or as a standardised rate per 100,000.



World cancer trends

Approximately 47% of cancer cases and 55% of cancer deaths occur in less developed regions of the world i.e. countries at a low or medium level of the Human Development Index (HDI – see final page glossary for definition)[4].

"Westernisation" Trends

As low HDI countries become more developed through rapid societal and economic changes, they are likely to become "westernised". As such, the pattern of cancer incidence is likely to follow that seen in medium and high HDI settings, with likely declines in cervix uteri and stomach cancer incidence rates, alongside increasing incidence rates of female breast, prostate and colorectal cancers. This "westernisation" effect is a result of reductions in infection-related cancers, outweighed by an increasing burden of cancers more associated with reproductive, dietary and hormonal risk factors.

Projections to 2030

If recent trends in major cancers are seen globally in the future, the burden of cancer will increase to 22 million new cases each year by 2030. This represents an increase of 75% compared with 2008 (81% in low and middle HDI countries and 69% in high and very high HDI countries)[5].

Credits

This factsheet would not have been possible without the data collected and available from population-based cancer registries. Knowledge about the cancer burden enables the development, implementation, monitoring and evaluation of cancer strategies that prevent, cure and care. This knowledge is lacking in many low- and middle-income countries, making cancer control efforts less effective.

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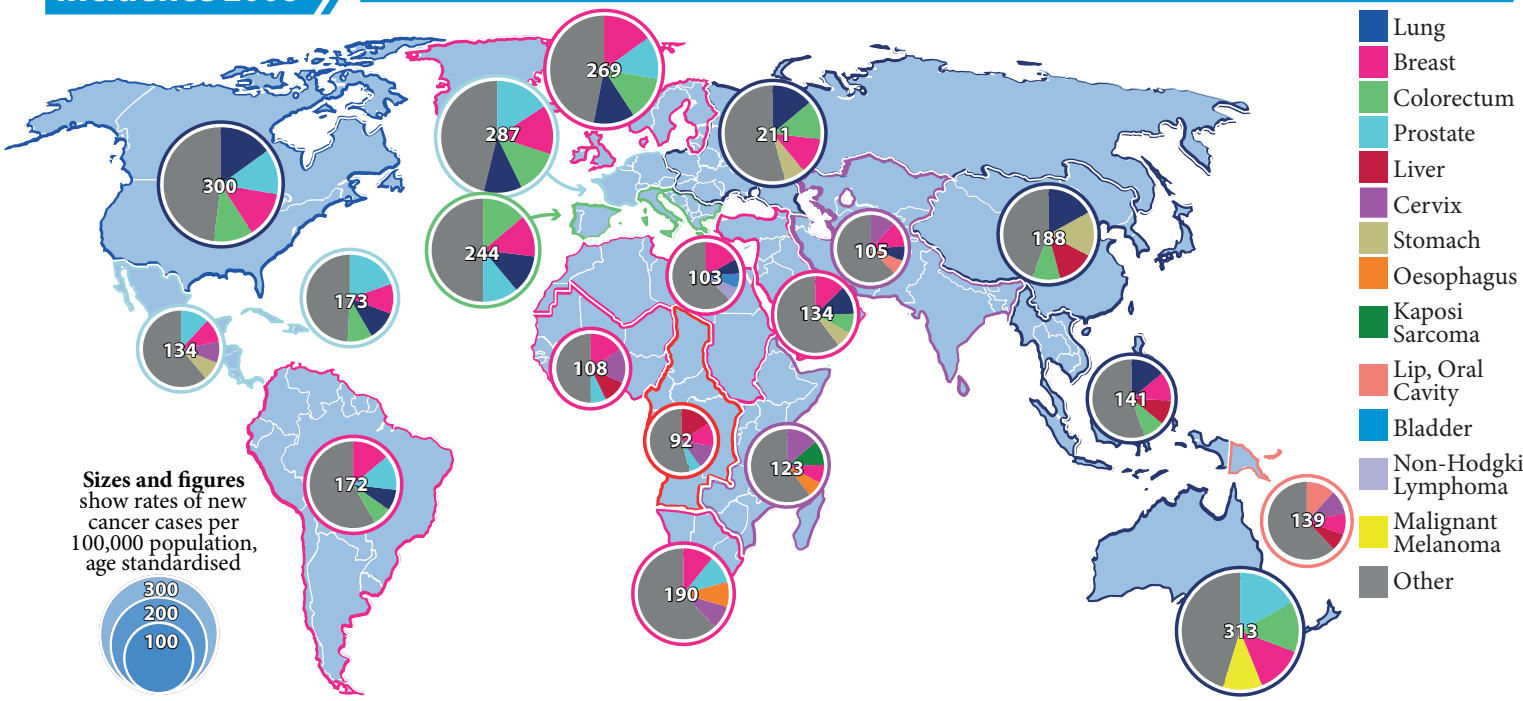
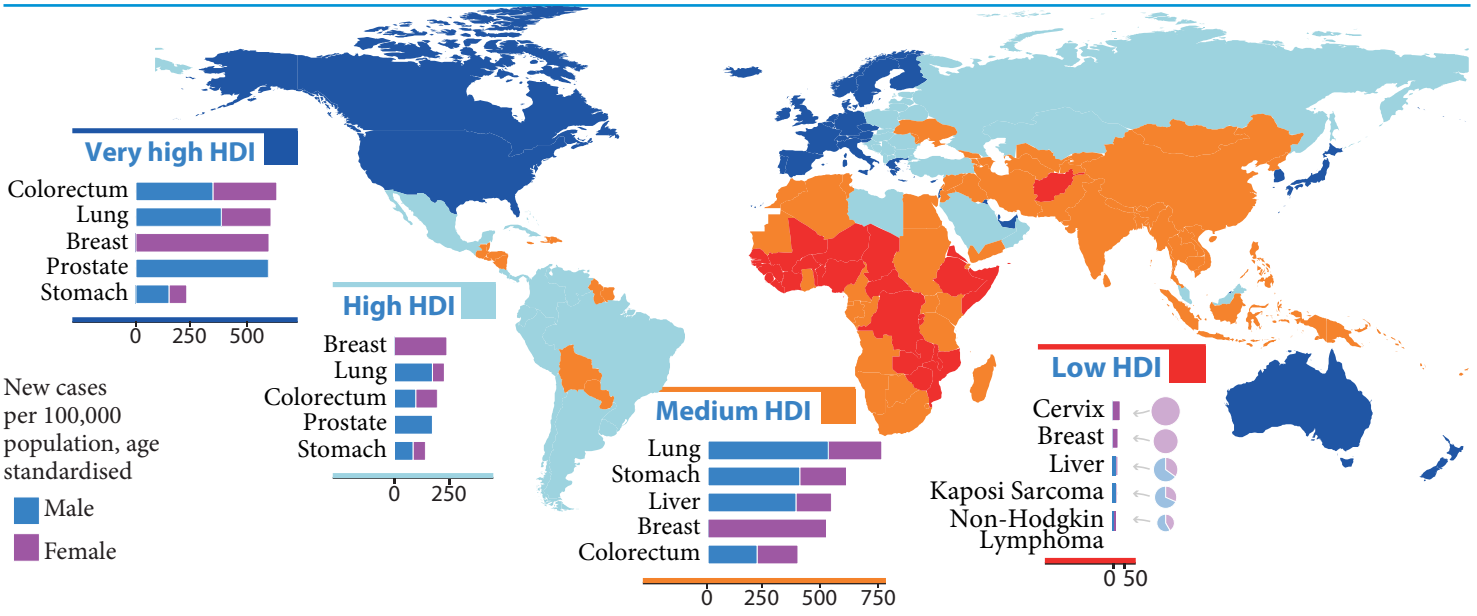
Incidence 2008

Most commonly diagnosed cancers by region, as a proportion of all cancers



Most commonly diagnosed cancers by Human Development Index



Estimates for all cancers in 2008 by HDI and sex (counts in millions)

Level of human development (HDI)	Incidence[a]	Prevalence 5 year	Mortality	Healthy years lost[b]	Population
Very high	4.808 38%	13.604 47%	2.205 29%	39.276 23%	1,010 15%
High	1.891 15%	4.385 15%	1.193 16%	25.764 15%	922 14%
Medium	5.708 45%	10.325 36%	3.965 52%	97.766 58%	4,442 66%
Low	0.246 2%	0.479 2%	0.194 3%	6.487 4%	394 6%
Worldwide	12.661	28.802	7.564	169.295	6,768

a Excluding non-melanoma skin cancers **b** Disability-adjusted life years lost (DALYs)

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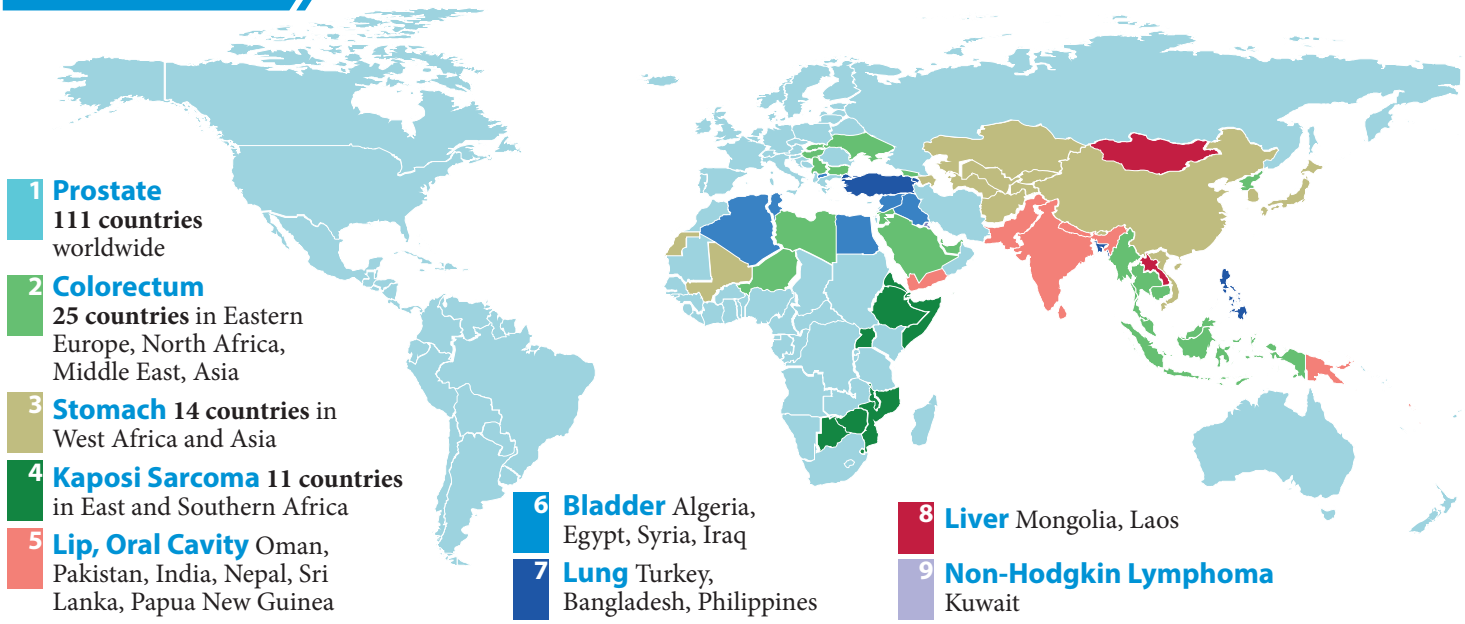
Prevalence 2008

Most prevalent cancer by country – males



1 **Prostate** **111 countries** worldwide

2 **Colorectum** **25 countries** in Eastern Europe, North Africa, Middle East, Asia

3 **Stomach** **14 countries** in West Africa and Asia

4 **Kaposi Sarcoma** **11 countries** in East and Southern Africa

5 **Lip, Oral Cavity** Oman, Pakistan, India, Nepal, Sri Lanka, Papua New Guinea

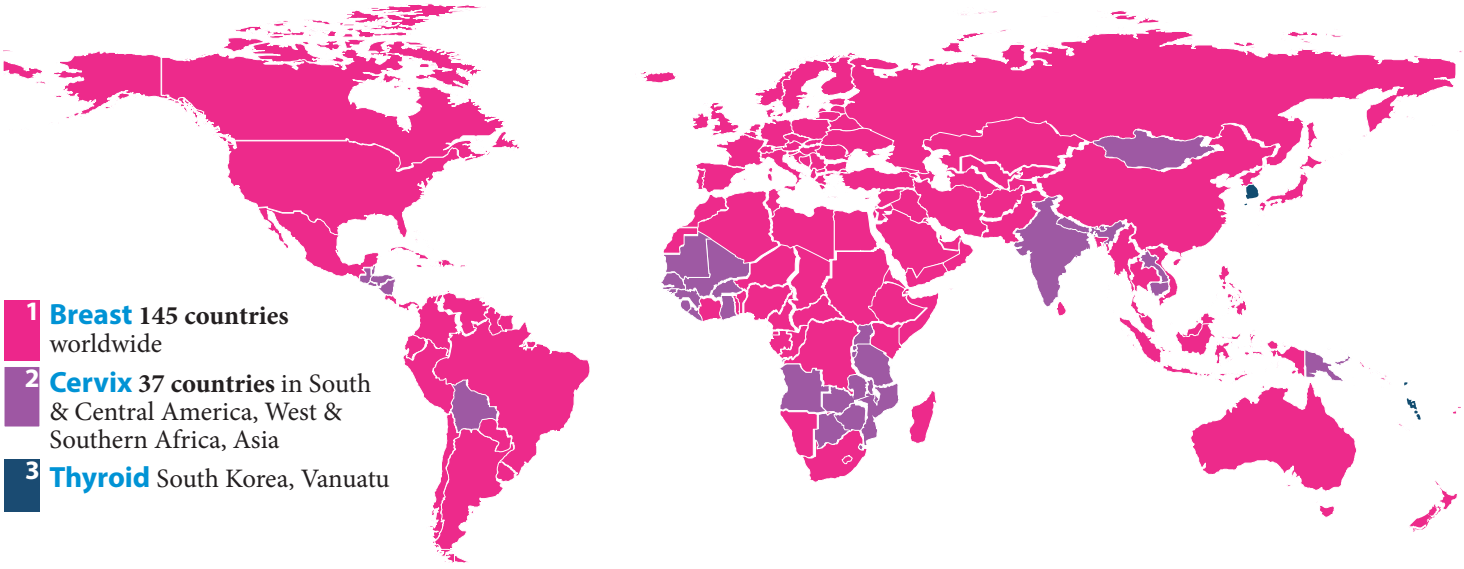
6 **Bladder** Algeria, Egypt, Syria, Iraq

7 **Lung** Turkey, Bangladesh, Philippines

8 **Liver** Mongolia, Laos

9 **Non-Hodgkin Lymphoma** Kuwait

Most prevalent cancer by country – females



1 **Breast** **145 countries** worldwide

2 **Cervix** **37 countries** in South & Central America, West & Southern Africa, Asia

3 **Thyroid** South Korea, Vanuatu

Projections for all cancers in 2030[a] by HDI and sex (counts in millions)

Level of human development (HDI)	Population	Incidence[b]	Incidence by HDI (2008 estimates / 2030 projections)
Very high	1,074 13%	7.900 36%	Males 2.6 / 4.5; Females 2.2 / 3.4; Both 4.8 / 7.9
High	1,031 12%	3.400 15%	Males 1.0 / 1.8; Females 0.9 / 1.6; Both 1.9 / 3.4
Medium	5,533 67%	10.300 47%	Males 3.0 / 5.4; Females 2.8 / 4.9; Both 5.7 / 10.3
Low	664 8%	0.490 2%	Males 0.11 / 0.23; Females 0.14 / 0.27; Both 0.25 / 0.49
Worldwide	8,302	22.200	Total projected 2030 incidence **Males** 12.00, **Females** 10.20, **Both** 22.20

a Based on demographic changes (UN) plus trends in rates of six cancers on the basis of changing annual age-adjusted incidence in 101 cancer registries 1988–2002 **b** Excluding non-melanoma skin cancers

Risk factors

Tobacco is, by far, the single most important risk factor for cancer. Worldwide, it caused 22% of cancer deaths (1.7 million in 2008) and 71% of lung cancer deaths (almost 1 million in 2008)[6].

Specific Infections represent other major cancer risk factors with an estimated 2.1 million (16.4%) of the 12.7 million new cases in 2008 attributable to infection. This fraction is substantially higher in less developed regions of the world (23.4% of all cancers) than in more developed regions (7.5%). The most important infectious agents are *Helicobacter pylori*, Hepatitis B and C viruses and Human papillomaviruses, which together are responsible for 1.9 million cases of gastric, liver and cervix uteri cancers, respectively[7].

For other major global cancers, **reproductive** behaviour and the use of **exogenous hormones**, as well as differences in **weight**, **exercise**, **diet** and **alcohol** consumption, are thought to underlie worldwide differences in the risk of breast cancer while aspects of diet, particularly the consumption of **red and processed meat**, **fibre** and **alcohol**, as well as **bodyweight** and **physical activity** are associated with the risk of colorectal cancer. There is little established about causes of prostate cancer, except for **genetic determinants**. Other important causes of specific types of cancer include **obesity**, excessive **sunlight** exposure and certain **occupational** exposures[8].

Glossary

ASR (age-standardised rate). A rate is the number of new cases or deaths per 100,000 persons per year. An age-standardised rate is the rate that a population would have if it had a standard age structure. Standardisation is necessary when comparing several populations that differ with respect to age because age has a powerful influence on the risk of cancer. The world standard population used in this report is as proposed by Segi (1960).

Human Development Index (HDI) is a composite index of three dimensions of human development: i) life expectancy (based on life expectancy at birth); ii) educational attainment (based on a combination of adult literacy rate and primary to tertiary education enrolment rates) and iii) income (based on GDP per capita adjusted for purchasing-power parity (PPP US$)). Countries were grouped into four levels of HDI according to the United Nations Development Programme estimates for 2007: very high HDI, high HDI, medium HDI and low HDI[4].

Projections. Cancer incidence in 2030 is projected based on demographic changes (UN) plus crude assumptions on trends in rates of six cancers on the basis of changing annual age-adjusted incidence in 101 cancer registries 1988–2002: annual decreases in stomach (2.5%) and cervical cancer (2%) worldwide, and lung cancer (1%) in high and very high HDI areas in men only; increases in colorectal (1%), female breast (2%) and prostate (3%) worldwide, and lung (1%) in high and very high HDI areas in women only[5].

Notes

The figures presented in this factsheet represent the best available estimates of the global cancer burden but are variable in accuracy, depending on the availability and validity of data in each country. This ranges from real and valid counts of cases and deaths, through estimates based on samples, to estimates based on rates in neighbouring countries.

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Further detailed information on the global burden of cancer can be found using GLOBOCAN 2008 and other resources on the Cancer*Mondial* website www-dep.iarc.fr. The Cancer Research UK and IARC worldwide cancer report is available at cruk.org/info/cancerstats/world. For information on the Global Initiative for Cancer Registry Development in Low- and Middle-Income Countries, see gicr.iarc.fr.

Countries by HDI

Low HDI: Afghanistan; Benin; Burkina Faso; Burundi; Central African Republic; Chad; Cote d'Ivoire; Democratic Republic of the Congo; Eritrea; Ethiopia; Guinea; Guinea-Bissau; Liberia; Malawi; Mali; Mozambique; Niger; Rwanda; Senegal; Sierra Leone; Somalia; The Gambia; Timor-Leste; Togo; Zambia; Zimbabwe. **Medium HDI:** Algeria; Angola; Armenia; Azerbaijan; Bangladesh; Belize; Bhutan; Bolivia; Botswana; Cambodia; Cameroon; Cape Verde; China; Comoros; Djibouti; Dominican Republic; Egypt; El Salvador; Equatorial Guinea; Fiji; Gabon; Georgia; Ghana; Guatemala; Guyana; Haiti; Honduras; India; Indonesia; Islamic Republic of Iran; Iraq; Jamaica; Jordan; Kenya; Democratic People's Republic of Korea; Kyrgyzstan; Lao People's Democratic Republic; Lesotho; Madagascar; Maldives; Mauritania; Moldova; Mongolia; Morocco; Myanmar; Namibia; Nepal; Nicaragua; Nigeria; Pakistan; Palestine; Papua New Guinea; Paraguay; Philippines; Republic of the Congo; Samoa; Solomon Islands; South African Republic; Sri Lanka; Sudan; Suriname; Swaziland; Syrian Arab Republic; Tajikistan; Tanzania; Thailand; Tunisia; Turkmenistan; Uganda; Ukraine; Uzbekistan; Vanuatu; Viet Nam; Western Sahara; Yemen. **High HDI:** Albania; Argentina; Bahamas; Bahrain; Belarus; Bosnia Herzegovina; Brazil; Bulgaria; Chile; Colombia; Costa Rica; Croatia; Cuba; Ecuador; Estonia; Guam; Hungary; Kazakhstan; Latvia; Lebanon; Libya; Lithuania; Macedonia; Malaysia; Mauritius; Mexico; Montenegro; Oman; Panama; Peru; Poland; Puerto Rico; Romania; Russian Federation; Saudi Arabia; Serbia; Slovakia; Trinidad and Tobago; Turkey; Uruguay; Venezuela. **Very high HDI:** Australia; Austria; Barbados; Belgium; Brunei Darussalam; Canada; Cyprus; Czech Republic; Denmark; Finland; France; French Polynesia; Germany; Greece; Iceland; Ireland; Israel; Italy; Japan; Republic of Korea; Kuwait; Luxembourg; Malta; New Zealand; Norway; Portugal; Qatar; Singapore; Slovenia; Spain; Sweden; Switzerland; Taiwan; The Netherlands; United Arab Emirates; United Kingdom; United States of America.

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