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Goal: Ensure healthy lives and promote well-being for all at all ages  
  
Target: Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all  
  
Indicator 3.8.1: Coverage of essential health services  
  
  
  
Institutional information  
  
  
  
Organization(s):  
  
World Health Organization (WHO)   
  
Concepts and definitions  
  
  
  
Definition:  
  
Coverage of essential health services (defined as the average coverage of essential services based on tracer interventions that include reproductive, maternal, newborn and child health, infectious diseases, non-communicable diseases and service capacity and access, among the general and the most disadvantaged population).  
  
  
  
The indicator is an index reported on a unitless scale of 0 to 100, which is computed as the geometric mean of 14 tracer indicators of health service coverage.  
  
  
  
Rationale:  
  
Target 3.8 is defined as “Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all”. The concern is with all people and communities receiving the quality health services they need (including medicines and other health products), without financial hardship. Two indicators have been chosen to monitor target 3.8 within the SDG framework. Indicator 3.8.1 is for health service coverage and indicator 3.8.2 focuses on health expenditures in relation to a household’s budget to identify financial hardship caused by direct health care payments. Taken together, indicators 3.8.1 and 3.8.2 are meant to capture the service coverage and financial protection dimensions, respectively, of target 3.8. These two indicators should be always monitored jointly.  
  
  
  
Countries provide many essential services for health protection, promotion, prevention, treatment and care. Indicators of service coverage – defined as people receiving the service they need – are the best way to track progress in providing services under universal health coverage (UHC). Since a single health service indicator does not suffice for monitoring UHC, an index is constructed from 14 tracer indicators selected based on epidemiological and statistical criteria. This includes several indicators that are already included in other SDG targets, thereby minimizing the data collection and reporting burden. The index is reported on a unitless scale of 0 to 100, with 100 being the optimal value.  
  
   
  
Concepts:  
  
The index of health service coverage is computed as the geometric means of 14 tracer indicators. The 14 indicators are listed below and detailed metadata for each of the components are given online (http://www.who.int/healthinfo/universal\_health\_coverage/UHC\_Tracer\_Indicators\_Metadata.pdf) and Annex 1. The tracer indicators are as follows, organized by four broad categories of service coverage:  
  
  
  
I. Reproductive, maternal, newborn and child health  
  
1. Family planning: Percentage of women of reproductive age (15−49 years) who are married or in-union who have their need for family planning satisfied with modern methods   
  
2. Pregnancy and delivery care: Percentage of women aged 15-49 years with a live birth in a given time period who received antenatal care four or more times  
  
3. Child immunization: Percentage of infants receiving three doses of diphtheria-tetanus-pertussis containing vaccine  
  
4. Child treatment: Percentage of children under 5 years of age with suspected pneumonia (cough and difficult breathing NOT due to a problem in the chest and a blocked nose) in the two weeks preceding the survey taken to an appropriate health facility or provider  
  
  
  
II. Infectious diseases  
  
5. Tuberculosis: Percentage of incident TB cases that are detected and successfully treated  
  
6. HIV/AIDS: Percentage of people living with HIV currently receiving antiretroviral therapy  
  
7. Malaria: Percentage of population in malaria-endemic areas who slept under an insecticide-treated net the previous night [only for countries with high malaria burden]  
  
8. Water and sanitation: Percentage of households using at least basic sanitation facilities  
  
  
  
III. Noncommunicable diseases  
  
9. Hypertension: Age-standardized prevalence of non-raised blood pressure (systolic blood pressure <140 mm Hg or diastolic blood pressure <90 mm Hg) among adults aged 18 years and older  
  
10. Diabetes: Age-standardized mean fasting plasma glucose (mmol/L) for adults aged 18 years and older  
  
11. Tobacco: Age-standardized prevalence of adults >=15 years not smoking tobacco in last 30 days (SDG indicator 3.a.1, metadata available here)  
  
  
  
IV. Service capacity and access  
  
12. Hospital access: Hospital beds per capita, relative to a maximum threshold of 18 per 10,000 population  
  
13. Health workforce: Health professionals (physicians, psychiatrists, and surgeons) per capita, relative to maximum thresholds for each cadre (partial overlap with SDG indicator 3.c.1, see metadata here)  
  
14. Health security: International Health Regulations (IHR) core capacity index, which is the average percentage of attributes of 13 core capacities that have been attained (SDG indicator 3.d.1, see metadata here)  
  
  
  
  
  
Comments and limitations:  
  
These tracer indicators are meant to be indicative of service coverage, not a complete or exhaustive list of health services and interventions that are required for universal health coverage. The 14 tracer indicators were selected because they are well-established, with available data widely reported by countries (or expected to become widely available soon). Therefore, the index can be computed with existing data sources and does not require initiating new data collection efforts solely to inform the index.  
  
  
  
Methodology  
  
  
  
Computation Method:  
  
The index is computed with geometric means, based on the methods used for the Human Development Index. The calculation of the 3.8.1 indicator requires first preparing the 14 tracer indicators so that they can be combined into the index, and then computing the index from those values.   
  
  
  
The 14 tracer indicators are first all placed on the same scale, with 0 being the lowest value and 100 being the optimal value. For most indicators, this scale is the natural scale of measurement, e.g., the percentage of infants who have been immunized ranges from 0 to 100 percent. However, for a few indicators additional rescaling is required to obtain appropriate values from 0 to 100, as follows:  
  
Rescaling based on a non-zero minimum to obtain finer resolution (this “stretches” the distribution across countries): prevalence of non-raised blood pressure and prevalence of non-use of tobacco are both rescaled using a minimum value of 50%.  
  
rescaled value = (X-50)/(100-50)\*100  
  
Rescaling for a continuous measure: mean fasting plasma glucose, which is a continuous measure (units of mmol/L), is converted to a scale of 0 to 100 using the minimum theoretical biological risk (5.1 mmol/L) and observed maximum across countries (7.1 mmol/L).  
  
rescaled value = (7.1 - original value)/(7.1-5.1)\*100  
  
  
  
  
  
Maximum thresholds for rate indicators: hospital bed density and health workforce density are both capped at maximum thresholds, and values above this threshold are held constant at 100. These thresholds are based on minimum values observed across OECD countries.  
  
rescaled hospital beds per 10,000 = minimum(100, original value / 18\*100)  
  
 rescaled physicians per 1,000 = minimum(100, original value / 0.9\*100)  
  
 rescaled psychiatrists per 100,000 = minimum(100, original value / 1\*100)  
  
 rescaled surgeons per 100,000 = minimum(100, original value / 14\*100)  
  
  
  
Once all tracer indicator values are on a scale of 0 to 100, geometric means are computed within each of the four health service areas, and then a geometric mean is taken of those four values. If the value of a tracer indicator happens to be zero, it is set to 1 (out of 100) before computing the geometric mean. The following diagram illustrates the calculations.  
  
  
  
  
  
  
  
Note that in countries with low malaria burden, the tracer indicator for use of insecticide-treated nets is dropped from the calculation.  
  
  
  
Disaggregation:  
  
Equity is central to the definition of UHC, and therefore the UHC service coverage index should be used to communicate information about inequalities in service coverage within countries. This can be done by presenting the index separately for the national population vs disadvantaged populations to highlight differences between them.   
  
  
  
For countries, geographic location is likely the most feasible dimension for sub-national disaggregation based on average coverage levels measured with existing data sources. To do this, the UHC index can be computed separately by, e.g., province or urban vs rural residence, which would allow for subnational comparisons of service coverage. Currently, the most readily available data for disaggregation on other dimensions of inequality, such as household wealth, is for indicators of coverage within the reproductive, maternal, newborn and child health services category. Inequality observed in this dimension can be used as a proxy to understand differences in service coverage across key inequality dimensions. This approach should be replaced with full disaggregation of all 14 tracer indicators once data are available to do so.  
  
  
  
Treatment of missing values:  
  
  
  
At country level  
  
 The starting point for computing the index is to assemble existing information for each tracer indicator. In many cases, this involves using country time series that have been produced or collated by UN agencies in consultation with country governments (e.g., immunization coverage, access to sanitation, HIV treatment coverage, etc). Some of these published time series involve mathematical modelling to reconcile multiple data sources or impute missing values, and these details are summarized in Annex 1.   
  
  
  
After assembling these inputs, there are still missing values for some country-years for some indicators. Calculating the UHC service coverage index requires values for each tracer indicator for a country, so some imputation is necessary to fill these data gaps. The current approach involves a simple imputation algorithm. For each indicator:  
  
If a country has missing values between two years with values, linear interpolation is used to fill missing values for the intervening years  
  
If a country has historical years with values, but no current value, constant extrapolation is used to fill missing values to the current year  
  
If a country has no values, a value is imputed. For pneumonia care-seeking and density of surgeons, a regression is fit to impute missing values (see Annex 1 for details). For all other indicators, a regional median is calculated to impute missing values. Regions are based on World Bank geographic regions, with a separate grouping of traditional high-income countries   
  
  
  
Given the timing and distribution of various health surveys and other data collection mechanisms, countries do not collect and report on all 14 tracer indicators of health service coverage on an annual basis. In addition, monitoring at country level is most suitably done at broader time intervals, e.g., every 5 years, to allow for new data collection across indicators. Therefore, the extent to which imputation has been used to fill missing information should be communicated along with the index value.   
  
  
  
At regional and global levels  
  
Any needed imputation is done at country level. These country values can then be used to compute regional and global ones.  
  
  
  
Regional aggregates:  
  
Regional and global aggregates are computed by using national population sizes to compute a weighted average of country-specific values for the index. This is justified on the grounds that UHC is a property of countries, and the index of essential services is a summary measure of access to essential services for each country’s population.  
  
  
  
Sources of discrepancies:  
  
The service coverage index draws on existing, publicly available data and estimates for tracer indicators. These numbers have already been through a country consultation process (e.g., for immunization coverage), or are taken directly from country reported data.   
  
  
  
  
  
  
Data Sources  
  
  
  
Description:  
  
Many of the tracer indicators of health service coverage are measured by household surveys. However, administrative data, facility data, facility surveys, and sentinel surveillance systems are utilized for certain indicators. Underlying data sources for each of the 14 tracer indicators are explained in more detail in Annex 1.  
  
  
  
In terms of values used to compute the index, values are taken from existing published sources. This includes assembled data sets and estimates from various UN agencies. This is summarized in the above link.  
  
  
  
Collection process:  
  
The mechanisms for collecting data from countries vary across the 14 tracer indicators, however in many cases a UN agency or interagency group has assembled and analysed relevant national data sources and then conducted a formal country consultation with country governments to review or produce comparable country estimates. For the UHC service coverage index, once this existing information on the 14 tracer indicators is collated, WHO conducts a country consultation with nominated focal points from national governments to review inputs and the calculation of the index. WHO does not undertake new estimation activities to produce tracer indicator values for the service coverage index; rather, the index is designed to make use of existing and well-established indicator data series to reduce reporting burden.  
  
  
  
Data Availability  
  
  
  
Description:  
  
Summarizing data availability for the UHC service coverage index is not straightforward, as different data sources are used across the 14 tracer indicators. Additionally, for many indicators comparable estimates have been produced, in many cases drawing on different types of underlying data sources to inform the estimates while also using projections to impute missing values. Based on the underlying data sources for each of the tracer indicators (i.e., ignoring estimates and projections), the average proportion of indicators used to compute the index with underlying data available since 2010 is around 70% across countries globally.  
  
  
  
Time series:  
  
A baseline value for the UHC service coverage index for 2015 across 183 countries was published in late 2017. As part of this process, data sources going back to 2000 were assembled. In 2019, it is anticipated to publish a time series from 2000 to 2017.  
  
  
  
Calendar  
  
  
  
Data collection:  
  
 Data collection varies from every 1 to 5 years across tracer indicators. For example, country data on immunizations and HIV treatment are reported annually, whereas household surveys to collect information on child treatment may occur every 3-5 years, depending on the country. More details about individual tracer indicators are available in Annex 1.  
  
   
  
Data release:  
  
The first release of baseline values for the UHC service coverage index took place in December 2017. It is anticipated that an update will be released in September, 2019.   
  
  
  
Data providers  
  
In most cases, Ministries of Health and National Statistical Offices oversee data collection and reporting for health service coverage indicators.  
  
  
  
Data compilers  
  
The World Health Organization, drawing on inputs from other international agencies.  
  
  
  
  
  
References  
  
  
  
URL: http://www.who.int/healthinfo/universal\_health\_coverage/en/  
  
  
  
References: http://www.who.int/healthinfo/universal\_health\_coverage/report/2017/en/  
  
http://www.thelancet.com/pdfs/journals/langlo/PIIS2214-109X(17)30472-2.pdf  
  
http://www.who.int/healthinfo/universal\_health\_coverage/en/  
  
For historical development of methods, see:  
  
http://www.who.int/healthinfo/universal\_health\_coverage/UHC\_WHS2016\_TechnicalNote\_May2016.pdf?ua=1 (superseded by this document)  
  
http://www.who.int/healthinfo/universal\_health\_coverage/report/2015/en/  
  
http://www.who.int/healthinfo/universal\_health\_coverage/report/2014/en/  
  
http://collections.plos.org/uhc2014  
  
  
  
  
  
Related indicators as of February 2020  
  
The UHC service coverage index is designed to summarize existing indicators of health service coverage to ensure consistency with the SDGs and other global initiatives and reduce duplication and reporting burden. Currently, two other SDG indicators are included in the index (3.a.1 and 3.d.1).   
  
  
  
Indicator 3.8.1 should always be interpreted together with the other SDG UHC indicator, 3.8.2, which measures financial protection.  
  
  
  
  
  
  
Annex 1: Metadata for tracer indicators used to measure the coverage of essential health services for monitoring SDG indicator 3.8.1.  
  
  
  
Please send any comments or queries to: uhc\_stats@who.int  
  
  
  
Tracer area  
  
Family planning  
  
Indicator definition  
  
Percentage of women of reproductive age (15−49 years) who are married or in-union who have their need for family planning satisfied with modern methods.  
  
Numerator  
  
Number of women aged 15-49 who are married or in-union who use modern methods  
  
Denominator  
  
Total number of women aged 15-49 who are married or in-union in need of family planning  
  
Main data sources  
  
Population-based health surveys  
  
Method of measurement  
  
Household surveys include a series of questions to measure modern contraceptive prevalence rate and demand for family planning. Total demand for family planning is defined as the sum of the number of women of reproductive age (15–49 years) who are married or in a union and who are currently using, or whose sexual partner is currently using, at least one contraceptive method, and the unmet need for family planning. Unmet need for family planning is the proportion of women of reproductive age (15–49 years) either married or in a consensual union, who are fecund and sexually active but who are not using any method of contraception (modern or traditional), and report not wanting any more children or wanting to delay the birth of their next child for at least two years. Included are:  
  
all pregnant women (married or in a consensual union) whose pregnancies were unwanted or mistimed at the time of conception;  
  
all postpartum amenorrhoeic women (married or in consensual union) who are not using family planning and whose last birth was unwanted or mistimed;  
  
all fecund women (married or in consensual union) who are neither pregnant nor postpartum amenorrhoeic, and who either do not want any more children (want to limit family size), or who wish to postpone the birth of a child for at least two years or do not know when or if they want another child (want to space births), but are not using any contraceptive method.  
  
  
  
Modern methods include female and male sterilization, the intra-uterine device (IUD), the implant, injectables, oral contraceptive pills, male and female condoms, vaginal barrier methods (including the diaphragm, cervical cap and spermicidal foam, jelly, cream and sponge), lactational amenorrhea method (LAM), emergency contraception and other modern methods not reported separately.  
  
Method of estimation  
  
The United Nations Population Division produces a systematic and comprehensive series of annual estimates and projections of the percentage of demand for family planning that is satisfied among married or in-union women. A Bayesian hierarchical model combined with country-specific data are used to generate the estimates, projections and uncertainty assessments from survey data. The model accounts for differences by data source, sample population, and contraceptive methods.   
  
See here for details: http://www.un.org/en/development/desa/population/theme/family-planning/cp\_model.shtml  
  
UHC-related notes  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
Tracer area  
  
Pregnancy and delivery care  
  
Indicator definition  
  
Percentage of women aged 15-49 years with a live birth in a given time period who received antenatal care four or more times   
  
Numerator  
  
Number of women aged 15−49 years with a live birth in a given time period who received antenatal care four or more times  
  
Denominator  
  
Total number of women aged 15−49 years with a live birth in the same period.  
  
Main data sources  
  
Household surveys and routine facility information systems.  
  
Method of measurement  
  
Data on four or more antenatal care visits is based on questions that ask if and how many times the health of the woman was checked during pregnancy. Household surveys that can generate this indicator include DHS, MICS, RHS and other surveys based on similar methodologies. Service/facility reporting systems can be used where the coverage is high, usually in higher income countries.  
  
Method of estimation  
  
WHO maintains a data base on coverage of antenatal care: http://apps.who.int/gho/data/node.main.ANTENATALCARECOVERAGE4  
  
UHC-related notes  
  
Ideally this indicator would be replaced with a more comprehensive measure of pregnancy and delivery care, for example the proportion of women who have a skilled provider attend the birth or an institutional delivery. A challenge in measuring skilled attendance at birth is determining which providers are “skilled”.   
  
  
  
  
  
  
  
Tracer area  
  
Child immunization  
  
Indicator definition  
  
Percentage of infants receiving three doses of diphtheria-tetanus-pertussis containing vaccine  
  
Numerator  
  
Children 1 year of age who have received three doses of diphtheria-tetanus-pertussis containing vaccine  
  
Denominator  
  
All children 1 year of age  
  
Main data sources  
  
Household surveys and facility information systems.  
  
Method of measurement  
  
For survey data, the vaccination status of children aged 12–23 months is collected from child health cards or, if there is no card, from recall by the care-taker. For administrative data, the total number of doses administered to the target population is extracted.  
  
Method of estimation  
  
Together, WHO and UNICEF derive estimates of DTP3 coverage based on data officially reported to WHO and UNICEF by Member States, as well as data reported in the published and grey literature. They also consult with local experts - primarily national EPI managers and WHO regional office staff - for additional information regarding the performance of specific local immunization services. Based on the available data, consideration of potential biases, and contributions from local experts, WHO/UNICEF determine the most likely true level of immunization coverage.   
  
For details, see here:   
  
http://www.who.int/bulletin/volumes/87/7/08-053819/en/  
  
http://www.who.int/immunization/monitoring\_surveillance/routine/coverage/en/index4.html  
  
UHC-related notes  
  
There is variability in national vaccine schedules across countries. Given this, one option for monitoring full child immunization is to monitor the fraction of children receiving vaccines included in their country’s national schedule. A second option, which may be more comparable across countries and time, is to monitor DTP3 coverage as a proxy for full child immunization. Diphtheria-tetanus-pertussis containing vaccine often includes other vaccines, e.g., against Hepatitis B and Haemophilus influenza type B, and is a reasonable measure of the extent to which there is a robust vaccine delivery platform within a country.   
  
  
  
  
  
  
  
  
Tracer area  
  
Child treatment (care-seeking for symptoms of pneumonia)  
  
Indicator definition  
  
Percentage of children under 5 years of age with suspected pneumonia (cough and difficult breathing NOT due to a problem in the chest and a blocked nose) in the two weeks preceding the survey taken to an appropriate health facility or provider.  
  
Numerator  
  
Number of children with suspected pneumonia in the two weeks preceding the survey taken to an appropriate health provider.  
  
Denominator  
  
Number of children with suspected pneumonia in the two weeks preceding the survey.  
  
Main data sources  
  
Household surveys  
  
Method of measurement  
  
During the UNICEF/WHO Meeting on Child Survival Survey-based Indicators, held in New York, 17–18 June 2004, it was recommended that acute respiratory infections (ARI) be described as “presumed pneumonia” to better reflect probable cause and the recommended interventions. The definition of presumed pneumonia used in the Demographic and Health Surveys (DHS) and in the Multiple Indicator Cluster Surveys (MICS) was chosen by the group and is based on mothers’ perceptions of a child who has a cough, is breathing faster than usual with short, quick breaths or is having difficulty breathing, excluding children that had only a blocked nose. The definition of “appropriate” care provider varies between countries.  
  
  
  
WHO maintains a data base of country-level observations from household surveys that can be accessed here: http://apps.who.int/gho/data/node.main.38?lang=en  
  
Method of estimation  
  
There are currently no internationally comparable estimates for this indicator.  
  
UHC-related notes  
  
This indicator is not typically measured in higher income countries with well-established health systems.   
  
For countries without observed data, coverage was estimated from a regression that predicts coverage of care-seeking for symptoms of pneumonia (on the logit scale), obtained from the WHO data base described above, as a function of the log of the estimated under-five pneumonia mortality rate, which can be found here: https://www.who.int/healthinfo/global\_burden\_disease/estimates/en/index2.html  
  
  
  
  
  
  
  
  
Tracer area  
  
Tuberculosis treatment  
  
Indicator definition  
  
Percentage of incidence TB cases that are detected and successfully treated in a given year  
  
Numerator  
  
Number of new and relapse cases detected in a given year and successfully treated  
  
Denominator  
  
Number of new and relapse cases in the same year  
  
Main data sources  
  
Facility information systems, surveillance systems, population-based health surveys with TB diagnostic testing, TB register and related quarterly reporting system (or electronic TB registers)  
  
Method of measurement  
  
This indicator requires three main inputs:  
  
(1) The number of new and relapse TB cases diagnosed and treated in national TB control programmes and notified to WHO in a given year.  
  
(2) The number of incident TB cases for the same year, typically estimated by WHO.  
  
(3) Percentage of TB cases successfully treated (cured plus treatment completed) among TB cases notified to the national health authorities.  
  
  
  
The final indicator = (1)/(2) x (3)  
  
  
  
Method of estimation  
  
Estimates of TB incidence are produced through a consultative and analytical process led by WHO and are published annually. These estimates are based on annual case notifications, assessments of the quality and coverage of TB notification data, national surveys of the prevalence of TB disease and information from death (vital) registration systems. Estimates of incidence for each country are derived, using one or more of the following approaches depending on available data:  
  
1. incidence = case notifications/estimated proportion of cases detected;  
  
2. incidence = prevalence/duration of condition;  
  
3. incidence = deaths/proportion of incident cases that die.   
  
  
  
These estimates of TB incidence are combined with country-reported data on the number of cases detected and treated, and the percentage of cases successfully treated, as described above.  
  
UHC-related notes  
  
To compute the indicator using WHO estimates, one can access necessary files here: http://www.who.int/tb/country/data/download/en/, and compute the indicator as = c\_cdr x c\_new\_tsr  
  
  
  
  
  
  
  
  
  
  
Tracer area  
  
HIV treatment  
  
Indicator definition  
  
Percentage of people living with HIV currently receiving antiretroviral therapy (ART)  
  
Numerator  
  
Number of adults and children who are currently receiving ART at the end of the reporting period  
  
Denominator  
  
Number of adults and children living with HIV during the same period  
  
Main data sources  
  
Facility reporting systems, sentinel surveillance sites, population-based surveys  
  
Method of measurement  
  
Numerator: The numerator can be generated by counting the number of adults and children who received antiretroviral combination therapy at the end of the reporting period. Data can be collected from facility-based ART registers or drug supply management systems. These are then tallied and transferred to cross sectional monthly or quarterly reports which can then be aggregated for national totals. Patients receiving ART in the private sector and public sector should be included in the numerator.  
  
Denominator: Data on the number of people with HIV infection may come from population-based surveys or, as is common in sub-Saharan Africa, surveillance systems based on antenatal care clinics.  
  
Method of estimation  
  
Estimates of antiretroviral treatment coverage among people living with HIV for 2000-2018 are derived as part of the 2019 UNAIDS' estimation round.   
  
To estimate the number of people living with HIV across time in high burden countries, UNAIDS in collaboration with countries uses an epidemic model (Spectrum) that combines surveillance data on prevalence with the current number of patients receiving ART and assumptions about the natural history of HIV disease progression.   
  
Since ART is now recommended for all individuals living with HIV, monitoring ART coverage is less complicated than before, when only those with a certain level of disease severity were eligible to receive ART.  
  
Estimates of ART coverage can be found here: http://aidsinfo.unaids.org/  
  
UHC-related notes  
  
Comparable estimates of ART coverage in high income countries, in particular time trends, are not always available.  
  
  
  
  
  
  
  
  
Tracer area  
  
Malaria prevention  
  
Indicator definition  
  
Percentage of population in malaria-endemic areas who slept under an ITN the previous night.  
  
Numerator  
  
Number of people in malaria-endemic areas who slept under an ITN.  
  
Denominator  
  
Total number of people in malaria endemic areas.  
  
Main data sources  
  
Data on household access and use of ITNs come from nationally representative household surveys such as Demographic and Health Surveys, Multiple Indicator Cluster Surveys, and Malaria Indicator Surveys. Data on the number of ITNs delivered by manufacturers to countries are compiled by Milliner Global Associates, and data on the number of ITNs distributed within countries are reported by National Malaria Control Programs.  
  
Method of measurement  
  
Many recent national surveys report the number of ITNs observed in each respondent household. Ownership rates can be converted to the proportion of people sleeping under an ITN using a linear relationship between access and use that has been derived from 62 surveys that collect information on both indicators.   
  
Method of estimation  
  
Mathematical models can be used to combine data from household surveys on access and use with information on ITN deliveries from manufacturers and ITN distribution by national malaria programmes to produce annual estimates of ITN coverage. WHO uses this approach in collaboration with the Malaria Atlas Project. Methodological details can be found in the Annex of the World Malaria Report 2015: http://www.who.int/malaria/publications/world-malaria-report-2015/report/en/.  
  
UHC-related notes  
  
WHO produces comparable ITN coverage estimates for 40 high burden countries. For other countries, ITN coverage is not included in the UHC service coverage index due to data limitations.   
  
  
  
  
  
  
  
  
  
  
Tracer area  
  
Water and sanitation  
  
Indicator definition  
  
Percentage of households using at least basic sanitation facilities  
  
Numerator  
  
Population living in a household with: flush or pour-flush to piped sewer system, septic tank or pit latrine; ventilated improved pit latrine; pit latrine with slab; or composting toilet.  
  
Denominator  
  
Total population  
  
Main data sources  
  
Population-based household surveys and censuses  
  
Method of measurement  
  
Household-level responses, weighted by household size, are used to compute population coverage.  
  
Method of estimation  
  
The WHO/UNICEF Joint Monitoring Programme has produced regular estimates of coverage of at least basic sanitation for MDG monitoring. After compiling a database of available data sources, for each country, simple linear regressions are fitted to the country’s data series to obtain an in-sample estimate, as well as to produce a 2-year extrapolation beyond the last available data point, after which coverage is held constant for 4 years and then assumed missing. This is done separately for urban and rural regions, and then combined to obtain national coverage estimates. Details of the methodology and most recent estimates can be found here: http://www.wssinfo.org/  
  
UHC-related notes  
  
The SDG indicator for sanitation (SDG 6.2.1) is an expanded version of the MDG indicator, incorporating the quality of sanitation facilities. It is not for UHC monitoring due to lower data availability. A joint indicator that identifies the proportion of households with access to both safe water and sanitation could also be considered.  
  
  
  
  
  
  
  
  
Tracer area  
  
Prevention of cardiovascular disease  
  
Indicator definition  
  
Age-standardized prevalence of normal blood pressure among adults aged 18+, regardless of treatment status  
  
Numerator  
  
Number of adults aged 18 or older with systolic blood pressure <140 mm Hg and diastolic blood pressure <90 mm Hg (regardless of treatment status)  
  
Denominator  
  
Number of adults aged 18 or older  
  
Main data sources  
  
Population-based surveys and surveillance systems  
  
Method of measurement  
  
Data sources recording measured blood pressure are used (self-reported data are excluded). If multiple blood pressure readings are taken per participant, the first reading is dropped and the remaining readings are averaged.  
  
Method of estimation  
  
For producing comparable national estimates, data observations of prevalence defined in terms of alternate SBP and/or DBP cutoffs are converted into prevalence of raised blood pressure, defined as systolic blood pressure >=140 mm Hg or diastolic blood pressure >=90 mm Hg using regression equations. A Bayesian hierarchical model is then fitted to these data to calculate age-sex-year-country specific prevalences, which accounts for national vs. subnational data sources, urban vs. rural data sources, and allows for variation in prevalence across age and sex. Age-standardized estimates are then produced by applying the crude estimates to the WHO Standard Population. Details on the statistical methods are here: http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(16)31919-5/fulltext  
  
WHO and the NCD Risk Factor Collaboration (NCD-RisC) has produced comparable estimates for this indicator up through year 2015, which are available here: http://apps.who.int/gho/data/node.main.A875STANDARD?lang=en  
  
UHC-related notes  
  
Prevalence estimates are converted to the prevalence of normal blood pressure for incorporation into the UHC index, so that a value of 100% is the optimal target. This is computed as: normal blood pressure prevalence = 1 – raised blood pressure prevalence. The above estimates are done separately for men and women; for the UHC tracer indicator a simple average of values for men and women is computed.  
  
Normal blood pressure is the sum of the percentage of individuals who do not have hypertension, and the percentage of individuals whose hypertension is controlled by medication. The absence of hypertension is a result of prevention efforts via promotion of physical activity and healthy diets, as well as other factors. Hypertension controlled with medication is a result of effective treatment. This indicator is thus a proxy for both effective health promotion and effective medical services.   
  
  
  
  
  
  
  
  
  
  
Tracer area  
  
Management of diabetes  
  
Indicator definition  
  
Age-standardized mean fasting plasma glucose for adults aged 18 years and older  
  
Main data sources  
  
Population-based surveys and surveillance systems  
  
Method of measurement  
  
Fasting plasma glucose (FPG) levels are determined by taking a blood sample from participants who have fasted for at least 8 hours. Other related biomarkers, such as hemoglobin A1c (HbA1c), were used to help calculate estimates (see below).  
  
Method of estimation  
  
For producing comparable national estimates, data observations based on mean FPG, oral glucose tolerance test (OGTT), HbA1c, or combinations therein, are all converted to mean FPG. A Bayesian hierarchical model is then fitted to these data to calculate age-sex-year-country specific prevalences, which accounts for national vs. subnational data sources, urban vs. rural data sources, and allows for variation in prevalence across age and sex. Age-standardized estimates are then produced by applying the crude estimates to the WHO Standard Population. Methodological details can be found here: https://www.who.int/diabetes/global-report/en/  
  
UHC-related notes  
  
An individual’s FPG may be low because of effective treatment with glucose-lowering medication, or because the individual is not diabetic as a result of health promotion activities or other factors such as genetics. Mean FPG is thus a proxy for both effective promotion of healthy diets and behaviors and effective treatment of diabetes.   
  
The above estimates are done separately for men and women; for the UHC tracer indicator a simple average of values for men and women is computed.  
  
  
  
  
  
  
  
  
Tracer area  
  
Tobacco control  
  
Indicator definition  
  
Age-standardized prevalence of adults >=15 years not smoking tobacco in last 30 days   
  
Numerator  
  
Adults 15 years and older who have not smoked tobacco in the last 30 days  
  
Denominator  
  
Adults 15 years and older  
  
Main data sources  
  
Household surveys  
  
Method of measurement  
  
“Current tobacco smoking" includes cigarettes, cigars, pipes or any other smoked tobacco products used in the past 30 days. Data are collected via self-report in surveys.  
  
  
  
Method of estimation  
  
WHO estimates prevalence of current tobacco (non) smoking with a negative binomial meta-regression model, which generates comparable estimates by adjusting for differences in age groups and indicator definition across national surveys included in the analysis. These estimates are done separately for men and women. Methodological details can be found here: http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(15)60264-1/supplemental.   
  
UHC-related notes  
  
Prevalence of not smoking tobacco is computed as 1 minus the prevalence of tobacco smoking.  
  
  
  
  
  
  
  
  
  
  
Tracer area  
  
Hospital access  
  
Indicator definition  
  
Hospital beds per capita, relative to a maximum threshold of 18 per 10,000 population  
  
Numerator  
  
Number of hospital beds (should exclude labor and delivery beds)  
  
Denominator  
  
Total population  
  
Main data sources  
  
Administrative systems / Health facility reporting system  
  
Method of measurement  
  
Country administrative systems are used to total the number of hospital beds, which are divided by the total estimated population, and multiplied by 10,000.   
  
  
  
WHO regional offices and other groups collect information on national hospital bed density, including the following online resources:  
  
WHO EMRO regional observatory: https://rho.emro.who.int/rhodata/node.main.A36  
  
WHO AFRO regional observatory: http://www.aho.afro.who.int/en/data-statistics/hospital-beds-10-000-population  
  
WHO EURO European Health for All Database: https://gateway.euro.who.int/en/datasets/european-health-for-all-database/  
  
OECD: https://data.oecd.org/healtheqt/hospital-beds.htm  
  
Method of estimation  
  
Using available data, the indicator is computed relative to a threshold value of 18 hospital beds per 10,000 population. This threshold is below the observed OECD high income country minimum (since year 2000) of 20 per 10,000 and tends to correspond to an inpatient hospital admission rate of around 5 per 100 per year. This indicator is designed to capture low levels of hospital capacity; the maximum threshold is used because very high hospital bed densities are not necessary an efficient use of resources. The indicator is computed as follows, using country data on hospital bed density (x), which results in values ranging from 0 to 100:  
  
Country with a hospital bed density x < 18 per 10,000 per year, the indicator =   
  
x /18\*100.   
  
Country with a hospital bed density x >= 18 per 10,000 per year, the indicator = 100.  
  
UHC-related notes  
  
An alternative indicator could be hospital in-patient admission rate, relative to a maximum threshold. However, that indicator is currently not reported widely across regions, in particular the African Region. In countries where both hospital beds per capita and in-patient admission rates are available, they are highly correlated.  
  
  
  
  
  
  
  
  
  
  
Tracer area  
  
Health workforce  
  
Indicator definition  
  
Health professionals (physicians, psychiatrists, and surgeons) per capita, relative to maximum thresholds for each cadre  
  
Numerator  
  
Number of physicians, psychiatrists and surgeons  
  
Denominator  
  
Total population  
  
Main data sources  
  
National database or registry of health workers, ideally coupled with regular assessment of completeness using census data, professional association registers, or facility censuses.  
  
Method of measurement  
  
The classification of health workers is based on criteria for vocational education and training, regulation of health professions, and activities and tasks of jobs, i.e., a framework for categorizing key workforce variables according to shared characteristics. The WHO framework largely draws on the latest revisions to the internationally standardized classification systems of the International Labour Organization (International Standard Classification of Occupations), United Nations Educational, Scientific and Cultural Organization (International Standard Classification of Education), and the United Nations Statistics Division (International Standard Industrial Classification of All Economic Activities). Methodological details and data can be found here: http://www.who.int/hrh/statistics/hwfstats/en/  
  
Data are from the following sources:  
  
Physicians: http://apps.who.int/gho/data/node.main.HWFGRP\_0020?lang=en  
  
Psychiatrists: https://www.who.int/healthinfo/universal\_health\_coverage/report/2017/en/  
  
Surgeons: http://apps.who.int/gho/data/node.main.HWF9?lang=en (data here were supplemented by prior editions of the database)  
  
Method of estimation  
  
Using available data, the indicator is computed by first rescaling, separately, health worker density ratios for each of the three cadres (physicians, psychiatrists and surgeons) relative to the minimum observed values across OECD countries since 2000, which are as follows: physicians = 0.9 per 1000, psychiatrists = 1 per 100,000, and surgeons = 14 per 100,000. This rescaling is done in the same way as that for the hospital bed density indicator described above, resulting in indicator values that range from 0 to 100 for each of the three cadres. For example, using country data on physicians per 1000 population (x), the cadre-specific indicator would be computed as:  
  
Country with x < 0.9 per 1000 per year, the cadre-specific indicator = x /0.9\*100.   
  
Country with x >= 0.9 per 1000 per year, the cadre-specific indicator = 100.  
  
As a final step, the geometric mean of the three cadre-specific indicator values is computed to obtain the final indicator of health workforce density.  
  
UHC-related notes  
  
The “physicians” category would ideally be expanded to include all “core health professionals”, such as nurses and midwives. However, no internationally comparable data base exists that uses consistent definitions of non-physician core health professionals to allow for fully accurate cross-country comparisons.   
  
For countries without observed data, the density of surgeons was estimated from a regression that predicts the log of surgeons per 100,000, obtained from the WHO data base described above, as a function of the log of GDP per capita, as estimated by the World Bank.  
  
  
  
  
  
  
  
Tracer area  
  
Health security  
  
Indicator definition  
  
International Health Regulations (IHR) core capacity index, which is the average percentage of attributes of 13 core capacities that have been attained at a specific point in time.   
  
The 13 core capacities are: (1) National legislation, policy and financing; (2) Coordination and National Focal Point communications; (3) Surveillance; (4) Response; (5) Preparedness; (6) Risk communication; (7) Human resources; (8) Laboratory; (9) Points of entry; (10) Zoonotic events; (11) Food safety; (12) Chemical events; (13) Radionuclear emergencies.  
  
Numerator  
  
Number of attributes attained  
  
Denominator  
  
Total number of attributes  
  
Main data sources  
  
Key informant survey  
  
Method of measurement  
  
Key informants report on attainment of a set of attributes for each of 13 core capacities using a standard WHO instrument, as described here: http://apps.who.int/iris/bitstream/10665/84933/1/WHO\_HSE\_GCR\_2013.2\_eng.pdf  
  
Capacity-level indicator values can be found here: http://apps.who.int/gho/data/node.main.IHRSPARALL?lang=en  
  
Method of estimation  
  
The indicator is computed by averaging, across the 13 core capacities, the percentage of attributes for each capacity that have been attained.  
  
UHC-related notes  
  
Countries began reporting IHR core capacity attainment to WHO for the year 2010. The earliest available IHR score for each country is used for all years 2000-2009.

Last updated: March 2020  
  
Goal 3: Ensure healthy lives and promote well-being for all at all ages  
  
Target 3.b: Support the research and development of vaccines and medicines for the communicable and non‑communicable diseases that primarily affect developing countries, provide access to affordable essential medicines and vaccines, in accordance with the Doha Declaration on the TRIPS Agreement and Public Health, which affirms the right of developing countries to use to the full the provisions in the Agreement on Trade-Related Aspects of Intellectual Property Rights regarding flexibilities to protect public health, and, in particular, provide access to medicines for all  
  
Indicator 3.b.1: Proportion of the target population covered by all vaccines included in their national programme  
  
  
  
Institutional information  
  
  
  
Organization(s):  
  
World Health Organization (WHO), United Nations Children’s Fund (UNICEF)  
  
Concepts and definitions  
  
  
  
Definition:  
  
Coverage of DTP containing vaccine (3rd dose): Percentage of surviving infants who received the 3 doses of diphtheria and tetanus toxoid with pertussis containing vaccine in a given year.  
  
  
  
Coverage of Measles containing vaccine (2nd dose): Percentage of children who received two dose of measles containing vaccine according to nationally recommended schedule through routine immunization services in a given year.  
  
  
  
Coverage of Pneumococcal conjugate vaccine (last dose in the schedule): Percentage of surviving infants who received the nationally recommended doses of pneumococcal conjugate vaccine in a given year.   
  
  
  
Coverage of HPV vaccine (last dose in the schedule): Percentage of 15 years old girls received the recommended doses of HPV vaccine. Currently performance of the programme in the previous calendar year based on target age group is used.  
  
  
  
Rationale:  
  
This indicator aims to measure access to vaccines, including the newly available or underutilized vaccines, at the national level. In the past decades all countries added numerous new and underutilised vaccines in their national immunization schedule and there are several vaccines under final stage of development to be introduced by 2030. For monitoring diseases control and impact of vaccines it is important to measure coverage from each vaccine in national immunization schedule and the system is already in place for all national programmes, however direct measurement for proportion of population covered with all vaccines in the programme is only feasible if the country has a well-functioning national nominal immunization registry, usually an electronic one that will allow this coverage to be easily estimated. While countries will develop and strengthen immunization registries it is a need for an alternative measurement.   
  
  
  
Concepts:  
  
In accordance with its mandate to provide guidance to Member States on health policy matters, WHO provides global vaccine and immunization recommendations for diseases that have an international public health impact. National programmes adapt the recommendations and develop national immunization schedules, based on local disease epidemiology and national health priorities. National immunization schedules and number of recommended vaccines vary between countries, with only DTP polio and measles containing vaccines being used in all countries.   
  
  
  
The target population for given vaccine is defined based on recommended age for administration. The primary vaccination series of most vaccines are administered in the first two years of life.  
  
  
  
Coverage of DTP containing vaccine measure the overall system strength to deliver infant vaccination  
  
Coverage of Measles containing vaccine ability to deliver vaccines beyond first year of life through routine immunization services.  
  
Coverage of Pneumococcal conjugate vaccine: adaptation of new vaccines for children  
  
Coverage of HPV vaccine: life cycle vaccination   
  
  
  
  
  
Comments and limitations:  
  
The rational to select a set of vaccines reflects the ability of immunization programmes to deliver vaccines over the life cycle and to adapt new vaccines. Coverage for other WHO recommended vaccines are also available and can be provided.  
  
  
  
Given that HPV vaccine is relatively new and vaccination schedule varies from countries to country coverage estimate will be made for girls vaccinated by ag 15 and at the moment data is limited to very few countries therefore reporting will start later.  
  
  
  
Methodology  
  
Computation Method:  
  
  
  
WHO and UNICEF jointly developed a methodology to estimate national immunization coverage form selected vaccines in 2000. The methodology has been refined and reviewed by expert committees over time. The methodology was published and reference is available under the reference section. Estimates time series for WHO recommended vaccines produced and published annually since 2001.  
  
The methodology uses data reported by national authorities from countries administrative systems as well as data from immunization or multi indicator household surveys.   
  
  
  
Disaggregation:  
  
Geographical location, i.e. regional and national and potentially subnational estimates  
  
  
  
Treatment of missing values:  
  
At country level  
  
The first data point is the first reporting year after vaccine introduction. When country data are not available interpolation is used between 2 data points and extrapolation from the latest available data point.   
  
At regional and global levels  
  
Any needed imputation is done at country level. These country values can then be used to compute regional and global ones.   
  
  
  
Regional aggregates:  
  
Weighted average of the country-level coverage rates where the weights are the country target population sizes based on World Population Prospects: 2019 revision from the UN Population Division. All countries from the region are included. For HPV 15 year old girls were used for calculation weighted average.   
  
  
  
  
  
Sources of discrepancies:  
  
Countries often relay on administrative coverage data, while WHO and UNICEF review and assess data from different sources including administrative systems and surveys. Differences between country produced and international estimates are mainly due to differences between coverage estimates from administrative system and survey results.  
  
  
  
In case the vaccine is not included in national immunization schedule the coverage from private sector will not be reflected.   
  
  
  
Data Sources  
  
Description:  
  
National Health Information Systems or National Immunization systems   
  
National immunization registries  
  
High quality household surveys with immunization module (e.g. DHS, MICS, national in-country surveys)   
  
  
  
Collection process:  
  
Annual data collection through established mechanism. Since 1998, in an effort to strengthen collaboration and minimize the reporting burden, WHO and UNICEF jointly collect information through a standard questionnaire (the Joint Reporting Form) sent to all Member States http://www.who.int/immunization/monitoring\_surveillance/routine/reporting/en/  
  
  
  
Data Availability  
  
Description:  
  
Coverage data for different vaccines are collected annually and reviewed by WHO and UNICEF inter agency expert group and estimates made for each country and each year. Data are published both on WHO and UNICEF web sites.   
  
http://www.who.int/immunization/ monitoring\_surveillance/routine/coverage/en/index4.html http://www.data.unicef.org/child-health/immunization  
  
  
  
Coverage for 2018  
  
  
  
DTP3  
  
MCV2  
  
PCV3   
  
HPV  
  
Global  
  
86%  
  
69%  
  
47%  
  
12%  
  
Australia and New Zealand   
  
95%  
  
93%  
  
95%  
  
76%  
  
Central Asia and Southern Asia   
  
88%  
  
79%  
  
30%  
  
1%  
  
Eastern Asia and South-eastern Asia   
  
91%  
  
88%  
  
13%  
  
3%  
  
Latin America & the Caribbean   
  
85%  
  
77%  
  
79%  
  
61%  
  
Northern America and Europe   
  
93%  
  
91%  
  
81%  
  
35%  
  
Oceania   
  
66%  
  
13%  
  
48%  
  
4%  
  
Sub-Saharan Africa   
  
75%  
  
24%  
  
71%  
  
8%  
  
Western Asia and Northern Africa (M49)  
  
90%  
  
84%  
  
58%  
  
1%  
  
  
  
  
  
Calendar  
  
Data collection:  
  
 Annual data collection March-May each year. Country consultation June each year  
  
  
  
Data release:  
  
15 July each year for time series 1980 – release year -1. (in July 2019 estimates from 1980-2018)  
  
  
  
Data providers  
  
Ministries of Health, Immunization programmes  
  
  
  
Data compilers  
  
WHO and UNICEF  
  
  
  
References  
  
URL:   
  
http://www.who.int/immunization/monitoring\_surveillance/routine/coverage/en/index4.html https://www.unicef.org/immunization/   
  
  
  
  
  
References:   
  
  
  
Burton A, Monasch R, Lautenbach B, Gacic-Dobo M, Neill M, Karimov R, Wolfson L, Jones G, Birmingham M. WHO and UNICEF estimates of national infant immunization coverage: methods and processes. Bull World Health Organ. 2009;87(7):535-41.Available at: http://www.who.int/bulletin/volumes/87/7/08-053819/en/   
  
  
  
 Burton A, Kowalski R, Gacic-Dobo M, Karimov R, Brown D. A Formal Representation of the WHO and UNICEF Estimates of National Immunization Coverage: A Computational Logic Approach. PLoS ONE 2012;7(10): e47806. doi:10.1371/journal.pone.0047806. Available at: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3485034/pdf/pone.0047806.pdf   
  
  
  
 Brown D, Burton A, Gacic-Dobo M, Karimov R An Introduction to the Grade of Confidence in the WHO and UNICEF Estimates of National Immunization Coverage The Open Public Health Journal, 2013, 6, 73-76. Available at: http://www.benthamscience.com/open/tophj/articles/V006/73TOPHJ.pdf   
  
  
  
Brown, David & Burton, Anthony & Gacic-Dobo, Marta. (2015). An examination of a recall bias adjustment applied to survey-based coverage estimates for multi-dose vaccines. 10.13140/RG.2.1.2086.2883.  
  
  
  
  
  
Related indicators as of February 2020  
  
Target 3.8 Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all. Indicator 3.8.1: Coverage of essential health services (defined as the average coverage of essential services based on tracer interventions that include reproductive, maternal, newborn and child health, infectious diseases, non-communicable diseases and service capacity and access, among the general and the most disadvantaged population)

Last updated: 09 July 2017  
  
  
  
Goal 3: Ensure healthy lives and promote well-being for all at all ages  
  
Target 3.9: By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination  
  
Indicator 3.9.2: Mortality rate attributed to unsafe water, unsafe sanitation and lack of hygiene (exposure to unsafe Water, Sanitation and Hygiene for All (WASH) services)  
  
  
  
Institutional information  
  
  
  
Organization(s):  
  
  
  
World Health Organization (WHO)  
  
  
  
Concepts and definitions  
  
  
  
Definition:  
  
  
  
The mortality rate attributed to unsafe water, unsafe sanitation and lack of hygiene (exposure to unsafe Water, Sanitation and Hygiene for All (WASH) services) as defined as the number of deaths from unsafe water, unsafe sanitation and lack of hygiene (exposure to unsafe WASH services) in a year, divided by the population, and multiplied by 100,000.  
  
  
  
Rationale:  
  
  
  
The indicator expresses the number of deaths from inadequate water, sanitation and hygiene (with focus on WASH services) which could be prevented by improving those services and practices. It is based on both the WASH service provision in the country, as well as the related health outcomes, and therefore provides important information on the actual disease caused by the risks measured in 6.1, 6.2 and 6.3.  
  
  
  
Concepts:  
  
  
  
Deaths attributable to unsafe water, sanitation and hygiene focusing on inadequate WASH services, expressed per 100,000 population; The included diseases are the WASH attributable fractions of diarrhoea (ICD-10 code A00, A01, A03, A04, A06-A09), intestinal nematode infections (ICD-10 code B76-B77, B79) and protein-energy malnutrition (ICD-10 code E40-E46).  
  
  
  
Comments and limitations:  
  
  
  
Data rely on (a) statistics on WASH services (6.1, 6.2 and 6.3), which are well assessed in almost all countries, and (b) data on deaths. Data on deaths are also widely available from countries from death registration data or sample registration systems, which are certainly feasible systems. Such data are crucial for improving health and reducing preventable deaths in countries. The main limitation is that not all countries do have such registration systems to date, and data need to be completed with other type of information.  
  
  
  
Methodology  
  
  
  
Computation Method:  
  
  
  
The methods with agreed international standard have been developed, reviewed and published in various documents:  
  
  
  
http://www.who.int/water\_sanitation\_health/gbd\_poor\_water/en/  
  
  
  
http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4255749/  
  
  
  
Disaggregation:  
  
  
  
Since this indicator is population-based, geographic location is the most natural disaggregation. Data also exists for age group and sex. Similar to JMP’s work on disaggregation by income groups (wealth quintile), data can further be disaggregated by wealth quintile.  
  
  
  
Treatment of missing values:  
  
  
  
At country level  
  
  
  
Data are available for practically all countries. They are, however, sometimes based on health statistics provided by international agencies as the national data are incomplete, which have been interpolated/ extrapolated, adjusted, and completed by additional data and cause-of-death models. A more detailed description of the methods is provided in http://www.who.int/healthinfo/global\_burden\_disease/GlobalCOD\_method\_2000\_2012.pdf  
  
  
  
At regional and global levels  
  
  
  
NA  
  
  
  
Regional aggregates:  
  
  
  
Country estimates of number of deaths by cause are summed to obtain regional and global aggregates.  
  
  
  
Sources of discrepancies:  
  
  
  
WHO is required by World Health Assembly resolution to consult on all WHO statistics, and seek feedback from countries on data about countries and territories. Before publishing, all estimates undergo country consultations.  
  
  
  
Data Sources  
  
  
  
Description:  
  
  
  
Data is compiled mainly from country and other databases directly. To maximize the data for robust estimates, as well as to reduce duplication of data collection to avoid further data reporting burden on countries, complementary data are used from various databases.  
  
  
  
Collection process:  
  
  
  
WHO conducts a formal country consultation process before releasing its cause-of-death estimates.  
  
  
  
Data Availability  
  
  
  
Description:  
  
  
  
Data are available for practically all countries. They are, however, sometimes based on health statistics provided by international agencies as the national data are incomplete.   
  
Actual country data for 2010 onwards period  
  
Asia and Pacific - 27% of countries (16 out of 59 countries, including China and India sample systems)  
  
Africa - 6% of countries (3 out of 54 countries)  
  
Latin America and the Caribbean - 56% of countries (19 out of 34 countries)  
  
Europe, North America, Australia, New Zealand and Japan -   
  
94% of countries (44 out of 47 countries, missing are mainly very small countries)  
  
  
  
For the period 2000-2009  
  
Asia and Pacific - 27% of countries (16 out of 59 countries, including China and India sample systems)  
  
Africa - 6% of countries (3 out of 54 countries)  
  
Latin America and the Caribbean - 56% of countries (19 out of 34 countries)  
  
Europe, North America, Australia, New Zealand and Japan - 94% of countries (44 out of 47 countries, missing are mainly very small countries)  
  
  
  
Web link to the database:   
  
http://apps.who.int/gho/data/node.home   
  
  
  
The indicator has been established and available for more than a decade. http://apps.who.int/gho/data/node.main.INADEQUATEWSH?lang=en  
  
http://www.who.int/water\_sanitation\_health/gbd\_poor\_water/en/  
  
  
  
WHO has been collating country figures and has been using these to produce global and regional estimates against this indicator.   
  
  
  
Time series:  
  
  
  
Limited time series data is available (comparable series for years 2012 and soon 2015; data for 2002 are also available but have more limited comparability)  
  
  
  
Calendar  
  
  
  
Data collection:  
  
  
  
Ongoing   
  
  
  
Data release:  
  
  
  
2017, first quarter   
  
  
  
Data providers  
  
  
  
National statistics offices, Various line ministries and databases covering civil registration with complete coverage and medical certification of cause of death.  
  
  
  
Data compilers  
  
  
  
WHO  
  
  
  
References  
  
  
  
URL:  
  
  
  
http://www.who.int/water\_sanitation\_health/gbd\_poor\_water/en/  
  
  
  
References:  
  
  
  
1. WHO indicator definition http://apps.who.int/gho/data/node.imr.SDGWSHBOD?lang=en  
  
http://www.who.int/water\_sanitation\_health/gbd\_poor\_water/en/  
  
  
  
2. WHO methods and data sources for global causes of death, 2000–2012 (http://www.who.int/healthinfo/global\_burden\_disease/GlobalCOD\_method\_2000\_2012.pdf?ua=1).  
  
  
  
Related indicators as of February 2020  
  
  
  
Indicator 7.1.2: Proportion of population with primary reliance on clean fuels and technology

Last updated: March 2019  
  
  
  
Goal 3: Ensure healthy lives and promote well-being for all at all ages  
  
Target 3.8: Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all  
  
Indicator 3.8.2: Proportion of population with large household expenditure on health as a share of total household expenditure or income  
  
  
  
Institutional information  
  
  
  
Organization:  
  
World Health Organization (WHO)  
  
  
  
Concepts and definitions  
  
  
  
Definition:  
  
Proportion of the population with large household expenditure on health as a share of total household expenditure or income.   
  
  
  
Two thresholds are used to define “large household expenditure on health”: greater than 10% and greater than 25% of total household expenditure or income.  
  
   
  
Rationale:  
  
Target 3.8 is defined as “Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all”. The concern is with all people and communities receiving the quality health services they need (including medicines and other health products), without financial hardship. Two indicators have been chosen to monitor target 3.8 within the SDG framework. Indicator 3.8.1 is for health service coverage, which is operationalized with an index that combines 16 health service coverage indicators for reproductive, maternal and child health, infectious diseases, non-communicable diseases, and service capacity and access into a single summary metric. Indicator 3.8.2 focuses on health expenditures in relation to a household’s budget to identify financial hardship caused by direct health care payments. Taken together, indicators 3.8.1 and 3.8.2 are meant to capture the service coverage and financial protection dimensions, respectively, of target 3.8. These two indicators should be always monitored jointly.  
  
  
  
Indicator 3.8.2 derives from methodologies dating back to the 1990s developed in collaboration with academics at the World Bank and the World Health Organization. Indicator 3.8.2 is about identifying people that need to devote a substantial share of their total household expenditure or income to health care. The focus is on payments made at the point of use to get any type of treatment, from any type of provider, for any type of disease or health problem, net of any reimbursements to the individual who made the payment but excluding pre-payments for health services; for example, in the form of taxes or specific insurance premiums or contributions. Such direct payments are the least equitable way to finance the health systems given that they determine the extent of care received.   
  
  
  
This is clearly against the spirit of the target, which calls for granting access based on health needs not a household’s capacity to pull together all its financial resources to meet the health needs of its members. Some direct payments might be needed but indicator 3.8.2 is underpinned by the conviction that no one, at whatever income level, should have to choose between spending on health and spending on other basic goods and services such as education tuitions, food necessities, housing and utilities. One way of assessing the extent to which health systems lead to financial hardship is to calculate the proportion of the population with large household expenditures on health as a share of household total consumption or income. For detailed information on the definition chosen to monitor the financial protection dimension of universal health coverage within the SDG monitoring framework (indicator 3.8.2) please consult Wagstaff et al. (2018) and chapter 2 in the WHO and World Bank report on “Tracking universal health coverage: 2017 global monitoring report”.  
  
  
  
Concepts:  
  
  
  
Indicator 3.8.2 is defined as the “Proportion of the population with large household expenditure on health as a share of total household expenditure or income”. In effect it is based on a ratio exceeding a threshold. The two main concepts of interest behind this ratio are household expenditure on health (numerator) and total household consumption expenditure or, when unavailable, income (denominator).   
  
  
  
Numerator  
  
Household expenditure on health is defined as any expenditure incurred at the time of service use to get any type of care (promotive, preventive, curative, rehabilitative, palliative or long-term care) including all medicines, vaccines and other pharmaceutical preparations as well as all health products, from any type of provider and for all members of the household. These health expenditures are characterized by a direct payments that are financed by a household’s income (including remittances), savings or loans but do not include any third-party payer reimbursement. As such they only grant access to the health services and health products individuals can pay for, without any solidarity between the healthy and the sick beyond the household and solely based on the willingness and ability of the household to pay. Direct health care payments are labelled Out-Of-Pocket (OOP) payments in the classification of health care financing schemes (HF) of the international Classification for Health Accounts (ICHA). OOP health expenditures are the most unequitable source of funding for the health system.   
  
  
  
The components of a household’s health care consumption expenditure so defined should be consistent with division 06 on health of the UN Classification of Individual Consumption According to Purpose (COICOP) which currently includes expenditures on medicines and medical products (06.1), outpatient care services (06.2) and inpatient care services (06.3) but is being expanded.  
  
  
  
Further information on definitions and classifications (for example by provider, by beneficiary characteristics) of health expenditures should be consistent with the international classification for health accounts and its family of classifications. ICHA results from collaboration between OECD, Eurostat and the World Health Organization.   
  
  
  
Denominator  
  
Expenditure on household consumption and household income are both monetary welfare measures. Household consumption is a function of permanent income, which is a measure of a household’s long-term economic resources that determine living standards. Consumption is generally defined as the sum of the monetary values of all items (goods and services) consumed by the household on domestic account during a reference period. It includes the imputed values of goods and services that are not purchased but procured otherwise for consumption. Information on household consumption is usually collected in household surveys that may use different approaches to measure ‘consumption’ depending on whether items refer to durable or non-durable goods and/or are directly produced by households.  
  
  
  
The most relevant measure of income is disposable income as it is close to the maximum available to the household for consumption expenditure during the accounting period. Disposable income is defined as total income less direct taxes (net of refunds), compulsory fees and fines. Total income is generally composed of income from employment, property income, income from household production of services for own consumption, transfers received in cash and goods, transfers received as services.   
  
  
  
Income is more difficult to measure accurately due to its greater variability over time. Consumption is less variable over time and easier to measure. It is therefore recommended that whenever there is information on both household consumption and income the former is used (see the “comments and limitations” section to learn more about the sensitivity of 3.8.2 to the income/expenditure choice in the denominator). Statistics on 3.8.2 currently produced by WHO and the World Bank predominantly rely on consumption (see section on data sources).   
  
  
  
Thresholds  
  
It is recommended to use two thresholds for global reporting to identify large household expenditure on health as share of total household consumption or income: a lower threshold of 10% (3.8.2\_10) and a higher threshold of 25% (3.8.2\_25). With these two thresholds the indicator measures financial hardship   
  
 (see section on comments and limitations).   
  
  
  
Comments and limitations:  
  
It is feasible to monitor indicator 3.8.2 on a regular basis using the same household survey data that is used to monitor SDG target 1.1 and 1.2 on poverty. These surveys are also regularly conducted for other purposes such as calculating weights for the Consumer Price Index. These surveys are conducted typically by NSOs. Thus, monitoring the proportion of the population with large household expenditures on health as a share of total household consumption or income does not add any additional data collection burden so long as the health expenditure component of the household non-food consumption data can be identified. While this is an advantage, indicator 3.8.2 suffers from the same challenges of timeliness, frequency, data quality and comparability of surveys than SDG indicator 1.1.1. However, indicator 3.8.2 has its own conceptual and empirical limitations.  
  
  
  
First, indicator 3.8.2 attempts to identify financial hardship that individuals face when using their income, savings or taking loans to pay for health care. However, most household surveys fail to identify the source of funding used by a household who is reporting health expenditure. In countries where there is no retrospective reimbursement of household spending on health this is not a problem. If a household does report any expenditure on health, it would be because it is not going to be reimbursed by any third-party payer. It is therefore consistent with the definition given for direct health care payments (the numerator).   
  
For those countries on the other hand where there is retrospective reimbursement – for example, via a contributory health insurance scheme - the amount reported by a household on health expenditures might be totally or partially reimbursed at some later point, perhaps outside the recall period of the household survey.   
  
  
  
Clearly, more work is needed to ensure that survey instruments gather information on the sources of funding used by the household to pay for health care, or the household survey instrument always specifies that health expenditures should be net of any reimbursement.   
  
  
  
Second, in the current definition of indicator 3.8.2 large health expenditures can be identified by comparing how much household spend on health to either household income or total household expenditure. Expenditure is the recommended measure of household’s resources (see concept section) but recent empirical work has demonstrated that while statistics on 3.8.2 at country level are fairly robust to such choice, their disaggregation by income group is pretty sensitive to it. Income based measures show a greater concentration of the proportion of the population with large household expenditure on health among the poor than expenditure based measures (see chapter 2 in the WHO and World Bank 2017 report on tracking universal health coverage as well as Wagstaff et al 2018) .  
  
  
  
Third, indicator 3.8.2. relies on a single cut-off point to identify what constitutes ‘large health expenditure as a share of total household expenditure or income’. People just below such threshold are not taken into account, which is always the problem with measures based on cut-offs. This is simply avoided by plotting the cumulative distribution function of the health expenditure ratio behind 3.8.2. By doing so, it is possible to identify for any threshold the proportion of the population that is devoting any share of its household’s budget to health.   
  
  
  
Fourth, indicator 3.8.2. is based on measures of ex-post spending on health care. Low levels of spending could be driven by measurement errors due to both non-sampling errors such as a very short recall period that does not allow the collection of information on health care requiring an overnight stay; or sampling errors such as over-sample of areas with a particularly low burden of disease. No spending could also be due to people not being able to spend anything on health which, at least for the services that are included in 3.8.1, should result in low levels of coverage.   
  
  
  
There are other indicators used to measure financial hardship. WHO uses a framework which includes , in addition to indicator 3.8.2, a definition of large health expenditure in relation to non-subsistence spending,,,.  
  
Methodology  
  
Computation Method:  
  
Population weighted average number of people with large household expenditure on health as a share of total household expenditure or income  
  
   
  
  
  
  
  
where i denotes a household, 1() is the indicator function that takes on the value 1 if the bracketed expression is true, and 0 otherwise, mi corresponds to the number of household members of i, corresponds to the sampling weight of household i, is a threshold identifying large household expenditure on health as a share of total household consumption or income (i.e. 10% and 25%).   
  
Household health expenditure and household expenditure or income are defined as explained in the “concept” section. For more information about the methodology please refer to Wagstaff et al (2018) and chapter 2 in the WHO and World Bank 2017 report on tracking universal health coverage.  
  
  
  
Disaggregation:  
  
  
  
The following disaggregation is possible in so far as the survey has been designed to provide representative estimates at such level:  
  
Gender and age of the head of the household  
  
Geographic location (rural/urban)  
  
Quintiles of the household welfare measures (total household expenditure or income). See comments and limitations for the sensitivity of the disaggregation to the choice of the welfare measure.  
  
  
  
Treatment of missing values:  
  
At the country level no imputation is attempted to produce estimates. The proportion of the population with large household expenditure on health as a share of total household expenditure or income is estimated for all years for which a nationally representative survey on household budget, household income and expenditure, socio-economic conditions or living standards is available with information on both total household expenditure or income and total household expenditure on health. When there are multiple surveys over time for the same country a preference is given to estimates produced based on the same survey. A series of tests is performed to retain the best performing series (see collection process).  
  
  
  
Regional aggregates:  
  
To construct regional and global level estimates, when survey-based estimates are not available for the reference years of 2000, 2005 or 2010 all survey-based estimates within a 5 year window of the reference year are “lined-up” by using a combination of interpolation, extrapolation, econometric modelling and imputation based on regional medians ( Wagstaff et al.,2018; chapter 2 of the 2017 WHO and World Bank report on tracking universal health care coverage).  
  
  
  
The World Bank and the World Health Organization use their own regional grouping, in addition to the regional breakdown proposed for the SDG by UNSD.   
  
  
  
Sources of discrepancies:  
  
Country level estimates are all based on nationally representative surveys with information on both household total expenditure or income and household expenditure on health (see data sources). In most cases such data come from non-standard household surveys and ex-post standardization processes can be designed to increase the degree of comparability across countries. For instance, regional teams from the World Bank produce standardized versions of raw datasets following common regional procedures: the ECAPOV harmonized datasets are based on the Living Standards Measurement Study datasets – LSMS or household budget surveys (HBS) collected in the World Bank’s Europe and Central Asia region; the SHIP collection results from a poverty program on harmonized household surveys in the World Bank’s African region, while the SHES collection was developed by the World Bank for the international comparison program. The Luxembourg income study (LIS) datasets results from effort to harmonize datasets from many high and middle-income countries.   
  
  
  
In some cases the raw data is accessible to produce country level estimates. In some countries in addition to the raw data a standardized version of it is available and in other countries only the standardized version is. When multiple versions of the same survey are available the best performing in terms of a series of quality assurance tests is retained (see collection process). When a standardized version of a nationally designed survey instruments is chosen there are differences between expenditure variables generated using the raw data, and the expenditure variables generated using the harmonization procedures which might result in different estimated incidence of the population with large household expenditure on health as a share of household total expenditure or income.  
  
  
  
Data Sources  
  
  
  
Description:  
  
The recommended data sources for the monitoring of the “Proportion of the population with large household expenditure on health as a share of total household expenditure or income” are household surveys with information on both household consumption expenditure on health and total household consumption expenditures, which are routinely conducted by national statistical offices. Household budget surveys (HBS) and household income and expenditure surveys (HIES) typically collect these as they are primarily conducted to provide inputs to the calculation of consumer price indices or the compilation of national accounts. Another potential source of information is socio-economic or living standards surveys; however, some of these surveys may not collect information on total household consumption expenditures – for example, when a country measures poverty using income as the welfare measure. The most important criterion for selecting a data source to measure SDG indicator 3.8.2 is the availability of both household consumption expenditure on health and total household consumption expenditures.  
  
  
  
When socio-economic or living standards surveys are used to measure SDG indicator 3.8.2, any challenge for cross-country comparability of SDG Indicator 1.1.1 also applies to the monitoring of SDG indicator 3.8.2. For any type of household survey, given the focus on household health expenditure there is a need to improve the current survey instruments for cross-country comparability. The World Health Organization is collaborating with different UN agencies and other important stakeholder to ensure this happens.  
  
  
  
Collection process:  
  
WHO obtains household survey data from national statistical offices where the denominator and numerator of the health expenditure ratio is constructed following their own guidelines either directly by them or by WHO consultants. WHO works through its regional offices or country offices to obtain access to data. No systematic adjustment is undertaken.   
  
The World Bank also typically receives data from National Statistical Offices (NSOs) directly. In other cases it uses NSO data received indirectly. For example, it receives data from Eurostat and from LIS (Luxembourg Income Study), who provide the World Bank NSO data they have received / harmonized. The Universidad Nacional de La Plata, Argentina and the World Bank jointly maintain the SEDLAC (Socio-Economic Database for Latin American and Caribbean) database that includes harmonized statistics on poverty and other distributional and social variables from 24 Latin American and Caribbean countries, based on microdata from household surveys conducted by NSOs. Data is obtained through country specific programs, including technical assistance programs and joint analytical and capacity building activities. The World Bank has relationships with NSOs on work programs involving statistical systems and data analysis. Poverty economists from the World Bank typically engage with NSOs broadly on poverty measurement and analysis as part of technical assistance activities.   
  
  
  
The World Health Organization and the World Bank generate indicator 3.8.2 following the same approach (see methodology). Both institutions combine estimates at the meso-level. Eligibility of the estimates included in a joint global database for the production of regional and global estimates is based on the following quality checks:  
  
  
  
For the denominator of the health expenditure ratio  
  
Compare the logarithm of total per capita consumption in a benchmark source with the logarithm of total per capita consumption estimated from the survey. Both are expressed on a monthly basis in 2011 international (PPP) $. The benchmark source is taken from Povcalnet if available, and otherwise from the World Development Indicators (WDI), computed as the household final consumption expenditures in constant 2011 international divided by total population. When the difference between the logarithm of total per capita consumption in the benchmark source and the logarithm of the value estimated from the survey as a share of the logarithm of total per capita consumption in the benchmark is greater than 10% when the comparison is with PovcalNet and greater than 15% when the comparison is made with the WDI the survey point is identified as an outlier internationally in terms of consumption per capita.   
  
Compare the poverty headcount estimated from the survey at the $1.90 a day poverty line in 2011 PPPs with the poverty incidence reported in PovcalNet at the same poverty line (benchmark value). When the absolute difference between the benchmark value and the survey estimate exceeds 10 percentage points the survey point is identified as an outlier in the incidence of extreme poverty and flagged for possible exclusion.   
  
Compare the poverty headcount estimated from the survey at the $3.10 a day poverty line in 2011 PPPs with the poverty incidence reported in PovcalNet at the same poverty line (benchmark value). When the absolute difference between the benchmark value and the survey estimate exceeds 10 percentage points the survey point is identified as an outlier in poverty headcount at $3.10 a day and flagged for possible exclusion.  
  
  
  
For the numerator of the health expenditure ratio  
  
Compare the average health expenditure ratio in the survey to a benchmark average budget share constructed as the ratio of the aggregate measure of household out-of-pocket expenditures in current local currency and aggregate household final consumption expenditure in current local currency. When the absolute difference exceeds 5 percentage points the survey point is identified as an outlier in terms of household budget share spent on health and flagged for possible exclusion. The macro-indicator of household out-of-pocket expenditures is available from the Global Health Expenditure Database (GHED) and the World Development Indicators Database (WDI). Information on household final consumption expenditure is also extracted from WDI (series code: NE.CON.PRVT.CN).  
  
  
  
These benchmarks are also used to decide between two estimates for those countries and those years for which both institutions have the same data source. For more information please refer to WHO and World Bank 2017 report on tracking universal health coverage as well as Wagstaff et al 2018.   
  
At the end of the quality assurance process, WHO and the World Bank assemble non-duplicated estimates of the proportion of the population with large household expenditure on health as a share of total household expenditure or income for each country. The World Health Organization then undertakes a country consultation process. Following a WHO Executive Board resolution (EB107.R8) WHO is requested to do this before publishing estimates at country level on behalf of member states. For any given indicator, this process starts with WHO sending a formal request to ministries of health to nominate a focal point for the consultation on the indicator. Once member states nominate focal points, WHO then sends draft estimates and methodological descriptions to them. STATA codes are available to reproduce the estimates shared. The focal points then send to WHO their comments, often including new data or revised country estimates that are used to update the country estimates. During the 2017 country consultation 137 WHO Member States nominated focal points, 100 of these received draft estimates and information on the methodology; 37 received only information on methodology as no draft estimate was produced. Of the 57 WHO Member States without focal points nominated estimates are available for 32 of them.  
  
  
  
In addition to such consultation, the World Health Organization and the World Bank regularly undertake training events on the measurement of lack of financial protection coverage, which involves participants from the Ministry of Health as well as from the National Statistical Office. WHO has several regional and national collaborations ongoing to support the production of indicator 3.8.2 as it has been recently adopted it is not yet routinely produced by National Statistical Office despite the data being available and the methodology simple. Results of such collaborations are not yet included in the database assembled by WHO and the World Bank but estimates produced by a country will be subject to the same quality assurance process just described.  
  
  
  
Data Availability  
  
This indicator relies primarily on the same data sources that are used to monitor SDG indicator 1.1.1 with the additional requirement of the availability of information regarding health expenditures. Taking this into account, the World Bank and WHO have identified 1566 potentially suitable household survey datasets from 155 countries. Some of these surveys were excluded because they were either inaccessible, lacked key variables required for the estimation of the proportion of the population with large household expenditures on health as a share of total household expenditure or income, they did not pass the quality assurance process or were not part of a consistent time series. As of December 2017 a total of 553 datapoints from 132 countries or territories spanning the period 1984-2015 have been used to produce SDG indicator 3.8.2 .   
  
Data availability measured in terms of the number of countries that WHO and the World Bank have currently reviewed and retained for the estimation of the “proportion of the population with large household expenditures on health as a share of total household expenditure or income” is as follows for the most recent year:  
  
  
  
  
  
Retained by WHO and the World Bank for the estimation of the "proportion of the population with large household expenditure on health as a share of total household expenditure or income"  
  
SDG regional breakdown  
  
Number of WHO Member States  
  
2005 or earlier  
  
2006-2015  
  
Total per SDG region  
  
   
  
   
  
(nb of MS)  
  
(% by region)  
  
(nb of MS)  
  
(% by region)  
  
(nb of MS)  
  
(% by region)  
  
Northern America (M49) and Europe (M49)  
  
44  
  
6  
  
13.60%  
  
33  
  
75.00%  
  
39  
  
88.60%  
  
Latin America and the Caribbean (MDG=M49)  
  
33  
  
7  
  
21.20%  
  
10  
  
30.30%  
  
17  
  
51.50%  
  
Central Asia (M49) and Southern Asia (MDG=M49)  
  
14  
  
0  
  
0.00%  
  
11  
  
78.60%  
  
11  
  
78.60%  
  
Eastern Asia (M49) and South-eastern Asia (MDG=M49)  
  
16  
  
2  
  
12.50%  
  
10  
  
62.50%  
  
12  
  
75.00%  
  
Western Asia (M49) and Northern Africa (M49)  
  
23  
  
4  
  
17.40%  
  
9  
  
39.10%  
  
13  
  
56.50%  
  
Sub-Saharan Africa (M49)  
  
48  
  
16  
  
33.30%  
  
21  
  
43.80%  
  
37  
  
77.10%  
  
Australia and New Zealand (M49)  
  
2  
  
0  
  
0.00%  
  
1  
  
50.00%  
  
1  
  
50.00%  
  
Oceania (M49) excluding Australia and New Zealand (M49)  
  
14  
  
1  
  
7.10%  
  
0  
  
0.00%  
  
1  
  
7.10%  
  
  
  
194  
  
36  
  
18.60%  
  
95  
  
49.00%  
  
131  
  
67.50%  
  
  
  
Overall data availability covers at least 50% of all WHO member States in all M49 regions except for those in Oceania (7.1%). For more information, please consult WHO and World Bank 2017 report on tracking universal health ; Wagstaff et al 2018.  
  
  
  
Time series:  
  
The frequency of such data is similar to the frequency of the data used to produced SDG indicator 1.1.1. It varies across countries but on average, this ranges from an annual 1 year basis to 3 to 5 years.  
  
  
  
Calendar  
  
  
  
Data collection:  
  
Data collection follows a country’s plan to conduct household consumption expenditure surveys, household budget surveys and household income and expenditure survey.  
  
  
  
Data release:  
  
Estimates on the proportion of the population with large household expenditure on health as a share of total household expenditure or income was released on December 2017. Going forward, new data will be added as more information is received from nominated focal points (see collection process). Updates   
  
of regional and global estimates are planned every two years.   
  
  
  
Data providers  
  
National Statistical Offices in collaboration with Ministries of health. See data sources for further details.   
  
  
  
Data compilers  
  
The World Health Organization and the World Bank.  
  
  
  
References  
  
URL: http://apps.who.int/gho/cabinet/uhc.jsp; http://datatopics.worldbank.org/universal-health-coverage/   
  
  
  
References:  
  
Chapter 2 on Financial protection in “Tracking universal health coverage: 2017 global monitoring report”, World Health Organization and International Bank for Reconstruction and Development/ The World Bank; 2017;   
  
http://www.who.int/healthinfo/universal\_health\_coverage/report/2017/en/; http://www.worldbank.org/en/topic/universalhealthcoverage/publication/tracking-universal-health-coverage-2017-global-monitoring-report  
  
http://www.who.int/health\_financing/topics/financial-protection/en/   
  
Wagstaff, A., Flores, G., Hsu J., Smitz, M-F., Chepynoga, K., Buisman, L.R., van Wilgenburg, K. and Eozenou, P., (2018), “Progress on catastrophic health spending in 133 countries: a retrospective observational study”, the Lancet Global Health, volume 6, issue 2, e169-e179. http://dx.doi.org/10.1016/S2214-109X(17)30429-1  
  
  
  
On underlying approaches behind the current definition of large health expenditures as a share of total household consumption or income:  
  
  
  
Chapter 18 of “Analysing health equity using household survey data”. Washington, DC: World Bank Group; 2008, http://www.worldbank.org/en/topic/health/publication/analyzing-health-equity-using-household-survey-data   
  
  
  
For the definition of health expenditures   
  
http://www.oecd-ilibrary.org/social-issues-migration-health/a-system-of-health-accounts/classification-of-health-care-financing-schemes-icha-hf\_9789264116016-9-en   
  
  
  
For the components of health expenditures  
  
division 06 of the UN Classification of Individual Consumption According to Purpose (COICOP) https://unstats.un.org/unsd/class/revisions/coicop\_revision.asp; http://unstats.un.org/unsd/cr/registry/regcs.asp?Cl=5&Lg=1&Co=06.1   
  
  
  
Related indicators as of February 2020  
  
SDG indicators: 3.8.1; 1.1.1 and 1.2.1

Last updated: 08 June 2018  
  
Goal 3: Ensure healthy lives and promote well-being for all at all ages  
  
Target 3.5: Strengthen the prevention and treatment of substance abuse, including narcotic drug abuse and harmful use of alcohol  
  
Indicator 3.5.2: Alcohol per capita consumption (aged 15 years and older) within a calendar year in litres of pure alcohol  
  
  
  
Institutional information  
  
  
  
Organization(s):  
  
World Health Organization (WHO)  
  
  
  
Concepts and definitions  
  
  
  
Definition:  
  
Harmful use of alcohol, defined according to the national context as alcohol per capita consumption (aged 15 years and older) within a calendar year in litres of pure alcohol  
  
  
  
Total alcohol per capita consumption (APC) is defined as the total (sum of recorded APC three-year average and unrecorded APC as a proportion of total) amount of alcohol consumed per adult (15+ years) over a calendar year, in litres of pure alcohol, adjusted for tourist consumption. Recorded alcohol consumption refers to official statistics at country level (production, import, export, and sales or taxation data), while the unrecorded alcohol consumption refers to alcohol which is not taxed and is outside the usual system of governmental control, such as home or informally produced alcohol (legal or illegal), smuggled alcohol, surrogate alcohol (which is alcohol not intended for human consumption), or alcohol obtained through cross-border shopping (which is recorded in a different jurisdiction). Tourist consumption takes into account tourists visiting the country and inhabitants visiting other countries. Positive figures denote alcohol consumption of outbound tourists being greater than alcohol consumption by inbound tourists, negative numbers the opposite. Tourist consumption is based on UN statistics, and data are provided by IHME.  
  
  
  
Rationale:  
  
Alcohol consumption can have an impact not only on the incidence of diseases, injuries and other health conditions, but also on the course of disorders and their outcomes in individuals. Alcohol consumption has been identified as a component cause for more than 200 diseases, injuries and other health conditions. Per capita alcohol consumption is widely accepted as the best possible indicator of alcohol exposure in populations and the key indicator for estimation of alcohol-attributable disease burden and alcohol-attributable deaths. Its correct interpretation requires the use of additional population-based indicators such as prevalence of drinking, and, as a result, stimulates development of national monitoring systems on alcohol and health involving contributions from a wide range of stakeholders, including alcohol production and trade sectors.  
  
  
  
Concepts:  
  
  
  
Recorded alcohol per capita (15+) consumption of pure alcohol is calculated as the sum of beverage-specific alcohol consumption of pure alcohol (beer, wine, spirits, other) from different sources. The first priority in the decision tree is given to government national statistics; second are country-specific alcohol industry statistics in the public domain based on interviews or fieldwork (GlobalData (formerly Canadean), International Wine and Spirit Research (IWSR), Wine Institute; historically World Drink Trends) or data from the International Organisation of Vine and Wine (OIV); third is the Food and Agriculture Organization of the United Nations' statistical database (FAOSTAT), and fourth is data from alcohol industry statistics in the public domain based on desk review. For countries, where the data source is FAOSTAT the unrecorded consumption may be included in the recorded consumption. As from the introduction of the "Other" beverage-specific category, beer includes malt beers, wine includes wine made from grapes, spirits include all distilled beverages, and other includes one or several other alcoholic beverages, such as fermented beverages made from sorghum, maize, millet, rice, or cider, fruit wine, fortified wine, etc. For unrecorded APC, the first priority in the decision tree is given to nationally representative empirical data; these are often general population surveys in countries where alcohol is legal. Second are specific other empirical investigations, and third is expert opinion supported by periodic survey of experts at country level (50 countries with significant estimates of unrecorded alcohol consumption) using modified Delphi-technique.  
  
  
  
For recorded APC, in order to make the conversion into litres of pure alcohol, the alcohol content (% alcohol by volume) is considered to be as follows: Beer (barley beer 5%), Wine (grape wine 12%; must of grape 9%, vermouth 16%), Spirits (distilled spirits 40%; spirit-like 30%), and Other (sorghum, millet, maize beers 5%; cider 5%; fortified wine 17% and 18%; fermented wheat and fermented rice 9%; other fermented beverages 9%). Survey questions on consumption of unrecorded alcohol are converted into estimates per year of unrecorded APC. In some countries, unrecorded is estimated based on confiscated alcohol confiscated by customs or police.  
  
  
  
The litres of alcohol consumed by tourists (15 years of age and older) in a country were based on the number of tourists who visited a country, the average amount of time they spent in the country, and how much these people drink on average in their countries of origin (estimated based on per capita consumption of recorded and unrecorded alcohol). Furthermore, tourist alcohol consumption also accounted for the inhabitants of a country consuming alcohol while visiting other countries (based on the average time spent outside of their country (for all people 15 years and older) and the amount of alcohol consumed in their country of origin). These estimations assumed the following: (1) that people drink the same amounts of alcohol when they are tourists as they do in their home countries, and (2) that global tourist consumption is equal to 0 (and thus tourist consumption can be either net negative or positive).  
  
  
  
Comments and limitations:  
  
The indicator is feasible and suitable for monitoring purposes as evidenced by availability of data from 190 countries and inclusion of this indicator in global, regional and national monitoring frameworks. This is the key indicator for alcohol exposure in populations. The data available (based on production, import, export, and sales or taxation) do not enable the disaggregation of alcohol per capita consumption (APC) by sex or age; to this end, other data sources, such as survey data, are needed. The estimation of unrecorded APC remains a challenge, and triangulation of data from different sources as well as Delphi-techniques are used for increasing validity of estimates. In recent time the number of research activities focused on improvement of the estimates of unrecorded alcohol consumption as well as their geographical coverage have increased substantially. As a result, it leads to a more accurate assessment of the total amount of alcohol consumed per person per year in a given country.  
  
  
  
Methodology  
  
  
  
Computation Method:  
  
Numerator: The sum of the amount of recorded alcohol consumed per capita (15+ years), average during three calendar years, in litres of pure alcohol, and the amount of unrecorded alcohol per capita consumption (15+ years), during a calendar year, in litres of pure alcohol, adjusted for tourist consumption.  
  
  
  
Denominator: Midyear resident population (15+ years) for the same calendar year, UN World Population Prospects, medium variant.  
  
  
  
Disaggregation:  
  
Sex, age.  
  
  
  
Treatment of missing values:  
  
At country level  
  
  
  
The values of missing countries (e.g. Monaco, San Marino) are that small that they would not affect global or regional figures.  
  
  
  
At regional and global levels  
  
  
  
The values of missing countries (e.g. Monaco, San Marino) are that small that they would not affect global or regional figures.  
  
  
  
Regional aggregates:  
  
Regional and global aggregates are population weighted averages from country values (weighted by population of inhabitants 15+ years of the respective countries).  
  
  
  
Sources of discrepancies:  
  
Population estimates, alcohol content by volume across different alcoholic beverage categories, age distributions, requirements for survey data used in producing the estimates, estimates of unrecorded alcohol consumption.  
  
  
  
Data Sources  
  
  
  
Description:  
  
Recorded: Government statistics or, alternatively, alcohol industry statistics in the public domain, FAOSTAT;  
  
  
  
Unrecorded: Nationally representative empirical data or, alternatively, specific empirical investigations, expert opinion.  
  
  
  
Collection process:  
  
The Global Survey on Alcohol and Health is conducted periodically (latest one in 2016) in collaboration with all six WHO regional offices. National counterparts or focal points in all WHO Member States are officially nominated by the respective ministries of health. They are provided with the online survey data collection tool for completion. Where this is not feasible, a hard copy of the tool is forwarded directly to those who requested it. The survey submissions are checked and whenever information is incomplete or in need of clarification, the questionnaire is returned to the focal point or national counterpart in the country concerned for revision. Amendments to the survey responses are resubmitted by e-mail or electronically. Data submitted from countries is triangulated with data from key industry-supported data providers at annual meetings organized by WHO with an objective to identify discrepancies and solutions. Estimates for key indicators are compiled into country profiles which are sent to the focal point or national counterpart in the country for validation and endorsement.  
  
  
  
Data Availability  
  
  
  
Description:  
  
Global, by WHO and SDG regions, by World Bank income groups, by country. The data are available for 190 WHO Member States.  
  
  
  
Time series:  
  
Recorded alcohol per capita consumption since 1960s, and total alcohol per capita consumption since 2005, with estimates for unrecorded alcohol consumption for 2005, 2010 and 2015.   
  
  
  
Calendar  
  
  
  
Data collection:  
  
Passive surveillance ongoing. The next WHO global surveys on alcohol and health involving data collection from WHO Member States in 2019 and 2022.  
  
  
  
Data release:  
  
2018 and 2020.   
  
  
  
Data providers  
  
  
  
Ministries of Health; National statistical bureau/agencies (data on alcohol production and trade/sales); National monitoring centres on alcohol and drug use; National academic and monitoring centres concerned with population-based surveys of risk factors to health.  
  
  
  
  
  
Data compilers  
  
  
  
World Health Organization (WHO)  
  
  
  
References  
  
  
  
URL:  
  
http://apps.who.int/gho/data/?showonly=GISAH&theme=main  
  
  
  
References:  
  
http://apps.who.int/gho/data/?showonly=GISAH&theme=main  
  
  
  
http://www.who.int/gho/alcohol/en/  
  
  
  
http://www.who.int/substance\_abuse/publications/global\_alcohol\_report/en/  
  
  
  
Related indicators as of February 2020  
  
  
  
Goal 8; Targets 3.4, 3.6

Last updated: 12 February 2020  
  
  
  
Goal 3: Ensure healthy lives and promote well-being for all at all ages  
  
Target 3.3: By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases  
  
Indicator 3.3.5: Number of people requiring interventions against neglected tropical diseases  
  
  
  
Institutional information  
  
  
  
Organization(s):  
  
  
  
World Health Organization (WHO)  
  
  
  
Concepts and definitions  
  
  
  
Definition:  
  
  
  
Number of people requiring treatment and care for any one of the neglected tropical diseases (NTDs) targeted by the WHO NTD Roadmap and World Health Assembly resolutions and reported to WHO.  
  
  
  
Rationale:  
  
  
  
The average annual number of people requiring treatment and care for NTDs is the number that is expected to decrease toward “the end of NTDs” by 2030 (target 3.3), as NTDs are eradicated, eliminated or controlled. The number of people requiring other interventions against NTDs (e.g. vector management, veterinary public health, water, sanitation and hygiene) are expected to need to be maintained beyond 2030 and are therefore to be addressed in the context of other targets and indicators, namely Universal Health Coverage (UHC) and universal access to water and sanitation.  
  
  
  
This number should not be interpreted as the number of people at risk for NTDs. It is in fact a subset of the larger number of people at risk. Mass treatment is limited to those living in districts above a threshold level of prevalence; it does not include all people living in districts with any risk of infection. Individual treatment and care is for those who are or have already been infected; it does not include all contacts and others at risk of infection. This number can better be interpreted as the number of people at a level of risk requiring medical intervention – that is, treatment and care for NTDs.  
  
  
  
Concepts:  
  
  
  
Treatment and care is broadly defined to allow for preventive, curative, surgical or rehabilitative treatment and care. In particular, it includes both:  
  
  
  
1) Average annual number of people requiring mass treatment known as preventive chemotherapy (PC) for at least one PC-NTD; and  
  
  
  
2) Number of new cases requiring individual treatment and care for other NTDs.  
  
  
  
Other key interventions against NTDs (e.g. vector management, veterinary public health, water, sanitation and hygiene) are to be addressed in the context of other targets and indicators, namely Universal Health Coverage (UHC) and universal access to water and sanitation.  
  
  
  
Comments and limitations:  
  
  
  
Country reports may not be perfectly comparable over time. Improved surveillance and case-finding may lead to an apparent increase in the number of people known to require treatment and care. Some further estimation may be required to adjust for changes in surveillance and case-finding. Missing country reports may need to be imputed for some diseases in some years.  
  
  
  
Methodology  
  
  
  
Computation Method:  
  
  
  
Some estimation is required to aggregate data across interventions and diseases. There is an established methodology that has been tested and an agreed international standard. [http://www.who.int/wer/2012/wer8702.pdf?ua=1]  
  
  
  
1) Average annual number of people requiring mass treatment known as PC for at least one PC-NTD (lymphatic filariasis, onchocerciasis, schistosomiasis, soil-transmitted helminthiases and trachoma). People may require PC for more than one PC-NTD. The number of people requiring PC is compared across the PC-NTDs, by age group and implementation unit (e.g. district). The largest number of people requiring PC is retained for each age group in each implementation unit. The total is considered to be a conservative estimate of the number of people requiring PC for at least one PC-NTD. Prevalence surveys determine when an NTD has been eliminated or controlled and PC can be stopped or reduced in frequency, such that the average annual number of people requiring PC is reduced.  
  
  
  
2) Number of new cases requiring individual treatment and care for other NTDs: The number of new cases is based on country reports, whenever available, of new and known cases of Buruli ulcer, dengue, dracunculiasis, echinococcosis, human African trypanosomiasis (HAT), leprosy, the leishmaniases, rabies and yaws. Where the number of people requiring and requesting surgery for PC-NTDs (e.g. trichiasis or hydrocele surgery) is reported, it can be added here. Similarly, new cases requiring and requesting rehabilitation (e.g. leprosy or lymphoedema) can be added whenever available.  
  
  
  
Populations referred to under 1) and 2) may overlap; the sum would overestimate the total number of people requiring treatment and care. The maximum of 1) or 2) is therefore retained at the lowest common implementation unit and summed to get conservative country, regional and global aggregates. By 2030, improved co-endemicity data and models will validate the trends obtained using this simplified approach.  
  
  
  
Disaggregation:  
  
  
  
Disaggregation by disease is required; ending the epidemic of NTDs requires a reduction in the number of people requiring interventions for each NTD.   
  
  
  
Disaggregation by age is required for PC: preschool-aged children (1-4 years), school-aged (5-14 years) and adults (= 15 years).  
  
  
  
Treatment of missing values:  
  
  
  
At country level  
  
  
  
We do not impute missing values for countries that have never reported data for any NTD. For countries that have reported data in the past, we impute missing values only for those NTDs that have been reported in the past but that have not been reported in the current year.  
  
  
  
For reproducibility, we employ multiple imputation techniques using the freely available Amelia package in R. We impute 100 complete datasets using all available cross-sectional data (countries and years), applying a square root transformation to exclude negative values of incidence, as well as categorical variables denoting regions and income groups, and allowing for country-specific linear time effects. We aggregate across diseases and extract the mean and 2.5th and 97.5th centile values to report best estimates and uncertainty intervals for each country.  
  
  
  
At regional and global levels  
  
  
  
Using the 100 imputed datasets, we aggregate across diseases and regions, extract the mean and 2.5th and 97.5th centile values to report best estimates and uncertainty intervals at the regional and global levels.  
  
  
  
Regional aggregates:  
  
  
  
Global and regional estimates are simple aggregates of the country values, with no particular weighting. There is no further adjustment for global and regional estimates.  
  
  
  
Sources of discrepancies:  
  
  
  
Countries do not typically aggregate their data across NTDs, but if they applied the aggregation method as described above, they would obtain the same number. The only exceptions would be countries with one or more missing values for individual NTDs. In these exceptional cases, internationally estimated aggregates will be higher than country produced aggregates that assume missing values are nil. We present best estimates with uncertainty intervals to highlight those missing values that have a significant impact on country aggregates, until such time that missing values are reported.  
  
  
  
Methods and guidance available to countries for the compilation of the data at the national level:  
  
  
  
This indicator is based on national-level data reported to WHO by its Member States and disseminated via the WHO Global Health Observatory (http://www.who.int/gho/neglected\_diseases/en/) and PC Data Portal (http://apps.who.int/gho/cabinet/pc.jsp). Some adjustment is required to aggregate country-reported data on individual neglected tropical diseases across all NTDs included in this indicator. There is an established methodology to standardize this aggregation: http://www.who.int/wer/2012/wer8702.pdf   
  
  
  
Following a recommendation by the Working Group on Monitoring and Evaluation of the Strategic and Technical Advisory Group for NTDs, WHO has led the development of an integrated NTD database to improve evidence-based planning and management of NTD programmes at the national and sub-national levels. The Integrated NTD database is available here: http://www.who.int/neglected\_diseases/data/ntddatabase/en/.   
  
  
  
For NTDs requiring preventive chemotherapy, a joint reporting mechanism and set of reporting forms have been developed to facilitate the process of requesting donated medicines and reporting progress as well as to improve coordination and integration among programmes, more information is available here, http://www.who.int/neglected\_diseases/preventive\_chemotherapy/reporting/en/  
  
  
  
For the other NTDs, the number of new cases should be reported by the health facilities to the national level in order to compile them. If active case search activities are organized (e.g. for integrated skin NTDs, human African trypanosomiasis, etc.), the country must ensure that the number of new cases detected through these activities are also reported, either through the health facilities or directly to the national level. A strong health information system is essential for countries to be able to collect, compile and analyse good quality information on these NTDs.  
  
  
  
Quality assurance:  
  
  
  
Training materials for the Integrated NTD database are available here: http://www.who.int/neglected\_diseases/data/ntddatabase/en/. A user guide and video tutorial for the joint reporting mechanism and set of reporting forms are available here: http://www.who.int/neglected\_diseases/preventive\_chemotherapy/reporting/en/  
  
Details about individual NTD data are available via: http://www.who.int/gho/neglected\_diseases/en/. For NTDs requiring preventive chemotherapy, reports are signed by the NTD coordinator or a Ministry of Health representative to formally endorse the country’s request for medicines (when applicable) and data. They are submitted to the WHO Representative of the concerned WHO Country office.  
  
  
  
  
  
Data Sources  
  
  
  
Description:  
  
  
  
The number of people requiring treatment and care for NTDs is measured by existing country systems, and reported through joint request and reporting forms for donated medicines, the integrated NTD database, and other reports to WHO.  
  
  
  
http://www.who.int/neglected\_diseases/preventive\_chemotherapy/reporting/en/  
  
http://www.who.int/neglected\_diseases/data/ntddatabase/en/   
  
  
  
Country data are published via the WHO Global Health Observatory and Preventive Chemotherapy Data Portal.  
  
  
  
http://www.who.int/gho/neglected\_diseases/en/  
  
http://apps.who.int/gho/cabinet/pc.jsp  
  
Collection process:  
  
  
  
NTDs requiring preventive chemotherapy (PC-NTDs)  
  
As part of global efforts to accelerate expansion of preventive chemotherapy for elimination and control of lymphatic filariasis (LF), schistosomiasis (SCH) and soil-transmitted helminthiases (STH), WHO facilitates the supply of the following medicines donated by the pharmaceutical industry: diethylcarbamazine citrate, albendazole, mebendazole, and praziquantel. WHO also collaborates to supply ivermectin for onchocerciasis (ONCHO) and lymphatic filariasis elimination programmes.  
  
  
  
A joint mechanism and a set of forms have been developed to facilitate the process of application, review and reporting as well as to improve coordination and integration among different programmes.  
  
  
  
Joint Request for Selected PC Medicines (JRSM) – designed to assist countries in quantifying the number of tablets of the relevant medicines required to reach the planned target population and districts in a coordinated and integrated manner against multiple diseases during the year for which medicines are requested.  
  
  
  
Joint Reporting Form (JRF) – designed to assist countries in reporting annual progress on integrated and coordinated distribution of medicines across PC-NTDs in the reporting year in a standardized format.  
  
  
  
PC Epidemiological Data Reporting Form (EPIRF) – designed to standardize national reporting of epidemiological data on lymphatic filariasis, onchocerciasis, soil-transmitted helminthiases and schistosomiasis. National authorities are encouraged to complete this form and submit it to WHO on a yearly basis, together with the JRF.  
  
  
  
The reports generated in the JRSM and in the JRF (SUMMARY worksheets) must be printed and signed by the NTD coordinator or a Ministry of Health representative to formally endorse the country’s request for these medicines and the reported annual progress of the national programme(s). The date of signature must also be included. Once signatures have been obtained, the scanned copies of the two worksheets, together with the full Excel versions of the JRSM, the JRF and the EPIRF can be jointly submitted to WHO.  
  
  
  
The forms are submitted to the WHO Representative of the concerned WHO Country office with electronic copies to PC\_JointForms@who.int and the concerned Regional focal point, no later than 15 August of the year preceding the year for which medicines are intended to be used (e.g. at the latest by 15 August 2015 for implementation of preventive chemotherapy in 2016) but at least 6-8 months before the planned PC intervention(s) to allow time for reviewing and approval of the request, placing order, manufacturing PC medicines and shipment to the country.  
  
  
  
http://www.who.int/neglected\_diseases/preventive\_chemotherapy/reporting/en/  
  
  
  
  
  
NTDs requiring individual diagnosis and treatment  
  
Countries are invited to report on Buruli ulcer, Chagas disease, leprosy, the leishmaniases, mycetoma, rabies and yaws cases using Excel templates or directly into the WHO integrated data platform (https://extranet.who.int/dhis2). Modules are under development to collect information on snakebite envenoming, echinococcosis and taeniasis cases through this same platform.  
  
  
  
Cases of human African trypanosomiasis (HAT) and other key HAT indicators are reported at village level by national sleeping sickness control programmes through annual reports and entered in the Atlas of HAT (https://www.who.int/trypanosomiasis\_african/resources/j\_healthgeographics\_10.1186\_1476\_072X\_9\_57/en/), but annual cases aggregated at country level are also entered in the WHO integrated data platform.  
  
  
  
Data Availability  
  
  
  
Data are currently being reported by 185 countries, with good coverage of all regions.  
  
  
  
Calendar  
  
  
  
Data collection:  
  
  
  
2018 data is being collected throughout Q2 and Q3 of 2019.   
  
  
  
Data release:  
  
  
  
Q4 2019 for 2018 data.   
  
  
  
Data providers  
  
  
  
National NTD programmes within Ministries of Health  
  
  
  
Data compilers  
  
  
  
WHO  
  
  
  
References  
  
  
  
URL:  
  
  
  
http://www.who.int/neglected\_diseases/en/  
  
  
  
References:  
  
  
  
Global plan to combat neglected tropical diseases, 2008–2015. Geneva: World Health Organization; 2007 (http://whqlibdoc.who.int/hq/2007/who\_cds\_ntd\_2007.3\_eng.pdf, accessed 29 March 2015).  
  
  
  
Accelerating work to overcome the global impact of neglected tropical diseases: A Roadmap for Implementation. Geneva: World Health Organization; 2012 (http://www.who.int/neglected\_diseases/NTD\_RoadMap\_2012\_Fullversion.pdf, accessed 29 March 2015).  
  
  
  
Investing to overcome the global impact of neglected tropical diseases. Geneva: World Health Organization; 2015 (http://www.who.int/neglected\_diseases/9789241564861/en/, accessed 29 March 2015).

Last updated: 01 December 2018  
  
Metadata for this indicator is not yet available, but has been requested from the custodian agency(ies). Please kindly email us for further information at statistics@un.org. Thank you for your patience.  
  
United Nations Statistics Division

Last updated: 13 February 2020  
  
  
  
  
  
Goal 3: Ensure healthy lives and promote well-being for all at all ages  
  
Target 3.c: Substantially increase health financing and the recruitment, development, training and  
  
retention of the health workforce in developing countries, especially in least developed countries and  
  
small island developing States  
  
Indicator 3.c.1: Health worker density and distribution  
  
  
  
Institutional information  
  
  
  
Organization(s):  
  
World Health Organization (WHO)  
  
  
  
Concepts and definitions  
  
  
  
Health worker densities by occupation  
  
  
  
Definition:  
  
Density of medical doctors: The density of medical doctors is defined as the number of medical doctors, including generalists and specialist medical practitioners per 10,000 population in the given national and/or subnational area. The International Standard Classification of Occupations (ISCO) unit group codes included in this category are 221, 2211 and 2212 of ISCO-08.  
  
  
Density of nursing and midwifery personnel: The density of nursing and midwifery personnel is defined as the number of nursing and midwifery personnel per 10,000 population in the given national and/or subnational area. The ISCO-08 codes included in this category are 2221, 2222, 3221 and 3222.  
  
  
Density of dentists: The density of dentists is defined as the number of dentists per 10,000 population in the given national and/or subnational area. The ISCO-08 codes included in this category are 2261.  
  
  
Density of pharmacists: The density of pharmacists is defined as the number of pharmacists per 10,000 population in the given national and/or subnational area. The ISCO-08 codes included in this category are 2262.  
  
  
  
Health worker distribution by sex  
  
  
  
Percentage of male medical doctors: Male doctors as percentage of all medical doctors at national level. The ISCO-08 codes included in this category are 221, 2211 and 2212.  
  
  
  
Percentage of female medical doctors: Female doctors as percentage of all medical doctors at national level. The ISCO-08 codes included in this category are 221, 2211 and 2212.  
  
  
  
Percentage of male nursing personnel: Male nursing personnel as percentage of all nursing personnel at national level. The ISCO-08 codes included in this category are 2221 and 3221.  
  
  
  
Percentage of female nursing personnel: Female nursing personnel as percentage of all nursing personnel at national level. The ISCO-08 codes included in this category are 2221 and 3221.  
  
  
  
Comments and limitations:  
  
Data on health workers tend to be more complete for the public health sector and may underestimate the active workforce in the private, military, nongovernmental organization and faith-based health sectors. In many cases, information maintained at the national regulatory bodies and professional councils are not updated.  
  
   
  
As data is not always published annually for each country, the latest available data has been used. Due to the differences in data sources, considerable variability remains across countries in the coverage, periodicity, quality and completeness of the original data. Densities are calculated using national population estimates from the United Nations Population Division's World Population Prospects database and may vary from densities produced by the country.  
  
  
  
Methodology  
  
  
  
Computation Method:  
  
  
  
Health worker densities by occupation  
  
  
  
The figures for number of medical doctors (including generalist and specialist medical practitioners) depending on the nature of the original data source may include practising medical doctors only or all registered medical doctors.  
  
  
  
The figures for number of nursing and midwifery include nursing personnel and midwifery personnel, whenever available. In many countries, nurses trained with midwifery skills are counted and reported as nurses. This makes the distinction between nursing personnel and midwifery personnel difficult to draw.  
  
  
  
The figures for number of dentists include dentists in the given national and/or subnational area. Depending on the nature of the original data source may include practising (active) only or all registered in the health occupation. The ISCO -08 codes included here are 2261.  
  
  
  
The figures for number of pharmacists include in the given national and/or subnational area. Depending on the nature of the original data source may include practising (active) only or all registered in the health occupation. The ISCO -08 codes that relate to this occupation is 2262.  
  
  
  
In general, the denominator data for workforce density (i.e. national population estimates) are obtained from the United Nations Population Division's World Population Prospects database. In cases where the official health workforce report provides density indicators instead of counts, estimates of the stock were then calculated using the population estimated from the United Nations Population Division's World population prospects database (2017).   
  
  
  
Health worker distribution by sex  
  
  
  
The number of male medical doctors as reported by the country is expressed as a percentage of total male and female medical doctors reported by the country  
  
  
  
The number of female medical doctors as reported by the country is expressed as a percentage of total male and female medical doctors reported by the country  
  
  
  
The number of male nursing personnel as reported by the country is expressed as a percentage of total male and female nursing personnel reported by the country  
  
  
  
The number of female nursing personnel as reported by the country is expressed as a percentage of total male and female nursing personnel reported by the country  
  
  
  
  
  
  
  
Disaggregation:  
  
National level data  
  
  
  
  
  
Regional and global aggregates:  
  
The global average density was estimated as the population weighted average of the national densities.  
  
For the regional average density, data for the countries with missing values in the period 2013-2018 were first estimated with neighbouring comparable countries. Then the regional average was also computed as a weighted average by pooling these estimated values plus the available national densities.  
  
The population for estimating densities at regional and global level were extracted from the UN Population Division 2017.  
  
  
  
Data Sources  
  
  
  
In response to WHA69.19, an online National Health Workforce Accounts (NHWA) data platform was developed to facilitate national reporting. In addition to the reporting, the platform also serves as an analytical tool at the national/regional and global levels. Since Its launch in November 2017, Member States are called to use the NHWA data platform to report health workforce data. Complementing the national reporting through the NHWA data platform, additional sources such as the National Census, Labour Force Surveys and key administrative national and regional sources are also employed. Most of the data from administrative sources are derived from published national health sector reviews and/or official country reports to WHO offices. Countries with missing data for the year 2016 (baseline value for reporting of the WHO 13th Global Programme of Work) were estimated from a linear model of density time trend based on at least five data points including one reported density in the period 2011-2013  
  
  
  
  
  
  
  
Data Availability  
  
  
  
Time series  
  
Data available for 2000-2018.  
  
Web link to the database: http://www.who.int/hrh/statistics/hwfstats/en/  
  
  
  
  
  
  
  
Calendar  
  
  
  
Data collection: Ongoing process  
  
  
  
Data release: First quarter of 2020  
  
  
  
Data providers  
  
 NHWA focal point at national level  
  
  
  
Data compilers  
  
WHO  
  
  
  
References  
  
URL:  
  
http://www.who.int/hrh/statistics/hwfstats/en/   
  
  
  
References:  
  
Sixty-ninth World Health Assembly Agenda Item 16.1. Global strategy on human resources for health: workforce 2030 (2016), available from (http://apps.who.int/gb/ebwha/pdf\_files/WHA69/A69\_R19-en.pdf)  
  
WHO (2014). Global strategy on human resources for health: Workforce 2030 (http://who.int/hrh/resources/pub\_globstrathrh-2030/en/)   
  
"WHO Global Health Workforce Statistics." World Health Organization, n.d. Web. Feb. 2018. (http://www.who.int/hrh/statistics/hwfstats/en/)  
  
"WHO Global Health Workforce Statistics." World Health Organization, n.d. Web. Feb. 2018. (http://apps.who.int/gho/data/node.main.A1444?lang=en&showonly=HWF)  
  
WHO, National Health Workforce Accounts: A Handbook, n.d. Wed. Feb. 2018. (http://www.who.int/hrh/statistics/nhwa/en/)   
  
WHO 13th Global Programme of Work (https://www.who.int/about/what-we-do/gpw-thirteen-consultation/en/)

Last updated: 10 February 2017  
  
   
  
  
  
Goal 3: Ensure healthy lives and promote well-being for all at all ages  
  
Target 3.4: By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being  
  
Indicator 3.4.1: Mortality rate attributed to cardiovascular disease, cancer, diabetes or chronic respiratory disease  
  
  
  
Institutional information  
  
  
  
Organization(s):  
  
  
  
World Health Organization (WHO)  
  
  
  
Concepts and definitions  
  
  
  
Definition:  
  
  
  
Mortality rate attributed to cardiovascular disease, cancer, diabetes or chronic respiratory disease.   
  
Probability of dying between the ages of 30 and 70 years from cardiovascular diseases, cancer, diabetes or chronic respiratory diseases, defined as the per cent of 30-year-old-people who would die before their 70th birthday from cardiovascular disease, cancer, diabetes, or chronic respiratory disease, assuming that s/he would experience current mortality rates at every age and s/he would not die from any other cause of death (e.g., injuries or HIV/AIDS). This indicator is calculated using life table methods (see further details in section 3.3).  
  
  
  
Rationale:  
  
  
  
Disease burden from non-communicable diseases (NCDs) among adults is rapidly increasing in developing countries due to ageing. Cardiovascular diseases, cancer, diabetes and chronic respiratory diseases are the four main causes of NCD burden. Measuring the risk of dying from these four major causes is important to assess the extent of burden from premature mortality due NCDs in a population.  
  
  
  
Concepts:  
  
  
  
Probability of dying: The likelihood that an individual would die between two ages given current mortality rates at each age, calculated using life table methods. The probability of death between two ages may be called a mortality rate.  
  
  
  
Life table: A table showing the mortality experience of a hypothetical group of infants born at the same time and subject throughout their lifetime to a set of age-specific mortality rates.  
  
  
  
Cardiovascular disease, cancer, diabetes or chronic respiratory diseases: ICD-10 underlying causes of death I00-I99, COO-C97, E10-E14 and J30-J98.  
  
  
  
Comments and limitations:  
  
  
  
Cause of death estimates have large uncertainty ranges for some causes and some regions. Data gaps and limitations in high-mortality regions reinforce the need for caution when interpreting global comparative cause of death assessments, as well as the need for increased investment in population health measurement systems. The use of verbal autopsy methods in sample registration systems, demographic surveillance systems and household surveys provides some information on causes of death in populations without well-functioning death registration systems, but there remain considerable challenges in the validation and interpretation of such data, and in the assessment of uncertainty associated with diagnoses of underlying cause of death.  
  
  
  
Methodology  
  
  
  
Computation Method:  
  
  
  
There are 4 steps involved in the calculation of this indicator:  
  
  
  
1. Estimation of WHO life tables, based on the UN World Population Prospects 2012 revision.   
  
  
  
2. Estimation of cause-of-death distributions.   
  
  
  
3. Calculation of age-specific mortality rates from the four main NCDs for each five-year age range between 30 and 70.   
  
  
  
4. Calculation of the probability of dying between the ages of 30 and 70 years from cardiovascular diseases, cancer, diabetes or chronic respiratory diseases.  
  
  
  
The methods used for the analysis of causes of death depend on the type of data available from countries:  
  
For countries with a high-quality vital registration system including information on cause of death, the vital registration that member states submit to the WHO Mortality Database were used, with adjustments where necessary, e.g. for under-reporting of deaths.  
  
  
  
For countries without high-quality death registration data, cause of death estimates are calculated using other data, including household surveys with verbal autopsy, sample or sentinel registration systems, special studies and surveillance systems. In most cases, these data sources are combined in a modelling framework.  
  
  
  
The probability of dying between ages 30 and 70 years from the four main NCDs was estimated using age-specific death rates of the combined four main NCD categories. Using the life table method, the risk of death between the exact ages of 30 and 70, from any of the four causes and in the absence of other causes of death, was calculated using the equation below. The ICD codes used are: Cardiovascular disease: I00-I99, Cancer: C00-C97, Diabetes: E10-E14, and Chronic respiratory disease: J30-J98   
  
Formulas to (1) calculate age-specific mortality rate for each five-year age group between 30 and 70, (2) translate the 5-year death rate into the probability of death in each 5-year age range, and (3) calculate the probability of death from age 30 to age 70, independent of other causes of death, can be found on page 6 of this document:  
  
  
  
NCD Global Monitoring Framework: Indicator Definitions and Specifications. Geneva: World Health Organization, 2014 (http://www.who.int/nmh/ncd-tools/indicators/GMF\_Indicator\_Definitions\_FinalNOV2014.pdf?ua=1)  
  
  
  
Disaggregation:  
  
  
  
Sex  
  
  
  
Treatment of missing values:  
  
  
  
At country level  
  
  
  
For countries with high-quality cause-of-death statistics, interpolation/extrapolation was done for missing country-years; for countries with only low-quality or no data on causes of death, modelling was used. Complete methodology may be found here:   
  
WHO methods and data sources for global causes of death, 2000–2015 (  
  
http://www.who.int/healthinfo/global\_burden\_disease/GlobalCOD\_method\_2000\_2015.pdf )  
  
  
  
At regional and global levels  
  
  
  
NA  
  
  
  
Regional aggregates:  
  
  
  
Aggregation of estimates of deaths by cause, age and sex by country.  
  
  
  
Sources of discrepancies:  
  
  
  
In countries with high quality vital registration systems, point estimates sometimes differ primarily for two reasons: 1) WHO redistributes deaths with ill-defined cause of death; and 2) WHO corrects for incomplete death registration.  
  
  
  
Data Sources  
  
  
  
Description:  
  
  
  
The preferred data source is death registration systems with complete coverage and medical certification of cause of death. Other possible data sources include household surveys with verbal autopsy, and sample or sentinel registration systems.  
  
  
  
Collection process:  
  
  
  
WHO conducts a formal country consultation process before releasing its cause-of-death estimates.  
  
  
  
Data Availability  
  
  
  
Around 70 countries currently provide WHO with regular high-quality data on mortality by age, sex and causes of death, and another 40 countries submit data of lower quality. However, comprehensive cause-of-death estimates are calculated systematically by WHO for all of its Member States (with a certain population threshold) every 3 years.  
  
  
  
Calendar  
  
  
  
Data collection:  
  
  
  
WHO sends an e-mail two times per year requesting tabulated death registration data (including all causes of death) from Member States. Countries submit annual cause-of-death statistics to WHO on an ongoing basis.   
  
  
  
Data release:  
  
  
  
End of 2016.   
  
  
  
Data providers  
  
  
  
National statistics offices and/or ministries of health.  
  
  
  
Data compilers  
  
  
  
WHO  
  
  
  
References  
  
  
  
URL:  
  
  
  
http://www.who.int/gho/en/  
  
  
  
References:  
  
  
  
NCD Global Monitoring Framework: Indicator Definitions and Specifications. Geneva: World Health Organization, 2014 (http://www.who.int/nmh/ncd-tools/indicators/GMF\_Indicator\_Definitions\_FinalNOV2014.pdf?ua=1)  
  
  
  
WHO indicator definition (http://apps.who.int/gho/indicatorregistry/App\_Main/view\_indicator.aspx?iid=3354)  
  
  
  
WHO methods and data sources for global causes of death, 2000–2015   
  
(http://www.who.int/healthinfo/global\_burden\_disease/GlobalCOD\_method\_2000\_2015.pdf )  
  
  
  
  
  
World Health Assembly Resolution, WHA66.10 (2014): Follow-up to the Political Declaration of the High-level Meeting of the General Assembly on the Prevention and Control of Non-communicable Diseases. Including Appendix 2: Comprehensive global monitoring framework, including 25 indicators, and a set of nine voluntary global targets for the prevention and control of noncommunicable diseases. (http://apps.who.int/gb/ebwha/pdf\_files/WHA66/A66\_R10-en.pdf?ua=1)   
  
  
  
WHO Global Action Plan for the Prevention and Control of Noncommunicable Diseases 2013-2020 (http://apps.who.int/iris/bitstream/10665/94384/1/9789241506236\_eng.pdf?ua=1)

Date updated: 15 November 2017  
  
Goal 3: Ensure healthy lives and promote well-being for all at all ages  
  
Target 3.a: Strengthen the implementation of the World Health Organization Framework Convention on Tobacco Control in all countries, as appropriate  
  
Indicator 3.a.1: Age-standardized prevalence of current tobacco use among persons aged 15 years and older  
  
  
  
Institutional information  
  
Organizations:  
  
World Health Organization;   
  
Secretariat of the WHO Framework Convention on Tobacco Control  
  
  
  
Concepts and definitions  
  
  
  
Definition:  
  
The indicator is defined as the percentage of the population aged 15 years and over who currently use any tobacco product (smoked and/or smokeless tobacco) on a daily or non-daily basis.  
  
  
  
Rationale:  
  
Tobacco use is a major contributor to illness and death from non-communicable diseases (NCDs). There is no proven safe level of tobacco use or of second-hand smoke exposure. All daily and non-daily users of tobacco are at risk of a variety of poor health outcomes across the life-course, including NCDs. Reducing the prevalence of current tobacco use will make a large contribution to reducing premature mortality from NCDs (Target 3.4). Routine and regular monitoring of this indicator is necessary to enable accurate monitoring and evaluation of the impact of implementation of the WHO Framework Convention on Tobacco Control (WHO FCTC), or tobacco control policies in the countries that are not yet Parties to the WHO FCTC, over time. Tobacco use prevalence levels are an appropriate indicator of implementation of SDG Target 3.a “Strengthen the implementation of the World Health Organization Framework Convention on Tobacco Control in all countries, as appropriate”.  
  
  
  
Concepts:  
  
Tobacco use means use of smoked and/or smokeless tobacco products. “Current use” means use within the previous 30 days at the time of the survey, whether daily or non-daily use.  
  
  
  
Tobacco products means products entirely or partly made of the leaf tobacco as raw material intended for human consumption through smoking, sucking, chewing or sniffing.   
  
“Smoked tobacco products” include cigarettes, cigarillos, cigars, cheroots, bidis, pipes, shisha (water pipes), roll-your-own tobacco, kretek and any other form of tobacco that is consumed by smoking.  
  
  
  
"Smokeless tobacco product" includes moist snuff, creamy snuff, dry snuff, plug, dissolvables, gul, loose leaf, red tooth powder, snus, chimo, gutkha, khaini, gudakhu, zarda, quiwam, dohra, tuibur, nasway, naas, naswar, shammah, toombak, paan (betel quid with tobacco), iq’mik, mishri, tapkeer, tombol and any other tobacco product that consumed by sniffing, holding in the mouth or chewing.  
  
  
  
Prevalence estimates have been “age-standardized” to make them comparable across all countries no matter the demographic profile of the country. This is done by applying each country’s age-and-sex specific prevalence rates to the WHO Standard Population. The resulting rates are hypothetical numbers which are only meaningful when comparing rates obtained for one country  
  
with those obtained for another country.  
  
  
  
Comments and limitations:  
  
Raw data collected through nationally representative population-based surveys in the countries are used to calculate comparable estimates for this indicator. Information from subnational surveys are not used.   
  
  
  
While less than 1 in 5 countries are currently reporting on all types of tobacco use, three-quarters of countries have robust data on tobacco smoking. Until the majority of countries are reporting on all types of tobacco use (smoked and smokeless), this indicator will be populated with tobacco smoking rates. In some countries, all tobacco use and tobacco smoking may be equivalent, but for many countries, smoking rates will be lower than tobacco use rates to some degree.   
  
  
  
The comparability, quality and frequency of household surveys affects the accuracy and quality of the estimates. Non-comparability of data can arise from the use of different survey instruments, sampling and analysis methods, and indicator definitions across Member States. Surveys may cover a variety of age ranges (not always 15+) and be repeated at irregular intervals. Surveys may include a variety of different tobacco products, or sometimes only one product such as cigarettes, based on the country’s perception of which products are important to monitor. Unless both smoked and smokeless products are monitored simultaneously, tobacco use prevalence will be underreported. Countries have begun to monitor use of e-cigarettes and other emerging products, which may confound countries’ definitions of tobacco use. The definition of current use may not always be restricted to the 30 days prior to the survey. In addition, surveys ask people to self-report their tobacco use, which can lead to under-reporting of tobacco use.   
  
  
  
There is no standard protocol used across Member States to ask people about their tobacco use. WHO’s Tobacco Questions for Surveys (TQS) have been adopted in many surveys, which helps improve comparability of indicators across countries.  
  
  
  
Methodology  
  
Computation Method:  
  
A statistical model based on a Bayesian negative binomial meta-regression is used to model prevalence of current tobacco smoking for each country, separately for men and women. A full description of the method is available as a peer-reviewed article in The Lancet, volume 385, No. 9972, p966–976 (2015). Once the age-and-sex-specific prevalence rates from national surveys were compiled into a dataset, the model was fit to calculate trend estimates from the year 2000 to 2030. The model has two main components: (a) adjusting for missing indicators and age groups, and (b) generating an estimate of trends over time as well as the 95% credible interval around the estimate. Depending on the completeness/comprehensiveness of survey data from a particular country, the model at times makes use of data from other countries to fill information gaps. To fill data gaps, information is “borrowed” from countries in the same UN sub-region. The resulting trend lines are used to derive estimates for single years, so that a number can be reported even if the country did not run a survey in that year. In order to make the results comparable between countries, the prevalence rates are age-standardized to the WHO Standard Population.  
  
  
  
Estimates for countries with irregular surveys or many data gaps will have large uncertainty ranges, and such results should be interpreted with caution.  
  
  
  
Disaggregation:  
  
By sex.  
  
  
  
Treatment of missing values:  
  
  
  
At country level  
  
For countries with less than two surveys completed in different years since 1990, no estimate is calculated, since no trend can be determined. For countries with data from two or more surveys, data gaps, if any, are filled as described in the Computation Method.  
  
  
  
At regional and global levels  
  
Countries where no estimate can be calculated are included in regional and global averages by assuming their prevalence rates for men and women are equal to the average rates for men and women seen in the UN sub-region in which they are located. Where fewer than 50% of a UN sub-region’s population was surveyed, UN sub-regions are grouped with neighbouring sub-regions until at least 50% of the grouped population has contributed data to the region’s average rates.  
  
  
  
Regional aggregates:  
  
Average prevalence rates for regions are calculated by population-weighting the age-specific prevalence rates in countries, then age-standardizing the age-specific average rates of the region.  
  
  
  
Sources of discrepancies:  
  
WHO estimates differ from national estimates in that they are   
  
age-standardised to improve international comparability and   
  
calculated using different methods. Infrequent surveys or unavailability of recent surveys lead to more reliance on modelling.   
  
As the data set for each country improves over time with addition of new surveys, recent estimates may seem inconsistent with earlier estimates. WHO estimates undergo country consultation prior to release.  
  
  
  
Methods and guidance available to countries for the compilation of the data at the national level:  
  
Information not available.  
  
  
  
Quality assurance  
  
Information not available  
  
  
  
  
  
Data Sources  
  
Description:  
  
Prevalence rates by age-by-sex from national representative population surveys conducted since 1990:  
  
officially recognized by the national health authority;  
  
of randomly selected participants representative of the general population; and  
  
reporting at least one indicator measuring current tobacco use, daily tobacco use, current tobacco smoking, daily tobacco smoking, current cigarette smoking or daily cigarette smoking.  
  
  
  
Official survey reports are gathered from Member States by one or more of the following methods:  
  
reporting system of the WHO FCTC;  
  
review of surveys conducted under the aegis of the Global Tobacco Surveillance System;  
  
review of other surveys conducted in collaboration with WHO such as STEPwise surveys and World Health Surveys;  
  
scanning of international surveillance databases such as those of the Demographic and Health Survey (DHS), Multiple Indicator Cluster Survey (MICS) and the World Bank Living Standards Measurement Survey (LSMS); and  
  
identification and review of country-specific surveys that are not part of international surveillance systems.  
  
Collection process:  
  
Reports either downloaded from websites or emailed by national counterparts. WHO shares and makes public the methodologies for its estimates through the WHO global report on trends in tobacco smoking 2000-2025 and the WHO Report on the Global Tobacco Epidemic. The WHO estimates undergo country consultation prior to publication.  
  
  
  
Data Availability  
  
Description:  
  
The indicator is available for all countries from 2000 to the current year, depending on availability of empirical data for each country.  
  
  
  
Calendar  
  
Data collection:  
  
 Continual data collection.  
  
   
  
Data release:  
  
Biennial release via the WHO Global Report on Trends in Tobacco Smoking 2000-2025, the WHO Global Health Observatory and the Implementation Database of the WHO FCTC.  
  
Data providers  
  
WHO Member States, Parties to the WHO FCTC.  
  
  
  
  
  
Data compilers  
  
WHO Department of the Prevention of Noncommunicable Diseases; Secretariat of the WHO Framework Convention on Tobacco Control.  
  
  
  
References  
  
URL:  
  
http://www.who.int/tobacco/surveillance/tqs/en/   
  
http://www.who.int/gho/en/  
  
http://apps.who.int/fctc/implementation/database/  
  
  
  
Related indicators as of February 2020  
  
Indicator 3.4.1: Mortality rate attributed to cardiovascular disease, cancer, diabetes or chronic respiratory disease

Last updated: 19 July 2016  
  
  
  
Goal 3: Ensure healthy lives and promote well-being for all at all ages  
  
Target 3.6: By 2020, halve the number of global deaths and injuries from road traffic accidents  
  
Indicator 3.6.1: Death rate due to road traffic injuries  
  
  
  
Institutional information  
  
  
  
Organization(s):  
  
  
  
World Health Organization (WHO)  
  
  
  
Concepts and definitions  
  
  
  
Definition:  
  
  
  
Death rate due to road traffic injuries as defined as the number of road traffic fatal injury deaths per 100,000 population.  
  
  
  
Concepts:  
  
  
  
Numerator: Number of deaths due to road traffic crashes  
  
  
  
Absolute figure indicating the number of people who die as a result of a road traffic crash.  
  
  
  
Denominator: Population (number of people by country)  
  
  
  
Comments and limitations:  
  
  
  
There are no vital registration data for all countries to make comparison against the data received on the survey. We published only confidence intervals for countries that have poor completeness of vital registration data. Also we cannot collect road traffic data every year using this methodology outlined in the Global status report.  
  
  
  
Methodology  
  
  
  
Computation Method:  
  
  
  
Our model is based on the quality of data we received. As a health organization, we rely primarily on the submission of vital registration data from countries’ Ministries of Health to WHO (through the official channels). These data, on all causes of death, are then analysed by our colleagues in the Health Information Systems department to decide on how good the data are, that is, determining if there is good completeness and coverage of deaths for all causes.   
  
  
  
We classified the countries on 4 categories or groups namely,  
  
  
  
Group1: Countries with death registration data (good vital/ death registration data)  
  
Group2: Countries with other sources of information on causes of death  
  
Group3: Countries with population less than 150 000  
  
Group4: Countries without eligible death registration data.  
  
  
  
The Health Information Systems department analyses the quality and the completeness of the data. For the road safety model, if the country is considered by WHO to have good vital registration (VR) data this means that the country is in group1, then we don’t apply a regression model to come up with an estimate (we may, however, project forward if the vital registration data are dated). If the country is considered in group 4 then we apply a negative binomial regression where N is the total road traffic deaths , C is constant term, Xi are a set of explanatory covariates, Pop is the population for the country-year, and ? is the negative binomial error term.  
  
  
  
For the countries from group 2, the regression method described above was used to project forward the most recent year for which an estimate of total deaths were available.  
  
  
  
Finally, the countries from group 3 which have a population less than 150,000 and did not have eligible death registration data, regression estimates were not used. Only the reported death were directly without adjustment.  
  
  
  
More details about this estimation process in Global Status Report on Road Safety 2015.  
  
  
  
Disaggregation:  
  
  
  
We disaggregated the data by types of road users, age, sex, income groups and WHO regions  
  
  
  
Treatment of missing values:  
  
  
  
At country level  
  
  
  
Treatment of missing data was carried out as follows:  
  
  
  
1) Identified missing values (or years) in vital registration (VR) data and looked for other sources in our case data from the questionnaire/survey (reported ) for these years. We then calculated the factor VR/Reported for the latest 3 years where VR and Reported data were available and used this factor to adjust Reported data to replace the missing value of VR data.  
  
  
  
2) In the case where there is missing data in VR and Reported data, the missing values were imputed with a negative binomial regression of rate for each country if the regression converged or was significant. Otherwise we used the average rate of years with data.  
  
  
  
At regional and global levels  
  
  
  
Same as the procedure described for 11.2 above  
  
  
  
Regional aggregates:  
  
  
  
We used the WHO's regional grouping and the average to calculate the rate for each region. This means sum of road traffic deaths for region (i) multiplied by 100,000 and divided by the population in region(i).  
  
  
  
Sources of discrepancies:  
  
  
  
WHO's estimation of road traffic rates are, in many countries, different to the official estimates for the reasons described above that relate to our methodology.  
  
  
  
There are also differences in the data used for population between the national data and the estimates produced by the United Nations department of population.  
  
  
  
Data Sources  
  
  
  
Description:  
  
  
  
For the road traffic deaths we have two sources of data. Data from Global Status Report on Road Safety survey and Vital registration or certificate deaths data that WHO receive every year from member states (ministries of health).  
  
  
  
For the population, we used data from the United Nations / Department of Economic and Social Affairs/ Population division.  
  
  
  
Collection process:  
  
  
  
The methodology involved collecting data from a number of different sectors and stakeholders in each country is as follows. National Data Coordinators (NDCs), who were nominated by their governments, were trained in the project methodology. As representatives of their ministries, they were required to identify up to eight other road safety experts within their country from different sectors (e.g. health, police, transport, nongovernmental organizations and/or academia) and to facilitate a consensus meeting of these respondents. While each expert responded to the questionnaire based on their expertise, the consensus meeting facilitated by NDCs allowed for discussion of all responses, and the group used this discussion to agree on one final set of information that best represented their country’s situation at the time (up to 2014, using the most recent data available). This was then submitted to the World Health Organization (WHO). More details are in the Global Status Report on Road Safety 2015. A guide to our questionnaire describing age groups and other dimensions was provided to countries in order to standardize data collected.  
  
  
  
Data Availability  
  
  
  
Description:  
  
  
  
We have data for 194 countries.  
  
  
  
Time series:  
  
  
  
From 2000 to 2013  
  
  
  
Calendar  
  
  
  
Data collection:  
  
  
  
The next collection of data is planned for 2017, although the data collected on fatalities is likely to be 2015 or 2016 (we will ask for the most recent country data available).   
  
  
  
Data release:  
  
  
  
The new data for this indicator will be published in early 2019  
  
   
  
Data providers  
  
  
  
The road traffic deaths data were provided nationally by mainly three ministries, namely, ministry of health, ministry of interior and ministry of transport  
  
  
  
Data compilers  
  
  
  
WHO is the organization responsible for compilation and reporting on this indicator at the global level  
  
  
  
References  
  
  
  
URL:  
  
  
  
http://www.who.int/violence\_injury\_prevention  
  
  
  
References:  
  
  
  
http://www.who.int/violence\_injury\_prevention/road\_safety\_status/2015/en/  
  
  
  
Related indicators as of February 2020  
  
  
  
3.5, 11.2

Last updated: 19 July 2016  
  
  
  
Goal 3: Ensure healthy lives and promote well-being for all at all ages  
  
Target 3.9: By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination  
  
Indicator 3.9.1: Mortality rate attributed to household and ambient air pollution  
  
  
  
Institutional information  
  
  
  
Organization(s):  
  
  
  
World Health Organization (WHO)  
  
  
  
Concepts and definitions  
  
  
  
Definition:  
  
  
  
The mortality attributable to the joint effects of household and ambient air pollution can be expressed as: Number of deaths, Death rate. Death rates are calculated by dividing the number of deaths by the total population (or indicated if a different population group is used, e.g. children under 5 years).  
  
  
  
Evidence from epidemiological studies have shown that exposure to air pollution is linked, among others, to the important diseases taken into account in this estimate:  
  
  
  
- Acute respiratory infections in young children (estimated under 5 years of age);  
  
- Cerebrovascular diseases (stroke) in adults (estimated above 25 years);  
  
- Ischaemic heart diseases (IHD) in adults (estimated above 25 years);  
  
- Chronic obstructive pulmonary disease (COPD) in adults (estimated above 25 years); and  
  
- Lung cancer in adults (estimated above 25 years).  
  
  
  
Rationale:  
  
  
  
As part of a broader project to assess major risk factors to health, the mortality resulting from exposure to ambient (outdoor) air pollution and household (indoor) air pollution from polluting fuel use for cooking was assessed. Ambient air pollution results from emissions from industrial activity, households, cars and trucks which are complex mixtures of air pollutants, many of which are harmful to health. Of all of these pollutants, fine particulate matter has the greatest effect on human health. By polluting fuels is understood as wood, coal, animal dung, charcoal, and crop wastes, as well as kerosene.  
  
Air pollution is the biggest environmental risk to health. The majority of the burden is borne by the populations in low and middle-income countries.  
  
  
  
Concepts:  
  
  
  
The mortality resulting from exposure to ambient (outdoor) air pollution and household (indoor) air pollution from polluting fuels use for cooking was assessed. Ambient air pollution results from emissions from industrial activity, households, cars and trucks which are complex mixtures of air pollutants, many of which are harmful to health. Of all of these pollutants, fine particulate matter has the greatest effect on human health. By polluting fuels is understood kerosene, wood, coal, animal dung, charcoal, and crop wastes.  
  
  
  
Comments and limitations:  
  
  
  
An approximation of the combined effects of risk factors is possible if independence and little correlation between risk factors with impacts on the same diseases can be assumed (Ezzati et al, 2003). In the case of air pollution, however, there are some limitations to estimate the joint effects: limited knowledge on the distribution of the population exposed to both household and ambient air pollution, correlation of exposures at individual level as household air pollution is a contributor to ambient air pollution, and non-linear interactions (Lim et al, 2012; Smith et al, 2014). In several regions, however, household air pollution remains mainly a rural issue, while ambient air pollution is predominantly an urban problem. Also, in some continents, many countries are relatively unaffected by household air pollution, while ambient air pollution is a major concern. If assuming independence and little correlation, a rough estimate of the total impact can be calculated, which is less than the sum of the impact of the two risk factors.  
  
  
  
Methodology  
  
  
  
Computation Method:  
  
  
  
Attributable mortality is calculated by first combining information on the increased (or relative) risk of a disease resulting from exposure, with information on how widespread the exposure is in the population (e.g. the annual mean concentration of particulate matter to which the population is exposed, proportion of population relying primarily on polluting fuels for cooking).  
  
  
  
This allows calculation of the 'population attributable fraction' (PAF), which is the fraction of disease seen in a given population that can be attributed to the exposure (e.g in that case of both the annual mean concentration of particulate matter and exposure to polluting fuels for cooking).  
  
  
  
Applying this fraction to the total burden of disease (e.g. cardiopulmonary disease expressed as deaths), gives the total number of deaths that results from exposure to that particular risk factor (in the example given above, to ambient and household air pollution).  
  
  
  
To estimate the combined effects of risk factors, a joint population attributable fraction is calculated, as described in Ezzati et al (2003).  
  
  
  
The mortality associated with household and ambient air pollution was estimated based on the calculation of the joint population attributable fractions assuming independently distributed exposures and independent hazards as described in (Ezzati et al, 2003).  
  
  
  
The joint population attributable fraction (PAF) were calculated using the following formula:  
  
PAF=1-PRODUCT (1-PAFi)   
  
where PAFi is PAF of individual risk factors.  
  
  
  
The PAF for ambient air pollution and the PAF for household air pollution were assessed separately, based on the Comparative Risk Assessment (Ezzati et al, 2002) and expert groups for the Global Burden of Disease (GBD) 2010 study (Lim et al, 2012; Smith et al, 2014).  
  
  
  
For exposure to ambient air pollution, annual mean estimates of particulate matter of a diameter of less than 2.5 um (PM25) were modelled as described in (WHO 2016, forthcoming), or for Indicator 11.6.2.  
  
  
  
For exposure to household air pollution, the proportion of population with primary reliance on polluting fuels use for cooking was modelled (see Indicator 7.1.2 [polluting fuels use=1-clean fuels use]). Details on the model are published in (Bonjour et al, 2013).   
  
  
  
The integrated exposure-response functions (IER) developed for the GBD 2010 (Burnett et al, 2014) and further updated for the GBD 2013 study (Forouzanfar et al, 2015) were used.  
  
  
  
The percentage of the population exposed to a specific risk factor (here ambient air pollution, i.e. PM2.5) was provided by country and by increment of 1 ug/m3; relative risks were calculated for each PM2.5 increment, based on the IER. The counterfactual concentration was selected to be between 5.6 and 8.8 ug/m3, as described elsewhere (Ezzati et al, 2002; Lim et al, 2012). The country population attributable fraction for ALRI, COPD, IHD, stroke and lung cancer were calculated using the following formula :  
  
  
  
PAF=SUM(Pi(RR-1)/(SUM(RR-1)+1)  
  
  
  
where i is the level of PM2.5 in ug/m3, and Pi is the percentage of the population exposed to that level of air pollution, and RR is the relative risk.  
  
  
  
The calculations for household air pollution are similar, and are explained in detailed elsewhere (WHO 2014a).  
  
  
  
Disaggregation:  
  
  
  
The data is available by country, by sex, by disease, and by age.  
  
  
  
Treatment of missing values:  
  
  
  
At country level  
  
  
  
Countries with no data are reported as blank.  
  
  
  
At regional and global levels  
  
  
  
Countries with no data are not reported in the regional and global averages.  
  
  
  
Regional aggregates:  
  
  
  
Number of deaths by country is summed and divided by the population of countries included in the region (regional aggregates) or by the total population (global aggregates).  
  
  
  
Sources of discrepancies:  
  
  
  
Underlying differences between country produced and internationally estimated data may due to :  
  
- Different exposure data (annual mean concentration of particulate matter of less than 2.5 um of diameter, proportion of population using clean fuels and technology for cooking)  
  
- Different exposure-risk estimates  
  
- Different underlying mortality data  
  
  
  
Data Sources  
  
  
  
Exposure: Indicator 7.1.2 was used as exposure indicator for household air pollution.  
  
  
  
Annual mean concentration of particulate matter of less than 2.5 um was used as exposure indicator for ambient air pollution. The data is modelled according to methods described for Indicator 11.6.2.  
  
  
  
Exposure-risk function: The integrated exposure-response functions (IER) developed for the GBD 2010 (Burnett et al, 2014) and further updated for the GBD 2013 study (Forouzanfar et al, 2015) were used.  
  
  
  
Health data: The total number of deaths by disease, country, sex and age group have been developed by the World Health Organization (WHO 2014b).  
  
  
  
Data Availability  
  
  
  
Data is available by country, sex, disease and age.  
  
  
  
Calendar  
  
  
  
NA  
  
  
  
Data providers  
  
  
  
Ministry of Health, Ministry of Environment.  
  
  
  
Data compilers  
  
  
  
WHO  
  
  
  
References  
  
  
  
URL:  
  
  
  
www.who.int/gho/phe  
  
  
  
References:  
  
  
  
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Related indicators as of February 2020  
  
  
  
11.6.2:  
  
Annual mean levels of fine particulate matter (e.g. PM2.5 and PM10) in cities (population weighted)  
  
  
  
7.1.2:  
  
Proportion of population with primary reliance on clean fuels and technology  
  
Comments:

Last updated: September 2019  
  
  
  
  
  
  
  
  
  
Goal 3: Ensure healthy lives and promote well-being for all at all ages  
  
Target 3.2: By 2030, end preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under-5 mortality to at least as low as 25 per 1,000 live births  
  
Indicator 3.2.2: Neonatal mortality rate  
  
  
  
Institutional information  
  
  
  
Organization(s):  
  
  
  
United Nations Children's Fund (UNICEF)  
  
  
  
Concepts and definitions  
  
  
  
Definition:  
  
  
  
The neonatal mortality rate is the probability that a child born in a specific year or period will die during the first 28 completed days of life if subject to age-specific mortality rates of that period, expressed per 1000 live births.  
  
  
  
Neonatal deaths (deaths among live births during the first 28 completed days of life) may be subdivided into early neonatal deaths, occurring during the first 7 days of life, and late neonatal deaths, occurring after the 7th day but before the 28th completed day of life.  
  
  
  
Rationale:  
  
  
  
Mortality rates among young children are a key output indicator for child health and well-being, and, more broadly, for social and economic development. It is a closely watched public health indicator because it reflects the access of children and communities to basic health interventions such as vaccination, medical treatment of infectious diseases and adequate nutrition.  
  
  
  
Methodology  
  
  
  
Computation Method:  
  
  
  
The UN Inter-agency Group for Child Mortality Estimation (UN IGME) estimates are derived from nationally representative data from censuses, surveys or vital registration systems. The UN IGME does not use any covariates to derive its estimates. It only applies a curve fitting method to good-quality empirical data to derive trend estimates after data quality assessment. In most cases, the UN IGME estimates are close to the underlying data. The UN IGME aims to minimize the errors for each estimate, harmonize trends over time and produce up-to-date and properly assessed estimates. The UN IGME produces neonatal mortality rate estimates with a Bayesian spline regression model which models the ratio of neonatal mortality rate / (under-five mortality rate - neonatal mortality rate). Estimates of NMR are obtained by recombining the estimates of the ratio with the UN IGME-estimated under-five mortality rate. See the references for details.   
  
  
  
For the underlying data mentioned above, the most frequently used methods are as follows:  
  
  
  
Civil registration: Number of children who died during the first 28 days of life and the number of births used to calculate neonatal mortality rates.  
  
  
  
Censuses and surveys: Censuses and surveys often include questions on household deaths in the last 12 months, which can be used to calculate mortality estimates.  
  
  
  
Surveys: A direct method is used based on a full birth history, a series of detailed questions on each child a woman has given birth to during her lifetime. Neonatal, post-neonatal, infant, child and under-five mortality estimates can be derived from the full birth history module.  
  
  
  
Disaggregation:  
  
  
  
The common disaggregation for mortality indicators includes disaggregation by sex, age (neonatal, infant, child), wealth quintile, residence, and mother’s education. Disaggregated data are not always available. Disaggregation by geographic location is usually at the regional level, or the minimum provincial level for survey or census data. Data from well-functioning vital registration systems can provide further geographical breakdowns.  
  
  
  
  
  
Treatment of missing values:  
  
  
  
At country level  
  
  
  
UN IGME estimates are based on underlying empirical data. If the empirical data refer to an earlier reference period than the end year of the period the estimates are reported, UN IGME extrapolates the estimates to the common end year. UN IGME does not use any covariates to derive the estimates.  
  
  
  
At regional and global levels  
  
  
  
To construct aggregate estimates of neonatal mortality before 1990, regional averages of mortality rates were used for country-years with missing information and weighted by the respective population in the country-year.  
  
  
  
Regional aggregates:  
  
  
  
Global and regional estimates of neonatal mortality rates are derived by aggregating the number of country-specific neonatal deaths estimated by the UN IGME and the country-specific births from the United Nations Population Division, based on a birth-week cohort approach.  
  
  
  
Sources of discrepancies:  
  
  
  
The UN IGME estimates are derived based on national data. Countries often use a single source as their official estimates or apply methods different from the UN IGME methods to derive estimates. The differences between the UN IGME estimates and national official estimates are usually not large if empirical data has good quality.  
  
  
  
Many countries lack a single source of high-quality data covering the last several decades. Data from different sources require different calculation methods and may suffer from different errors, for example random errors in sample surveys or systematic errors due to misreporting. As a result, different surveys often yield widely different estimates of neonatal mortality for a given time period and available data collected by countries are often inconsistent across sources. It is important to analyse, reconcile and evaluate all data sources simultaneously for each country. Each new survey or data point must be examined in the context of all other sources, including previous data. Data suffer from sampling or non-sampling errors (such as misreporting of age and survivor selection bias; underreporting of child deaths is also common). UN IGME assesses the quality of underlying data sources and adjusts data when necessary. Furthermore, the latest data produced by countries often are not current estimates but refer to an earlier reference period. Thus, the UN IGME also projects estimates to a common reference year. In order to reconcile these differences and take better account of the systematic biases associated with the various types of data inputs, the UN IGME has developed an estimation method to fit a smoothed trend curve to a set of observations and to extrapolate that trend to a defined time point. The UN IGME aims to minimize the errors for each estimate, harmonize trends over time and produce up-to-date and properly assessed estimates of child mortality. In the absence of error-free data, there will always be uncertainty around data and estimates. To allow for added comparability, the UN IGME generates such estimates with uncertainty bounds. Applying a consistent methodology also allows for comparisons between countries, despite the varied number and types of data sources. UN IGME applies a common methodology across countries and uses original empirical data from each country but does not report figures produced by individual countries using other methods, which would not be comparable to other country estimates.  
  
  
  
Data Sources  
  
  
  
Description:  
  
  
  
Nationally-representative estimates of child mortality can be derived from a number of different sources, including civil registration and sample surveys. Demographic surveillance sites and hospital data are excluded as they are rarely representative. The preferred source of data is a civil registration system that records births and deaths on a continuous basis. If registration is complete and the system functions efficiently, the resulting estimates will be accurate and timely. However, many countries do not have well-functioning vital registration systems. In such cases household surveys, such as the UNICEF-supported Multiple Indicator Cluster Surveys (MICS), the USAID-supported Demographic and Health Surveys (DHS) and periodic population censuses have become the primary sources of data on under-five and neonatal mortality. These surveys ask women about the survival of their children, and it is these reports that provide the basis of child mortality estimates for a majority of low- and middle- income countries. These data, however, are often subject to sampling or/and non-sampling errors, which might be substantial.  
  
  
  
Civil registration  
  
  
  
Civil registration data are the preferred data source for under-five, infant and neonatal mortality estimation. The calculation of neonatal mortality rates are derived from the number of neonatal deaths and number of births over a period. For civil registration data (with available data on the number of deaths and mid-year populations), initially annual observations were constructed for all observation years in a country.  
  
  
  
Population census and household survey data  
  
  
  
The majority of survey data comes from the full birth history (FBH), whereby women are asked for the date of birth of each of their children, whether the child is still alive, and if not the age at death.  
  
  
  
Collection process:  
  
  
  
For neonatal mortality, UNICEF and the UN IGME compile data from all available data sources, including household surveys, censuses, vital registration data etc. UNICEF and the UN IGME compile these data whenever they are available publicly and then conduct data quality assessment. UNICEF also collects data through UNICEF country offices by reaching national counterpart(s). The UN IGME also collects vital registration data reported by Ministries of Health or other relevant agencies to WHO.   
  
  
  
Adjustments of empirical data are made in high prevalence HIV settings to adjust for under reporting of child mortality due to missing mothers in survey data. UN IGME than applies a curve fitting method to these empirical data to derive the UN IGME trend estimates of the neonatal mortality rates. Because deaths by crisis are difficult to capture in household survey or census data, UN IGME adjusts the neonatal mortality estimates for crisis mortality.  
  
  
  
Then the UN IGME conducts an annual country consultation by sending the UN IGME estimates, empirical data used to derive the UN IGME estimates, and notes on methodology to National Statistical Offices, and to Ministries of Health or relevant agencies for feedback on the UN IGME estimates and the empirical data. National Statistical Offices, Ministries of Health or relevant agencies review the UN IGME estimates and empirical data, send feedback or comments, and sometimes supply additional empirical data.  
  
  
  
To increase the transparency of the estimation process, the UN IGME has developed a child mortality web portal: CME (www.childmortality.org). It includes all available data and shows estimates for each country. Once the new estimates are finalized, CME will be updated to reflect all available data and the new estimates.  
  
  
  
Data Availability  
  
  
  
Description:  
  
  
  
Indicator is available for all countries from 1990 (or earlier) to 2018, depending on availability of empirical data for each country before 1990.  
  
  
  
Calendar  
  
  
  
Data collection:  
  
  
  
The UN IGME underlying database is continuously updated whenever new empirical data become available.   
  
  
  
Data release:  
  
  
  
A new round of estimates of the UN IGME will be released in 2020; usually, the release date is in the month of September.   
  
  
  
Data providers  
  
  
  
National Statistical Office or the Ministry of Health are mostly involved in generating neonatal mortality data at the national level.  
  
  
  
Data compilers  
  
  
  
UNICEF  
  
  
  
References  
  
  
  
URL:  
  
  
  
childmortality.org and https://data.unicef.org/topic/child-survival/neonatal-mortality/  
  
  
  
References:  
  
  
  
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Related indicators as of February 2020  
  
  
  
3.2.1:  
  
Under-five mortality rate

Last updated: 12February 2020  
  
Goal 3: Ensure healthy lives and promote well-being for all at all ages  
  
Target 3.1: By 2030, reduce the global maternal mortality ratio to less than 70 per 100,000 live births  
  
Indicator 3.1.1: Maternal mortality ratio  
  
  
  
Institutional information  
  
  
  
Organization(s):  
  
  
  
World Health Organization (WHO). Department of Sexual and Reproductive Health and Research.  
  
  
  
Concepts and definitions  
  
  
  
Definition:  
  
  
  
The maternal mortality ratio (MMR) is defined as the number of maternal deaths during a given time period per 100,000 live births during the same time period. It depicts the risk of maternal death relative to the number of live births and essentially captures the risk of death in a single pregnancy or a single live birth.  
  
Maternal deaths: The annual number of female deaths from any cause related to or aggravated by pregnancy or its management (excluding accidental or incidental causes) during pregnancy and childbirth or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, expressed per 100,000 live births, for a specified time period.  
  
  
  
Rationale:  
  
  
  
All maternal mortality indicators derived from the 2019 estimation round include a point-estimate and an 80% uncertainty interval (UI). Data are available and can be downloaded from the webpage “maternal mortality – levels and trends 2000-2017: http://mmr2017.srhr.org. Both point-estimates and 80% UIs should be taken into account when assessing estimates.  
  
  
  
For example:   
  
The estimated 2017 global MMR is 211 (UI 199 to 243)  
  
  
  
This means:  
  
• The point-estimate is 211 and the 80% uncertainty interval ranges 199 to 243.  
  
• There is a 50% chance that the true 2017 global MMR lies above 211, and a 50% chance that the true value lies below 211.  
  
• There is an 80% chance that the true 2017 global MMR lies between 199 and 243.  
  
• There is still a 10% chance that the true 2017 global MMR lies above 243, and a 10% chance that the true value lies below 199.  
  
  
  
Other accurate interpretations include:  
  
• We are 90% certain that the true 2017 global MMR is at least 199.  
  
• We are 90% certain that the true 2017 global MMR is 243 or less.  
  
  
  
The amount of data available for estimating an indicator and the quality of that data determine the width of an indicator’s UI. As data availability and quality improve, the certainty increases that an indicator’s true value lies close to the point-estimate.  
  
  
  
Concepts:  
  
  
  
Definitions related to maternal death in ICD-10  
  
  
  
Maternal death: The death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management (from direct or indirect obstetric death), but not from accidental or incidental causes.  
  
  
  
Pregnancy-related death: The death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the cause of death.  
  
  
  
Late maternal death: The death of a woman from direct or indirect obstetric causes, more than 42 days, but less than one year after termination of pregnancy  
  
  
  
Comments and limitations:  
  
  
  
The extent of maternal mortality in a population is essentially the combination of two factors:  
  
i. The risk of death in a single pregnancy or a single live birth.  
  
ii. The fertility level (i.e. the number of pregnancies or births that are experienced by women of reproductive age).  
  
  
  
The maternal mortality ratio (MMR) is defined as the number of maternal deaths during a given time period per 100 000 live births during the same time period. It depicts the risk of maternal death relative to the number of live births and essentially captures (i) above.  
  
  
  
By contrast, the maternal mortality rate (MMRate) is calculated as the number of maternal deaths divided by person-years lived by women of reproductive age. The MMRate captures both the risk of maternal death per pregnancy or per total birth (live birth or stillbirth), and the level of fertility in the population. In addition to the MMR and the MMRate, it is possible to calculate the adult lifetime risk of maternal mortality for women in the population. An alternative measure of maternal mortality, the proportion of deaths among women of reproductive age that are due to maternal causes (PM), is calculated as the number of maternal deaths divided by the total deaths among women aged 15–49 years.  
  
  
  
Related Statistical measures of maternal mortality  
  
  
  
Maternal mortality ratio (MMR): Number of maternal deaths during a given time period per 100,000 live births during the same time period.  
  
  
  
Maternal mortality rate (MMRate): Number of maternal deaths divided by person-years lived by women of reproductive age.  
  
  
  
Adult lifetime risk of maternal death: The probability that a 15-year-old woman will die eventually from a maternal cause.  
  
  
  
The proportion of deaths among women of reproductive age that are due to maternal causes (PM): The number of maternal deaths in a given time period divided by the total deaths among women aged 15–49 years.  
  
  
  
Methodology  
  
  
  
Computation Method:  
  
  
  
The maternal mortality ratio can be calculated by dividing recorded (or estimated) maternal deaths by total recorded (or estimated) live births in the same period and multiplying by 100 000. Measurement requires information on pregnancy status, timing of death (during pregnancy, childbirth, or within 42 days of termination of pregnancy), and cause of death.  
  
  
  
The maternal mortality ratio can be calculated directly from data collected through vital registration systems, household surveys or other sources. There are often data quality problems, particularly related to the underreporting and misclassification of maternal deaths. Therefore, data are often adjusted in order to take these data quality issues into account. Some countries undertake these adjustments or corrections as part of specialized/confidential enquiries or administrative efforts embedded within maternal mortality monitoring programmes.  
  
  
  
Disaggregation:  
  
  
  
Current MMR estimates are reported at Country, Regional, and Global levels. Regional level estimates have income strata per World Bank classification, by UNICEF and UNFPA regional groupings  
  
  
  
Bayesian maternal mortality estimation model (the BMat model)  
  
  
  
Estimation and projection of maternal mortality indicators are undertaken using the BMat model. This model is intended to ensure that the MMR estimation approach is consistent across all countries but remains flexible in that it is based on covariate-driven trends to inform estimates in countries or country-periods with limited information; captures observed trends in countries with longer time series of observations; and takes into account the differences in stochastic and sampling errors across observations.  
  
  
  
  
  
The model is summarized as follows:  
  
  
  
where   
  
= the expected proportion of non-HIV-related deaths to women aged 15–49 years that are due to maternal causes [NA = non-HIV; formerly it referred to “non-AIDS”]  
  
GDP = gross domestic product per capita (in 2011 PPP US dollars)  
  
GFR = general fertility rate (live births per woman aged 15–49 years)  
  
SBA = proportion of births attended by skilled health personnel  
  
 = random intercept term for country j  
  
φk = random intercept term for region k.  
  
  
  
For countries with data available on maternal mortality, the expected proportion of non-HIV-related maternal deaths was based on country and regional random effects, whereas for countries with no data available, predictions were derived using regional random effects only.   
  
  
  
The resulting estimates of the were used to obtain the expected non-HIV MMR through the following relationship:  
  
  
  
Expected non-HIV MMR =EPMNA\*(1-a)\*E/B  
  
  
  
where  
  
a = the proportion of HIV-related deaths among all deaths to women aged 15–49 years  
  
E = the total number of deaths to women of reproductive age  
  
B = the number of births.  
  
  
  
Estimation of HIV-related indirect maternal deaths  
  
For countries with generalized HIV epidemics and high HIV prevalence, HIV/AIDS is a leading cause of death during pregnancy and post-delivery. There is also some evidence from community studies that women with HIV infection have a higher risk of maternal death, although this may be offset by lower fertility. If HIV is prevalent, there will also be more incidental HIV deaths among pregnant and postpartum women. When estimating maternal mortality in these countries, it is, thus, important to differentiate between incidental HIV deaths (non-maternal deaths) and HIV-related indirect maternal deaths (maternal deaths caused by the aggravating effects of pregnancy on HIV) among HIV-positive pregnant and postpartum women who have died (i.e. among all HIV-related deaths occurring during pregnancy, childbirth and puerperium).  
  
  
  
The number of HIV-related indirect maternal deaths , is estimated by:  
  
  
  
  
  
  
  
where  
  
a\*E = the total number of HIV-related deaths among all deaths to women aged 15–49.  
  
v = is the proportion of HIV-related deaths to women aged 15–49 that occur during pregnancy. The value of v can be computed as follows: v = c k GFR / [1 + c(k-1) GFR] where GFR is the general fertility rate, and where c is the average exposure time (in years) to the risk of pregnancy-related mortality per live birth (set equal to 1 for this analysis), and where k is the relative risk of dying from AIDS for a pregnant versus a non-pregnant woman (reflecting both the decreased fertility of HIV-positive women and the increased mortality risk of HIV-positive pregnant women). The value of k was set at 0.3.  
  
u = is the fraction of pregnancy-related AIDS deaths assumed to be indirect maternal deaths. The UN MMEIG/TAG reviewed available study data on AIDS deaths among pregnant women and recommended using u = 0.3.  
  
  
  
For observed PMs, we assumed that the total reported maternal deaths are a combination of the proportion of reported non-HIV-related maternal deaths and the proportion of reported HIV-related (indirect) maternal deaths, where the latter is given by a\*v for observations with a “pregnancy-related death” definition and a\*v\*u for observations with a “maternal death” definition.  
  
  
  
At regional and global levels  
  
  
  
To inform projection of trends across periods where data are sparse, or for countries with little or no data at all, the BMaT statistical model is used to estimate maternal mortality. The model includes factors known to be associated with maternal mortality as predictor covariates (GDP, GFR and SAB).  
  
  
  
Regional aggregates:  
  
  
  
The maternal mortality ratio can be calculated by dividing recorded (or estimated) maternal deaths by total recorded (or estimated) live births in the same period and multiplying by 100,000. Measurement requires information on pregnancy status, timing of death (during pregnancy, childbirth, or within 42 days of termination of pregnancy), and cause of death.  
  
  
  
The maternal mortality ratio can be calculated directly from data collected through vital registration systems, household surveys or other sources. There are often data quality problems, particularly related to the underreporting and misclassification of maternal deaths. Therefore, data are often adjusted in order to take these data quality issues into account.  
  
  
  
Because maternal mortality is a relatively rare event, large sample sizes are needed if household surveys are used to identify recent maternal deaths in the household (e.g. last year). This may still result in estimates with large confidence intervals, limiting the usefulness for cross-country or over-time comparisons.  
  
  
  
To reduce sample size requirements, the sisterhood method used in the DHS and multiple indicator surveys (MICS) measures maternal mortality by asking respondents about the survival of sisters. It should be noted that the sisterhood method results in pregnancy-related mortality: regardless of the cause of death, all deaths occurring during pregnancy, birth or the six weeks following the termination of the pregnancy are included in the numerator of the maternal mortality ratio.  
  
  
  
Censuses have also included questions about maternal deaths with variable success.  
  
  
  
Reproductive Age Mortality Studies (RAMOS) is a special study that uses varied sources, depending on the context, to identify maternal deaths; no single source identifies all the deaths. Interviews with household members and health-care providers and reviews of facility records are used to classify the deaths as maternal or otherwise. If properly conducted, this approach provides a fairly complete estimation of maternal mortality (in the absence of reliable routine registration systems) and could provide subnational MMRs. However, inadequate identification of all deaths of reproductive-aged women results in underestimation of maternal mortality levels. This approach can be complicated, time-consuming and expensive to undertake – particularly on a large scale. The number of live births used in the computation may not be accurate, especially in settings where most women deliver at home.   
  
  
  
WHO, UNICEF, UNFPA, The World Bank Group, and the United Nations Population Division have developed a method to adjust existing data in order to take into account these data quality issues and ensure the comparability of different data sources. This method involves assessment of data for completeness and, where necessary, adjustment for incompleteness and misclassification of deaths as well as development of estimates through statistical modelling for countries with no reliable national level data.  
  
  
  
Data on maternal mortality and other relevant variables are obtained through databases maintained by WHO, the United Nations Population Division, UNICEF, and The World Bank Group. Data available from countries varies in terms of source and methods. Given the variability of the sources of data, different methods are used for each data source in order to arrive at country estimates that are comparable and permit regional and global aggregation.  
  
  
  
Currently, only about one third of all countries/territories have reliable data available and do not need additional estimations. For about half of the countries included in the estimation process, country-reported estimates of maternal mortality are adjusted for the purposes of comparability of the methodologies. For the remainder of countries/territories – those with no appropriate maternal mortality data -- a statistical model is employed to predict maternal mortality levels. However, the calculated point estimates with this methodology might not represent the true levels of maternal mortality. It is advised to consider the estimates together with the reported uncertainty margins within which the true levels are known to lie.  
  
Details on adjustments and formulas are published/available here:  
  
  
  
(1) Peterson E, Chou D, Gemmill A, Moller AB, Say L, Alkema L. Estimating maternal mortality using vital registration data: a Bayesian hierarchical bivariate random walk model to estimate sensitivity and specificity of reporting for population-periods without validation data. 2019 (https://arxiv.org/abs/1909.08578)  
  
  
  
(2) World Health Organization (WHO), United Nations Children’s Fund (UNICEF), United Nations Population Fund (UNFPA), World Bank Group, United Nations Population Division. Trends in maternal mortality: 2000 to 2017: estimates by WHO, UNICEF, UNFPA, World Bank Group and the United Nations Population Division. Geneva: World Health Organization; 2019 (https://www.who.int/reproductivehealth/publications/maternal-mortality-2000-2017/en/).  
  
  
  
  
  
Sources of discrepancies:  
  
  
  
The maternal mortality ratio is defined as the number of maternal deaths divided by live births. However, to account for potential incompleteness of death recording in various data sources, the MMEIG first computes the fraction of deaths due to maternal causes from original data sources (referred to as the “proportion maternal”, or PM), and then applies that fraction to WHO estimates of total deaths among women of reproductive age to obtain an estimate of the number of maternal deaths.   
  
  
  
In other words, the following fraction is first computed from country data sources:  
  
  
  
PM= Number of maternal deaths 15-49/All female deaths at ages 15-49   
  
  
  
and then the PM is used to compute the MMR as follows:  
  
  
  
MMR=PM × (All female deaths at ages 15-49/Number of live births)  
  
  
  
where the estimate of all deaths at ages 15-49 in the second equation is derived from WHO life tables, and the number of live births is from the World Population Prospects 201.  
  
  
  
With this as background, a few reasons that MMEIG estimates may differ from national statistics are as follows:  
  
  
  
1. Civil registration and vital statistics systems are not always complete (i.e., they do not always capture 100% of all deaths) and completeness may change over time. The MMEIG estimation approach attempts to correct for this by using the above approach, which involves first computing the PM.  
  
  
  
2. The MMEIG often applies adjustment factors to the PM computed from original data to account for measurement issues (such as how the country defined “maternal” deaths; misclassification; or incompleteness).   
  
  
  
3. The MMEIG uses the standardized series of live births from the United Nations Population Division, as published in World Population Prospects 2019, in the denominator of the MMR equation. To better inform the WPP, countries should discuss discrepancies directly with the UNPD. The contact address is population@un.org; this email address is monitored regularly, and messages are dispatched to the appropriate analysts for each country or concern.   
  
  
  
4. Statistically speaking, maternal deaths are a relatively rare event, which can lead to noisy time trends in data over time. As the goal of the MMEIG estimates is to track long term progress in reducing maternal mortality, the estimation process involves some smoothing to generate a curve that better captures changes in underlying risk  
  
  
  
  
  
Data Sources  
  
  
  
Description:  
  
  
  
Please see page 14 of the report (https://www.who.int/reproductivehealth/publications/maternal-mortality-2000-2017/en/).  
  
  
  
Collection process:  
  
  
  
The MMEIG maintains an input database consisting of maternal mortality data from civil registration, population-based surveys, surveillance systems, censuses, and other specialized studies/surveys. This database is used to determine the number of maternal deaths and where possible the number of deaths among all women of reproductive age (WRA) to calculate the "PM" proportion of maternal deaths among WRA. The MMR is then calculated as MMR = PM(D/B); where "D" is the number of deaths in women aged 15-49 (WRA) and "B" is the number of live births. The number of live births is based upon the World Population Prospects 2019.   
  
  
  
Statistical modelling is undertaken to generate comparable country, regional, and global level estimates. The model's fit is assessed by cross-validation. Estimates are then reviewed with Member States through a WHO country consultation process and SDG focal points. In 2001, the WHO Executive Board endorsed a resolution (EB. 107.R8) seeking to “establish a technical consultation process bringing together personnel and perspectives from Member States in different WHO regions”. A key objective of this consultation process is “to ensure that each Member State is consulted on the best data to be used”. Since the process is an integral step in the overall estimation strategy, it is described here in brief.  
  
  
  
The country consultation process entails an exchange between WHO and technical focal person(s) in each country. It is carried out prior to the publication of estimates. During the consultation period, WHO invites focal person(s) to review input data sources, methods for estimation and the preliminary estimates. Focal person(s) are encouraged to submit additional data that may not have been taken into account in the preliminary estimates.  
  
  
  
Adjustments are made according to the data source type:  
  
  
  
(1) CRVS, for incompleteness and misclassification of maternal deaths  
  
  
  
(2) reports providing "pregnancy-related" mortality, for underreporting of these deaths, as well as over-reporting of maternal deaths due to inclusion of deaths which are accidental or incidental to pregnancy (thus outside of the definition of maternal mortality).   
  
  
  
The analysis also accounts for stochastic errors due to the general rarity of maternal deaths, sampling error in the data source, errors during data collection and processing, and other random error.  
  
  
  
Data Availability  
  
  
  
The MMR estimates are limited to countries with population of greater than 100 000. Out of 185 countries and territories, 177 have nationally representative data.  
  
  
  
Calendar  
  
  
  
Data collection:  
  
  
  
Source data are collected by countries, typically yearly for CRVS sources, every 3-5 years for specialized reviews, every 5-7 years for population-based surveys, every 10 years for censuses.   
  
  
  
Data release:  
  
  
  
The next round of MMR estimation is scheduled for publication 2022.  
  
  
  
Data providers  
  
  
  
National level data providers may be statistical offices, specialized epi monitoring bodies and Ministry of Health.  
  
  
  
Data compilers  
  
  
  
MMEIG the Maternal Mortality Estimation Interagency Group, composed of: WHO, UNICEF, UNFPA, The World Bank Group and UN Population Division.  
  
  
  
References  
  
  
  
URL: https://www.who.int/reproductivehealth/publications/maternal-mortality-2000-2017/en/.  
  
  
  
References:  
  
  
  
(1) World Health Organization (WHO), United Nations Children’s Fund (UNICEF), United Nations Population Fund (UNFPA), World Bank Group, United Nations Population Division. Trends in maternal mortality: 2000 to 2017: estimates by WHO, UNICEF, UNFPA, World Bank Group and the United Nations Population Division. Geneva: World Health Organization; 2019   
  
(2) Peterson E, Chou D, Gemmill A, Moller AB, Say L, Alkema L. Estimating maternal mortality using vital registration data: a Bayesian hierarchical bivariate random walk model to estimate sensitivity and specificity of reporting for population-periods without validation data. 2019 (https://arxiv.org/abs/1909.08578).  
  
  
  
Related indicators as of February 2020  
  
  
  
3.1.2:  
  
Proportion of births attended by skilled health personnel.  
  
  
  
9

Last updated: March 2019  
  
  
  
  
  
  
  
Goal 3: Ensure healthy lives and promote well-being for all at all ages  
  
Target 3.3: By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases  
  
Indicator 3.3.3: Malaria incidence per 1,000 population  
  
  
  
Institutional information  
  
  
  
Organization(s):   
  
Global Malaria Programme at World Health Organization (WHO)  
  
  
  
Concepts and definitions  
  
  
  
Definition:  
  
Incidence of malaria is defined as the number of new cases of malaria per 1,000 people at risk each year.  
  
  
  
Rationale:  
  
To measure trends in malaria morbidity and to identify locations where the risk of disease is highest. With this information, programmes can respond to unusual trends, such as epidemics, and direct resources to the populations most in need. This data also serves to inform global resource allocation for malaria such as when defining eligibility criteria for Global Fund finance.  
  
  
  
Concepts:  
  
Case of malaria is defined as the occurrence of malaria infection in a person whom the presence of malaria parasites in the blood has been confirmed by a diagnostic test. The population considered is the population at risk of the disease.  
  
  
  
Comments and limitations:  
  
The estimated incidence can differ from the incidence reported by a Ministry of Health which can be affected by:  
  
the completeness of reporting: the number of reported cases can be lower than the estimated cases if the percentage of health facilities reporting in a month is less than 100%  
  
the extent of malaria diagnostic testing (the number of slides examined or RDTs performed)   
  
the use of private health facilities which are usually not included in reporting systems.   
  
the indicator is estimated only where malaria transmission occurs.  
  
  
  
  
  
Methodology  
  
  
  
Computation Method:  
  
Malaria incidence (1) is expressed as the number of new cases per 100,000 population per year with the population of a country derived from projections made by the UN Population Division and the total proportion at risk estimated by a country’s National Malaria Control Programme. More specifically, the country estimates what is the proportion at high risk (H) and what is the proportion at low risk (L) and the total population at risk is estimated as UN Population x (H + L).  
  
  
  
The total number of new cases, T, is estimated from the number of malaria cases reported by a Ministry of Health which is adjusted to take into account (i) incompleteness in reporting systems (ii) patients seeking treatment in the private sector, self-medicating or not seeking treatment at all, and (iii) potential over-diagnosis through the lack of laboratory confirmation of cases. The procedure, which is described in the World malaria report 2009 (2), combines data reported by NMCPs (reported cases, reporting completeness and likelihood that cases are parasite positive) with data obtained from nationally representative household surveys on health-service use. Briefly,   
  
  
  
  
  
where:  
a is malaria cases confirmed in public sector  
b is suspected cases tested  
c is presumed cases (not tested but treated as malaria)  
d is reporting completeness  
e is test positivity rate (malaria positive fraction) = a/b  
f is cases in public sector, calculated by (a + (c x e))/d  
g is treatment seeking fraction in public sector  
h is treatment seeking fraction in private sector  
i is the fraction not seeking treatment, calculated by (1-g-h)/2   
j is cases in private sector, calculated by f x h/g  
k is cases not in private and not in public, calculated by f x i/g  
T is total cases, calculated by f + j + k.   
  
  
  
To estimate the uncertainty around the number of cases, the test positivity rate was assumed to have a normal distribution centred on the Test positivity rate value and standard deviation defined as and truncated to be in the range 0, 1. Reporting completeness was assumed to have one of three distributions, depending on the range or value reported by the NMCP. If the range was greater than 80% the distribution was assumed to be triangular, with limits of 0.8 and 1 and the peak at 0.8. If the range was greater than 50% then the distribution was assumed to be rectangular, with limits of 0.5 and 0.8. Finally, if the range was lower than 50% the distribution was assumed to be triangular, with limits of 0 and 0.5 and the peak at 0.5 (3) . If the reporting completeness was reported as a value and was greater than 80%, a beta distribution was assumed with a mean value of the reported value (maximum of 95%) and confidence intervals (CIs) of 5% round the mean value. The proportions of children for whom care was sought in the private sector and in the public sector were assumed to have a beta distribution, with the mean value being the estimated value in the survey and the standard deviation calculated from the range of the estimated 95% confidence intervals (CI) divided by 4. The proportion of children for whom care was not sought was assumed to have a rectangular distribution, with the lower limit 0 and upper limit calculated as 1 minus the proportion that sought care in public or private sector.   
  
  
  
Values for the proportion seeking care were linearly interpolated between the years that have a survey, and were extrapolated for the years before the first or after the last survey. Missing values for the distributions were imputed using a mixture of the distribution of the country, with equal probability for the years where values were present or, if there was no value at all for any year in the country, a mixture of the distribution of the region for that year. The data were analysed using the R statistical software (4). Confidence intervals were obtained from 10000 drawns of the convoluted distributions. (Afghanistan, Bangladesh, Bolivia (Plurinational State of), Botswana, Brazil, Cambodia, Colombia, Dominican Republic, Eritrea, Ethiopia, French Guiana, Gambia, Guatemala, Guyana, Haiti, Honduras, India, Indonesia, Lao People’s Democratic Republic, Madagascar, Mauritania, Mayotte, Myanmar, Namibia, Nepal, Nicaragua, Pakistan, Panama, Papua New Guinea, Peru, Philippines, Rwanda, Senegal, Solomon Islands, Timor-Leste, Vanuatu, Venezuela (Bolivarian Republic of), Viet Nam, Yemen and Zimbabwe. For India, the values were obtained at subnational level using the same methodology, but adjusting the private sector for an additional factor due to the active case detection, estimated as the ratio of the test positivity rate in the active case detection over the test positivity rate for the passive case detection. This factor was assumed to have a normal distribution, with mean value and standard deviation calculated from the values reported in 2010. Bangladesh, Bolivia, Botswana, Brazil, Cabo Verde, Colombia, Dominican Republic, French Guiana, Guatemala, Guyana, Haiti, Honduras, Myanmar (since 2013), Rwanda, Suriname and Venezuela (Bolivarian Republic of) report cases from the private and public sector together; therefore, no adjustment for private sector seeking treatment was made.   
  
  
  
For some high-transmission African countries the quality of case reporting is considered insufficient for the above formulae to be applied. In such cases estimates of the number of malaria cases are derived from information on parasite prevalence obtained from household surveys. First, data on parasite prevalence from nearly 60 000 survey records were assembled within a spatiotemporal Bayesian geostatistical model, along with environmental and sociodemographic covariates, and data distribution on interventions such as ITNs, antimalarial drugs and IRS. The geospatial model enabled predictions of Plasmodium falciparum prevalence in children aged 2–10 years, at a resolution of 5 × 5 km2, throughout all malaria endemic African countries for each year from 2000 to 2016 (see http://www.map.ox.ac.uk/making-maps/ for methods on the development of maps by the Malaria Atlas Project). Second, an ensemble model was developed to predict malaria incidence as a function of parasite prevalence. The model was then applied to the estimated parasite prevalence in order to obtain estimates of the malaria case incidence at 5 × 5 km2 resolution for each year from 2000 to 2016. Data for each 5 × 5 km2 area were then aggregated within country and regional boundaries to obtain both national and regional estimates of malaria cases (5). (Benin, Cameroon, Central African Republic, Chad, Congo, Côte d'Ivoire, Democratic Republic of the Congo, Equatorial Guinea, Gabon, Guinea, Kenya, Malawi, Mali, Mozambique, Niger, Nigeria, Somalia, South Sudan, Sudan, Togo and Zambia)  
  
For most of the elimination countries, the number of indigenous cases registered by the NMCPs are reported without further adjustments. (Algeria, Argentina, Belize, Bhutan, Cabo Verde, China, Comoros, Costa Rica, Democratic People’s Republic of Korea, Djibuti, Ecuador, El Salvador, Iran (Islamic Republic of), Iraq, Malaysia, Mexico, Paraguay, Republic of Korea, Sao Tome and Principe, Saudi Arabia, South Africa, Suriname, Swaziland and Thailand).  
  
  
  
Disaggregation:  
  
The indicator is estimated at country level.  
  
  
  
Treatment of missing values:  
  
  
  
At country level  
  
For missing values of the parameters (test positivity rate and reporting completeness) a distribution based on a mixture of the distribution of the available values is used, if any value exists for the country or from the region otherwise. Values for health seeking behaviour parameters are imputed by linear interpolation of the values when the surveys where made or extrapolation of the first or last survey. When no reported data is available the number of cases is interpolated taking into account the population growth.   
  
  
  
At regional and global levels  
  
Not Applicable  
  
  
  
Regional aggregates:  
  
Number of cases are aggregated by region, and uncertainty obtained from the aggregation of each country’s distribution. Population at risk is aggregated without any further adjustment. Estimation at global level are obtained from aggregation of the region values.  
  
  
  
Sources of discrepancies:  
  
The estimated incidence can differ from the incidence reported by a Ministry of Health which can be affected by:  
  
the completeness of reporting: the number of reported cases can be lower than the estimated cases if the percentage of health facilities reporting in a month is less than 100%  
  
the extent of malaria diagnostic testing (the number of slides examined or RDTs performed)   
  
the use of private health facilities which are usually not included in reporting systems.   
  
  
  
Methods and guidance available to countries for the compilation of the data at the national level:  
  
Information is provided by each country’s NMCP using a DHIS 2 application created specifically for this purpose.  
  
  
  
Quality assurance  
  
We have a specific standardize form depending on the status of malaria control, elimination or prevention of reinfection. We perform internal validation for outliers and completeness and rise queries to countries through the regional offices for clarification. When necessary we rely on data quality assessment information from external sources such as partners working in malaria monitor and evaluation.   
  
  
  
The World Malaria Report is sent to the countries via regional offices for consultation and approval.  
  
  
  
Data Sources  
  
  
  
Description:  
  
Cases reported by the NMCP are obtained from each country surveillance system. This include among others information on the number of suspected cases, number of tested cases, number of positive cases by method of detection and by species as well as number of health facilities that report those cases. This information is summarized in a DHIS2 application developed for this purpose. Data for representative household surveys are publicly available and included National Demographic Household Surveys (DHS) or Malaria Indicator Survey (MIS).  
  
  
  
Collection process:  
  
The official counterpart for each country is the National Malaria Control Program at the Ministry of Health.  
  
  
  
Data Availability  
  
  
  
Description:  
  
109 countries  
  
  
  
Time series:  
  
Annually from 2000  
  
  
  
Calendar  
  
  
  
Data collection:  
  
Data is collected every year.   
  
   
  
Data release:  
  
Data is release yearly. Next release is expected by December 2018.  
  
  
  
Data providers  
  
The National Malaria Control Program is the responsible to collect the information at each country.  
  
  
  
Data compilers  
  
The Surveillance, Monitoring and Evaluation Unit of the Global Malaria Control Programme is the responsible to compile and process all the relevant information. National estimates for some countries are estimated in collaboration with the Oxford University (Malaria Atlas Project).  
  
  
  
References  
  
  
  
URL:   
  
http://www.who.int/malaria/publications/world-malaria-report-2017/en/   
  
  
  
References:  
  
1. World Health Organization. World Malaria Report 2017. 2017.   
  
2. World Health Organization. World Malaria Report 2008 [Internet]. Geneva: World Health Organization; 2008. Available from: http://apps.who.int/iris/bitstream/10665/43939/1/9789241563697\_eng.pdf  
  
3. Cibulskis RE, Aregawi M, Williams R, Otten M, Dye C. Worldwide Incidence of Malaria in 2009: Estimates, Time Trends, and a Critique of Methods. Mueller I, editor. PLoS Med. 2011 Dec 20;8(12):e1001142.   
  
4. R Core Team. R: A Language and Environment for Statistical Computing [Internet]. Vienna, Austria: R Foundation for Statistical Computing; 2016. Available from: http://www.R-project.org/  
  
  
  
5. Bhatt S, Weiss DJ, Cameron E, Bisanzio D, Mappin B, Dalrymple U, et al. The effect of malaria control on Plasmodium falciparum in Africa between 2000 and 2015. Nature. 2015 Oct 8;526(7572):207–11.   
  
  
  
Related indicators as of February 2020  
  
Not Applicable

Last updated: May 2020  
  
  
  
  
  
  
  
Goal 3: Ensure healthy lives and promote well-being for all at all ages  
  
Target 3.7: By 2030, ensure universal access to sexual and reproductive health-care services, including for family planning, information and education, and the integration of reproductive health into national strategies and programmes  
  
Indicator 3.7.2: Adolescent birth rate (aged 10-14 years; aged 15-19 years) per 1,000 women in that age group  
  
  
  
Institutional information  
  
  
  
  
  
Organization(s):  
  
  
  
Population Division, Department of Economic and Social Affairs (DESA)   
  
United Nations Population Fund (UNFPA)  
  
  
  
  
  
Concepts and definitions  
  
  
  
  
  
Definition:  
  
  
  
  
  
Annual number of births to females aged 10-14 or 15-19 years per 1,000 females in the respective age group.  
  
  
  
  
  
Rationale:  
  
  
  
  
  
Reducing adolescent fertility and addressing the multiple factors underlying it are essential for improving sexual and reproductive health and the social and economic well-being of adolescents. There is substantial agreement in the literature that women who become pregnant and give birth very early in their reproductive lives are subject to higher risks of complications or even death during pregnancy and birth and their children are also more vulnerable. Therefore, preventing births very early in a woman’s life is an important measure to improve maternal health and reduce infant mortality. Furthermore, women having children at an early age experience a curtailment of their opportunities for socio-  
  
economic improvement, particularly because young mothers are unlikely to keep on studying and, if they  
  
need to work, may find it especially difficult to combine family and work responsibilities. The adolescent birth rate also provides indirect evidence on access to pertinent health services since young people, and in particular unmarried adolescent women, often experience difficulties in access to sexual and reproductive health services.  
  
  
  
Concepts:  
  
  
  
  
  
The adolescent birth rate represents the risk of childbearing among females in the particular age group. The adolescent birth rate among women aged 15-19 years is also referred to as the age-specific fertility rate for women aged 15-19.  
  
  
  
  
  
Comments and limitations:  
  
  
  
  
  
Discrepancies between the sources of data at the country level are common and the level of the adolescent birth rate depends in part on the source of the data selected.  
  
For civil registration, rates are subject to limitations which depend on the completeness of birth registration, the treatment of infants born alive but die before registration or within the first 24 hours of life, the quality of the reported information relating to age of the mother, and the inclusion of births from previous periods. The population estimates may suffer from limitations connected to age misreporting and coverage.  
  
For survey and census data, both the numerator and denominator come from the same population. The main limitations concern age misreporting, birth omissions, misreporting the date of birth of the child, and sampling variability in the case of surveys.  
  
With respect to estimates of the adolescent birth rate among females aged 10-14 years, comparative evidence suggests that a very small proportion of births in this age group occur to females below age 12. Other evidence based on retrospective birth history data from surveys indicates that women aged 15-19 years are less likely to first births before age 15 than women from the same birth cohort when asked five years later at ages 20–24 years.  
  
The adolescent birth rate is commonly reported as the age-specific fertility rate for ages 15-19 years in the context of calculation of total fertility estimates. It has also been called adolescent fertility rate. A related measure is the proportion of adolescent fertility measured as the percentage of total fertility contributed by women aged 15-19.  
  
  
  
Methodology  
  
  
  
  
  
Computation Method:  
  
  
  
  
  
The adolescent birth rate is computed as a ratio. The numerator is the number of live births to women aged 15-19 years, and the denominator an estimate of exposure to childbearing by women aged 15-19 years. The computation is the same for the age group 10-14 years. The numerator and the denominator are calculated differently for civil registration, survey and census data.  
  
  
  
  
  
In the case of civil registration data, the numerator is the registered number of live births born to women aged 15-19 years during a given year, and the denominator is the estimated or enumerated population of women aged 15-19 years.  
  
  
  
  
  
In the case of survey data, the numerator is the number of live births obtained from retrospective birth histories of the interviewed women who were 15-19 years of age at the time of the births during a reference period before the interview, and the denominator is person-years lived between the ages of 15 and 19 years by the interviewed women during the same reference period. The reported observation  
  
year corresponds to the middle of the reference period. For some surveys without data on retrospective birth histories, computation of the adolescent birth rate is based on the date of last birth or the number of births in the 12 months preceding the survey.  
  
  
  
  
  
With census data, the adolescent birth rate is computed on the basis of the date of last birth or the number of births in the 12 months preceding the enumeration. The census provides both the numerator and the denominator for the rates. In some cases, the rates based on censuses are adjusted for under- registration based on indirect methods of estimation. For some countries with no other reliable data, the own-children method of indirect estimation provides estimates of the adolescent birth rate for a number of years before the census.  
  
  
  
  
  
If data are available, adolescent fertility at ages 10-14 years can also be computed.  
  
  
  
  
  
For a thorough treatment of the different methods of computation, see Handbook on the Collection of Fertility and Mortality Data, United Nations Publication, Sales No. E.03.XVII.11, ( https://unstats.un.org/unsd/demographic/standmeth/handbooks/Handbook\_Fertility\_Mortality.pdf). Indirect methods of estimation are analyzed in Manual X: Indirect Techniques for Demographic Estimation, United Nations Publication, Sales No. E.83.XIII.2. (https://www.un.org/en/development/desa/population/publications/pdf/mortality/Manual\_X.pdf).  
  
  
  
  
  
  
  
Disaggregation:  
  
  
  
  
  
Age, education, number of living children, marital status, socioeconomic status, geographic location and other categories, depending on the data source and number of observations.  
  
  
  
  
  
Treatment of missing values:  
  
  
  
  
  
  At country level  
  
  
  
  
  
There is no attempt to provide estimates for individual countries or areas when country or area data are not available.  
  
  
  
  At regional and global levels  
  
  
  
  
  
The regional or global aggregates of the adolescent birth rate for the age group 15-19 years are from the latest revision of World Population Prospects produced by the Population Division. Given cases when data are missing or assessed as unreliable, estimates for individual countries or areas are generated either through expert-based opinion reviewing and weighting each observation  
  
  
  
analytically, or, in more recent years, using automated statistical methods, or by using a bias- adjusted data model to control for systematic biases between different types of data. See United Nations, Department of Economic and Social Affairs, Population Division (2019). World Population Prospects 2019: Methodology of the United Nations population estimates and projections (ST/ESA/SER.A/425), available at: https://population.un.org/wpp/Publications/Files/WPP2019\_Methodology.pdf  
  
  
  
Regional aggregates:  
  
  
  
  
  
The adolescent birth rates reported for global and regional aggregates are based on the average of estimated adolescent birth rates for two, contiguous five-year periods (e.g., 2015-2020 and 2020-2025for year 2020) published in United Nations, Department of Economic and Social Affairs, Population Division (2019), World Population Prospects 2019 ( http://esa.un.org/unpd/wpp/)  
  
  
  
  
  
  
  
The age-specific fertility rates for global and regional aggregates from World Population Prospects (WPP) are based on population reconstruction at the country level and provide a best estimate based on all the available demographic information. WPP considers potentially as many types and sources of empirical estimates as possible (including retrospective birth histories, direct and indirect fertility estimates), and the final estimates are derived to ensure as much internal consistency as possible with all other demographic components and intercensal cohorts enumerated in successive censuses.  
  
  
  
  
  
Sources of discrepancies:  
  
  
  
  
  
Estimates based on civil registration are only provided when the country reports at least 90 per cent coverage and when there is reasonable agreement between civil registration estimates and survey estimates. Small discrepancies might arise due to different denominators or the inclusion of births to women under 15 years of age. Survey estimates are only provided when there is no reliable civil registration. There might be discrepancies on the dating and the actual figure if a different reference period is being used. In particular, many surveys report rates both for a three-year and a five-year reference period. For countries where data are scarce, reference periods located more than five years before the survey might be used.  
  
  
  
Data Sources  
  
  
  
  
  
Description:  
  
  
  
  
  
Civil registration is the preferred data source. Census and household survey are alternate sources when there is no reliable civil registration.  
  
  
  
Data on births by age of mother are obtained from civil registration systems covering 90 per cent or more of all live births, supplemented eventually by census or survey estimates for periods when registration data are not available. For the numerator, the figures reported by National Statistical Offices to the  
  
United Nations Statistics Division have first priority. When they are not available or present problems, use is made of data from the regional statistical units or directly from National Statistical Offices. For the denominator, first priority is given to the latest revision of World Population Prospects produced by the Population Division, Department of Economic and Social Affairs, United Nations. In cases where the numerator does not cover the complete de facto population, an alternative appropriate population estimate is used if available. When either the numerator or denominator is missing, the direct estimate of the rate produced by the National Statistics Office is used. Information on sources is provided at the cell level. When the numerator and denominator come from two different sources, they are listed in that order.  
  
  
  
  
  
In countries lacking a civil registration system or where the coverage of that system is lower than 90 per cent of all live births, the adolescent birth rate is obtained from household survey data and census data. Registration data regarded as less than 90 per cent complete are exceptionally used for countries where the alternative sources present problems of compatibility and registration data can provide an assessment of trends. In countries with multiple survey programmes, large sample surveys conducted on an annual or biennial basis are given precedence when they exist.  
  
  
  
  
  
For information on the source of each estimate, see United Nations, Department of Economic and Social Affairs, Population Division (2019). World Fertility Data 2019. POP/DB/Fert/Rev2019. Available at: https://www.un.org/en/development/desa/population/publications/dataset/fertility/wfd2019.asp   
  
  
  
  
  
  
  
Collection process:  
  
  
  
  
  
For civil registration data, data on births or the adolescent birth rate are obtained from country-reported data from the United Nations Statistics Division or regional Statistics Divisions or statistical units (ESCWA, ESCAP, CARICOM, SPC). The population figures are obtained from the last revision of the United Nations Population Division World Population Prospects and only exceptionally from other sources.  
  
Survey data are obtained from national household surveys that are internationally coordinated—such as the Demographic and Health Surveys (DHS), the Reproductive Health Surveys (RHS), and the Multiple Indicator Cluster Surveys (MICS)—and other nationally-sponsored surveys. Other national surveys conducted as part of the European Fertility and Family Surveys (FFS) or the Pan-Arab Project for Family Health (PAPFAM) may be considered as well. The data are taken from published survey reports or, in exceptional cases, other published analytical reports. Whenever the estimates are available in the survey report, they are directly taken from it. If clarification is needed, contact is made with the survey sponsors or authoring organization, which occasionally may supply corrected or adjusted estimates in response. In other cases, if microdata are available, estimates are produced by the Population Division based on national data.  
  
  
  
For census data, the estimates are preferably directly obtained from census reports. In such cases, adjusted rates are only used when reported by the National Statistical Office. In other cases, the adolescent birth rate is computed from tables on births in the preceding 12 months by age of mother, and census population distribution by sex and age.  
  
In addition to obtaining data and estimates directly from the websites of National Statistical Offices, the  
  
following databases and websites are utilized: the Demographic and Health Surveys (DHS) ( http://api.dhsprogram.com/#/index.html), Demographic Yearbook database of the Statistics Division of the Department of Economic and Social Affairs of the United Nations Secretariat (http://data.un.org/), internal databases of the Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat (see latest public release here: https://www.un.org/en/development/desa/population/publications/dataset/fertility/wfd2019.asp). Eurostat (https://ec.europa.eu/eurostat/data/database), the Human Fertility Database (http://www.humanfertility.org), the Human Fertility Collection (http://www.fertilitydata.org), and the Multiple Indicator Cluster Surveys (MICS) (http://mics.unicef.org/). Survey databases (e.g., the Integrated Household Survey Network (IHSN) database) are also consulted in addition to searches for data on websites of National Statistical Offices and ad hoc queries.  
  
  
  
  
  
Data Availability  
  
  
  
  
  
Data for the adolescent birth rate for women aged 15-19 years are available for 223 countries or areas for the 2000-2018 time period. For 219 countries or areas, there are at least two available data points. Only four countries have one data point, two in Europe and Northern America (Gibraltar and Saint Pierre and Miquelon) and two in Oceania (Tokelau and Wallis and Futuna Islands).  
  
  
  
The regional breakdown of data availability is as follows:  
  
  
  
  
  
  
  
  
  
Between 2000 and 2018  
  
World and SDG regions  
  
At least one data point  
  
Two or more data points  
  
WORLD  
  
223  
  
219  
  
47  
  
44  
  
14  
  
19  
  
24  
  
50  
  
19  
  
2  
  
32  
  
47  
  
56  
  
  
  
Europe and Northern America  
  
49  
  
  
  
Latin America and the Caribbean  
  
44  
  
  
  
Central Asia and Southern Asia  
  
14  
  
  
  
Eastern Asia and South-eastern Asia  
  
19  
  
  
  
Northern Africa and Western Asia  
  
24  
  
  
  
Sub-Saharan Africa  
  
50  
  
  
  
Oceania excluding Australia and New Zealand  
  
21  
  
  
  
Australia and New Zealand  
  
2  
  
  
  
Landlocked developing countries (LLDCs)  
  
32  
  
  
  
Least Developed Countries (LDCs)  
  
47  
  
  
  
Small island developing States (SIDS)  
  
56  
  
  
  
  
  
  
  
  
  
  
  
Calendar  
  
  
  
  
  
Data collection:  
  
  
  
  
  
Data are compiled and updated annually in the first quarter of the year.  
  
  
  
  
  
Data release:  
  
  
  
  
  
Updated data on the adolescent birth rate are released by the Population Division annually. The next release is expected in 2020.  
  
  
  
Data providers  
  
  
  
  
  
Name:  
  
  
  
  
  
For civil registration data, data on births or the adolescent birth rate are obtained from country-reported data from the United Nations Statistics Division or regional Statistics Divisions or statistical units (ESCWA, ESCAP, CARICOM, SPC). The population figures are obtained from the last revision of the United Nations Population Division World Population Prospects and only exceptionally from other sources. Survey data are obtained from national household surveys that are internationally coordinated—such as the Demographic and Health Surveys (DHS), the Reproductive Health Surveys (RHS), and the Multiple Indicator Cluster Surveys (MICS)—and other nationally-sponsored surveys. Data from censuses are obtained from country-reported data from the United Nations Statistics Division or regional Statistics Divisions or statistical units (ESCWA, ESCAP, CARICOM, SPC) or directly from census reports.  
  
  
  
  
  
  
  
Data compilers  
  
  
  
  
  
This indicator is produced at the global level by the Population Division, Department of Economic and  
  
Social Affairs, United Nations in collaboration with the United Nations Population Fund (UNFPA).  
  
  
  
  
  
References  
  
  
  
URL:  
  
  
  
 https://www.un.org/en/development/desa/population/index.asp; https://www.unfpaopendata.org/libraries/aspx/Home.aspx  
  
  
  
  
  
Other references:  
  
  
  
United Nations, Department of Economic and Social Affairs, Population Division (2019). World Fertility Data 2019. POP/DB/Fert/Rev2019. Available at: https://www.un.org/en/development/desa/population/publications/dataset/fertility/wfd2019.asp   
  
  
  
United Nations, Department of Economic and Social Affairs, Population Division (2019). World Population Prospects 2019: Methodology of the United Nations population estimates and projections (ST/ESA/SER.A/425). https://population.un.org/wpp/Publications/Files/WPP2019\_Methodology.pdf   
  
  
  
  
  
United Nations, Department of Economic and Social Affairs, Population Division (2019). World Population Prospects 2019. http://esa.un.org/unpd/wpp/  
  
  
  
  
  
Handbook on the Collection of Fertility and Mortality Data, United Nations Publication (ST/ESA/STAT/SER.F/92), (https://unstats.un.org/unsd/demographic/standmeth/handbooks/Handbook\_Fertility\_Mortality.pdf)  
  
  
  
  
  
  
  
Manual X: Indirect Techniques for Demographic Estimation, United Nations Publication, Sales No. E.83.XIII.2. (https://www.un.org/en/development/desa/population/publications/pdf/mortality/Manual\_X.pdf )  
  
  
  
  
  
Indicator and Monitoring Framework for the Global Strategy for Women’s, Children’s and Adolescents’ Health (2016-2030), (https://www.who.int/life-course/publications/gs-Indicator-and-monitoring-framework.pdf)  
  
  
  
Related indicators  
  
  
  
  
  
Indicator is linked to Target 5.6 (Ensure universal access to sexual and reproductive health and reproductive rights as agreed in accordance with the Programme of Action of the International Conference on Population and Development and the Beijing Platform for Action and the outcome documents of their review conferences) because reductions in adolescent childbearing that can be brought about by increasing access to sexual and reproductive health-care services are also reflective of improvements in sexual and reproductive health and reproductive rights per se. Indicator is linked to Target 17.19 (By 2030 build on existing initiatives to develop measurements of progress on sustainable development that complement gross domestic product and support statistical capacity-building in  
  
  
  
developing countries) because the adolescent birth rate draws on in part birth registration and census data. Strengthened civil registration and vital statistics systems in countries that can reach 100 per cent registration coverage of births and timeliness of census data are relevant for measuring progress on target 3.7.

Last updated: 28 March 2020  
  
Goal 3: Ensure healthy lives and promote well-being for all at all ages  
  
Target 3.d: Strengthen the capacity of all countries, in particular developing countries, for early warning, risk reduction and management of national and global health risks  
  
Indicator 3.d.1: International Health Regulations (IHR) capacity and health emergency preparedness  
  
  
  
Institutional information  
  
  
  
Organization(s):  
  
World Health Organization (WHO)   
  
  
  
Concepts and definitions  
  
  
  
Definition:  
  
  
  
Percentage of attributes of 13 core capacities that have been attained at a specific point in time. The 13 core capacities are: (1) Legislation and financing; (2) IHR Coordination and National Focal Point Functions; (3) Zoonotic events and the Human-Animal Health Interface; (4) Food safety; (5) Laboratory; (6) Surveillance; (7) Human resources; (8) National Health Emergency Framework; (9) Health Service Provision; (10) Risk communication; (11) Points of entry; (12) Chemical events; (13) Radiation emergencies.  
  
  
  
Rationale:  
  
  
  
The revised International Health Regulations (IHR) were adopted in 2005 and entered into force in 2007 (available at: http://apps.who.int/iris/bitstream/10665/43883/1/9789241580410\_eng.pdf ) .   
  
Under the IHR, States Parties are obliged to develop and maintain minimum core capacities for surveillance and response, including at points of entry, in order to early detect, assess, notify, and respond to any potential public health events of international concern.  
  
Article 54 of the IHR request that States Parties and the Director-General shall report to the World Health Assembly on the implementation of these Regulations as decided by the World Health Assembly.  
  
In 2008, the World Health Assembly, through the adoption of Resolution WHA61(2), and later on 2018 with the Resolution WHA71(15), decided that “that States Parties and the Director-General shall continue to report annually to the Health Assembly on the implementation of the International Health Regulations (2005), using the self-assessment annual reporting tool”.  
  
  
  
This SDG 3.d.1. indicator reflects the capacities State Parties of the International Health Regulations (2005) (IHR) had agreed and committed to develop.   
  
  
  
  
  
Concepts:  
  
  
  
Core capacity: the essential public health capacity that States Parties are required to have in place throughout their territories pursuant to Articles 5 and 12, and Annex 1A of the IHR (2005) requirements by the year 2012. Thirteen core capacities and 24 indicators are defined in this document.   
  
  
  
Indicator: a variable that can be measured repeatedly (directly or indirectly) over time to reveal change in a system. It can be qualitative or quantitative, allowing the objective measurement of the progress of a programme or event. The quantitative measurements need to be interpreted in the broader context, taking other sources of information (e.g. supervisory reports and special studies) into consideration and they should be supplemented with qualitative information.   
  
  
  
Attributes: one of a set of specific elements or characteristics that reflect the level of performance or achievement of a specific indicator.   
  
  
  
The capability levels: Each attribute has been assigned a level of maturity, or a ‘capability level.’ Attainment of a given capability level requires that all attributes at lower levels are in place. In the checklist, the status of core capacity development is measured at five capability levels, each of the 5 levels used is described by specific indicators, according related capacity.  
  
  
  
Comments and limitations:  
  
  
  
1) it is based on a self-assessment and self-reporting by the State Party   
  
2) The questionnaire was revised in 2018 and been used for reporting in 2018 and 2019 with same format, different from the questionnaire used during period from 2010-2017, thus there is limitation for comparison of scores from reports between 2010-2017 period with reports after 2018.  
  
  
  
Methodology  
  
  
  
Computation Method:  
  
INDICATOR LEVEL  
  
The score of each indicator level will be classified as a percentage of performance along the “1 to 5” scale. e.g. for a country selecting level 3 for indicator 2.1, the indicator level will be expressed as: 3/5\*100=60%  
  
  
  
CAPACITY LEVEL  
  
The level of the capacity will be expressed as the average of all indicators. e.g. for a country selecting level 3 for indicator 2.1 and level 4 for indicator 2.2. Indicator level for 2.1 will be expressed as: 3/5\*100=60%, indicator level for 2.2 will be expressed as: 4/5\*100=80% and capacity level for 2 will be expressed as: (60+80)/2=70%  
  
  
  
Disaggregation:  
  
  
  
Desegregation can be done by WHO Administrative Regions and countries, by scores of the 13 capacities.  
  
  
  
Treatment of missing values:  
  
  
  
At country level  
  
  
  
At regional and global levels  
  
No estimate is made.  
  
  
  
Regional aggregates:  
  
Aggregate of each score per indicator/capacity, by country/number of countries submitted the questionnaire out of the 196 IHR State Parties by WHO administrate regions or other groups  
  
  
  
Sources of discrepancies:  
  
No estimate is made. The Regional and global scores are all based on submitted questionnaires.  
  
  
  
Methods and guidance available to countries for the compilation of the data at the national level:  
  
  
  
The IHR States Parties Annual reports uses specific standard reporting tool made available by WHO Secretariat in July 2018. (State Parties Annual Reporting Tool annual reports and other guidance, links and references available at: https://extranet.who.int/e-spar/ )  
  
   
  
State Parties of IHR can use the on-line reporting tool, that reflects the questionnaire of the IHR State Parties Self-Assessment Tool was published in July 2018.   
  
The tool consists of 24 indicators for the thirteen IHR capacities needed to detect, assess, notify, report and respond, including at points of entry, to public health risk and acute events of domestic and international concern.   
  
For each of the 13 capacities, one to three indicators are used to measure the status of each capacity. Each indicator is based on five cumulative levels for annual reporting. For each indicator, the reporting State Party is asked to select which of the five levels best describes the State Party’s current status. For each indicator, in order to move to the next level, all capacities described in previous levels should be in place.   
  
  
  
WHO made available specific guidance and tool, related resources and links for IHR State Parties submit annually their reports as well specific web platform (e-SPAR available at: https://extranet.who.int/e-spar/ )  
  
Quality assurance  
  
  
  
The national multisectoral self-assessment of IHR capacities, in preparation to the annual report is supported by WHO Country Office and Regional Offices activities and technical orientation and advocacy work.  
  
  
  
  
  
After submission of data by each State Party, WHO review data received at all level of the organization, using the e-SPAR platform for monitoring and evaluation of results, before final report to the World Health Assembly is produced and published. Results are published at several WHO Websites:  
  
e-SPAR (https://extranet.who.int/e-spar/),   
  
Strategic Partnership for IHR (2005) and Health Security – SPH portal (https://extranet.who.int/sph/ )  
  
World Health Statistics data visualization dashboard (http://apps.who.int/gho/data/node.sdg.3-d )  
  
Global Health Observatory for period after 2017 (https://www.who.int/data/gho/data/themes/theme-details/GHO/international-health-regulations-(2005)-monitoring-framework-spar) and for period 2010-2017 ( https://www.who.int/data/gho/data/themes/topics/GHO/all-capacities )  
  
  
  
  
  
Data Sources  
  
  
  
Description:  
  
  
  
State Parties of IHR can use the on-line reporting tool, that reflects the questionnaire of the IHR State Parties Self-Assessment Tool was published in July 2018 (all references and results published at: https://extranet.who.int/e-spar/.   
  
The tool consists of 24 indicators for the thirteen IHR capacities needed to detect, assess, notify, report and respond, including at points of entry, to public health risk and acute events of domestic and international concern.   
  
For each of the 13 capacities, one to three indicators are used to measure the status of each capacity. Each indicator is based on five cumulative levels for annual reporting. For each indicator, the reporting State Party is asked to select which of the five levels best describes the State Party’s current status. For each indicator, in order to move to the next level, all capacities described in previous levels should be in place.   
  
  
  
  
  
Collection process:  
  
  
  
WHO receives the data send by each State Party from the Official IHR National Focal Point from designated officers that will have access to e-SPAR restrict page for reporting on line and consult all national reports submitted in the e-SPAR database.   
  
After submission of data by each State Party, State Party and WHO IHR staff involved in the specific report will receive acknowledgement message from e-SPAR, with summary of information provided.   
  
WHO also will review data received at all level of the organization, using the e-SPAR platform for monitoring and evaluation of results, before final report to the World Health Assembly is produced and published.  
  
Breakdown of results can be done by country, WHO administrative Regions, Capacities and its indicators. All data recorded safely in e-SPAR platform.  
  
  
  
Data Availability  
  
  
  
Description:  
  
  
  
Since 2010 all 196 State Parties of IHR had at least once provided data for IHR Annual Reports/indicator SDG 3.d.1. Previous year, in 2018, 183 States had provided data using e-SPAR report format that was published, regarding this indicator. It was the highest number since 2010. For ongoing period 2019, as of 06 February 2020 we have received 100 reports  
  
  
  
The final deadline for State Parties to submit annual reports is 29 February, so we expect final numbers first week of March.  
  
  
  
Country Totals for e-SPAR report format received in 2019  
  
By 12 February 2020 (provisional data)  
  
Total Country Reports Submitted  
  
108  
  
Total AFRO  
  
37  
  
Total AMRO  
  
04  
  
Total EMRO  
  
07  
  
Total EURO  
  
38  
  
Total SEARO  
  
11  
  
Total WPRO  
  
11  
  
  
  
Time series:  
  
  
  
Data collection started in 2010 and collected with same questionnaire until 2017 (Serie of data 2010-2017).  
  
New IHR State Parties Annual Assessment and Reporting Tool implemented since 2018 (Serie of data 2018-19).  
  
All years have data published at e-SPAR (https://extranet.who.int/e-spar/ ).  
  
  
  
Calendar  
  
  
  
Data collection:  
  
   
  
Data collection for 2019 currently is under way. Deadline for completed questionnaire submission is end of February and report to be presented to the World Health Assembly is prepared to be submitted by May every year. Collection of data starts second semester every year.   
  
   
  
Data release:  
  
  
  
Release of all data is provided every year around April, just before the World Health Assembly  
  
  
  
Data providers  
  
  
  
Each State Party shall designate a IHR National Focal Point and update regularly the contacts details of its designated officers, that will be able to report on-line and consult all national reports submitted in the e-SPAR database.  
  
  
  
Data compilers  
  
  
  
World Health Organization (WHO)  
  
References  
  
  
  
URL:  
  
  
  
References:  
  
http://apps.who.int/iris/bitstream/10665/43883/1/9789241580410\_eng.pdf (Article 54)  
  
WHA71/15  
  
WHA A 61/7  
  
https://www.who.int/ihr/publications/WHO-WHE-CPI-2018.16/en/  
  
https://www.who.int/ihr/publications/WHO-WHE-CPI-2018.17/en/   
  
  
  
Related indicators as of February 2020  
  
  
  
There are linkages with:  
  
Goal 3: Ensure healthy lives and promote well-being for all at all ages  
  
Target 3.d: Strengthen the capacity of all countries, in particular developing countries, for early warning, risk reduction and management of national and global health risks

Last updated: January 2019  
  
  
  
  
  
  
Goal 3: Ensure healthy lives and promote well-being for all at all ages  
  
Target 3.b: Support the research and development of vaccines and medicines for the communicable and non-communicable diseases that primarily affect developing countries, provide access to affordable essential medicines and vaccines, in accordance with the Doha Declaration on the TRIPS Agreement and Public Health, which affirms the right of developing countries to use to the full the provisions in the Agreement on Trade-Related Aspects of Intellectual Property Rights regarding flexibilities to protect public health, and, in particular, provide access to medicines for all  
  
Indicator 3.b.3: Proportion of health facilities that have a core set of relevant essential medicines available and affordable on a sustainable basis  
  
  
  
Institutional information  
  
  
  
Organization(s):  
  
World Health Organization (WHO)   
  
Concepts and definitions  
  
  
  
Definition:  
  
Proportion of health facilities that have a core set of relevant essential medicines available and affordable on a sustainable basis.  
  
The indicator is a multidimensional index reported as a proportion (%) of health facilities that have a defined core set of quality-assured medicines that are available and affordable relative to the total number of surveyed health facilities at national level.  
  
  
  
Rationale:  
  
Measurement and monitoring of access to essential medicines are of high priority for the global development agenda given access is an integral part of the Universal Health Coverage movement and an indispensable element of the delivery of quality health care. Access to medicines is a composite multidimensional concept that is composed of the availability of medicines and the affordability of their prices. Information on these two dimensions has been collected and analysed since the 54th World Health Assembly in 2001, when Member States adopted the WHO Medicines Strategy (resolution WHA54.11). This resolution led to the launch of the joint project on Medicine Prices and Availability by WHO and the international non-governmental organization Health Action International (HAI/WHO), as well as a proposed HAI/WHO methodology for collecting data and measuring components of access to medicines. To this day, this methodology has been widely implemented to produce useful analyses of availability and affordability of medicines, however the two dimensions have been evaluated separately.  
  
While the above approach has provided an overview of the countries’ performance and progress on improving the affordability and availability of medicines, it has not allowed evaluation of overall access to medicines.  
  
This evaluation is in turn essential as country’s success in ensuring one of the dimensions (e.g. availability) does not necessarily indicate the realization of the other (e.g. affordability) and vice versa. For example, a country may focus its policy efforts on ensuring the availability of a core set of essential medicines in the event of low capacity of local production and/or challenges associated with geographic location. As a result of the proposed policies, medicines may become available but their prices may not be affordable. The opposite situation is also possible, as lowering prices of medicines to increase affordability may be too restrictive for some pharmaceutical producers and lead to a decreased supply. Therefore, given the multidimensionality of access to medicines, it is necessary to evaluate both affordability and availability of medicines at the same time.  
  
The proposed methodology for indicator 3.b.3 allows the combination of both dimensions into a single indicator to evaluate the availability and affordability of medicines simultaneously. This methodology also allows for disaggregation so that each dimension can be analysed separately and the main driver of poor performance of the overall index can be properly identified.  
  
Monitoring the core set of relevant essential medicines is based on the WHO Model List of Essential Medicines (EML). The 2017 WHO EML contains 433 medications deemed essential for addressing the most important public health needs globally. The current index is computed based on a subset of 32 tracer essential medicines for the treatment, prevention and management of acute and chronic, communicable and non-communicable diseases in a primary health care setting.  
  
  
  
Concepts:  
  
Indicator 3.b.3 is defined as the “Proportion of health facilities that have a core set of relevant essential medicines available and affordable on a sustainable basis”. This indicator is based on the proportion of facilities (pharmacies, hospitals, clinics, primary care centers, public/private, etc.) where core essential medicines from the identified set are available for purchase and their prices are affordable, compared to the total number of facilities surveyed.   
  
There are several core concepts that are used for measuring indicator 3.b.3:   
  
Availability of medicine  
  
Affordability of medicine  
  
→ to define affordability, additional concepts are used:  
  
Daily dose treatment of the medicine  
  
National poverty line   
  
Wage of the lowest paid unskilled government worker   
  
Core set of relevant essential medicines (defined on a global level)  
  
→ to apply a core set of relevant essential medicines defined on a global level to all countries, an additional concept is used:  
  
global burden of disease  
  
  
  
1) A medicine is available in a facility when it is found in this facility by the interviewer on the day of data collection. Availability is measured as a binary variable with 1 = medicine is available and 0 = otherwise.  
  
2) A medicine is affordable when no extra daily wages (EDW) are needed for the lowest paid unskilled government sector worker (LPGW wage) to purchase a monthly dose treatment of this medicine after fulfilling basic needs represented by the national poverty line (NPL). Affordability is measured as a ratio of 1) the sum of the NPL and the price per daily dose of treatment of the medicine (DDD), over 2) the LPGW salary. This measures the number of extra daily wages needed to cover the cost of the medicines in the core set and that can vary between 0 and infinity.   
  
2.a) Daily dose of treatment (DDD) is an average maintenance dose per day for a medicine used for its main indication in adults. DDDs allow comparisons of medicine use despite differences in strength, quantity or pack size.  
  
2.b) National poverty line (NLP) is the benchmark for estimating poverty indicators that are consistent with the country's specific economic and social circumstances. NPLs reflect local perceptions of the level and composition of consumption or income needed to be non-poor.   
  
2.c) Wage of the lowest paid unskilled government worker (LPGW) is a minimum living wage that employees are entitled to receive to ensure overcome of poverty and reduction of inequalities.  
  
In other words, affordability of a medicine identifies how many (if any) extra daily wages are needed for an individual who earns the LPGW wage to be able to purchase a medicine. The computed EDW ratio aims to indicate whether the LPGW wage is enough for the individual who earns the lowest possible income to cover 1) the daily expenditures for food and non-food items used to define (relative or absolute) poverty using national standards (NPL) and 2) the daily needs for a medicine (DDD). This ratio then requires transformation into a binary variable where medicine is affordable when zero extra daily wages are required to purchase it and not affordable otherwise.  
  
  
  
3) The core set of relevant essential medicines is a list of 32 tracer essential medicines for acute and chronic, communicable and non-communicable diseases in the primary health care setting.   
  
This basket of medicines has been selected from the 2017 WHO Model List of Essential Medicines and used in primary health care. By definition, essential medicines are those that satisfy the priority health care needs of the population and are selected for inclusion on the Model List based on due consideration of disease prevalence, evidence of efficacy and safety, and consideration of cost and cost-effectiveness.   
  
These medicines are listed in table 1 of Annex 1, where a detailed justification for including each medicine is also provided, as well as online references for the relevant treatment guidelines and sections in the WHO List of Essential Medicines.  
  
This list of medicines is intended as a global reference. However, to address regional and country specificities in terms of medicine needs, the medicines in this basket are weighted according to the regional burden of disease.  
  
3.a) The global burden of disease is an assessment of the health of the world's population. More specifically, disease burden provides information on the global and regional estimates of premature mortality, disability and loss of health for causes. The summary measure used to give an indication of the burden of disease is the disability adjusted life years (DALYs), which represent a person’s loss of the equivalent of one year of full health. This metric incorporates years of life lost due to death and years of life lost through living in states of less than full health (or disability).  
  
  
  
Comments and limitations:  
  
  
  
On basket of tracer essential medicines:  
  
Although it is possible to regularly monitor all 400+ medicines on the current WHO Model List of Essential Medicines, indicator 3.b.3 requires a specific subset of this list. Over the years, several baskets of medicines have been defined for different purposes and used to conduct data collection and monitor price and availability. This core set of medicines does not replace the other existing baskets, and WHO teams and partners are encouraged and committed to continue ad hoc monitoring through other existing channels. Throughout the process of identifying the core set of medicines, one area of focus has been to balance the selection of the tracer medicines for primary health care with the size of the basket itself. The proposed basket represents a balanced approach to allow that relevant tracer medicines for primary health care are monitored yet ensuring a practical and feasible data collection and analysis. The 32 medicines listed in the basket are meant to be indicative of the access to medicines for primary health care but do not serve as a complete or exhaustive list.   
  
As mentioned above, each medicine in the basket is weighted according to the regional Disability Adjusted Life Years (DALYs) for relevant disease from the WHO Global health estimates. Regional estimates are less sensitive to country-by-country variability of data quality, they sufficiently illustrate the disease distribution across countries in the region and work well due simplicity and comparability. Hence, regional weights for medicines are used to establish the associated country weights. However, this diminishes the specificity of the basket to the national context.  
  
  
  
On the measurement of medicines’ availability:  
  
The proposed approach for measuring the availability of medicines is based on the presence of the medicine on the day that the interviewer visits the facility and does not account for temporary and/or planned stock outs. The 32 medicines identified for the analysis should always be available in the facilities considering that in some (mainly rural) areas, the facility may be very difficult to reach and individuals may not have resources to travel on a daily basis. Moreover, in this proposed methodology the price of the medicine does not take into consideration the so-called indirect costs, which normally include transportation and other costs to reach the facility. Thus, the proposed measure for availability presents some limitations.   
  
Furthermore, given the data collection occurs at the facility level and does not monitor quantities of any given medicine, an overall analysis of the available medicines compared to the national needs is not possible.  
  
On the measurement of medicines’ affordability:  
  
3.1) Affordability of a medicine is often measured as the capacity of the population of a given country to pay for this medicine either ex-ante (usually based on income) or ex-post (usually based on reported expenditures). The latter would mainly require data collected at the individual level and from household surveys. However, information on medicine expenditures in these surveys is not always collected and when collected, is not done so consistently and regularly across the countries. In addition, there is usually a large amount of missing data.   
  
The ex-ante approach is suggested for the purposes of this indicator as it is measured at the facility level. Ex-ante analysis requires identifying a reference person or group of people for the measurement. The lowest paid unskilled government worker is suggested to serve as the reference for this indicator. In other words, if a medicine is identified as being affordable for the individual who receives the LPGW wage, it will most likely be affordable for all other individuals affiliated with that economic group and higher. This obviously does not account for people employed in the unofficial labour market.   
  
The proposed methodology is an adjusted HAI/WHO methodology. The HAI/WHO approach suggests computing the affordability of medicine prices as the number of daily wages that are required for the lowest paid unskilled government worker (LPGW) to purchase a daily dose of a medicine (DDD). This approach is straightforward and also refers to the capacity of the reference individual to pay for the medicines. However, no threshold was identified to distinguish the maximum number of daily wages that an individual must spend on a medicine in order to still be able to afford it.   
  
3.2) Information on minimum LPGW wage is available by the International Labour Organization (ILO) for 155 countries. When information is missing or when information has not been updated recently, the alternative measure suggested is to be taken from the World Development Indicators data on “minimum wage for a 19-year old worker or an apprentice”, which is often used as an alternative in ILO reports.   
  
 3.3) The proposed indicator, being measured at the facility level, does not account for potential reimbursement schemes/insurance coverage present at the national level. Information about insurance or other forms of cost-coverage schemes at the national level is not readily available and would require standardization to allow for comparison across countries and income levels of the population. However, as demonstrated by the OECD in its Health at a Glance report in 2015, in 31 high- and middle-income countries the out-of-pocket (OOP) expenditures on pharmaceuticals as a share of all OOP on health varies from 64 to 16%.  
  
 Moreover, there are other SDG indicators, such as 3.8.1 and 3.8.2 that capture coverage of essential health services as well as financial protection from health expenditures net of reimbursement, including expenditures for medicines.  
  
Other dimensions on access to medicines (quality)  
  
The quality of the product is another equally important dimension of access to medicines. Currently, there is no systematic and publicly available data collection on quality of a single medicine or in a single country. WHO has, however, contributed to enhanced access to quality health products through different programmes such as regulatory systems strengthening and prequalification.  
  
A national regulatory authority (NRA) plays a key role in assuring the quality, safety, and efficacy of medical products until they reach the patient/consumer, as well as ensuring the relevance and accuracy of product information. Hence, stable, well-functioning and integrated regulatory systems are an essential component of a health system and contribute to better public health outcomes. NRA maturity and WHO prequalification of medicines can be considered as a proxy for ensuring that medicines in a country are of assured quality. The NRA maturity level is assessed using the WHO National Regulatory Authority Global Benchmarking Tool (WHO NRA GBT). After the evaluations, countries are assigned one of five levels of maturity, with a score of maturity level three representing the minimum acceptable regulatory capacity and maturity level five representing the highest level of functioning.  
  
The importance of transparency and the disclosure of the results of assessments amongst regulators (from ML 3 up) are taken into consideration. However, the information on country-specific NRA maturity level is not currently publicly available and WHO is working to address this limitation through recent discussions on WHO Listed Authorities (WLA).   
  
Other comments:  
  
The “sustainability” dimension in this indicator can be measured only when more than one-time series of computations is available for a specific country so that a trend (tendency of a series of data points to move in a certain direction over time) can be identified.  
  
The proposed methodology takes advantage of recognized standards and data collection methods, proposing a recombination of dimensions to allow measurement of affordability of a core set of relevant essential medicines for communicable and non-communicable diseases.  
  
  
  
Methodology  
  
  
  
Computation Method:  
  
The index is computed as a ratio of the health facilities with available and affordable medicines for primary health care over the total number of the surveyed health facilities:  
  
  
  
  
  
  
  
For this indicator, the following variables are considered for a multidimensional understanding of the components of access to medicines:   
  
A core set of relevant essential medicines for primary healthcare   
  
Regional burden of disease  
  
Availability of a medicine  
  
Price of a medicine  
  
Treatment courses for each medicine (number of units per treatment & duration of treatment)  
  
National poverty line and lowest-paid unskilled government worker (LPGW) wage  
  
Proxy for quality of the core set of relevant essential medicines.  
  
The index is measured for each facility separately. Then a proportion of facilities that have accessible medicines is computed. The following steps must be taken to compute the index at the facility level:  
  
Review and selection of the core basket of medicines for primary health care  
  
Estimate weights for the defined medicines based on regional burden of disease  
  
Measure the two dimensions of the access to medicine  
  
Availability  
  
Affordability  
  
Combine the two dimensions on availability and affordability (access to medicines)  
  
Apply weights to the medicine in the basket according to the regional prevalence of the diseases that are cured, treated, and controlled by these medicines  
  
Identify whether a facility has a core set of relevant essential medicines available and affordable   
  
The next two steps are calculated at the country level across all the surveyed facilities:  
  
Calculate the indicator as the proportion of facilities with accessible medicines in the country  
  
Consideration of the quality of the accessible medicines in the country using a proxy  
  
Below is a more detailed procedure of the index computation.  
  
Step 1: Review and selection of the core basket of medicines for primary health care   
  
For some of the disease categories captured by the proposed basket of medicines, a therapeutic category of medicine has been specified (e.g. statins, beta blockers, corticosteroids, etc.) and a specific medicine must be identified for monitoring. For example, beclomethasone is used to treat non-communicable respiratory disease and if it is not supplied in a particular country for some policy or market reason, an alternative corticosteroid inhaler must be included in the analysis. In other cases, more than one medicine should be included in the basket per disease category. This will require a preliminary review of the basket before starting the data collection process.  
  
Step 2: Estimate weights for the defined medicines based on regional burden of disease  
  
The following points must be considered when computing medicines’ weights:  
  
Equal weights are assigned to medicines that are used to treat, cure, and control the same disease(s) (e.g. gliclazide (or other sulfonylurea), metformin and insulin regular are assigned equal weights according to the diabetes disease burden).  
  
For a medicine indicated for multiple diseases, DALYs values for each disease are summed.  
  
For a medicine used for treating conditions for children (four medicines from the list) sum of DALYs is computed for males and females at the age between 0 and 14 years.   
  
For some of the medicines which cannot be assigned to a specific disease (e.g. paracetamol) the weight is computed as (where T is a total number of medicines in the surveyed basket) assuming equal use of the medicine relative to other medicines in the core list.   
  
For medicines not in the list but “suggested for monitoring” by the country, weight is computed as assuming a minor relevance of these medicines for this indicator and to avoid major issues in inter-country comparison.   
  
To estimate the weight for each medicine, the following steps have to be undertaken:  
  
  
  
  
  
Assign each medicine in the basket to one or several disease(s) that are treated/cured/controlled by that medicine (Annex 1 table 2)   
  
Assign to each disease the corresponding DALYs (if several diseases are treated with the same medicine, compute sum of these DALYs accordingly) [ ]  
  
Compute total sum of the DALYs per medicine [ ]  
  
Compute weight of each medicine as a proportion of the medicine specific DALYs to the total sum of DALYs in the basket [ ]:  
  
  
  
As an example, the weights computed across regions for year 2015 are represented in Annex 2 table 2.1 and 2.2.   
  
Step 3: Measure the two dimensions of access to medicine  
  
Availability and affordability of medicines must be measured and transformed (when necessary) into the format of a binary variable.   
  
Availability is measured as a binary variable coded as “1” when the medicine is in the facility on the day of the survey and coded as “0” otherwise. This approach is currently used in the HAI/WHO methodology.  
  
Affordability is computed following these steps:  
  
3.1 Compute daily price per dose of treatment for each medicine (price per DDD) in the selected basket of medicines   
  
WHO treatment guidelines provide the needed information to compute DDD.   
  
DDD of a medicine is defined using the following formula:  
  
  
  
where:  
  
Units per treatments are tablets/vials or other forms that are needed for an individual with the average severity of the disease per one course of treatment of a duration of one month (365 days per year / 12 months per year = 30.42 days given 30 or 31 day per month), and  
  
Medicine prices are calculated per unit (per tablet/vial/other form) requiring adjustments for gram or milligram according to the potency.   
  
This ratio varies between “0” and infinity and is measured in local currency units per day [LCU/d].  
  
Information on the number of units per treatment is specified in Annex 3. The price per DDD can be measured in per day or per month.   
  
3.2 Define National poverty line (NPL) and minimum wage of the LPGW for the analysed country  
  
National poverty line (NLP): countries periodically recalculate and update their poverty lines based on new survey data and publish this information in their national reports on poverty. To adjust the latest available NPLs to the relevant year of analysis (when needed) information on the Consumer Price Index (CPI) in the analysed country has to be used to account for deflation/inflation.   
  
National poverty reports consistently provide information on the NPLs in local currency units but often refer to different recall periods from country to country (NPL can be measured per day, per month or per year). For consistency, NPL has to be adjusted to be measured per day [LCU/d].  
  
The wage of the lowest paid unskilled government worker (LPGW): is estimated and published in the ILOSTAT database. For countries with the latest available data collected in a year different from the year of analysis, LPGW wage is actualised using the CPI conversion factor.   
  
ILO provides information on the minimum LPGW wages in local currency units per month. LPGW wage has to be adjusted to be measured per day as well [LCU/d].  
  
The NPL and LPGW wage can be measured in per day or per month.  
  
  
  
3.3 Compute extra daily wages (EDW)   
  
First, the LPGW wage is compared to the NPL and if it is lower, medicine is considered unaffordable. In this case, only medicines with a price equal to zero will be considered affordable.   
  
Next, the affordability is measured via the number of extra daily wages (EDW) that are needed for the LPGW to pay for one-month course of treatment using the formula below. In particular, the number of extra daily wages can be computed using the following formula:  
  
  
  
3.4 Transform EDW variable into a binary format  
  
Following the definition, medicine is considered to be affordable when the sum of NPL and price of a daily dose of the treatment is equal to or less than the minimum daily wage of the LPGW:  
  
  
  
Hence, the affordability of medicines is also measured as a binary variable that is coded as “1” when the medicine is affordable and “0” otherwise.  
  
When the price of the medicine is 0, there is no need for the above-mentioned computations and the medicine is considered affordable (i.e. “1”). If all medicines in the country are provided free of charge, all medicines are directly marked as affordable and further computation of the index depends on the availability of these medicines.  
  
  
  
Step 4: Combine the two dimensions on availability and affordability (access to medicines)  
  
In this step, the two dimensions of access to medicines (availability and affordability) are combined into a multidimensional index.   
  
The construction of a multidimensional index is based on the union identification approach proposed by S. Alkire and G. Robles.  
  
The combination of the dimensions of medicines can be built in matrix form:   
  
  
  
This matrix contains performance for n objects of analysis (specified in rows) in d dimensions (specified in columns). The performance of any object in all dimensions is represented by the d-dimensional vector for all . The performance in any dimension for all objects are represented by the n-dimensional vector for all . Overall, an index should be computed via two main steps: identification and aggregation. An example of how to combine the 2 dimensions can be found in Annex 4.  
  
Step 5: Apply weights to the medicine in the basket according to the regional prevalence of the diseases that are cured/treated/controlled by these medicines  
  
After identifying the access variable, medicines in the basket have to be weighted according to the prevalence of the disease(s) that these medicines are used to cure/treat/control using the weights identified in step 2 and provided in Annex 2, tables 2.1 and 2.2. This is performed by multiplying the access variable with the medicine weights:   
  
   
  
Figure 1. Achievement matrix of weighted access to medicine  
  
  
  
Step 6: Identify whether a facility has a core set of relevant essential medicines available and affordable  
  
The following computations must be undertaken in this step:   
  
6.1 Calculate proportion of medicines that are accessible (both available and affordable) in each facility  
  
Because medicines are weighted, the proportion is computed as a weighted sum of medicines that are both available and affordable (accessible) in each facility using the following formula:   
  
  
  
This variable is then transformed into a percentage and varies from 0 to 100.   
  
The computed number of accessible medicines accounts for the importance of the analysed medicines in the country. In particular, if a medicine with a higher weight (for example hypertension) is not accessible, the index will be sensitive to this and will demonstrate the lack of access. On the contrary, if a medicine has a low weight (i.e. approaching zero, such as antimalarial medication in a non-endemic country) and is not accessible, the index will not be affected.   
  
6.2 Mark facilities that have 80% or more of available and affordable medicines   
  
The computed variable “access” is then transformed into the binary format identifying facilities that have the core basket of essential medicines available and affordable versus facilities that do not. A threshold of 80% is applied in order to transform the “access” variable into a binary format. In particular, at least 80% of all the medicines surveyed in a facility have to be both available and affordable. The transformation is made using the following formula:  
  
  
  
This threshold is agreed upon and adopted by the WHO Global Action Plan on Non-Communicable Diseases and used as a reference in this proposed methodology.   
  
  
  
Step 7: Calculate the indicator as the proportion of facilities with accessible medicines in the country  
  
The proportion of facilities that have reached the 80% threshold is calculated out of the total number of surveyed facilities in a selected country using the following formula:  
  
  
  
The computed indicator is a proportion that will then be converted into a percentage between 0-100%.  
  
Step 8: Consideration of quality of the accessible medicines in the country using a proxy   
  
The country level of medicine regulatory capacity assessed using the WHO NRA GBT is used as a proxy of the quality of the accessible medicines. The countries with a WHO Listed Authority (WLA corresponding to maturity level 3 and above) will be flagged to indicate the assured quality component.  
  
  
  
Disaggregation:  
  
The proposed indicator will allow for the following disaggregation:  
  
public/private/mission sectors facilities (managing authority)  
  
geography – rural/urban areas  
  
therapeutic group   
  
facility type (pharmacy/hospital)  
  
medicine.  
  
  
  
Treatment of missing values:  
  
At country level  
  
Treatment of missing values has already been partially addressed. In particular, when a medicine is not available, its price cannot be collected. For this reason, missing price values are considered as the medicine not being available and therefore not accessible (access = 0).  
  
Observing missing values for availability and affordability simultaneously indicates that these medicines are not provided at all in the surveyed facility. For example, in some countries medicines for in-patient care (mostly in injectable forms) are provided only in hospitals. In this case, the procedure for computing the indicator is the same except that:  
  
Medicines that are used for inpatient care are excluded from the analysis of the data collected in pharmacies and other non-tertiary health care facilities, and  
  
Two different versions of weights are applied to the list of medicines for hospitals and for pharmacies.   
  
At regional and global levels  
  
When computing regional or global aggregates of indicator 3.b.3, it is possible to accommodate missing values from countries resulting from a lack of data collection for a given country in a given year. In order to calculate a regionally aggregated 3.b.3 indicator, a 5-year period of data collection will be used as a reference to identify the available indicators for all the countries in the region. If during the defined 5-year period, one country of the region does not have even one indicator result, this country will not be included in the regional aggregate. The missing values from the countries can only be imputed when at least one data point exists for the given country in such a 5-year period.   
  
  
  
Regional aggregates:  
  
Regional and global aggregates can be computed using national population size of a country as a proxy for the country weights in the region or globally. This is justified because medicines must be available and affordable for every individual in the population.   
  
To compute the regional indicator, the weighted average of the country indicators (using either the actual national indicator when available for the specific year of calculation, or the imputed value that corresponds to the year closest to the year of calculation) is used.  
  
  
  
Sources of discrepancies:  
  
Data can be received from three data sources: SARA, HAI/WHO, and the EMP MedMon. These data collection methods demonstrate the following discrepancies:  
  
Sampling of the facilities to be surveyed,  
  
Size of the sampling of the facilities to be surveyed, and   
  
Questions asked at facility level to capture availability (i.e. SARA considers potentially available expired medicines as well).  
  
WHO will use any of these three data sources available for the year of calculation as a compromise between the limitations that these discrepancies pose to the proposed methodology and the need to overcome data availability issues in order to start reporting on this critical indicator. In the unlikely case that data is available through more than one data source for a specific country, WHO will rely on the source with a larger sample size and a higher percentage of medicines from the defined core list captured by the survey.   
  
  
  
Methods and guidance available to countries for the compilation of the data at the national level:  
  
The HAI/WHO manual on measuring medicine prices, availability, affordability and price components describes the methodology as well as the guidelines for the data collection procedure and analysis of the availability and affordability of medicines on the facility and national level:  
  
http://www.who.int/medicines/areas/access/medicines\_prices08/en/  
  
http://www.who.int/healthinfo/systems/SARA\_Reference\_Manual\_Full.pdf   
  
http://www.who.int/medicines/areas/policy/monitoring/empmedmon  
  
  
  
Quality assurance  
  
Quality control can be performed based on the median availability and median consumer price ratio of selected generic medicines listed on the Global Health Observatory (GHO). The quality of the key components of this indicator (i.e. availability, prices, etc.) can be assured for data collected using any of the three mechanisms listed above when cross-referenced with the GHO values.  
  
For future data collection, quality will be based on the analysis of the sample size and the number of medicines captured in the basket.   
  
Countries will collect and share data with the WHO Secretariat. WHO will subsequently compute the indicator and return to the countries for validation. By request, WHO will also provide all background materials and training for data collection and indicator computation.  
  
  
  
Data Sources  
  
  
  
Description:  
  
The indicator relies on three data sources that have been used by countries to collect information on medicine prices and availability:  
  
Health Action International Project supported by the WHO [HAI/WHO]  
  
The Service Availability and Readiness Assessment survey [SARA]  
  
The WHO Medicines Price and Availability Monitoring mobile application [EMP MedMon]  
  
Health Action International Project supported by WHO [HAI/WHO] provides data from national and sub-national surveys that have used the WHO/HAI methodology, Measuring Medicine Prices, Availability and Affordability and Price Components. The database is available at the following link: http://haiweb.org/what-we-do/price-availability-affordability/price-availability-data/   
  
The Service Availability and Readiness Assessment [SARA] is a health facility assessment tool designed to assess and monitor availability and readiness of the services provided in the health sector and to generate evidence to support the planning and managing of a health system.   
  
The WHO Medicines Price and Availability Monitoring mobile application [EMP MedMon] can be considered as an updated version of the HAI/WHO tool for collecting data on medicine prices and availability. This data collection tool was created based on the two previously mentioned existing and well-established methodologies. This application is used at facility level to collect information on availability and price of the agreed-upon core basket of medicines.   
  
The EMP MedMon is easier to use, faster to conduct and consumes much fewer resources for collecting data. It also allows for a modular approach to defining the basket, which is highly useful and convenient for the purposes of this indicator.  
  
In order to compute historical data points prior to 2018, data from HAI/WHO is used. To compute current and future data points, SARA and EMP MedMon are recommended.  
  
  
  
Collection process:  
  
Availability and affordability of medicines   
  
WHO obtains SARA survey data on availability and affordability from the countries’ Ministries of Health (MoH). HAI/WHO historical data collected at the facility level is available from HAI by request, as publicly available HAI/WHO data on the HAI website has already aggregated at the country level. The EMP MedMon data on availability and medicine prices is collected in collaboration between WHO and Ministries of Health of the countries.   
  
NPLs, LPGW wages, DALYs:  
  
National poverty reports consistently provide information on the NPLs in local currency units. The updated and recalculated NPLs are also published by the countries in these poverty reports. The wage of the LPGW is published in the ILOSTAT database. Information regarding the regional burden of diseases (DALYs) is publicly available and published by WHO.  
  
  
  
Data Availability  
  
  
  
Description:  
  
SARA: 21 national surveys are currently available from 2010 to 2017 for a total of 13 countries. Two- and three-year trends are available for six countries; the other seven countries only have one data point. 67% of the SDG basket of relevant essential medicines is covered by such surveys. These data will be used to test quality on the availability dimension only.  
  
HAI/WHO: Historical data points are available for 55 countries (28%) of all WHO Member States. The highest number of countries captured by the surveys is in the SEARO region (59%) and the smallest is in EURO region (15%). More than 60% of the medicines from the defined SDG indicator basket are captured in the HAI/WHO historical data surveys.  
  
  
  
Table 1. Number of countries captured by the surveys across regions  
  
WHO Region  
  
2001-2005  
  
2005-2010  
  
2010-2015  
  
Total  
  
African Region  
  
14  
  
5  
  
2  
  
21  
  
Region of the Americas  
  
3  
  
7  
  
1  
  
11  
  
Eastern Mediterranean Region  
  
8  
  
5  
  
3  
  
16  
  
European Region  
  
5  
  
2  
  
3  
  
10  
  
South-East Asia Region  
  
5  
  
2  
  
1  
  
8  
  
Western Pacific Region  
  
6  
  
2  
  
2  
  
10  
  
Total  
  
41  
  
23  
  
12  
  
76  
  
  
  
HAI/WHO surveys were conducted more than once in some of the countries for a total of 76 surveys.   
  
EMP MedMon: In 2016 the design of the EMP MedMon tool for data collection was finalised. Since then, several pilot surveys have been conducted to test the tool. The first pilot survey was conducted across 19 countries using a basket of medicines that captures around 60% of the one currently proposed. The second pilot used a basket adjusted for the purposes of capturing non-communicable diseases only. These pilots have demonstrated that this tool is flexible and can be easily manipulated to include specialized modules of medicines for future data collection.  
  
  
  
Time series:  
  
Existing data has been historically collected based on available funding. The majority of existing surveys have been collected thus far using the HAI/WHO data collection tool. Most of the existing data points are from 2000 – 2005.   
  
Table 2. Number of surveys and % of medicines from the defined basket   
  
that are captured by HAI/WHO surveys  
  
   
  
2001-2005  
  
2005-2010  
  
2010-2015  
  
Total number of surveys (n)  
  
41  
  
23  
  
12  
  
Medicines captured in the surveys (%)  
  
49.8%  
  
66.3%  
  
72.9%  
  
  
  
The distribution of these 76 surveys across WHO regions is represented in Table 3.   
  
Table 3. Number of HAI/WHO surveys across regions  
  
Overall 21 SARA surveys were conducted over the period from 2010 to 2017. 17 surveys were conducted between 2010 and 2015 and 4 surveys after 2015.   
  
  
  
Calendar  
  
  
  
Data collection:  
  
SARA & HAI/WHO: Data collection activities have often been conducted using funds from international donors.  
  
EMP MedMon: Data collection activities have been conducted using funds from international donors, but WHO is currently testing a sustainable regular monitoring mechanism through the integration of similar data collection during government inspection of health facilities or using country-determined sentinel monitoring sites.  
  
   
  
Data release:  
  
Based on historical data points, the first release of the SDG indicator 3.b.3 results is planned for the summer of 2019. Subsequently, updated values will be calculated and published on an annual basis.   
  
  
  
Data providers  
  
SARA, HAI/WHO, EMP MedMon: Data is collected by the countries’ Ministries of Health (MOH), often with the support of the WHO country office. Data is then validated by MoH-based statisticians and shared with WHO by request.   
  
  
  
Data compilers  
  
The World Health Organization   
  
  
  
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“Defined Daily Dose: Definition and general considerations” (WHO Collaborating Centre for Drug Statistics methodology, 07 February 2018), https://www.whocc.no/ddd/definition\_and\_general\_considera/  
  
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“WHO Global Benchmarking Tool (GBT) for evaluation of national regulatory systems” (WHO Essential medicines and health products, 2018), available from http://www.who.int/medicines/regulation/benchmarking\_tool/en/.  
  
“Disease burden and mortality estimates” (WHO Health statistics and information systems, 2018), available from http://www.who.int/healthinfo/global\_burden\_disease/estimates/en/index1.html.  
  
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“Essential Medicines” (WHO Global Health Observatory data repository, 2016), available from http://apps.who.int/gho/data/node.main.487.  
  
Health at a Glance 2017: OECD Indicators, OECD (2017). OECD Publishing, Paris https://doi.org/10.1787/health\_glance-2017-en.   
  
  
  
Related indicators as of February 2020  
  
3.b.1- Proportion of the target population covered by all vaccines included in their national programme  
  
3.b.2- Total net official development assistance to medical research and basic health sectors  
  
3.8.1- Coverage of essential health services (defined as the average coverage of essential services based on tracer interventions that include reproductive, maternal, newborn and child health, infectious diseases, non-communicable diseases and service capacity and access, among the general and the most disadvantaged population)  
  
3.8.2- Proportion of population with large household expenditures on health as a share of total household expenditure or income  
  
  
  
  
  
Annex 1: Basket of core set of relevant essential medicines for primary health care and related disease category   
  
  
  
Table 1. Basket of core set of relevant essential medicines for primary health care  
  
Medicine  
  
Category (Therapeutic group)  
  
Justification  
  
Salbutamol (100 mcg/dose inhaler)  
  
NCD - Respiratory  
  
Rationale: Salbutamol, a short acting beta-2 agonist, is recommended for prophylaxis and the first-line treatment of bronchospasm in asthma and COPD. It is recommended for all patients with acute severe asthma.   
  
Treatment References: WHO PEN 5.b, WHO Guidelines for primary health care in low-resource settings   
  
More information in WHO EML 2017 Section Reference: 25.1  
  
Beclometasone (100 mcg/dose inhaler) or other corticosteroid inhaler  
  
  
  
  
  
Alternatives would include, but not be limited to, budesonide, fluticasone, ciclesonide. Refer to ATC group R03BA -   
  
  
  
NCD - Respiratory  
  
Rationale: Inhaled corticosteroids are indicated for maintenance treatment of asthma symptoms by reducing inflammation and reducing airways hyper-responsiveness. These do not provide symptomatic relief in acute asthma. Beclometasone is a representative antiasthmatic in the WHO EML.   
  
Treatment References: WHO PEN 5.b, WHO Guidelines for primary health care in low-resource settings   
  
More information in WHO EML 2017 Section Reference: 25.1  
  
Gliclazide (80 mg cap/tab) or other sulfonylurea  
  
  
  
Alternatives would include but not be limited to glibenclamide, glimepiride. Refer to ATC group A10BB   
  
NCD - Diabetes  
  
Rationale: Second generation sulfonylureas (SFUs) increase the release of insulin from the pancreas to relieve the hyperglycaemia associated with diabetes. SFUs are useful in patients unable to tolerate metformin, or not adequately controlled on metformin. These are among the main therapies for most patients with type 2 diabetes, but contraindicated for patients with type 1 diabetes. However, it should be noted that glibenclamide has associated with higher levels of hypoglycaemia compared with gliclazide. Gliclazide is the representative sulfonylurea in the WHO EML.  
  
Treatment References: WHO PEN 5.b, WHO Guidelines for primary health care in low-resource settings  
  
More information in WHO EML 2017 Section Reference: 18.5  
  
Metformin (500 mg cap/tab, 850 mg cap/tab or 1 g cap/tab)   
  
NCD - Diabetes  
  
Rationale: Metformin, an oral anti-diabetic medicine, can be used in patients with type 2 diabetes as a monotherapy or in combination with sulfonylureas.  
  
 Treatment References: WHO PEN 5.b, WHO Guidelines for primary health care in low-resource settings   
  
More information in WHO EML 2017 Section Reference: 18.5  
  
Insulin regular, soluble (100 IU/ml injection)  
  
NCD - Diabetes  
  
Rationale: Regular human insulin, a rapid acting insulin, is necessary for all patients with type 1 and more than 10% of patients with type 2 diabetes. It is currently more affordable to health systems than other long-acting or analogue insulins.  
  
Treatment References: WHO PEN 5.b  
  
More information in WHO EML 2017 Section Reference: 18.5  
  
Two of the following antihypertensive:  
  
Amlodipine (5 mg cap/tab)  
  
Enalapril (5 mg cap/tab) or other angiotensin converting enzyme inhibitor (ACEI). Refer to ATC group C09AA.  
  
Hydrochlorothiazide (25 mg cap/tab) or Chlorthalidone (25 mg cap/tab)   
  
Bisoprolol (5 mg cap/tab) or alternative betablocker (atenolol or carvedilol or metoprolol only)   
  
  
  
NCD - Cardiovascular  
  
Rationale:   
  
Calcium channel blockers (CBB) are among the first-line treatment options for patients with hypertension. Amlodipine is the representative CCB in the WHO EML.   
  
ACEIs are among first-line treatment options for patients with hypertension. ACEIs are also used in the management of heart failure. Enalapril is the representative ACEI in the WHO EML.  
  
Thiazide diuretics are among the first-line treatment options for patients with hypertension. Thiazides are also used as the management of heart failure. Hydrochlorothiazide is the representative thiazide diuretic in the WHO EML.  
  
Beta-blockers are among the recommended treatment options for patients with hypertension, angina, cardiac arrhythmias or heart failure. Bisoprolol is the representative beta-blocker in the WHO EML.   
  
Treatment References: WHO PEN 5.b, WHO Guidelines for primary health care in low-resource settings  
  
More information in WHO EML 2017 Section Reference: 12.3, 12.4  
  
Simvastatin (20 mg cap/tab) or other statin. Refer to ATC group C10AA.  
  
NCD - Cardiovascular  
  
Rationale: Statins, lipid-lowering medicines, are used to reduce the risk of coronary heart disease, including fatal and non-fatal myocardial infarction and stroke. Simvastatin is the representative statin in the WHO EML.  
  
Treatment References: WHO PEN 5.b, WHO Guidelines for primary health care in low-resource settings  
  
More information in WHO EML 2017 Section Reference: 12.6  
  
Acetylsalicylic acid (aspirin) (100 mg cap/tab)  
  
NCD – Cardiovascular   
  
Rationale: Aspirin, an anti-platelet medication, is recommended for preventing a first stroke, has an important role in preventing recurrent strokes, and can reduce the severity of an ischemic stroke. Low-dose aspirin has numerous therapeutic indications including anti-platelet therapy and can be used to reduce the risk of cardiovascular disease.   
  
Treatment References: WHO PEN 5.b  
  
More information in WHO EML 2017 Section Reference: 12.5  
  
  
  
Furosemide 40 mg tablet  
  
NCD - Cardiovascular  
  
Rationale: Furosemide is a loop diuretic used in the treatment of oedema, congestive heart failure, and kidney disease.   
  
Treatment References: WHO PEN 5.b   
  
More information in WHO EML 2017 Section Reference: 12.4  
  
Morphine (10mg tablet)  
  
Palliative care  
  
Rationale: Morphine, an opioid analgesic, is the first-choice opioid for treatment of strong pain, including cancer pain. It is also recommended as a preoperative medication and sedation for short-term procedures.   
  
Treatment References:   
  
WHO Model Prescribing Information: Drugs Used in Anaesthesia  
  
More information in WHO EML 2017 Section Reference: 2.2,1.3  
  
Paracetamol (any strength)  
  
Pain and Palliative Care  
  
Rationale: Paracetamol, also referred to as acetaminophen or APAP, is an analgesic and antipyretic that is used widely as a first-line treatment for mild to moderate pain and fever. It is also often found in combinations with other medications to treat a cold or for severe pain. In particular, it is the preferred analgesic for pregnant women.  
  
Treatment References: WHO Model Prescribing Information: Drugs Used in Anaesthesia  
  
More information in WHO EML 2017 Section Reference: 2.1, 7.1  
  
Fluoxetine (20 mg cap/tab) or other selective serotonin reuptake inhibitor (SSRI)  
  
CNS  
  
Rationale: SSRIs are among the most widely used drugs in the treatment of depressive disorders. Fluoxetine is recommended for use in depressive disorders and can be used to treat patients over 8 years old.  
  
SSRIs should be used as part of a comprehensive management plan.   
  
Treatment References:  
  
Evidence-based recommendations for management of depression in non-specialized health settings  
  
More information in WHO EML 2017 Section Reference: 24.2  
  
Phenytoin (100mg Tablet) or Carbamazepine (200 mg cap/tab)  
  
CNS  
  
Rationale: Carbamazepine and phenytoin are anticonvulsant/antiepileptic medicines used in the management of generalized and partial seizures and neuropathic pain.  
  
Treatment References:   
  
Evidence-based recommendations for management of epilepsy and seizures in non-specialized health settings  
  
More information in WHO EML 2017 Section Reference: 5  
  
Gentamicin (40 mg/mL in 2mL vial)  
  
Anti-infective  
  
Rationale: Gentamicin, an aminoglycoside antibiotic, is used for the systemic treatment of susceptible infections. It is classified as an ACCESS antibiotic in the WHO EML, signifying that it should widely available, affordable, and quality assured. It is the first-line treatment for community acquired pneumonia, complicated severe malnutrition, and neonatal sepsis, and second-line treatment for gonorrhoeae.  
  
Treatment References:   
  
WHO Model Prescribing Information: Drugs used in Bacterial Infections   
  
More information in WHO EML 2017 Section Reference: 6.2.2  
  
Amoxicillin (500mg cap/tab)  
  
  
  
  
  
  
  
  
  
  
  
Anti-infective  
  
Rationale: Amoxicillin, a beta-lactam antibiotic, is used to treat a wide range of susceptible infections. It is classified as an ACCESS antibiotic in the WHO EML, signifying that it should widely available, affordable, and quality assured. It is the first-line treatment for specific infectious syndromes, including community acquired pneumonia, neonatal sepsis, lower urinary tract infections, and the second-line treatment for acute bacterial meningitis.  
  
Treatment References:   
  
WHO Model Prescribing Information: Drugs used in Bacterial Infections  
  
More information in WHO EML 2017 Section Reference: 6.2.1  
  
Ceftriaxone (1g/vial Injection)  
  
Anti-infective  
  
Rationale: Ceftriaxone, a third generation cephalosporin, is used for the systemic treatment of susceptible infections. It is classified as a WATCH in the WHO EML, signifying it higher resistance potential and recommendation for only a specific, limited number of indications. It is the first-line treatment for specific infectious syndromes including severe community acquired pneumonia, acute bacterial meningitis, and gonorrhoeae.  
  
Treatment References:  
  
WHO Model Prescribing Information: Drugs used in Bacterial Infections  
  
More information in WHO EML 2017 Section Reference: 6.2.1  
  
Procaine benzylpenicillin (1G = 1MU Injection) or Benzathine benzylpenicillin (900mg=1.2 MIU or 1.44g = 2.4MIU) injection  
  
Anti-infective  
  
Rationale: Procaine benzylpenicillin, a beta-lactam antibiotic, is used to treat syphilis in adults and children. It is classified as an ACCESS antibiotic in the WHO EML, signifying that it should widely available, affordable, and quality assured.  
  
Treatment References:   
  
WHO Model Prescribing Information: Drugs used in Bacterial Infections  
  
More information in WHO EML 2017 Section Reference: 6.2.1  
  
One of the following contraceptives:  
  
Ethinylestradiol + levonorgestrel: tablet 30 mcg + 150 mcg (or alternative combined oral contraceptive)  
  
Levonorgestrel 30 microgram tablet.   
  
Medroxyprogesterone acetate injection IM 150 mg/mL or SC 104 mg/0.65mL  
  
Progesterone-releasing implant (etonogestrel 68 mg or levonorgestrel 150 mg)  
  
Levonorgestrel 750 mcg or 1.5 mg tablet  
  
  
  
  
  
MCH  
  
Rationale: Promotion of family planning – and ensuring access to preferred contraceptive methods for women and couples – is essential to securing the well-being and autonomy of women, while supporting the health and development of communities. Access to contraceptives can reduce infant and maternal mortality rates associated with closely spaced and ill-timed pregnancies. Additionally, contraceptives have be included on the WHO EML since its inception and are also listed as life-saving commodities by the UN Commission on Life-Saving Commodities for Women and Children.   
  
Treatment References: Medical eligibility criteria for contraceptive use  
  
More information in WHO EML 2017 Section Reference: 18.3  
  
Oral rehydration (salts 1 litre)  
  
MCH   
  
Rationale: Oral rehydration salts (ORS), solutions containing sodium, potassium, citrate, and glucose, are used to replace fluid and electrolytes orally. ORS is used to treat acute diarrhoea in children to prevent or treat dehydration.   
  
Treatment References:   
  
Diarrhoea treatment guidelines including new recommendations for the use of ORS and zinc supplementation for clinic-based healthcare workers  
  
More information in WHO EML 2017 Section Reference: 26.1  
  
Zinc sulphate (20mg dispersible tablet)  
  
MCH   
  
Rationale: Zinc supplements are recommended to reduce the severity and duration of acute diarrhoea. If given for 10 to 14 days, zinc also reduces the incidence of new episodes of diarrhoea in the 2 to 3 months following treatment.  
  
Treatment References:   
  
Diarrhoea treatment guidelines including new recommendations for the use of ORS and zinc supplementation for clinic-based healthcare workers  
  
More information in WHO EML 2017 Section Reference: 17.5.2  
  
Oxytocin (5iu or 10iu injection)  
  
MCH   
  
Rationale: Oxytocin, a peptide hormone, is used for the prevention and treatment of postpartum and post-abortion haemorrhage in emergency situations. It is the recommended that all women giving birth should be offered uterotonic drugs, such as oxytocin, during the third stage of labour for the prevention of PPH.  
  
Treatment References: WHO Recommendations for the Prevention and Treatment of Postpartum Haemorrhage, UNFPA Medicines for Maternal Health  
  
More information in WHO EML 2017 Section Reference: 22.1  
  
Magnesium sulphate 50% 10ml Injection  
  
MCH   
  
Rationale: Magnesium sulfate, an anticonvulsant, is used in the management and prevention of recurrent seizures in eclampsia and pre-eclampsia.  
  
Treatment References:   
  
WHO recommendation on magnesium sulfate for the prevention of eclampsia in women with severe pre-eclampsia, UNFPA Medicines for Maternal Health  
  
More information in WHO EML 2017 Section Reference: 5  
  
Folic acid  
  
MCH   
  
Rationale: Single-agent folic acid is important for the prevention of neural tube defects and should be taken periconceptionally and in first trimester of pregnancy.   
  
Treatment References: WHO recommendation on periconceptional folic acid supplementation to prevent neural tube defects  
  
More information in WHO EML 2017 Section Reference: 10.1  
  
Artemisinin-based combination therapy (ACT) for treatment of uncomplicated P. falciparum malaria.  
  
One of the following:  
  
Artemether+lumefantrine (20/120 mg cap/tab)  
  
Artesunate+amodiaquine (any strength)  
  
Artesunate+mefloquine (any strength)  
  
Dihydroartemisinin+piperaquine (any strength)  
  
Artesunate+sulfadoxine-pyrimethamine (50 mg+500mg/25mg)  
  
Anti-malarial  
  
Rationale: WHO Guidelines recommend treating adults and children with uncomplicated P. falciparum malaria with artemisinin-based combination therapy (strong recommendation, high-quality evidence).   
  
Treatment References: WHO Guidelines for the Treatment of Malaria  
  
More information in WHO EML 2017 Section Reference: 6.5.3.1  
  
Artesunate (60 mg injection or 100 mg rectal dose form)  
  
Anti-malarial  
  
Rationale: IM or rectal artesunate is recommended pre-referral treatment of suspected cases of severe malaria pending transfer to a higher level facility.  
  
Treatment References: WHO Guidelines for the Treatment of Malaria  
  
More information in WHO EML 2017 Section Reference: 6.5.3.1  
  
Combination anti-retroviral therapy for first line treatment of HIV   
  
One of the following combinations individually for concomitant use or in fixed-dose combination:  
  
  
  
1. Efavirenz (400 mg or 600 mg) + Emtricitabine (200 mg) + Tenofovir disoproxil fumarate (300 mg)  
  
  
  
2. Efavirenz (400 mg or 600 mg) + Lamivudine (300 mg) + Tenofovir disoproxil fumarate (300 mg)  
  
Antiretroviral  
  
Rationale: Efavirenz/Emtricitabine/Tenofovir is the preferred fixed-dose combination antiretroviral therapies for treatment of HIV in adults, pregnant or breastfeeding women, and adolescents.   
  
Treatment References: WHO Consolidated Guidelines on the Use of Antiretroviral Drugs for Treating and Preventing HIV Infection  
  
More information in WHO EML 2017 Section Reference: 6.4.2.4  
  
Ibuprofen (200mg tablet)  
  
Pain and Palliative Care  
  
Rationale: Ibuprofen, a non-steroidal anti-inflammatory drug, is a first choice medicine in the treatment of mild pain.   
  
Treatment References: WHO Guidelines on the pharmacological treatment of persisting pain in children with medical illnesses  
  
More information in WHO EML 2017 Section Reference: 2.1  
  
Chlorhexidine   
  
Solution or gel: 7.1% (digluconate) delivering 4% chlorhexidine  
  
Neonatal care  
  
Rationale: A recommended antiseptic that should be applied to the umbilical cord in cases of unclean delivery, and if the traditional practices in place increase the risk of cord infection  
  
Treatment References: Review of the available evidence on 4% chlorhexidine solution for umbilical cord care  
  
More information in WHO EML 2017 Section Reference: 29.1  
  
Ready-to-use therapeutic food (RUTF),  
  
paste or spread (1 sachet = 92 g [500 Kcal])   
  
or  
  
biscuit (28.4g, 500 kcal per 100g)  
  
Nutrition  
  
Rationale: Energy-dense, micronutrient enhanced pastes used in therapeutic feeding for the community-based management of children who are suffering from uncomplicated severe acute malnutrition and who retain an appetite. Is provided as the therapeutic food in the rehabilitation phase (following F-75 in the stabilization phase)  
  
Treatment References: WHO Guideline: Updates on the management of severe acute malnutrition in infants and children. 2013  
  
More information in WHO EML 2017: Not currently included  
  
Isoniazid + pyrazinamide + rifampicin (50 mg + 150 mg + 75 mg)  
  
  
  
  
  
Antituberculosis  
  
Rationale: Isoniazid + pyrazinamide + rifampicin is recommended as fixed-dose combination therapy for the intensive phase of treatment of drug-susceptible tuberculosis in children.  
  
Treatment References: Guidance for national tuberculosis programmes on the  
  
management of tuberculosis in children, 2014  
  
More information in WHO EML 2017 Section Reference: 6.2.4  
  
Erythropoiesis - stimulating agents.  
  
One of the following:  
  
  
  
Epoetin alfa (2,000 IU/mL)  
  
Darbepoetin alfa (100 mcg/mL)  
  
Chronic kidney disease  
  
Rationale: Erythropoiesis-stimulating agents are recommended for treatment of anaemia of chronic kidney disease in children, young  
  
people and adult patients with chronic renal disease requiring dialysis.  
  
Treatment References: WHO EML 2016-2017 - Application for erythropoietin-stimulating agents   
  
(erythropoietin type blood factors)  
  
More information in WHO EML 2017 Section Reference: 10.1  
  
Suggested for monitoring (optional for countries) \*  
  
One of the following:   
  
Epinephrine injection 1 mg (as hydrochloride or hydrogen tartrate) in 1- mL ampoule   
  
  
  
Dexamethasone injection 4 mg/ mL in 1- mL ampoule (as disodium phosphate salt)  
  
  
  
Antiallergics and medicine used in anaphylaxis   
  
Rationale: Epinephrine (adrenaline) is the first line treatment for a severe allergic reaction. During anaphylactic shock, it must be administered through an intramuscular injection.   
  
Dexamethasone is a corticosteroid that prevents almost all symptoms of inflammation associated with allergy. It can also be used during emergency anaphylactic shock.  
  
Treatment References: WHO Antiallergics and Medicine Use in Anaphylaxis   
  
More information in WHO EML 2017 Section Reference: 3  
  
Fluconazole (50 mg cap/tab) and  
  
Nystatin (tablet 500 000 IU)  
  
Anti-fungal drugs  
  
  
  
Rationale:  
  
Nystatin is an antifungal polyene antibiotic that is effective against infections caused by a wide range of yeasts and yeasts-like fungi. It is used for the treatment of oral, oesophageal and intestinal candidosis.  
  
  
  
Fluconazole is an orally active imidazole antifungal agent with activity against dermatophytes, yeasts, and other pathogenic fungi.  
  
It is widely used in the treatment of serious gastrointestinal and systemic mycoses as well as in the management of superficial infections. Fluconazole is also used to prevent fungal infections in immunocompromised patients.  
  
Treatment References: WHO Model Formulary 2008  
  
WHO Model Prescribing Information  
  
Drugs used in sexually transmitted diseases  
  
More information in WHO EML 2017 Section Reference: 6.3  
  
Levothyroxine (tablet 50 micrograms)  
  
Thyroid hormones  
  
Rationale:  
  
Levothyroxine is used for the management of hypothyroidism, diffuse non-toxic goitre, Hashimoto thyroiditis and thyroid cancer.  
  
Treatment References: WHO Model Formulary 2008  
  
More information in WHO EML 2017 Section Reference: 18.8  
  
\* These additional medicines were suggested for monitoring during the consultations with WHO regional advisers and WHO Member States, however they do not represent major burden of disease in countries and cannot be weighted according to the same procedure as the mandatory list.   
  
  
  
Table 2. Diseases treated with the medicines in the core list  
  
  
  
 Medicine name   
  
 Affiliated disease (code of the diseases according to the ICD-11 classification)   
  
 Salbutamol   
  
 → Asthma (1190)  
  
 → Chronic obstructive pulmonary disease (1180)  
  
 Beclometasone or other corticosteroid inhaler  
  
 → Asthma (1190)  
  
 Gliclazide or other sulfonylurea  
  
 → Diabetes mellitus (800)  
  
 Metformin   
  
   
  
 Insulin regular, soluble  
  
   
  
Amlodipine   
  
 → Hypertensive heart disease (1120)  
  
Enalapril or other angiotensin converting enzyme inhibitor   
  
 → Hypertensive heart disease (1120)  
  
 → Cardiomyopathy, myocarditis, endocarditis (1150)  
  
 Hydrochlorothiazide or Chlorthalidone  
  
   
  
 Bisoprolol or alternative betablocker (atenolol or carvedilol or metoprolol only)   
  
 → Hypertensive heart disease (1120)  
  
 → Ischaemic heart disease (1130)  
  
 → Other circulatory diseases (1160)  
  
 → Cardiomyopathy, myocarditis, endocarditis (1150)  
  
 Furosemide   
  
 → Cardiomyopathy, myocarditis, endocarditis (1150)  
  
 Simvastatin or other statin   
  
 → Ischaemic heart disease (1130)  
  
 → Stroke (1140)  
  
 Acetylsalicylic acid (aspirin)  
  
 → Ischaemic heart disease (1130)  
  
 Morphine  
  
→ Malignant neoplasms (610)  
  
 Paracetamol  
  
 → weight = 1/T  
  
 Ibuprofen  
  
 → weight = 1/T  
  
 Fluoxetine or other selective serotonin reuptake inhibitor   
  
 → Depressive disorders (830)  
  
 Phenytoin or Carbamazepine   
  
 → Epilepsy (970)  
  
 Gentamicin  
  
 → Lower respiratory infections (390)  
  
 → Infectious and parasitic diseases (20)  
  
 Amoxicillin  
  
 → Infectious and parasitic diseases (20)  
  
 Ceftriaxone  
  
   
  
 Procaine benzylpenicillin or Benzathine benzylpenicillin  
  
   
  
Ethinylestradiol + levonorgestrel (or alternative combined oral contraceptive)  
  
 → Maternal conditions (420)  
  
Medroxyprogesterone acetate injection   
  
   
  
Progesterone-releasing implant (etonogestrel or levonorgestrel)  
  
   
  
Levonorgestrel  
  
   
  
 Oral rehydration  
  
 → Diarrhoeal diseases (110)  
  
 Zinc sulphate  
  
   
  
 Oxytocin  
  
 → Maternal conditions (420)  
  
 Magnesium sulphate  
  
 → Epilepsy (970)  
  
 Folic acid  
  
 → Iron-deficiency anaemia (580)  
  
Artemether+lumefantrine  
  
 → Malaria (220)  
  
   
  
Artesunate+amodiaquine  
  
   
  
Artesunate+mefloquine  
  
   
  
Dihydroartemisinin+piperaquine  
  
   
  
 Artesunate+sulfadoxine-pyrimethamine  
  
   
  
 Artesunate  
  
   
  
Efavirenz + Emtricitabine + Tenofovir disoproxil fumarate  
  
→ HIV/AIDS (100)  
  
   
  
 Efavirenz + Lamivudine + Tenofovir disoproxil fumarate   
  
   
  
 Chlorhexidine  
  
 → Neonatal sepsis and infections (520)  
  
 Ready-to-use therapeutic food (RUTF)  
  
 → Nutritional deficiencies (540)  
  
 Isoniazid + pyrazinamide + rifampicin  
  
 → Tuberculosis (30)  
  
 Erythropoiesis - stimulating agents  
  
 → Other chronic kidney disease (1273)  
  
 Suggested for monitoring (optional)  
  
Epinephrine or Dexamethasone   
  
 → weight = 0.5\*(1/T)  
  
Fluconazole   
  
   
  
 Nystatin  
  
   
  
 Levothyroxine  
  
   
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
Annex 2. Calculation of weights  
  
Weights are region-specific, and the sum of the weights assigned to medicines in the basket is always equal to “1” in a given region. Since some of the medicines are weighted not according to the DALYs but according to the formula in points iii. and iv. above, the weights have to be normalized so that their sum is equal to “1”.  
  
WHO regional data on disease burden is computed and published for 5-year intervals (e.g. 2000, 2005, 2010 and 2015 for now). As a result, for data points falling between the reference years for which DALY estimates are available the closest reference year is used to calculate medicines’ weights (either previous or following) (Figure 1).   
  
Figure 2.1. Selection of data year for computing medicine weights  
  
  
  
  
  
Two versions of weights are computed: one capturing 32 medicines (excluding optional medicines) and the other capturing 36 medicines (including optional medicines). For countries where the distribution of specific medicines is calculated only in specialized facilities (for example injectable medicines are provided only in hospitals), WHO suggests computing two versions of weights (1 – for pharmacies and other non-tertiary health care facilities based on a shorter list of medicines that exclude the mentioned medicines and 2 – for hospitals that includes the full list of medicines).  
  
  
  
  
  
  
  
  
  
  
  
Table 2.1: Region specific weights applied for medicines in a defied basket [excluding suggested for monitoring (optional) medicines]\*  
  
   
  
 Weights for 32 medicines are computed. Where several medicines or combinations of medicines are specified (listed with “OR”), one medicine has to be selected for the further computation of the SDG indicator.   
  
Table 2.2: Region specific weights applied for medicines in a defied basket [including suggested for monitoring (optional) medicines] \*Weights for 36 medicines are computed. Where several medicines or combinations of medicines are specified (listed with “OR”), one medicine has to be selected for the further computation of the SDG indicator.  
  
Annex 3: Basket of core set of relevant essential medicines for primary health care: number of units and duration per treatment  
  
Medicine  
  
Dose  
  
Duration  
  
Units  
  
Salbutamol   
  
100 mcg/dose inhaler  
  
30  
  
30  
  
Beclometasone   
  
100 mcg/dose inhaler  
  
30  
  
60  
  
Gliclazide   
  
80 mg cap/tab  
  
30  
  
30  
  
Metformin   
  
500 mg cap/tab OR 850 mg cap/tab OR 1 g cap/tab  
  
30  
  
90  
  
Insulin regular, soluble   
  
100 IU/ml injection  
  
30  
  
90  
  
Amlodipine   
  
5 mg cap/tab  
  
30  
  
30  
  
Enalapril   
  
5 mg cap/tab  
  
30  
  
30  
  
Hydrochlorothiazide   
  
25 mg cap/tab  
  
30  
  
30  
  
Chlorthalidone   
  
25 mg cap/tab  
  
30  
  
15  
  
Bisoprolol   
  
5 mg cap/tab  
  
30  
  
30  
  
Simvastatin   
  
20 mg cap/tab  
  
30  
  
30  
  
Acetylsalicylic acid (aspirin)  
  
100 mg cap/tab  
  
30  
  
30  
  
Morphine   
  
10mg cap/tab  
  
30  
  
180  
  
Paracetamol   
  
500 mg tab/cap  
  
30  
  
180  
  
Fluoxetine   
  
20 mg cap/tab  
  
30  
  
30  
  
Phenytoin   
  
100mg cap/tab  
  
30  
  
90  
  
Carbamazepine   
  
200 mg cap/tab  
  
30  
  
150  
  
Gentamicin   
  
40 mg/mL in 2mL vial  
  
3  
  
15  
  
Amoxicillin for adults   
  
500mg cap/tab  
  
7  
  
21  
  
Ceftriaxone   
  
1g/vial Injection  
  
1  
  
1  
  
Procaine benzylpenicillin   
  
1G = 1MU Injection  
  
10  
  
10  
  
Benzathine benzylpenicillin   
  
900mg=1.2 MIU OR 1.44g = 2.4MIU injection  
  
1  
  
1 or 2  
  
Ethinylestradiol + levonorgestrel  
  
30 mcg cap/tab + 150 mcg cap/tab  
  
28  
  
21  
  
Levonorgestrel  
  
30 mcg cap/tab  
  
28  
  
28  
  
Medroxyprogesterone acetate injection   
  
IM 150 mg/mL OR SC 104 mg/0.65mL  
  
84  
  
1  
  
Progesterone-releasing implant: Etonogestrel OR Levonorgestrel  
  
Etonogestrel 68 mg OR Levonorgestrel 150 mg  
  
3 or 5 years  
  
1  
  
Levonorgestrel   
  
750 mcg OR 1.5 mg tablet  
  
1  
  
2 or 1   
  
Oral rehydration salts  
  
1 litre  
  
1  
  
3  
  
Zinc sulphate   
  
20mg dispersible tablet  
  
14  
  
14  
  
Oxytocin   
  
5iu or 10iu injection  
  
1  
  
1  
  
Magnesium sulphate   
  
50% 10ml Injection  
  
1  
  
2  
  
Folic acid  
  
400 mcg tablet  
  
30  
  
30  
  
Artemether+lumefantrine   
  
20/120 mg cap/tab  
  
3  
  
24  
  
Artesunate+amodiaquine   
  
100 mg + 270 mg  
  
3  
  
6  
  
Artesunate+mefloquine   
  
100 mg + 220 mg  
  
3  
  
6  
  
Dihydroartemisinin+piperaquine   
  
40 mg + 320 mg  
  
3  
  
9  
  
Artesunate+sulfadoxine-pyrimethamine   
  
200 mg + 1500mg + 75mg  
  
3  
  
3 + 1  
  
Artesunate   
  
60 mg injection OR 100 mg rectal dose form  
  
1  
  
1  
  
Efavirenz + Emtricitabine + Tenofovir disoproxil fumarate  
  
 400 mg OR 600 mg + 200 mg + 300 mg  
  
30  
  
30  
  
Efavirenz + Lamivudine + Tenofovir disoproxil fumarate  
  
400 mg or 600 mg + 300 mg + 300 mg  
  
30  
  
30  
  
Ibuprofen for adults   
  
200mg cap/tab  
  
30  
  
60  
  
Furosemide   
  
40 mg cap/tab  
  
30  
  
30  
  
Epinephrine  
  
1 mg injection  
  
1  
  
0.5  
  
Dexamethasone  
  
injection 4 mg/ mL in 1- mL ampoule (as disodium phosphate salt)  
  
1  
  
1  
  
Fluconazole   
  
50 mg cap/tab (depending on indication)  
  
   
  
   
  
Nystatin   
  
tablet 500 000 IU  
  
2  
  
8  
  
Levothyroxine   
  
tablet 50 micrograms  
  
30  
  
60  
  
Chlorhexidine  
  
Solution or gel: 7.1% (digluconate) delivering 4% chlorhexidine  
  
7  
  
1  
  
Ready-to-use therapeutic food (RUTF)  
  
paste or spread (1 sachet = 92 g [500 Kcal]) OR  
  
biscuit (28.4g, 500 kcal per 100g)  
  
30  
  
150 - 220 kcal/kg per day  
  
Isoniazid + pyrazinamide + rifampicin  
  
50 mg + 150 mg + 75 mg  
  
30  
  
30 (60, 90 or 120)  
  
Epoetin alfa  
  
2,000 IU/mL  
  
12  
  
50 units/kg  
  
  
  
  
  
  
  
  
Annex 4 – Combination of availability and affordability  
  
As an example, consider a simplified case of access to a basket of three medicines (Figure 2). In the matrix:  
  
“1” indicates that a medicine is available or is affordable.   
  
“0” indicates that a medicine is not available or not affordable. In other words, “0” in the matrix indicates that the dimension is deprived.   
  
“.” indicates cases when medicine is not available and consequently affordability of medicine is not measured. In other words, information on prices cannot be collected when a medicine is not found by the interviewer in the facility.   
  
Figure 4.1. Achievement matrix on access to medicine (two dimensions)  
  
  
  
In this basket the 1st medicine is fully accessible (i.e. it is both available and affordable), the 2nd medicine is partially accessible (i.e. it is available but not affordable), while the 3rd medicine is inaccessible (i.e. it is not available and thus it is not possible to collect information on prices).  
  
In this example, the first medicine is accessible and the third medicine is not. However, the second medicine is partially deprived indicating that specific policies applied in the country may be effective for availability of the medicine but not for its affordability. Applying the union identification approach by S. Alkire and G. Robles that treats elements (medicines) in the matrix with partial deprivation as fully deprived, the second medicine is considered not accessible as well (Figure 3).   
  
Figure 4.2. Achievement matrix of access to medicine (two dimensions & deprivation of dimensions)  
  
  
  
At the end of this step, the variable “access” to medicines is generated, combining the 2 dimensions of availability and affordability. This variable remains binary in nature with 1 – medicine is accessible (both available and affordable) and 0 – medicine is not accessible (not available or available but not affordable).  
  
  
  
  
  
  
  
  
  
30

Last updated: March 2020  
  
  
  
Target 3.3: By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases  
  
Indicator 3.3.1: Number of new HIV infections per 1,000 uninfected population, by sex, age and key populations  
  
  
  
Institutional information  
  
  
  
Organization(s):  
  
  
  
The Joint United Nations Programme on HIV/AIDS (UNAIDS)  
  
  
  
Concepts and definitions  
  
  
  
Definition:  
  
  
  
The number of new HIV infections per 1,000 uninfected population, by sex, age and key populations as defined as the number of new HIV infections per 1000 person-years among the uninfected population.  
  
  
  
Rationale:  
  
  
  
The incidence rate provides a measure of progress toward preventing onward transmission of HIV.  
  
  
  
Methodology  
  
  
  
Computation Method:  
  
  
  
Longitudinal data on individuals are the best source of data but are rarely available for large populations. Special diagnostic tests in surveys or from health facilities can be used to obtain data on HIV incidence. HIV incidence is thus modelled using the Spectrum software.  
  
  
  
Disaggregation:  
  
  
  
General population, Age groups (0-14, 15-24, 15-49, 50+ years), sex (male, female, both)  
  
  
  
Treatment of missing values:  
  
  
  
At country level  
  
  
  
Estimates are not collected from countries with populations < 250,000. In addition no estimates are available for 10 countries with very small HIV epidemics who do not produce estimates.   
  
For some countries the estimates were not finalized at the time of publication. The country specific values are not presented for these countries.  
  
  
  
At regional and global levels  
  
  
  
The countries with populations < 250,000 and the 10 countries that do not produce estimates are not included in regional or global level estimates. For countries in which the estimates were not finalized at the time of publication, the unofficial best estimates are included in the regional and global values.  
  
  
  
Regional aggregates:  
  
  
  
Available for the World, the SDG regional groupings, LDCs, LLDCs and SIDS.  
  
  
  
Sources of discrepancies:  
  
  
  
These variations will differ by country.  
  
  
  
Methods and guidance available to countries for the compilation of the data at the national level:  
  
  
  
A description of the methodology is available at:   
  
http://www.unaids.org/sites/default/files/media\_asset/Estimates\_methods\_2018.pdf  
  
  
  
Countries are providing with capacity building workshops every two years on the methods. In addition, they are supported by in country specialists in roughly 45 countries. Where no in country specialists are available remote assistance is provided. Guidelines are also available at: http://www.unaids.org/en/dataanalysis/datatools/spectrum-epp and at www.avenirhealth.org  
  
  
  
Quality assurance  
  
  
  
http://www.unaids.org/sites/default/files/media\_asset/Estimates\_methods\_2018.pdf  
  
  
  
Countries are fully involved in the development of the estimates. The final values are reviewed for quality by UNAIDS and approved by senior managers at national Ministries of Health.  
  
  
  
Data Sources  
  
  
  
Description:  
  
  
  
Spectrum modelling, household or key population surveys with HIV incidence-testing,  
  
  
  
Other possible data sources: Regular surveillance system among key populations.  
  
  
  
Collection process:  
  
  
  
Country teams use UNAIDS-supported software to develop estimates annually. The country teams are comprised of primarily epidemiologists, demographers, monitoring and evaluation specialists and technical partners.  
  
  
  
The software used to produce the estimates is Spectrum—developed by Avenir Health (www.avenirhealth.org)—and the Estimates and Projections Package, which is developed by the East-West Center (www.eastwestcenter.org). The UNAIDS Reference Group on Estimates, Modelling and Projections provides technical guidance on the development of the HIV component of the software (www.epidem.org).  
  
  
  
Data Availability  
  
Description:  
  
  
  
170 countries in 2019  
  
  
  
Time series:  
  
  
  
2000-2018   
  
  
  
Calendar  
  
  
  
Data collection:  
  
  
  
Data sources are compiled all year long. The spectrum models are created in the first three months of every year and finalized by June. The next report will be in July 2020.   
  
  
  
Data release:  
  
  
  
June 2018, June 2019, etc.   
  
  
  
Data providers  
  
  
  
The estimates are produced by a team consisting of ministry of health, national AIDS advisory groups and development partners. The results are signed off on by senior managers at the ministries of health.  
  
  
  
Data compilers  
  
  
  
UNAIDS  
  
  
  
References  
  
  
  
URL:  
  
  
  
unaids.org  
  
  
  
References:  
  
  
  
http://www.unaids.org/en/dataanalysis/datatools/spectrum-epp  
  
  
  
UNAIDS Global AIDS Monitoring: Indicators for monitoring the 2016 United Nations Political Declaration on Ending AIDS  
  
  
  
Political Declaration on HIV and AIDS: On the Fast Track to Accelerating the Fight against HIV and to Ending the AIDS Epidemic by 2030   
  
http://www.unaids.org/sites/default/files/media\_asset/2017-Global-AIDS-Monitoring\_en.pdf .  
  
  
  
UNAIDS website for relevant data and national Spectrum files http://aidsinfo.unaids.org/  
  
  
  
Consolidated Strategic Information Guidelines for HIV in the Health Sector. Geneva: World Health Organization;  
  
  
  
https://www.who.int/hiv/pub/guidelines/en/ accessed on 7 February 2019

Last updated: 09 January 2018  
  
  
  
Goal 3: Ensure healthy lives and promote well-being for all at all ages  
  
Target 3.3: By 2030, end the epidemics of AIDS, tuberculosis, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases  
  
Indicator 3.3.2: Tuberculosis incidence per 100,000 population  
  
  
  
Institutional information  
  
  
  
Organization(s):  
  
  
  
World Health Organization (WHO)  
  
  
  
Concepts and definitions  
  
  
  
Definition:  
  
  
  
The tuberculosis incidence per 100,000 population as defined as the estimated number of new and relapse TB cases (all forms of TB, including cases in people living with HIV) arising in a given year, expressed as a rate per 100 000 population.  
  
  
  
Rationale:  
  
  
  
Following two years of consultations, a new post-2015 global tuberculosis strategy was endorsed by the World Health Assembly in May 2014. Known as the End TB Strategy, it covers the period 2016-2035. The overall goal is to “End the global tuberculosis epidemic”, and correspondingly ambitious targets for reductions in tuberculosis deaths and cases are set for 2030 (80% reduction in incidence rate compared with the level of 2015) and 2035 (90% reduction in incidence rate), in the context of the SDGs.   
  
The tuberculosis incidence rate was selected as an indicator for measuring reductions in the number of cases of disease burden. Although this indicator was estimated with considerable uncertainty in most countries in 2014, notifications of cases to national authorities provide a good proxy if there is limited under-reporting of detected cases and limited under or over-diagnosis of cases.  
  
  
  
Concepts:  
  
  
  
Direct measurement requires high-quality surveillance systems in which underreporting is negligible, and strong health systems so that under-diagnosis is also negligible; otherwise indirect estimates are based on notification data and estimates of levels of underreporting and under-diagnosis.  
  
  
  
Comments and limitations:  
  
TB incidence has been used for over a century as a main indicator of TB burden, along with TB mortality. The indicator allows comparisons over time and between countries. Improvement in the quality of TB surveillance data result in reduced uncertainty about indicator values.  
  
  
  
Methodology  
  
  
  
Computation Method:  
  
  
  
Estimates of TB incidence are produced through a consultative and analytical process led by WHO and are published annually. These estimates are based on annual case notifications, assessments of the quality and coverage of TB notification data, national surveys of the prevalence of TB disease and information from death (vital) registration systems.  
  
  
  
Estimates of incidence for each country are derived, using one or more of the following approaches depending on available data: (i) incidence = case notifications/estimated proportion of cases detected; (ii) capture-recapture modelling, (iii) incidence = prevalence/duration of condition.  
  
  
  
Uncertainty bounds are provided in addition to best estimates.  
  
  
  
Details are available from TB impact measurement: policy and recommendations for how to assess the epidemiological burden of TB and the impact of TB control and from the online technical appendix to the WHO global tuberculosis report 2017 and https://arxiv.org/abs/1603.00278  
  
  
  
Disaggregation:  
  
  
  
The indicator is disaggregated by country, sex and age (children vs adults).  
  
  
  
Treatment of missing values:  
  
  
  
At country level  
  
  
  
Details available in the following publicly available paper:  
  
https://arxiv.org/ftp/arxiv/papers/1603/1603.00278.pdf  
  
  
  
At regional and global levels  
  
  
  
Details available in the following publicly available paper:  
  
https://arxiv.org/ftp/arxiv/papers/1603/1603.00278.pdf  
  
  
  
Regional aggregates:  
  
  
  
Country estimates of case counts are aggregated. Uncertainty is propagated assuming independence of country estimates.  
  
  
  
Sources of discrepancies:  
  
  
  
Population denominators may differ between national sources and UNPD. WHO uses UNPD population estimates.  
  
  
  
Data Sources  
  
  
  
Description:  
  
  
  
Details about data sources and methods are available in the following publicly available paper:  
  
https://arxiv.org/ftp/arxiv/papers/1603/1603.00278.pdf  
  
  
  
Collection process:  
  
  
  
National TB Programmes report every year between March and June their annual TB data to WHO using a standardized online data reporting system maintained at WHO. The system includes real-time checks for data consistency. Estimates of TB burden are prepared in July-August and communicated with countries. In selected countries with new survey data, estimates are updated separately during the year. All estimates are communicated in August-September and revisions are done based on feedback. The final set of estimates is reviewed in WHO before publication in October, for compliance with specific international standards and harmonization of breakdowns for age and sex groups.  
  
  
  
Data Availability  
  
  
  
Description:  
  
  
  
All countries  
  
  
  
Time series:  
  
  
  
2000 onwards  
  
  
  
Calendar  
  
  
  
Data collection:  
  
  
  
current: March-June each year  
  
  
  
Data release:  
  
  
  
October each year  
  
  
  
Data providers  
  
  
  
National TB Programmes, Ministries of Health  
  
  
  
Data compilers  
  
  
  
WHO  
  
  
  
References  
  
  
  
URL:  
  
  
  
http://www.who.int/tb/country/data/download/en/  
  
  
  
References:  
  
  
  
WHO global tuberculosis report 2017: http://www.who.int/tb/publications/global\_report/en/, accessed 09 January 2018).  
  
  
  
Methods used by WHO to estimate the Global burden of TB disease: https://arxiv.org/ftp/arxiv/papers/1603/1603.00278.pdf  
  
  
  
Definitions and reporting framework for tuberculosis – 2013 revision (WHO/HTM/TB/2013.2). Geneva: World Health Organization; 2013 (http://www.who.int/tb/publications/definitions/en/, accessed 21 June 2016).  
  
  
  
World Health Assembly governing body documentation: official records. Geneva: World Health Organization (http://apps.who.int/gb/or/, accessed 21 June 2016).

Last update: 20 September 2019  
  
Goal 3: Ensure healthy lives and promote wellbeing for all at all ages  
  
Target 3.5: Strengthen the prevention and treatment of substance abuse, including narcotic drug abuse and harmful use of alcohol  
  
Indicator 3.5.1: Coverage of treatment interventions (pharmacological, psychosocial and rehabilitation and aftercare services) for substance use disorders  
  
  
  
Institutional information  
  
Organization(s):  
  
World Health Organization (WHO)  
  
United Nations Office on Drugs and Crime (UNODC)  
  
  
  
Concepts and definitions  
  
Definition:  
  
The coverage of treatment interventions for substance use disorders is defined as the number of people who received treatment in a year divided by the total number of people with substance use disorders in the same year. This indicator is disaggregated by two broad groups of psychoactive substances: (1) drugs, (2) alcohol and other psychoactive substances.   
  
  
  
Whenever possible, this indicator is additionally disaggregated by type of treatment interventions (pharmacological, psychosocial and rehabilitation and aftercare services). The proposed indicator will be accompanied, with contextual information on availability coverage, i.e. treatment capacity for substance use disorders generated at national level to provide additional information for interpretation of the contact coverage data.  
  
  
  
Rationale:  
  
According to UNODC and WHO data, around 271 million people aged 15 to 64 years worldwide used an illicit drug at least once in 2017, about 2.3 billion people are current drinkers of alcohol, some 35 million of people suffer from drug use disorders and 289 million from alcohol use disorders.  
  
  
  
Substance use disorders are serious health conditions that present a significant burden for affected individuals, their families and communities. Untreated substance use disorders trigger substantial costs to society including lost productivity, increased health care expenditure, and costs related to criminal justice, social welfare, and other social consequences. Strengthening treatment services entails providing access to a comprehensive set of evidence-based interventions (-laid down in the international standards and guidelines) that should be available to all population groups in need. The indicator will inform the extent to which a range of evidence-based interventions for treatment of substance use disorder are available and are accessed by the population in need at country, regional and global level.   
  
  
  
Even though effective treatment exists, only a small amount of people with substance use disorders receive it. For instance, it is estimated that globally one out of 7 people with drug use disorders have access to or provided drug treatment services (World Drug Report 2019). WHO ATLAS-Substance Use data showed that in 2014 only 11.9 % (out of 103 responding) countries reported high coverage (40% or more) for alcohol dependence. SDG indicator 3.5.1 is crucial for measurement the progress towards strengthening the treatment of substance abuse worldwide as formulated in the Target 3.5.   
  
  
  
Concepts:  
  
The central concept of “substance abuse” in the SDG health target 3.5 implies the use of psychoactive substances that, when taken in or administered into one's system, affect mental processes, e.g. perception, consciousness, cognition or affect. The concept of “substance use disorders” includes both “drugs use disorders” and “alcohol use disorders” according to the International Classification of Diseases (ICD-10 and ICD-11).  
  
  
  
The term “drugs” refers to controlled psychoactive substances as scheduled by the three Drug Control Conventions (1961, 1971 and 1988), substances controlled under national legislation and new psychoactive substances (NPS) that are not controlled under the Conventions, but may pose a public health threat. “Alcohol” refers to ethanol - a psychoactive substance with dependence producing properties that is consumed in ethanol-based or alcoholic beverages.   
  
  
  
People with substance use disorders are those with harmful substance use and/or affected by substance dependence. Harmful substance use is defined in the ICD-11 as a pattern of use of substances that has caused damage to a person’s physical or mental health or has resulted in behaviour leading to harm to the health of others. According to ICD-11, dependence arises from repeated or continuous use of psychoactive substances. The characteristic feature is a strong internal drive to use psychoactive substance, which is manifested by impaired ability to control use, increasing priority given to use over other activities and persistence of use despite harm or negative consequences.  
  
  
  
Treatment of substance use disorder -any structured intervention that is aimed specifically to a) reduce substance use and cravings for substance use; b) improve health, well-being and social functioning of the affected individual, and c) prevent future harms by decreasing the risk of complications and relapse. These may include pharmacological treatment, psychosocial interventions and rehabilitation and aftercare. All evidence-based used for treatment of substance use disorders are well defined in WHO and UNODC related documents.   
  
  
  
Pharmacological treatment refers to interventions that include detoxification, opioid agonist maintenance therapy (OAMT) and antagonist maintenance (WHO, UNODC International Standards for the treatment of drug use disorders, 2016).   
  
  
  
Psychosocial interventions refer to programs that address motivational, behavioral, psychological, social, and environmental factors related to substance use and have been shown to reduce drug use, promote abstinence and prevent relapse. For different drug use disorders, the evidence from clinical trials supports the effectiveness of treatment planning, screening, counselling, peer support groups, cognitive behavioral therapy (CBT), motivational interviewing (MI), community reinforcement approach (CRA), motivational enhancement therapy (MET), family therapy (FT) modalities, contingency management (CM), counselling, insight-oriented treatments, housing and employment support among others. (UNODC WHO International Standards for the Treatment of Drug Use Disorders, 2016).  
  
  
  
Rehabilitation and aftercare (Recovery Management and Social Support) refers to interventions that are based on scientific evidence and focused on the process of rehabilitation, recovery and social reintegration dedicated to treat drug use disorders.   
  
Comments and limitations:  
  
The two main challenges in terms of computing the SDG 3.5.1 indicator are the limited availability of household surveys on substance use and the under-reporting of use among survey respondents.  
  
Data reported from household surveys are one of the sources of information on of the number of people with substance use disorders. There are issues of under-reporting for certain psychoactive substances, in countries where stigma is associated to substance use and when a considerable proportion of the drug or alcohol using population is institutionalized, homeless or unreachable by population-based surveys. Additionally, being a relatively rare event, household surveys on substance use disorders require a large sample and can be costly. In order to address these issues, additional approaches (e.g. scale up methods) are increasingly used in household surveys to address undercount issues. These can be used in conjunction with special studies and/or additional information, in order to obtain reasonable estimates via indirect methods, such as benchmark/multiplier or capture-recapture methods.   
  
  
  
An additional step in data validation and country capacity building for monitoring treatment coverage for substance use disorders will be implemented during the next couple of years for in-depth data generation in a sample of countries from different regions and representing different levels of health system development. A rapid assessment tool for in-depth data generation is in the process of development by WHO.  
  
  
  
The indicator stresses on type, availability and coverage of services but does not necessarily provide information on the actual quality of the interventions/services provided. To address this, at national level, the proposed treatment indicator will be accompanied with contextual information on availability coverage, i.e. treatment capacity for substance use disorders to provide additional information for interpretation of the contact coverage data.  
  
  
  
Methodology  
  
Computation Method:  
  
  
  
The indicator will be computed by dividing the number of people receiving treatment services at least once in a year by the total number of people with substance use disorders in the same year:  
  
  
  
Where: SUD – Substance use disorders  
  
Disaggregation:  
  
Given the policy importance, the indicator will be disaggregated to provide data for drugs and alcohol. Depending on data availability, it will be additionally disaggregated by following:  
  
by treatment interventions (pharmacological, psychosocial, rehabilitation and aftercare)  
  
by sex  
  
by age groups  
  
In relation to drug use disorders, the following types of drugs should be considered:   
  
cannabis (including herb and resin)  
  
opioids (opium, heroin, medicinal products containing opioids and other opioids)),  
  
cocaine type,  
  
amphetamines (amphetamine, methamphetamine, medicinal products containing ATS),  
  
ecstasy-type substances,  
  
sedatives and tranquilizers,  
  
hallucinogens  
  
solvents and inhalants  
  
NPS   
  
Treatment of missing values:  
  
At country level  
  
For drug use disorder, data will be provided for countries where information is available for both numerator and denominator. No data estimates will be done at the national level.  
  
  
  
For alcohol, when information on service utilization is missing in a country, several approaches will be used to produce estimates based on all available pieces of contextual service capacity data in the country and regionally. Link to be established between service availability and service utilization to get rough understanding on number of people who might be using services for countries where no direct information on number of people using services is available at all.   
  
  
  
At regional and global level  
  
Sub-regional and regional aggregates are produced when enough data at the country level are available (a minimum number of countries and a minimum percentage of population coverage). When data are available, sub-regional estimates are created first and then aggregated at regional level. The global level is computed as aggregation of regional estimates.   
  
  
  
Sources of discrepancies:  
  
Given the heterogeneity of national data collection systems, there is potential for discrepancies related either to the differences in recording the number of people in treatment and for people with substance use disorders. For this purpose, the ARQ has recently been improved to allow for countries to specify the nature of the data reported and to enable UNODC to assess the accuracy and comparability of data.   
  
  
  
Apart from evaluating the consistency of data and addressing data discrepancies by using additional sources, UNODC is in continuous communication and discusses technical issues with reporting countries in order to minimize discrepancies and inconsistency of data.   
  
  
  
Methods and guidance available to countries for the compilation of the data at the national level:  
  
UNODC has published a series of methodological guidelines on several issues related to the drug problem, entitled “Global Assessment Program (GAP)”. These guidelines consist of 8 modules, covering different aspects of monitoring the drug situation including setting up drug information systems, estimating drug prevalence using indirect methods, setting up treatment monitoring and reporting systems, etc. The modules can be found at: https://www.unodc.org/unodc/en/GAP/. It is planned to update these guidelines in the near future.   
  
  
  
As part of the ARQ review process, UNODC is planning to enhance its capacity building tools by complementing regional and national capacity building activities with:  
  
E-learning training modules with incorporated training curricula  
  
Creating methodological guidelines and tools on drug-related issues, including drug use disorders and treatment  
  
promoting national coordination mechanisms on drugs data, including national drug observatories  
  
WHO has published series of documents on alcohol monitoring in populations (e.g. International Guide for Monitoring Alcohol Consumption and Related Harm), and established a Global Information System on Alcohol and Health (GISAH) that provides easy and rapid access to a wide range of alcohol-related health indicators. It is an essential tool for assessing and monitoring the health situation and trends related to alcohol consumption, alcohol-related harm, and policy responses in countries. GISAH is a further development of the Global Alcohol Database which has been built since 1997 by the WHO Department of Mental Health and Substance Abuse. The main purpose of GISAH is to serve WHO Member States and governmental and nongovernmental organizations by making alcohol-related health data available. These data can help to analyse the state of the health situation related to alcohol in a country, a WHO region or sub-region, or the world. The Indicator Code Book has been prepared to assist countries in collecting the data.  
  
Quality assurance  
  
At UNODC, quality assurance measures are in place to collect, process and disseminate statistical data. They build on the ‘Principles governing international statistical activities’ and regulate the collection, processing, publication and dissemination of data.   
  
  
  
All data for SDG indicators as compiled by the Office are sent to countries (through the relevant national focal points) for their review before statistical data are officially released by UNODC. When countries provide feedback/comments on the data, a technical discussion is conducted to identify a common position.  
  
  
  
At WHO quality assurance measures are in place for producing the health statistics that include the main indicators on alcohol consumption and its health consequences. WHO Technical Advisory Group on Alcohol and Drug Epidemiology provides technical advice and input to WHO activities on monitoring alcohol consumption and treatment capacity for substance use disorders in its Member States.  
  
  
  
Data compilation is to be performed centrally by WHO and UNODC based on data collected from countries that later will be validated through official focal points.  
  
  
  
Data Sources  
  
The sources include:   
  
Household surveys  
  
Surveys among people using substances – using for instance respondent driven sampling  
  
Indirect methods such as capture/recapture or multiplier benchmark method  
  
Surveys should be nationally representative, with a sample size sufficiently large to capture relevant events and compute needed disaggregation, and they should be based on a solid sample design. The use of indirect questions for network scale-up methods in household surveys is encouraged.   
  
Treatment registries are the main source of data for the number of people receiving treatment. They should cover the entire national territory and be linked to all relevant agencies providing treatment services.   
  
To estimate the number of people with alcohol use disorders, preferred data sources are population-based surveys targeting the adult population (15+ years). International surveys such as WHS, STEPS, GENACIS, and ECAS represent good practices.  
  
Collection process:  
  
WHO and UNODC will use existing data collections to gather available statistics from member states:   
  
UNODC Annual Report Questionnaire ;   
  
WHO Global Survey on Progress on SDG Health Target 3.5;   
  
Drugs:  
  
Data on people with drug use disorders and the number of people in treatment are collected through a standardised questionnaire sent to countries, the Annual Report Questionnaire (ARQ). This questionnaire provides specific definitions of data to be collected and it collects a set of metadata to identify possible discrepancies from standard definitions and to assess overall data quality (e.g. sample size, target population, agency responsible for the data collection, etc.). At the national level, countries are required to have standardized treatment reporting system.   
  
A revised ARQ will be used from 2021 onwards. Data on drug use disorders and treatment, with the relevant disaggregations will continue to be collected through this tool.   
  
Countries will be requested to nominate national focal points to ensure technical supervision at country level   
  
Automated and substantive validation procedures are in place to assess data consistency and compliance with standards   
  
When data from national official sources are missing or not complying with methodological standards, data from other sources are also considered and processed by using the same quality assurance procedures.   
  
Alcohol and other substances:   
  
In the periodical WHO Global Surveys on Alcohol and Health, alcohol focal points officially nominated by the Ministry of Health provide data or links or contacts through which the data can be accessed.   
  
These focal points provide national government statistics.   
  
In addition, data are accessed from country-specific industry data sources in the public domain and other databases as well as systematic literature reviews.   
  
WHO global surveillance activities generate population-based country data used for estimation of the number of people with substance use disorders in populations (such as World Mental Health Survey and STEPS surveys)   
  
Data on service utilization and contextual information are being collected by WHO Global Survey on SDG 3.5 that has been previously piloted and through specific activities such as service mapping surveys implemented in collaboration with UNOD  
  
The collected, collated and analysed data is included in the process of country consultations.   
  
After the validation process, the data will be sent to national focal points for their review before publication.  
  
Data Availability  
  
Description:  
  
During the reporting period 2013-2017, 62 countries have provided data on drug use disorders and 98 countries provided data on drug treatment. The availability and accuracy of data on the number of people with drug use disorders and people in treatment for the use of drugs is gradually increasing.  
  
For the number of alcohol use disorders data are currently available for 188 Member States (for 2016) and validated through the process of country consultation. Data are regularly updated and presented through WHO Global Health Observatory. For utilization of treatment by people with alcohol use disorders, data are currently available for at least 30 countries and further data collection is ongoing  
  
For contextual information on treatment services, WHO has collected data from more than 85 countries; data collection for other is ongoing and to be accomplished till the end of 2019.   
  
Time series:  
  
During 2013-2017, 34 countries have provided at least two datapoints for both numerator and denominator necessary for the calculation of the SDG indicator on drug use disorders. With the improved ARQ, it is expected that the number of responses and quality of data reported will increase after 2021. For the alcohol, data on denominator are available for a long period since establishment of GISAH in 1997 and the indicator has been tentatively calculated for at least 30 countries in 2019, with contextual information available for 85.  
  
Calendar  
  
Data collection:  
  
Countries are encouraged to conduct general population surveys on substance use regularly, but at least every four-five years. Also, countries are encouraged to use less costly alternatives to estimate the number of people with substance use disorders and service utilization, taking advantage of the availability of administrative data through the use of indirect estimation methods. Collection of data from countries is planned on annual or biannual basis.  
  
Data release:  
  
Data on relevant SDG indicators are collected, compiled and sent back to countries for data review annually. Data are then reported to UNSD through the regular reporting channels annually.  
  
Data providers  
  
Drug use disorders data are collected through national focal points. Data providers vary by country and they can be institutions such as Drug Control Agencies, National Drug Observatories, Ministries of Health and/or National Statistical Offices.   
  
  
  
Data compilers  
  
  
  
Data will be compiled by the co-custodians for this indicator (UNODC and WHO).  
  
  
  
References  
  
URLs:  
  
https://www.who.int/gho/substance\_abuse/en/  
  
https://wdr.unodc.org/wdr2019/  
  
https://www.who.int/healthinfo/global\_burden\_disease/about/en/  
  
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5608813/  
  
https://icd.who.int/browse10/2016/en  
  
https://www.unodc.org/unodc/en/commissions/CND/conventions.html  
  
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2395571/  
  
https://www.who.int/healthinfo/systems/monitoring/en/  
  
https://www.unodc.org/unodc/en/GAP/  
  
https://www.unodc.org/documents/pakistan/Survey\_Report\_Final\_2013.pdf  
  
https://www.unodc.org/documents/data-and-analysis/statistics/Drugs/Drug\_Use\_Survey\_Nigeria\_2019\_BOOK.pdf  
  
https://www.who.int/substance\_abuse/activities/gisah/en/  
  
https://www.who.int/substance\_abuse/activities/gisah\_indicatorbook.pdf?ua=1  
  
  
  
Related indicators as of February 2020  
  
Indicator 3.5.2: Harmful use of alcohol, defined according to the national context as alcohol per capita consumption (aged 15 years and older) within a calendar year in litres of pure alcohol

Last updated: September 2019  
  
  
  
  
  
  
  
  
  
Goal 3: Ensure healthy lives and promote well-being for all at all ages  
  
Target 3.2: By 2030, end preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under-5 mortality to at least as low as 25 per 1,000 live births  
  
Indicator 3.2.1: Under-five mortality rate  
  
  
  
Institutional information  
  
  
  
Organization(s):  
  
  
  
United Nations Children's Fund (UNICEF)  
  
  
  
Concepts and definitions  
  
  
  
Definition:  
  
  
  
Under-five mortality is the probability of a child born in a specific year or period dying before reaching the age of 5 years, if subject to age specific mortality rates of that period, expressed per 1000 live births.  
  
  
  
Rationale:  
  
  
  
Mortality rates among young children are a key output indicator for child health and well-being, and, more broadly, for social and economic development. It is a closely watched public health indicator because it reflects the access of children and communities to basic health interventions such as vaccination, medical treatment of infectious diseases and adequate nutrition.  
  
  
  
Concepts:  
  
  
  
The under-five mortality rate as defined here is, strictly speaking, not a rate (i.e. the number of deaths divided by the number of population at risk during a certain period of time), but a probability of death derived from a life table and expressed as a rate per 1000 live births.  
  
  
  
Methodology  
  
  
  
Computation Method:  
  
  
  
The UN Inter-agency Group for Child Mortality Estimation (UN IGME) estimates are derived from national data from censuses, surveys or vital registration systems. The UN IGME does not use any covariates to derive its estimates. It only applies a curve fitting method to good-quality empirical data to derive trend estimates after data quality assessment. In most cases, the UN IGME estimates are close to the underlying data. The UN IGME aims to minimize the errors for each estimate, harmonize trends over time and produce up-to-date and properly assessed estimates. The UN IGME applies the Bayesian B-splines bias-reduction model to empirical data to derive trend estimates of under-five mortality for all countries. See references for details.   
  
  
  
For the underlying data mentioned above, the most frequently used methods are as follows:  
  
  
  
Civil registration: The under-five mortality rate can be derived from a standard period abridged life table using the age-specific deaths and mid-year population counts from civil registration data to calculate death rates, which are then converted into age-specific probabilities of dying.  
  
  
  
Census and surveys: An indirect method is used based on a summary birth history, a series of questions asked of each woman of reproductive age as to how many children she has ever given birth to and how many are still alive. The Brass method and model life tables are then used to obtain an estimate of under-five and infant mortality rates. Censuses often include questions on household deaths in the last 12 months, which can be used to calculate mortality estimates.  
  
  
  
Surveys: A direct method is used based on a full birth history, a series of detailed questions on each child a woman has given birth to during her lifetime. Neonatal, post-neonatal, infant, child and under-five mortality estimates can be derived from the full birth history module.  
  
  
  
Disaggregation:  
  
  
  
The common disaggregation for mortality indicators includes disaggregation by sex, age (neonatal, infant, child), wealth quintile, residence, and mother’s education. Disaggregated data are not always available. Disaggregation by geographic location is usually at regional level, or the minimum provincial level for survey or census data. Data from well-functioning vital registration systems can provide further geographical breakdowns.  
  
  
  
  
  
Treatment of missing values:  
  
  
  
At country level  
  
  
  
UN IGME estimates are based on underlying empirical data. If the empirical data refer to an earlier reference period than the end year of the period the estimates are reported, UN IGME extrapolates the estimates to the common end year. UN IGME does not use any covariates to derive the estimates.  
  
  
  
At regional and global levels  
  
  
  
To construct aggregate estimates of under-five mortality before 1990, regional averages of mortality rates were used for country-years with missing information and weighted by the respective population in the country-year.  
  
  
  
Regional aggregates:  
  
  
  
Global and regional estimates of under-five mortality rates are derived by aggregating the number of country-specific under-five deaths estimated by the UN IGME and the country-specific births from the United Nations Population Division, based on a birth-week cohort approach.  
  
  
  
Sources of discrepancies:  
  
  
  
The UN IGME estimates are derived based on national data. Countries often use a single source as their official estimates or apply methods different from the UN IGME methods to derive estimates. The differences between the UN IGME estimates and national official estimates are usually not large if empirical data has good quality.  
  
  
  
Many countries lack a single source of high-quality data covering the last several decades. Data from different sources require different calculation methods and may suffer from different errors, for example random errors in sample surveys or systematic errors due to misreporting. As a result, different surveys often yield widely different estimates of under-five mortality for a given time period and available data collected by countries are often inconsistent across sources. It is important to analyse, reconcile and evaluate all data sources simultaneously for each country. Each new survey or data point must be examined in the context of all other sources, including previous data. Data suffer from sampling or non-sampling errors (such as misreporting of age and survivor selection bias; underreporting of child deaths is also common). UN IGME assesses the quality of underlying data sources and adjusts data when necessary. Furthermore, the latest data produced by countries often are not current estimates but refer to an earlier reference period. Thus, the UN IGME also projects estimates to a common reference year. In order to reconcile these differences and take better account of the systematic biases associated with the various types of data inputs, the UN IGME has developed an estimation method to fit a smoothed trend curve to a set of observations and to extrapolate that trend to a defined time point. The UN IGME aims to minimize the errors for each estimate, harmonize trends over time and produce up-to-date and properly assessed estimates of child mortality. In the absence of error-free data, there will always be uncertainty around data and estimates. To allow for added comparability, the UN IGME generates such estimates with uncertainty bounds. Applying a consistent methodology also allows for comparisons between countries, despite the varied number and types of data sources. UN IGME applies a common methodology across countries and uses original empirical data from each country but does not report figures produced by individual countries using other methods, which would not be comparable to other country estimates.  
  
  
  
Data Sources  
  
  
  
Description:  
  
  
  
Nationally-representative estimates of child mortality can be derived from a number of different sources, including civil registration and sample surveys. Demographic surveillance sites and hospital data are excluded as they are rarely representative. The preferred source of data is a civil registration system that records births and deaths on a continuous basis. If registration is complete and the system functions efficiently, the resulting estimates will be accurate and timely. However, many countries do not have well-functioning vital registration systems. In such cases, household surveys, such as the UNICEF-supported Multiple Indicator Cluster Surveys (MICS), the USAID-supported Demographic and Health Surveys (DHS) and periodic population censuses have become the primary sources of data on under-five mortality. These surveys ask women about the survival of their children, and it is these reports that provide the basis of child mortality estimates for a majority of low- and middle- income countries. These data, however, are often subject to sampling or/and non-sampling errors, which might be substantial.  
  
  
  
Civil registration  
  
  
  
Civil registration data are the preferred data source for under-five, infant and neonatal mortality estimation. The calculation of the under-five and infant mortality rates from civil registration data is derived from a standard period abridged life table. For civil registration data (with available data on the number of deaths and mid-year populations), initially annual observations were constructed for all observation years in a country.  
  
  
  
Population census and household survey data  
  
  
  
The majority of survey data comes in one of two forms: the full birth history (FBH), whereby women are asked for the date of birth of each of their children, whether the child is still alive, and if not the age at death; and the summary birth history (SBH), whereby women are asked only about the number of their children ever born and the number that have died (or equivalently the number still alive).  
  
  
  
Collection process:  
  
  
  
For under-five mortality, UNICEF and the UN IGME compile data from all available data sources, including household surveys, censuses, vital registration data etc. UNICEF and the UN IGME compile these data whenever they are available publicly and then conduct data quality assessment. UNICEF also collects data through UNICEF country offices by reaching national counterpart(s). The UN IGME also collects vital registration data reported by Ministries of Health or other relevant agencies to WHO.   
  
  
  
Adjustments of empirical data are made in high prevalence HIV settings to adjust for under reporting of under-five mortality due to missing mothers in survey data. UNIGME than applies a curve fitting method to these empirical data to derive the UN IGME trend estimates of the under-five mortality rates. Because deaths by crisis are difficult to capture in household survey or census data, UN IGME adjusts the estimates for crisis mortality.  
  
  
  
Then the UN IGME conducts an annual country consultation by sending the UN IGME estimates, empirical data used to derive the UN IGME estimates, and notes on methodology to National Statistical Offices and to Ministries of Health or relevant agencies for feedback on the UN IGME estimates and the empirical data. National Statistical Offices, Ministries of Health or relevant agencies review the UN IGME estimates and empirical data, send feedback or comments, and sometimes supply additional empirical data.  
  
  
  
To increase the transparency of the estimation process, the UN IGME has developed a child mortality web portal: CME (www.childmortality.org). It includes all available data and shows estimates for each country. Once the new estimates are finalized, CME will be updated to reflect all available data and the new estimates.  
  
  
  
Data Availability  
  
  
  
Description:  
  
  
  
Indicator is available for all countries from 1990 (or earlier) to 2018, depending on availability of empirical data for each country before 1990.  
  
  
  
Calendar  
  
  
  
Data collection:  
  
  
  
The UN IGME underlying database is continuously updated whenever new empirical data become available.   
  
  
  
Data release:  
  
  
  
A new round of estimates of the UN IGME will be released in 2020; usually, the release date is in the month of September.   
  
  
  
Data providers  
  
  
  
National Statistical Office or the Ministry of Health are mostly involved in generating under-five mortality data at the national level.  
  
  
  
Data compilers  
  
  
  
UNICEF  
  
  
  
References  
  
  
  
URL:  
  
  
  
childmortality.org and https://data.unicef.org/topic/child-survival/under-five-mortality/  
  
  
  
References:  
  
  
  
United Nations Inter-agency Group for Child Mortality Estimation (UN IGME). Levels & trends in child mortality. Report 2019. New York: UNICEF, 2019. Available at https://childmortality.org/wp-content/uploads/2019/09/UN-IGME-Child-Mortality-Report-2019.pdf  
  
  
  
Alkema L, New JR. Global estimation of child mortality using a Bayesian B-spline bias-reduction method. The Annals of Applied Statistics. 2014; 8(4): 2122–2149. Available at: http://arxiv.org/abs/1309.1602   
  
  
  
Alkema L, Chao F, You D, Pedersen J, Sawyer CC. National, regional, and global sex ratios of infant, child, and under-5 mortality and identification of countries with outlying ratios: a systematic assessment. The Lancet Global Health. 2014; 2(9): e521–e530.  
  
  
  
Pedersen J, Liu J. Child Mortality Estimation: Appropriate Time Periods for Child Mortality Estimates from Full Birth Histories. Plos Medicine. 2012;9(8). Available at: http://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.1001289  
  
  
  
Silva R. Child Mortality Estimation: Consistency of Under-Five Mortality Rate Estimates Using Full Birth Histories and Summary Birth Histories. Plos Medicine. 2012;9(8). Available at: http://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.1001296  
  
  
  
Walker N, Hill K, Zhao FM. Child Mortality Estimation: Methods Used to Adjust for Bias due to AIDS in Estimating Trends in Under-Five Mortality. Plos Medicine. 2012;9(8). Available at: http://journals.plos.org/plosmedicine/article?id=10.1371/journal.pmed.1001298  
  
  
  
Related indicators as of February 2020  
  
  
  
3.2.2:  
  
Neonatal mortality rate

Last updated: 09 July 2017  
  
  
  
Goal 3: Ensure healthy lives and promote well-being for all at all ages  
  
Target 3.9: By 2030, substantially reduce the number of deaths and illnesses from hazardous chemicals and air, water and soil pollution and contamination  
  
Indicator 3.9.3: Mortality rate attributed to unintentional poisoning  
  
  
  
Institutional information  
  
  
  
Organization(s):  
  
  
  
World Health Organization (WHO)  
  
  
  
Concepts and definitions  
  
  
  
Definition:  
  
  
  
The mortality rate attributed to unintentional poisoning as defined as the number of deaths of unintentional poisonings in a year, divided by the population, and multiplied by 100 000.  
  
  
  
Rationale:  
  
  
  
Measuring how the mortality rate from unintentional poisonings provides an indication of the extent of inadequate management of hazardous chemicals and pollution, and of the effectiveness of a country’s health system.   
  
  
  
Concepts:  
  
  
  
Mortality rate in the country from unintentional poisonings per year. The ICD-10 codes corresponding to the indicator includes X40, X43-X44, X46-X49.  
  
  
  
Comments and limitations:  
  
  
  
Data on deaths are widely available from countries from death registration data or sample registration systems, which are feasible systems, but good quality data are not yet available in all countries. Such data are crucial for improving health and reducing preventable deaths in countries. For countries that do not have such registration systems, data need to be completed with other types of information.  
  
  
  
Methodology  
  
  
  
Computation Method:  
  
  
  
The methods with agreed international standards have been developed, reviewed and published in various documents.  
  
  
  
The methods used for the analysis of causes of death depend on the type of data available from countries.  
  
For countries with a high-quality vital registration system including information on cause of death, the vital registration that member states submit to the WHO Mortality Database were used, with adjustments where necessary, e.g. for under-reporting of deaths.  
  
  
  
For countries without high-quality death registration data, cause of death estimates are calculated using other data, including household surveys with verbal autopsy, sample or sentinel registration systems, special studies and surveillance systems. In most cases, these data sources are combined in a modelling framework.  
  
  
  
Complete methodology may be found here: http://www.who.int/healthinfo/global\_burden\_disease/GlobalCOD\_method\_2000\_2012.pdf?ua=1  
  
  
  
Disaggregation:  
  
  
  
Data can be disaggregated by age group, sex and disease.  
  
  
  
Treatment of missing values:  
  
  
  
At country level  
  
  
  
Data for missing country-years are interpolated or extrapolated, according to the data available. For countries with missing data, they are being provided by international agencies, which have been interpolated/ extrapolated, adjusted, and completed by additional data and cause-of-death models. A more detailed description of the methods is provided in http://www.who.int/healthinfo/global\_burden\_disease/GlobalCOD\_method\_2000\_2012.pdf  
  
  
  
At regional and global levels  
  
  
  
NA  
  
  
  
Regional aggregates:  
  
  
  
Country estimates of number of deaths by cause are summed to obtain regional and global aggregates  
  
  
  
Sources of discrepancies:  
  
  
  
WHO is required by World Health Assembly resolution to consult on all WHO statistics, and seek feedback from countries on data about countries and territories. Before publishing all estimates undergo country consultations.  
  
  
  
Data Sources  
  
  
  
Description:  
  
  
  
Data inputs to the estimate include (a) data on WASH services and practices, and (b) cause-of-death data, of which the preferred data source is death registration systems with complete coverage and medical certification of cause of death. Other possible data sources include household surveys with verbal autopsy, sample or sentinel registration systems, special studies and surveillance systems.  
  
  
  
Collection process:  
  
  
  
WHO collects data directly from country sources, and following established method, estimates are shared with countries to receive their feedback before publication. See Indicator 6.1 above for more details.  
  
  
  
Data Availability  
  
  
  
Description:  
  
  
  
Data availability for period 2010 onwards:   
  
Asia and Pacific - 27% of countries (16 out of 59 countries, including China and India sample systems)  
  
Africa - 6% of countries (3 out of 54 countries)  
  
Latin America and the Caribbean - 56% of countries (19 out of 34 countries)  
  
Europe, North America, Australia, New Zealand and Japan - 94% of countries (44 out of 47 countries, missing are mainly very small countries)  
  
  
  
Data Availability (2000-2009)  
  
Asia and Pacific - 27% of countries (16 out of 59 countries, including China and India sample systems)  
  
Africa - 6% of countries (3 out of 54 countries)  
  
Latin America and the Caribbean - 56% of countries (19 out of 34 countries)  
  
Europe, North America, Australia, New Zealand and Japan - 94% of countries (44 out of 47 countries, missing are mainly very small countries)  
  
  
  
Web link to the database:   
  
  
  
The latest global, regional and country-level cause-specific mortality estimates, including unintentional poisonings, for the year 2000 and 2012 (published in 2014) are available for download from the WHO website. http://www.who.int/healthinfo/global\_burden\_disease/estimates/en/index1.html The estimates can also be accessed interactively through the Global Health Observatory http://www.who.int/gho/mortality\_burden\_disease/en/  
  
  
  
Time series:  
  
  
  
Limited time series data is available (comparable series for years 2012 and soon 2015; data for 2000 are also available but have more limited comparability)  
  
  
  
Calendar  
  
  
  
Data collection:  
  
  
  
Ongoing   
  
  
  
Data release:  
  
  
  
End of 2016   
  
  
  
Data providers  
  
  
  
National statistics offices, various line ministries and databases covering civil registration with complete coverage and medical certification of cause of death.  
  
  
  
  
  
Data compilers  
  
  
  
WHO  
  
  
  
References  
  
  
  
URL:  
  
  
  
http://www.who.int/healthinfo/global\_burden\_disease/estimates/en/index1.html  
  
  
  
References:  
  
  
  
WHO indicator definition (http://apps.who.int/gho/data/node.imr.SDGPOISON?lang=en)  
  
  
  
WHO methods and data sources for global causes of death, 2000–2012 (http://www.who.int/healthinfo/global\_burden\_disease/GlobalCOD\_method\_2000\_2012.pdf?ua=1)  
  
  
  
Related indicators as of February 2020  
  
  
  
Indicator 7.1.2: Proportion of population with primary reliance on clean fuels and technology

Last updated: 10 February 2017  
  
  
  
Goal 3: Ensure healthy lives and promote well-being for all at all ages  
  
Target 3.4: By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being  
  
Indicator 3.4.2: Suicide mortality rate  
  
  
  
Institutional information  
  
  
  
Organization(s):  
  
  
  
World Health Organization (WHO)  
  
  
  
Concepts and definitions  
  
  
  
Definition:  
  
  
  
The Suicide mortality rate as defined as the number of suicide deaths in a year, divided by the population, and multiplied by 100 000.  
  
  
  
Rationale:  
  
  
  
Mental disorders occur in all regions and cultures of the world. The most prevalent of these disorders are depression and anxiety, which are estimated to affect nearly 1 in 10 people. At its worst, depression can lead to suicide. In 2012, there were over 800,000 estimated suicide deaths worldwide. Suicide was the second leading cause of deaths among young adults aged 15–29 years, after road traffic injuries.  
  
  
  
Comments and limitations:  
  
  
  
The complete recording of suicide deaths in death-registration systems requires good linkages with coronial and police systems, but can be seriously impeded by stigma, social and legal considerations, and delays in determining cause of death. Less than one half of WHO Member States have well-functioning death-registration systems that record causes of death.  
  
  
  
Methodology  
  
  
  
Computation Method:  
  
  
  
Suicide mortality rate (per 100,000 population) = (Number of suicide deaths in a year x 100,000) / Mid-year population for the same calendar year  
  
  
  
The methods used for the analysis of causes of death depend on the type of data available from countries:  
  
  
  
For countries with a high-quality vital registration system including information on cause of death, the vital registration that member states submit to the WHO Mortality Database were used, with adjustments where necessary, e.g. for under-reporting of deaths.  
  
  
  
For countries without high-quality death registration data, cause of death estimates are calculated using other data, including household surveys with verbal autopsy, sample or sentinel registration systems, special studies and surveillance systems. In most cases, these data sources are combined in a modelling framework.  
  
  
  
Disaggregation:  
  
  
  
Sex, age group  
  
  
  
Treatment of missing values:  
  
  
  
At country level  
  
  
  
For countries with high-quality cause-of-death statistics, interpolation/extrapolation was done for missing country-years; for countries with only low-quality or no data on causes of death, modelling was used. Complete methodology may be found here:  
  
WHO methods and data sources for global causes of death, 2000–2015 (http://www.who.int/healthinfo/global\_burden\_disease/GlobalCOD\_method\_2000\_2015.pdf )  
  
  
  
  
  
At regional and global levels  
  
  
  
NA  
  
  
  
Regional aggregates:  
  
  
  
Country estimates of number of deaths by cause are summed to obtain regional and global aggregates.  
  
  
  
Sources of discrepancies:  
  
  
  
In countries with high quality vital registration systems, point estimates sometimes differ primarily for two reasons: 1) WHO redistributes deaths with ill-defined cause of death (i.e. injuries of unknown intent, ICD codes Y10-Y34 and Y872) to suicide; and 2) WHO corrects for incomplete death registration.  
  
  
  
Data Sources  
  
  
  
Description:  
  
  
  
The preferred data source is death registration systems with complete coverage and medical certification of cause of death, coded using the international classification of diseases (ICD). The ICD-10 codes for suicide are: X60-X84, Y87.0. Other possible data sources include household surveys with verbal autopsy, sample or sentinel registration systems, special studies and surveillance systems.  
  
  
  
Collection process:  
  
  
  
WHO conducts a formal country consultation process before releasing its cause-of-death estimates.  
  
  
  
Data Availability  
  
  
  
Description:  
  
  
  
Around 70 countries currently provide WHO with regular high-quality data on mortality by age, sex and causes of death, and another 40 countries submit data of lower quality. However, comprehensive cause-of-death estimates are calculated by WHO systematically for all of its Member States (with a certain population threshold) every 3 years.  
  
  
  
  
  
Calendar  
  
  
  
Data collection:  
  
  
  
WHO sends an e-mail two times per year requesting tabulated death registration data (including all causes of death) from Member States. Countries submit annual cause-of-death statistics to WHO on an ongoing basis. (From NA to NA)  
  
  
  
Data release:  
  
  
  
End of 2016  
  
  
  
Data providers  
  
  
  
National statistics offices and/or ministries of health.  
  
  
  
Data compilers  
  
  
  
WHO  
  
  
  
References  
  
  
  
URL:  
  
  
  
http://www.who.int/gho/en/  
  
  
  
References:  
  
  
  
WHO indicator definition (http://apps.who.int/gho/indicatorregistry/App\_Main/view\_indicator.aspx?iid=4664)  
  
  
  
WHO methods and data sources for global causes of death, 2000–2015   
  
(http://www.who.int/healthinfo/global\_burden\_disease/GlobalCOD\_method\_2000\_2015.pdf )  
  
  
  
World Health Assembly Resolution WHA66.8 (2013): Comprehensive mental health action plan 2013–2020, including Appendix 1: Indicators for Measuring Progress Towards Defined Targets of the Comprehensive Mental Health Action Plan 2013-2020 (http://apps.who.int/gb/ebwha/pdf\_files/WHA66/A66\_R8-en.pdf?ua=1)

Last updated: 09 July 2017  
  
  
  
  
  
  
  
  
  
Goal 3: Ensure healthy lives and promote well-being for all at all ages  
  
Target 3.b : Support the research and development of vaccines and medicines for the communicable and non-communicable diseases that primarily affect developing countries, provide access to affordable essential medicines and vaccines, in accordance with the Doha Declaration on the TRIPS Agreement and Public Health, which affirms the right of developing countries to use to the full the provisions in the Agreement on Trade-Related Aspects of Intellectual Property Rights regarding flexibilities to protect public health, and, in particular, provide access to medicines for all  
  
Indicator 3.b.2: Total net official development assistance to the medical research and basic health sectors  
  
  
  
Institutional information  
  
  
  
Organization(s):  
  
  
  
Organisation for Economic Co-operation and Development (OECD)  
  
  
  
Concepts and definitions  
  
  
  
Definition:  
  
  
  
Gross disbursements of total ODA from all donors to medical research and basic health sectors.  
  
  
  
Rationale:  
  
  
  
Total ODA flows to developing countries quantify the public effort that donors provide to developing countries for medical research and basic health.  
  
  
  
Concepts:  
  
  
  
ODA: The DAC defines ODA as “those flows to countries and territories on the DAC List of ODA Recipients and to multilateral institutions which are   
  
provided by official agencies, including state and local governments, or by their executive agencies; and   
  
each transaction is administered with the promotion of the economic development and welfare of developing countries as its main objective; and  
  
is concessional in character and conveys a grant element of at least 25 per cent (calculated at a rate of discount of 10 per cent). (See http://www.oecd.org/dac/stats/officialdevelopmentassistancedefinitionandcoverage.htm)  
  
  
  
Medical research and basic health sectors are as defined by the DAC. Medical research refers to CRS sector code 12182 and basic health covers all codes in the 122 series (see here: http://www.oecd.org/dac/stats/purposecodessectorclassification.htm)  
  
  
  
Comments and limitations:  
  
Data in the Creditor Reporting System are available from 1973. However, the data coverage is considered complete from 1995 for commitments at an activity level and 2002 for disbursements.  
  
  
  
Methodology  
  
  
  
Computation Method:  
  
  
  
The sum of ODA flows from all donors to developing countries for medical research and basic health.  
  
  
  
Disaggregation:  
  
  
  
This indicator can be disaggregated by donor, recipient country, type of finance, type of aid, health sub-sector, etc.  
  
  
  
Treatment of missing values:  
  
  
  
At country level  
  
  
  
Due to high quality of reporting, no estimates are produced for missing data.  
  
  
  
At regional and global levels  
  
  
  
Not applicable.  
  
  
  
Regional aggregates:  
  
  
  
Global and regional figures are based on the sum of ODA flows to medical research and basic health.  
  
  
  
Sources of discrepancies:  
  
  
  
DAC statistics are standardized on a calendar year basis for all donors and may differ from fiscal year data available in budget documents for some countries.  
  
  
  
Data Sources  
  
  
  
Description:  
  
  
  
The OECD/DAC has been collecting data on official and private resource flows from 1960 at an aggregate level and 1973 at an activity level through the Creditor Reporting System (CRS data are considered complete from 1995 for commitments at an activity level and 2002 for disbursements).   
  
  
  
The data are reported by donors according to the same standards and methodologies (see here: http://www.oecd.org/dac/stats/methodology.htm).   
  
  
  
Data are reported on an annual calendar year basis by statistical reporters in national administrations (aid agencies, Ministries of Foreign Affairs or Finance, etc.  
  
  
  
Collection process:  
  
  
  
A statistical reporter is responsible for the collection of DAC statistics in each providing country/agency. This reporter is usually located in the national aid agency, Ministry of Foreign Affairs or Finance etc.  
  
  
  
Data Availability  
  
  
  
Description:  
  
  
  
On a recipient basis for all developing countries eligible for ODA.  
  
  
  
Time series:  
  
  
  
Data available since 1973 on an annual (calendar) basis  
  
  
  
Calendar  
  
  
  
Data collection:  
  
  
  
Data are published on an annual basis in December for flows in the previous year.  
  
  
  
Data release:  
  
  
  
Detailed 2015 flows will be published in December 2016.  
  
  
  
Data providers  
  
  
  
Name:  
  
  
  
Data are reported on an annual calendar year basis by statistical reporters in national administrations (aid agencies, Ministries of Foreign Affairs or Finance, etc.  
  
  
  
Data compilers  
  
  
  
OECD  
  
  
  
References  
  
  
  
URL:  
  
  
  
www.oecd.org/dac/stats  
  
  
  
References:  
  
  
  
See all links here: http://www.oecd.org/dac/stats/methodology.htm  
  
  
  
Related indicators as of February 2020  
  
  
  
Other ODA indicators

Last updated: 18 February 2020  
  
  
  
Goal 3: Ensure healthy lives and promote well-being for all at all ages  
  
Target 3.1: By 2030, reduce the global maternal mortality ratio to less than 70 per 100,000 live births  
  
Indicator 3.1.2: Proportion of births attended by skilled health personnel  
  
  
  
Institutional information  
  
  
  
Organization(s):  
  
United Nations Children’s Fund (UNICEF) and World Health Organization (WHO)  
  
  
  
Concepts and definitions  
  
  
  
Definition:  
  
Percentage of births attended by skilled health personnel (generally doctors, nurses or midwives) is the percentage of childbirths attended by professional health personnel. According to the revised definition these are competent maternal and newborn health (MNH) professionals educated, trained and regulated to national and international standards. They are competent to: (i) provide and promote evidence-based, human-rights based, quality, socio-culturally sensitive and dignified care to women and newborns; (ii) facilitate physiological processes during labour and delivery to ensure a clean and positive childbirth experience; and (iii) identify and manage or refer women and/or newborns with complications.Traditional birth attendants, even if they receive a short training course, are not included.  
  
  
  
Rationale:  
  
Having a skilled attendant at the time of childbirth is an important lifesaving intervention for both women and babies. Not having access to this key assistance is detrimental to women's health because it could cause the death of the women or long lasting morbidity, especially in vulnerable settings.  
  
  
  
Methodology  
  
  
  
Computation Method:  
  
The number of women aged 15-49 with a live birth attended by a skilled health personnel (e.g. doctors, nurses or midwives) during delivery is expressed as a percentage of women aged 15-49 with a live birth in the same period.  
  
  
  
Disaggregation:  
  
For this indicator, when data are reported from household surveys, disaggregation is available for various socio-economic characteristics including residence (urban/rural), household wealth (quintiles), education level of the mother, maternal age, geographic regions. When data are reported from administrative sources, disaggregation is more limited and tend to include only residence.   
  
  
  
Treatment of missing values:  
  
  
  
At country level  
  
There is no treatment of missing values at country level. If value is missing for a given year, then there is no reporting of that value.  
  
  
  
At regional and global levels  
  
Missing values are not imputed for regional and global levels. The latest available year within each period is used for the calculation of regional and global average.   
  
  
  
Regional aggregates:  
  
Regional and global estimates are calculated using weighed averages. Annual number of births from United Nations Population Division, World Population Prospects is used is as a weighing indicator. Regional values are calculated for a reference year, including a range of 4-5 years for each reference year. For example, for 2019, the latest year available for the period 2014--2019 was used..   
  
  
  
Sources of discrepancies:  
  
Discrepancies are possible if there are national figures compiled at the health facility level. These would differ from the global figures, which are typically based on survey data collected at the household level.  
  
In terms of survey data, some survey reports may present a total percentage of births attended by a skilled health professional that does not conform to the SDG definition (e.g., total includes provider that is not considered skilled, such as a community health worker). In that case, the percentage delivered by a physician, nurse, or a midwife are totalled, consulted with the country and included in the global database as the SDG estimate.  
  
In some countries where the indicator on skilled attendant at birth is not actively reported, birth in a health facility (institutional births) is used as a proxy indicator. This is frequent countries in the Latin America region or in European and Central Asian regions, where the proportion of institutional births is very high. Nonetheless, it should be noted that institutional births may underestimate the percentage of births with skilled attendant.  
  
  
  
Methods and guidance available to countries for the compilation of the data at the national level:  
  
UNICEF and WHO maintain a joint databases on skilled attendance at childbirth (doctor, nurse or midwife or any additional qualified category) and both collaborate to ensure the consistency of data sources. These surveys include Demographic and Health Surveys (DHS), Multiple Indicator Cluster Surveys (MICS), Reproductive Health Surveys (RHS) and national surveys based on similar methodologies. The surveys are undertaken every 3 to 5 years. For some countries, for example in high-income regions (where the coverage is high), data sources include routine service statistics.  
  
  
  
Before acceptance into the joint global databases, UNICEF and WHO undergo a country consultation that consists of an updating and verification process that includes correspondence with field offices to clarify any questions regarding estimates. During this process, the national categories of skilled health personnel are verified, and so the estimates for some countries may include additional categories of trained personnel beyond doctors, nurses, and midwives.  
  
  
  
Quality assurance  
  
Data are reported to UNICEF on an annual basis. Values are reviewed and assess to make sure that reported indicator complies with standard definition and methodology.   
  
  
  
As part of the country consultation, data are reported by UNICEF country office or statistical offices in country to UNICEF-HQ for global compilation. At the national levels, country offices are in touch with national authorities to compile and provide requested data, and therefore, values reported in global database are validated by national authorities.   
  
  
  
Data Sources  
  
  
  
Description:  
  
National-level household surveys are the main data sources used to collect data for skilled health personnel SBA. These surveys include Demographic and Health Surveys (DHS), Multiple Indicator Cluster Surveys (MICS), Reproductive Health Surveys (RHS) and national surveys based on similar methodologies. The surveys are undertaken every 3 to 5 years. For mainly industrialized countries (where the coverage is high), data sources include routine service statistics.  
  
  
  
Collection process:  
  
UNICEF and WHO maintain joint databases on skilled attendance at delivery (e.g. doctor, nurse or midwife or any additional qualified category) and both collaborate to ensure the consistency of data sources. These surveys include Demographic and Health Surveys (DHS), Multiple Indicator Cluster Surveys (MICS), Reproductive Health Surveys (RHS) and national surveys based on similar methodologies. The surveys are undertaken every 3 to 5 years. For mainly industrialized countries (where the coverage is high), data sources include routine service statistics.  
  
  
  
Before acceptance into the joint global databases, UNICEF and WHO undergo a country consultation that consists of an updating and verification process that includes correspondence with field offices to clarify any questions regarding estimates. During this process, the national categories of skilled health personnel are verified, and so the estimates for some countries may include additional categories of trained personnel beyond doctors, nurses, and midwives.  
  
  
  
Data Availability  
  
  
  
Description:  
  
Data are available for over 170 countries.  
  
The lag between the reference year and actual production of data series depends on the availability of the household survey for each country.  
  
  
  
Time series:  
  
1990-2019  
  
  
  
Calendar  
  
  
  
Data collection:  
  
As the main source of data is household surveys which are conducted every 3-5 years, the collection of data are under this schedule. When data comes from administrative source, data can be available on an annual basis.  
  
   
  
Data release:  
  
Estimates are published annually, in May by WHO in World Health Statistics (http://www.who.int/whosis/whostat/en/) and by UNICEF in State of the World’s Children, and are available at www.data.unicef.org  
  
  
  
  
  
Data providers  
  
Ministries of Health and National Statistical Offices, either through household surveys or routine sources.   
  
  
  
Data compilers  
  
United Nations Children’s Fund (UNICEF), World Health Organization (WHO)  
  
  
  
References  
  
  
  
URL: https://data.unicef.org/topic/maternal-health/delivery-care/#   
  
  
  
References:    
  
Joint UNICEF/WHO database 2020 of skilled health personnel, based on population-based national household survey data and routine health systems.

Last updated: March 2020  
  
  
  
Goal 3: Ensure healthy lives and promote well-being for all at all ages  
  
Target 3.7: By 2030, ensure universal access to sexual and reproductive health-care services, including for family planning, information and education, and the integration of reproductive health into national strategies and programmes  
  
Indicator 3.7.1: Proportion of women of reproductive age (aged 15-49 years) who have their need for family planning satisfied with modern methods  
  
  
  
Institutional information  
  
Organization(s):  
  
Population Division, Department of Economic and Social Affairs (DESA)  
  
United Nations Population Fund (UNFPA)  
  
  
  
Concepts and definitions  
  
Definition:  
  
The percentage of women of reproductive age (15-49 years) who desire either to have no (additional) children or to postpone the next child and who are currently using a modern method of contraception. The indicator is also referred to as the demand for family planning satisfied with modern methods.  
  
  
  
Rationale:  
  
The proportion of demand for family planning satisfied with modern methods is useful in assessing overall levels of coverage for family planning programmes and services. Access to and use of an effective means to prevent pregnancy helps enable women and their partners to exercise their rights to decide freely and responsibly the number and spacing of their children and to have the information, education and means to do so. Meeting demand for family planning with modern methods also contributes to maternal and child health by preventing unintended pregnancies and closely spaced pregnancies, which are at higher risk for poor obstetrical outcomes. Levels of demand for family planning satisfied with modern methods of 75 per cent or more are generally considered high, and values of 50 per cent or less are generally considered as very low.  
  
  
  
Concepts:  
  
The percentage of women of reproductive age (15-49 years) who have their need for family planning satisfied with modern methods is also referred to as the proportion of demand satisfied by modern methods. The components of the indicator are contraceptive prevalence (any method and modern methods) and unmet need for family planning.   
  
  
  
Contraceptive prevalence is the percentage of women who are currently using, or whose partner is currently using, at least one method of contraception, regardless of the method used.   
  
  
  
For analytical purposes, contraceptive methods are often classified as either modern or traditional. Modern methods of contraception include female and male sterilization, the intra-uterine device (IUD), the implant, injectables, oral contraceptive pills, male and female condoms, vaginal barrier methods (including the diaphragm, cervical cap and spermicidal foam, jelly, cream and sponge), lactational amenorrhea method (LAM), emergency contraception and other modern methods not reported separately (e.g., the contraceptive patch or vaginal ring). Traditional methods of contraception include rhythm (e.g., fertility awareness-based methods, periodic abstinence), withdrawal and other traditional methods not reported separately.  
  
  
  
Unmet need for family planning is defined as the percentage of women of reproductive age, either married or in a union, who want to stop or delay childbearing but are not using any method of contraception. The standard definition of unmet need for family planning includes women who are fecund and sexually active in the numerator, and who report not wanting any (more) children, or who report wanting to delay the birth of their next child for at least two years or are undecided about the timing of the next birth, but who are not using any method of contraception. The numerator also includes pregnant women whose pregnancies were unwanted or mistimed at the time of conception; and  
  
postpartum amenorrheic women who are not using family planning and whose last birth was unwanted or mistimed. Further information on the operational definition of the unmet need for family planning, as well as survey questions and statistical programs needed to derive the indicator, can be found at the following website: http://measuredhs.com/Topics/Unmet-Need.cfm.  
  
  
  
  
  
Comments and limitations:  
  
Differences in the survey design and implementation, as well as differences in the way survey questionnaires are formulated and administered can affect the comparability of the data. The most common differences relate to the range of contraceptive methods included and the characteristics (age, sex, marital or union status) of the persons for whom contraceptive prevalence is estimated (base population). The time frame used to assess contraceptive prevalence can also vary. In most surveys there is no definition of what is meant by “currently using” a method of contraception.  
  
In some surveys, the lack of probing questions, asked to ensure that the respondent understands the meaning of the different contraceptive methods, can result in an underestimation of contraceptive prevalence, in particular for traditional methods. Sampling variability can also be an issue, especially when contraceptive prevalence is measured for a specific subgroup (by age-group, level of educational attainment, place of residence, etc.) or when analysing trends over time.  
  
  
  
When data on women aged 15 to 49 are not available, information for married or in-union women is reported. Illustrations of base populations that are sometimes presented are: married or in-union women aged 15-44, sexually active women (irrespective of marital status), or ever-married women. Notes in the data set indicate any differences between the data presented and the standard definitions of contraceptive prevalence or unmet need for family planning or where data pertain to populations that are not representative of women of reproductive age.  
  
  
  
Methodology  
  
Computation Method:  
  
The numerator is the percentage of women of reproductive age (15-49 years old) who are currently using, or whose partner is currently using, at least one modern contraceptive method. The denominator is the total demand for family planning (the sum of contraceptive prevalence (any method) and the unmet need for family planning).  
  
Demand satisfied   
by modern methods  
  
  
  
=  
  
Number of women who are currently using a modern method of contraception  
  
  
  
  
  
  
  
  
  
   
  
Number of women who are using any method of contraception or are having an unmet need for family planning  
  
  
  
Disaggregation:  
  
Age, marital status, geographic location, socioeconomic status and other categories, depending on the data source and number of observations.  
  
  
  
Treatment of missing values:  
  
At country level  
  
There is no attempt to provide estimates for individual countries or areas when country or area data are not available.  
  
  
  
At regional and global levels  
  
In order to generate regional and global estimates for any given reference year, the Population Division/DESA uses a Bayesian hierarchical model, described in detail in:   
  
Alkema L., V. Kantorová, C. Menozzi and A. Biddlecom (2013). National, regional and global rates and trends in contraceptive prevalence and unmet need for family planning between 1990 and 2015: a systematic and comprehensive analysis. The Lancet. Vol. 381, Issue 9878, pp. 1642–1652   
  
Wheldon M., V. Kantorová, P. Ueffing and A. N. Z. Dasgupta (2018). Methods for estimating and projecting key family planning indicators among all women of reproductive age. United Nations, Department of Economic and Social Affairs, Population Division, Technical Paper No. 2. New York: United Nations.  
  
Kantorová V., M. Wheldon, P. Ueffing., A. N. Z. Dasgupta (2020). Estimating progress towards meeting women’s contraceptive needs in 185 countries: A Bayesian hierarchical modelling study. PLoS Medicine 17(2):e1003026.   
  
  
  
Country-level, model-based estimates are only used for computing the regional and global averages and are not used for global SDG reporting of trends at the country level. The fewer the number of observations for the country of interest, the more its estimates are driven by the experience of other countries, whereas for countries with many observations the results are determined to a greater extent by those empirical observations.  
  
  
  
Regional aggregates:  
  
The Bayesian hierarchical model is used to generate regional and global estimates and projections of the indicator. Aggregate estimates and projections are weighted averages of the model-based country estimates, using the number of women aged 15-49 for the reference year in each country. Details on the methodology are described in: Wheldon, M., V. Kantorová, P. Ueffing and A. N. Z. Dasgupta (2018). Methods for estimating and projecting key family planning indicators among all women of reproductive age. United Nations, Department of Economic and Social Affairs, Population Division, Technical Paper No. 2. New York: United Nations.   
  
  
  
  
  
Sources of discrepancies:  
  
Generally, there is no discrepancy between data presented and data published in survey reports. However, some published national data have been adjusted by the Population Division to improve comparability. Notes are used in the data set to indicate when adjustments were made and where data differed from standard definitions. The global indicator represents all women of reproductive age. Some survey estimates represent women who are married or in a union and this is indicated in a note.  
  
  
  
Methods and guidance available to countries for the compilation of the data at the national level:  
  
N.A.  
  
  
  
Quality assurance  
  
N.A.  
  
  
  
Consultation/validation process with countries for adjustments and estimates  
  
The data are taken from published survey reports or, in exceptional cases, other published analytic reports or tabulations obtained from survey micro datasets. If clarification is needed, contact is made with the survey sponsors or authoring organization, which may supply corrected or adjusted estimates in response.  
  
  
  
Data Sources  
  
This indicator is calculated from nationally-representative household survey data. Multi-country survey programmes that include relevant data for this indicator are: Contraceptive Prevalence Surveys (CPS), Demographic and Health Surveys (DHS), Fertility and Family Surveys (FFS), Reproductive Health Surveys (RHS), Multiple Indicator Cluster Surveys (MICS), Performance Monitoring and Accountability 2020 surveys (PMA), World Fertility Surveys (WFS), other international survey programmes and national surveys.  
  
  
  
For information on the source of each estimate, see United Nations, Department of Economic and Social Affairs, Population Division (2020). World Contraceptive Use 2020  
  
  
  
  
  
Data Availability  
  
Data for the percentage of women of reproductive age (15-49 years) who have their need for family planning satisfied with modern methods are available for 130 countries or areas for the 2000-2019 time period. For 103 countries or areas, there are at least two available data points.   
  
  
  
The regional breakdown of data availability is as follows:  
  
  
  
  
  
World and SDG regions  
  
At least one data point  
  
Two or more data points  
  
  
  
  
  
  
  
WORLD  
  
130  
  
103  
  
Northern America and Europe  
  
13  
  
7  
  
Northern America  
  
1  
  
1  
  
Europe  
  
12  
  
6  
  
Latin America and the Caribbean  
  
23  
  
20  
  
Central Asia and Southern Asia  
  
13  
  
10  
  
Central Asia  
  
4  
  
4  
  
Southern Asia  
  
9  
  
6  
  
Eastern Asia and South-eastern Asia  
  
11  
  
10  
  
Eastern Asia  
  
3  
  
2  
  
South-eastern Asia  
  
8  
  
8  
  
Western Asia and Northern Africa  
  
17  
  
15  
  
Western Asia  
  
11  
  
9  
  
Northern Africa  
  
6  
  
6  
  
Sub-Saharan Africa  
  
44  
  
38  
  
Oceania  
  
9  
  
3  
  
Oceania excluding Australia and New Zealand  
  
9  
  
3  
  
Australia and New Zealand  
  
0  
  
0  
  
Landlocked developing countries (LLDCs)  
  
30  
  
25  
  
Least Developed Countries (LDCs)  
  
45  
  
36  
  
Small island developing States (SIDS)  
  
26  
  
16  
  
  
  
  
  
Calendar  
  
Data collection:  
  
Data are compiled and updated annually in the first quarter of the year.   
  
  
  
Data release:  
  
Updated data on the indicator are released by the Population Division in the first quarter of each year. The next release is expected in the first quarter of 2020. A comprehensive compilation of data and model-based annual estimates and projections up to 2030 at the national, regional and global level are published annually by the Population Division. See:   
  
United Nations, Department of Economic and Social Affairs, Population Division (2020). World Contraceptive Use 2020. New York: United Nations.  
  
United Nations, Department of Economic and Social Affairs, Population Division (2020). Estimates and Projections of Family Planning Indicators 2020. New York: United Nations.   
  
  
  
Data providers  
  
Survey data are obtained from national household surveys that are internationally coordinated—such as the Demographic and Health Surveys (DHS), the Reproductive Health Surveys (RHS), and the Multiple Indicator Cluster Surveys (MICS)—and other nationally-sponsored surveys. Systematic searches of these international survey programmes, survey databases (e.g., the Integrated Household Survey Network (IHSN) database), SDG national reporting platforms and ad hoc queries in addition to utilization of the country-specific responses to questionnaires on data administered by UNICEF (Country Reporting on Indicators for the Goals (CRING)) and information from UNFPA field offices.  
  
  
  
Data compilers  
  
This indicator is produced at the global level by the Population Division, Department of Economic and Social Affairs, United Nations in collaboration with the United Nations Population Fund (UNFPA).  
  
  
  
References  
  
URL:  
  
http://www.un.org/en/development/desa/population/; https://population.un.org/dataportalng; www.UnfpaOpendata.org  
  
  
  
References:  
  
United Nations, Department of Economic and Social Affairs, Population Division (2020). World Contraceptive Use 2020. () See also methodology with technical details available at  
  
(http://www.un.org/en/development/desa/population/publications/dataset/contraception/wcu2020.asp)  
  
  
  
United Nations, Department of Economic and Social Affairs, Population Division (2020). Estimates and Projections of Family Planning Indicators 2020. New York: United Nations.  
  
  
  
Alkema, LA and others (2013). National, regional, and global rates and trends in contraceptive prevalence and unmet need for family planning between 1990 and 2015: A systematic and comprehensive analysis. The Lancet, Volume 381, Issue 9878, pp. 1642-1652. See also webappendix with technical details available at http://www.un.org/en/development/desa/population/theme/family-planning/index.shtml   
  
  
  
Bradley and others (2012). Revising Unmet Need for Family Planning. DHS Analytical Studies No. 25, Calverton, Maryland: ICF International. http://dhsprogram.com/pubs/pdf/AS25/AS25[12June2012].pdf  
  
  
  
Handbook on Indicators for Monitoring the Millennium Development Goals, United Nations,   
  
http://mdgs.un.org/unsd/mi/wiki/MainPage.ashx  
  
  
  
Kantorová V., M. Wheldon, P. Ueffing., A. N. Z. Dasgupta (2020). Estimating progress towards meeting women’s contraceptive needs in 185 countries: A Bayesian hierarchical modelling study. PLoS Medicine 17(2):e1003026.   
  
  
  
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This indicator is linked to Target 3.8 (Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all) because the provision of family planning information and methods to all individuals who want to prevent pregnancy is an important component of achieving universal health coverage.   
  
  
  
This indicator is also linked to Target 5.6 (Ensure universal access to sexual and reproductive health and reproductive rights as agreed in accordance with the Programme of Action of the International Conference on Population and Development and the Beijing Platform for Action and the outcome documents of their review conferences) because meeting the demand for family planning is facilitated by increasing access to sexual and reproductive health-care services, and also improves sexual and reproductive health and the ability to exercise reproductive rights.

**Health**



**Health** is a state of physical, mental and social [well-being](https://en.wikipedia.org/wiki/Well-being) in which [disease](https://en.wikipedia.org/wiki/Disease) and [infirmity](https://en.wikipedia.org/wiki/Infirmity) are absent.[[1][2]](#page8)



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**History**



The meaning of health has evolved over time. In keeping with the [biomedical](https://en.wikipedia.org/wiki/Biomedical_model) perspective, early definitions of health focused on the theme of the body's ability to function; health was seen as a state of normal function that could be disrupted from time to time by [disease.](https://en.wikipedia.org/wiki/Disease) An example of such a definition of health is: "a state characterized by anatomic, physiologic, and psychological integrity; ability to perform personally valued family, work, and community roles; ability to deal with [physical,](https://en.wikipedia.org/wiki/Human_body) [biological,](https://en.wikipedia.org/wiki/Biological)



[psychological,](https://en.wikipedia.org/wiki/Psychology) and [social stress".](https://en.wikipedia.org/wiki/Social_stress)[[3]](#page8) Then in 1948, in a radical departure from previous definitions, the [World Health Organization](https://en.wikipedia.org/wiki/World_Health_Organization) (WHO) proposed a definition that aimed higher: linking health to [well-being,](https://en.wikipedia.org/wiki/Well-being) in terms of "physical, mental, and social well-being,



and not merely the absence of disease and infirmity".[[4]](#page8) Although this definition was welcomed by some as being innovative, it was also criticized as being vague, excessively broad and was not construed as measurable. For a long time, it was set aside as an impractical ideal and most discussions of health returned to the practicality of the biomedical model.[[5]](#page8)

Just as there was a shift from viewing disease as a state to thinking of it as a process, the same shift happened in definitions of health. Again, the WHO played a leading role when it fostered the development of the health promotion movement in the 1980s. This brought in a new conception of health, not as a state, but in dynamic terms of resiliency, in other words, as "a resource for living". 1984 WHO revised the definition of health defined it as "the extent to which an individual or group is able to realize aspirations and satisfy needs and to change or cope with the environment. Health is a resource for everyday life, not the objective of living; it is a positive concept, emphasizing social and personal resources, as well as physical capacities".[[6]](#page8) Thus, health referred to the ability to maintain homeostasis and recover from insults. Mental, intellectual, emotional and social health referred to a person's ability to handle stress, to acquire skills, to maintain relationships, all of which form resources for resiliency and independent living.[[5]](#page8) This opens up many possibilities for health to be taught, strengthened and learned.

Since the late 1970s, the federal Healthy People Initiative has been a visible component of the United States’ approach to improving population health.[[7][8]](#page8) In each decade, a new version of Healthy People is issued,[[9]](#page8) featuring updated goals and identifying topic areas and quantifiable objectives for health improvement during the succeeding ten years, with assessment at that point of progress or lack thereof. Progress has been limited to many objectives, leading to concerns about the effectiveness of Healthy People in shaping outcomes in the context of a decentralized and uncoordinated US health system. Healthy People 2020 gives more prominence to health promotion and preventive approaches and adds a substantive focus on the importance of addressing social determinants of health. A new expanded digital interface facilitates use and dissemination rather than bulky printed books as produced in the past. The impact of these changes to Healthy People will be determined in the coming years.[[10]](#page9)

[Systematic activities to prevent or cure health problems and promote good health in humans are undertaken by health care](https://en.wikipedia.org/wiki/Health_care_provider) [providers. Applications with regard to animal health are covered by the](https://en.wikipedia.org/wiki/Health_care_provider) [veterinary sciences.](https://en.wikipedia.org/wiki/Veterinary_medicine) [The term "healthy" is also widely](https://en.wikipedia.org/wiki/Health_care_provider) used in the context of many types of non-living organizations and their impacts for the benefit of humans, such as in the sense of [healthy communities,](https://en.wikipedia.org/wiki/Healthy_community_design) [healthy cities](https://en.wikipedia.org/wiki/Healthy_city) or [healthy environments.](https://en.wikipedia.org/wiki/Healthy_environment) In addition to [health care](https://en.wikipedia.org/wiki/Health_care) interventions and a person's surroundings, a number of other factors are known to influence the health status of individuals, including their background, lifestyle, and economic, social conditions and spirituality; these are referred to as "determinants of health." Studies have shown that high levels of stress can affect human health.[[11]](#page9)



In the first decade of the 21st century, the conceptualization of health as an ability opened the door for self-assessments to become the main indicators to judge the performance of efforts aimed at improving human health.[[12]](#page9) It also created the opportunity for every person to feel healthy, even in the presence of multiple chronic diseases, or a terminal condition, and for the re-examination of determinants of health, away from the traditional approach that focuses on the reduction of the prevalence of diseases.[[13]](#page9)

**Determinants**



Generally, the context in which an individual lives is of great importance for both his health status and quality of their life It is [increasingly recognized that health is maintained and improved not only through the advancement and application of health](https://en.wikipedia.org/wiki/Health_science) [science, but also through the efforts and intelligent lifestyle choices of the individual and society. According to the World Health](https://en.wikipedia.org/wiki/World_Health_Organization) [Organization, the main determinants of health include the social and economic environment, the physical environment and the](https://en.wikipedia.org/wiki/World_Health_Organization)



person's individual characteristics and behaviors.[[14]](#page9)

More specifically, key factors that have been found to influence whether people are healthy or unhealthy include the

[following:[14][15][16]](#page9)



An increasing number of studies and reports from different organizations and contexts examine the linkages between health and different factors, including lifestyles, environments, [health care organization](https://en.wikipedia.org/wiki/Health_care_system) and [health policy,](https://en.wikipedia.org/wiki/Health_policy) one specific health policy brought into many countries in recent years was the introduction of the sugar tax. Beverage taxes came into light with increasing concerns about obesity, particularly among youth. Sugar-sweetened beverages have become a target of anti-obesity initiatives with increasing evidence of their link to obesity.[[17]](#page9)– such as the 1974 [Lalonde report](https://en.wikipedia.org/wiki/Lalonde_report) from Canada;[[16]](#page9) the [Alameda County Study](https://en.wikipedia.org/wiki/Alameda_County_Study) in



California;[[18]](#page9) and the series of [World Health Reports](https://en.wikipedia.org/wiki/World_Health_Report) of the World Health Organization, which focuses on [global health](https://en.wikipedia.org/wiki/Global_health) issues including access to health care and improving [public health](https://en.wikipedia.org/wiki/Public_health) outcomes, especially in [developing countries.](https://en.wikipedia.org/wiki/Developing_countries)[[19]](#page9)



The concept of the "*health field,*" as distinct from [medical care,](https://en.wikipedia.org/wiki/Medicine) emerged from the Lalonde report from Canada. The report identified three interdependent fields as key determinants of an individual's health. These are:[[16]](#page9)



Lifestyle: the aggregation of personal decisions (i.e., over which the individual has control) that can be said to contribute to, or cause, illness or death;



[Environmental: all matters related to health external to the human](https://en.wikipedia.org/wiki/Human_body) [body and over which the individual has little or no control;](https://en.wikipedia.org/wiki/Human_body)



Biomedical: all aspects of health, physical and mental, developed within the human body as influenced by genetic make-up.



The maintenance and promotion of health is achieved through different combination of physical, [mental,](https://en.wikipedia.org/wiki/Mental_health) and social well-being, together sometimes [referred to as the *"health triangle."*](https://en.wikipedia.org/wiki/Ottawa_Charter_for_Health_Promotion)[[20][21]](#page9) [The WHO's 1986](https://en.wikipedia.org/wiki/Ottawa_Charter_for_Health_Promotion) *Ottawa Charter for* [*Health Promotion* further stated that health is not just a state, but also "a resource](https://en.wikipedia.org/wiki/Ottawa_Charter_for_Health_Promotion)for everyday life, not the objective of living. Health is a positive concept emphasizing social and personal resources, as well as physical capacities."[[22]](#page9)



[Donald Henderson](https://en.wikipedia.org/wiki/Donald_Henderson) as part of the CDC's [smallpox](https://en.wikipedia.org/wiki/Smallpox) eradication team in 1966.



Focusing more on lifestyle issues and their relationships with functional health, data from the Alameda County Study suggested that people can improve their health via [exercise,](https://en.wikipedia.org/wiki/Exercise) enough [sleep,](https://en.wikipedia.org/wiki/Sleep) spending time in nature, maintaining a healthy [body weight,](https://en.wikipedia.org/wiki/Body_weight)



limiting [alcohol](https://en.wikipedia.org/wiki/Alcohol_(drug)) use, and avoiding [smoking.](https://en.wikipedia.org/wiki/Smoking)[[23]](#page9) Health and [illness](https://en.wikipedia.org/wiki/Illness) can co-exist, as even people with multiple chronic diseases or terminal illnesses can consider themselves healthy.[[24]](#page9)



The environment is often cited as an important factor influencing the health status of individuals. This includes characteristics of the [natural environment,](https://en.wikipedia.org/wiki/Natural_environment) the [built environment](https://en.wikipedia.org/wiki/Built_environment) and the [social environment.](https://en.wikipedia.org/wiki/Social_environment) Factors such as clean [water](https://en.wikipedia.org/wiki/Water) and [air,](https://en.wikipedia.org/wiki/Air) adequate [housing,](https://en.wikipedia.org/wiki/House) and safe communities and [roads](https://en.wikipedia.org/wiki/Road_traffic_safety) all have been found to contribute to good health, especially to the health of infants and



children.[[14][25]](#page9) Some studies have shown that a lack of neighborhood recreational spaces including natural environment leads to lower levels of personal satisfaction and higher levels of [obesity,](https://en.wikipedia.org/wiki/Obesity) linked to lower overall health and well being.[[26]](#page10) It has been



demonstrated that increased time spent in natural environments is associated with improved self-reported health [[27]](#page10), suggesting that the positive health benefits of natural space in urban neighborhoods should be taken into account in [public policy](https://en.wikipedia.org/wiki/Public_policy) and land use.



[Genetics,](https://en.wikipedia.org/wiki/Genetics) or inherited traits from parents, also play a role in determining the health status of individuals and populations. This can encompass both the [predisposition](https://en.wikipedia.org/wiki/Genetic_predisposition) to certain diseases and health conditions, as well as the habits and behaviors individuals develop through the lifestyle of their [families.](https://en.wikipedia.org/wiki/Families) For example, genetics may play a role in the manner in which people cope with [stress,](https://en.wikipedia.org/wiki/Stress_(biology)) either mental, emotional or physical. For example, [obesity](https://en.wikipedia.org/wiki/Obesity) is a significant problem in the United States that contributes to



bad mental health and causes stress in the lives of great numbers of people.[[28]](#page10) (One difficulty is the issue raised by the [debate](https://en.wikipedia.org/wiki/Nature_versus_nurture) over the relative strengths of genetics and other factors; interactions between genetics and environment may be of particular importance.)



**Potential issues**

A number of types of health issues are common around the globe. [Disease](https://en.wikipedia.org/wiki/Disease) is one of the most common. According to GlobalIssues.org, approximately 36 million people die each year from non-communicable (not contagious) disease including cardiovascular disease, cancer, diabetes and chronic lung disease (Shah, 2014).



Among communicable diseases, both viral and bacterial, [AIDS/HIV,](https://en.wikipedia.org/wiki/HIV) [tuberculosis,](https://en.wikipedia.org/wiki/Tuberculosis) and [malaria](https://en.wikipedia.org/wiki/Malaria) are the most common, causing millions of deaths every year (Shah, 2014).



Another health issue that causes death or contributes to other health problems is malnutrition, especially among children. One of the groups malnutrition affects most is young children. Approximately 7.5 million children under the age of 5 die from malnutrition, usually brought on by not having the money to find or make food (Shah, 2014).

Bodily injuries are also a common health issue worldwide. These injuries, including broken bones, fractures, and burns can reduce a person's quality of life or can cause fatalities including infections that resulted from the injury or the severity injury in general (Moffett, 2013).[[29]](#page10)

Lifestyle choices are contributing factors to poor health in many cases. These include smoking cigarettes, and can also include a poor diet, whether it is overeating or an overly constrictive diet. Inactivity can also contribute to health issues and also a lack of sleep, excessive alcohol consumption, and neglect of oral hygiene (Moffett2013).There are also genetic disorders that are inherited by the person and can vary in how much they affect the person and when they surface (Moffett, 2013).

Though the majority of these health issues are preventable, a major contributor to global ill health is the fact that approximately 1 billion people lack access to health care systems (Shah, 2014). Arguably, the most common and harmful health issue is that a great many people do not have access to quality remedies.[[30][31]](#page10)

**Mental health**



The [World Health Organization](https://en.wikipedia.org/wiki/World_Health_Organization) describes mental health as "a state of [well-being](https://en.wikipedia.org/wiki/Well-being) in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community".[[32]](#page10) Mental health is not just the absence of mental illness.[[33]](#page10)



Mental illness is described as 'the spectrum of cognitive, emotional, and behavioral conditions that interfere with social and emotional well-being and the lives and productivity of people. Having a mental illness can seriously impair, temporarily or permanently, the mental functioning of a person. Other terms include: 'mental health problem', 'illness', 'disorder', 'dysfunction'.[[34]](#page10)

Roughly one fifth of all adults 18 and over in the US are considered diagnosable with mental illness. Mental illnesses are the [leading cause of disability in the US and Canada. Examples include, schizophrenia, ADHD, major depressive disorder, bipolar](https://en.wikipedia.org/wiki/Bipolar_disorder)



[disorder,](https://en.wikipedia.org/wiki/Bipolar_disorder) [anxiety disorder,](https://en.wikipedia.org/wiki/Anxiety_disorder) [post-traumatic stress disorder](https://en.wikipedia.org/wiki/Post-traumatic_stress_disorder) [and](https://en.wikipedia.org/wiki/Bipolar_disorder) [autism.](https://en.wikipedia.org/wiki/Autism_spectrum)[[35]](#page10)



Many factors contribute to mental health problems, including:

Biological factors, such as genes or brain chemistry



Life experiences, such as trauma or abuse



Family history of mental health problems[[36]](#page10)



**Maintaining**



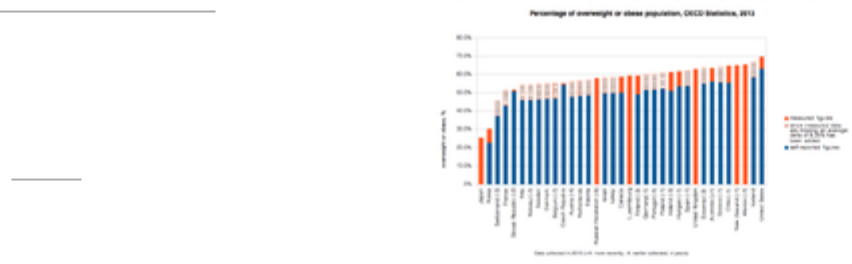
Achieving and maintaining health is an ongoing process, shaped by both the evolution of [health care](https://en.wikipedia.org/wiki/Health_care) knowledge and practices as well as personal strategies and organized interventions for staying healthy.



**Diet**

An important way to maintain your personal health is to have a healthy diet. A healthy diet includes a variety of plant-based and animal-based foods that provide [nutrients](https://en.wikipedia.org/wiki/Nutrients) to your body. Such nutrients give you energy and keep your body running. Nutrients help build and strengthen bones, muscles, and tendons and also regulate body processes (i.e. [blood pressure)](https://en.wikipedia.org/wiki/Blood_pressure). Water is essential for growth, reproduction and good health. Macronutrients are consumed in relatively large quantities and include proteins, carbohydrates, and fats and fatty acids. Micronutrients – vitamins and minerals – are consumed in relatively smaller quantities,

but are essential to body processes.[[40]](#page10) The [food guide pyramid](https://en.wikipedia.org/wiki/Food_guide_pyramid) is a pyramid-shaped guide of healthy foods divided into sections. Each section shows the recommended intake for each food group (i.e. Protein, Fat, Carbohydrates, and Sugars). Making healthy food choices is important because it can lower your risk of heart disease, developing some types of [cancer,](https://en.wikipedia.org/wiki/Cancer) and it will contribute to maintaining a healthy weight.[[41]](#page10)



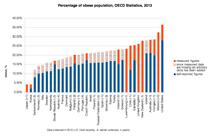
Percentage of obese population in 2010, Data source: OECD's iLibrary.[37][39]

Percentage of overweight or obese population in 2010, Data source: OECD's iLibrary.[37][38]

The [Mediterranean diet](https://en.wikipedia.org/wiki/Mediterranean_diet) is commonly associated with health-promoting effects due to the fact that it contains some bioactive compounds like [phenolic compounds,](https://en.wikipedia.org/wiki/Phenolic_compound) [isoprenoids](https://en.wikipedia.org/wiki/Isoprenoid) and [alkaloids.](https://en.wikipedia.org/wiki/Alkaloid)[[42]](#page10)



**Exercise**



[Physical exercise](https://en.wikipedia.org/wiki/Exercise) enhances or maintains [physical fitness](https://en.wikipedia.org/wiki/Physical_fitness) and overall health and wellness. It strengthens muscles and improves the [cardiovascular system.](https://en.wikipedia.org/wiki/Cardiovascular_system) According to the [National Institutes of Health,](https://en.wikipedia.org/wiki/National_Institutes_of_Health) there are four types of exercise:



[endurance,](https://en.wikipedia.org/wiki/Endurance) [strength,](https://en.wikipedia.org/wiki/Physical_strength) [flexibility,](https://en.wikipedia.org/wiki/Flexibility) and [balance.](https://en.wikipedia.org/wiki/Balance_(ability))[[43]](#page10)



**Sleep**

Sleep is an essential component to maintaining health. In children, sleep is also vital for growth and development. Ongoing [sleep deprivation](https://en.wikipedia.org/wiki/Sleep_deprivation) has been linked to an increased risk for some chronic health problems. In addition, sleep deprivation has



been shown to correlate with both increased susceptibility to illness and slower recovery times from illness.[[44]](#page11) In one study, people with chronic insufficient sleep, set as six hours of sleep a night or less, were found to be four times more likely to catch a cold compared to those who reported sleeping for seven hours or more a night.[[45]](#page11) Due to the role of sleep in regulating [metabolism,](https://en.wikipedia.org/wiki/Sleep_and_metabolism) insufficient sleep may also play a role in [weight gain](https://en.wikipedia.org/wiki/Weight_gain) or, conversely, in impeding [weight loss.](https://en.wikipedia.org/wiki/Weight_loss)[[46]](#page11) Additionally, in 2007, the International Agency for Research on Cancer, which is the cancer research agency for the [World Health Organization,](https://en.wikipedia.org/wiki/World_Health_Organization) declared that "shiftwork that involves [circadian](https://en.wikipedia.org/wiki/Circadian_rhythm) disruption is probably [carcinogenic](https://en.wikipedia.org/wiki/Carcinogen) to humans," speaking to the dangers of long-



term nighttime work due to its intrusion on sleep.[[47]](#page11) In 2015, the National Sleep Foundation released updated recommendations for sleep duration requirements based on age and concluded that "Individuals who habitually sleep outside the normal range may be exhibiting signs or symptoms of serious health problems or, if done volitionally, may be compromising their health and well-being."[[48]](#page11)

|  |  |
| --- | --- |
| **Age and condition** | **Sleep Needs** |
|  |  |
| Newborns (0–3 months) | 14 to 17 hours |
|  |  |
| Infants (4–11 months) | 12 to 15 hours |
|  |  |
| Toddlers (1–2 years) | 11 to 14 hours |
|  |  |
| Preschoolers (3–5 years) | 10 to 13 hours |
|  |  |
| School-age children (6–13 years) | 9 to 11 hours |
|  |  |
| Teenagers (14–17 years) | 8 to 10 hours |
|  |  |
| Adults (18–64 years) | 7 to 9 hours |
|  |  |
| Older Adults (65 years and over) | 7 to 8 hours |
|  |  |

**Role of science**

[Health science](https://en.wikipedia.org/wiki/Health_science) is the branch of science focused on health. There are two main approaches to health science: the study and [research](https://en.wikipedia.org/wiki/Research) of the [body](https://en.wikipedia.org/wiki/Human_body) and health-related issues to understand how humans (and animals) function, and the application of that knowledge to improve health and to prevent and cure diseases and other physical and mental impairments. The science builds on many sub-fields, [including biology, biochemistry, physics, epidemiology, pharmacology, medical](https://en.wikipedia.org/wiki/Medical_sociology) [sociology. Applied health sciences endeavor to better understand and improve](https://en.wikipedia.org/wiki/Medical_sociology) [human health through applications in areas such as health education, biomedical](https://en.wikipedia.org/wiki/Biomedical_engineering) [engineering,](https://en.wikipedia.org/wiki/Biomedical_engineering) [biotechnology](https://en.wikipedia.org/wiki/Biotechnology) [and](https://en.wikipedia.org/wiki/Biomedical_engineering) [public health.](https://en.wikipedia.org/wiki/Public_health)



[Play media](https://upload.wikimedia.org/wikipedia/commons/5/56/Nieuws_uit_Indonesië%2C_het_werk_van_de_Nederlandse_dienst_voor_Volksgezondheid_Weeknummer_46-21_-_Open_Beelden_-_16742.ogv)

The Dutch Public Health Service provides medical care for the natives of the [Dutch East Indies,](https://en.wikipedia.org/wiki/Dutch_East_Indies) May 1946

Organized interventions to improve health based on the principles and procedures developed through the health sciences are provided by practitioners trained in [medicine, nursing, nutrition, pharmacy, social work, psychology, occupational](https://en.wikipedia.org/wiki/Occupational_therapy) [therapy,](https://en.wikipedia.org/wiki/Occupational_therapy) [physical therapy](https://en.wikipedia.org/wiki/Physical_therapy) [and other](https://en.wikipedia.org/wiki/Occupational_therapy) [health care professions.](https://en.wikipedia.org/wiki/Health_care_provider) [Clinical practitioners](https://en.wikipedia.org/wiki/Occupational_therapy) focus mainly on the health of individuals, while public health practitioners



consider the overall health of communities and populations. [Workplace wellness](https://en.wikipedia.org/wiki/Workplace_wellness) programs are increasingly adopted by companies for their value in improving the health and well-being of their employees, as are [school health services](https://en.wikipedia.org/wiki/School_health_services) in order to improve the health and well-being of children.



**Role of public health**

Public health has been described as "the science and art of preventing disease, prolonging life and promoting health through the organized efforts and informed choices of society, organizations, public and private, communities and individuals."[[49]](#page11) It is concerned with threats to the overall health of a community based on [population health](https://en.wikipedia.org/wiki/Population_health) analysis. The population in question can be as small as a handful of people or as large as all the inhabitants of several continents (for instance, in the case of a [pandemic)](https://en.wikipedia.org/wiki/Pandemic). Public health has many sub-fields, but typically includes the interdisciplinary categories of [epidemiology,](https://en.wikipedia.org/wiki/Epidemiology) [biostatistics](https://en.wikipedia.org/wiki/Biostatistics) and [health services.](https://en.wikipedia.org/wiki/Health_services) [Environmental health,](https://en.wikipedia.org/wiki/Environmental_Health) [community health,](https://en.wikipedia.org/wiki/Community_health) [behavioral health,](https://en.wikipedia.org/wiki/Behavioral_health) and [occupational health](https://en.wikipedia.org/wiki/Occupational_health) are also important areas of public health.



The focus of public health interventions is to prevent and manage diseases, injuries and [other health conditions through surveillance of cases and the promotion of healthy](https://en.wikipedia.org/wiki/Health_promotion) [behavior,](https://en.wikipedia.org/wiki/Health_promotion) [communities,](https://en.wikipedia.org/wiki/Healthy_community_design) [and (in aspects relevant to human health)](https://en.wikipedia.org/wiki/Health_promotion) [environments.](https://en.wikipedia.org/wiki/Environmental_protection) [Its aim is](https://en.wikipedia.org/wiki/Health_promotion) [to prevent health problems from happening or re-occurring by implementing educational](https://en.wikipedia.org/wiki/Health_education)



[programs, developing](https://en.wikipedia.org/wiki/Health_education) [policies,](https://en.wikipedia.org/wiki/Health_policy) [administering services and conducting](https://en.wikipedia.org/wiki/Health_education) [research.](https://en.wikipedia.org/wiki/Research)[[50]](#page11) [In](https://en.wikipedia.org/wiki/Health_education) many cases, treating a disease or controlling a [pathogen](https://en.wikipedia.org/wiki/Pathogen) can be vital to preventing it in others, such as during an [outbreak.](https://en.wikipedia.org/wiki/Outbreak) [Vaccination](https://en.wikipedia.org/wiki/Vaccination) programs and distribution of [condoms](https://en.wikipedia.org/wiki/Condom) to prevent the spread of [communicable diseases](https://en.wikipedia.org/wiki/Communicable_disease) are examples of common preventive public health measures, as are educational campaigns to promote vaccination and the use of condoms (including overcoming resistance to such).



[Postage stamp, New](https://en.wikipedia.org/wiki/New_Zealand) [Zealand, 1933. Public](https://en.wikipedia.org/wiki/New_Zealand) health has been promoted – and depicted – in a wide variety of ways.



[Public health](https://en.wikipedia.org/wiki/Public_health) also takes various actions to limit the health disparities between different areas of the [country](https://en.wikipedia.org/wiki/Country) and, in some cases, the [continent](https://en.wikipedia.org/wiki/Continent) or [world.](https://en.wikipedia.org/wiki/World) One issue is the access of individuals and communities to health care in terms of financial, geographical or



socio-cultural constraints.[[51]](#page11) Applications of the public [health system](https://en.wikipedia.org/wiki/Health_system) include the areas of [maternal](https://en.wikipedia.org/wiki/Maternal_health) and child health, health services administration, emergency response, and prevention and control of [infectious](https://en.wikipedia.org/wiki/Infectious_disease) and [chronic diseases.](https://en.wikipedia.org/wiki/Chronic_disease)



The great positive impact of public health programs is widely acknowledged. Due in part to the policies and actions developed through public health, the 20th century registered a decrease in the mortality rates for [infants](https://en.wikipedia.org/wiki/Infants) and [children](https://en.wikipedia.org/wiki/Child) and a continual increase in [life expectancy](https://en.wikipedia.org/wiki/Life_expectancy) in most parts of the world. For example, it is estimated that life expectancy has increased for



Americans by thirty years since 1900,[[52]](#page11) and worldwide by six years since 1990.[[53]](#page11)

**Self-care strategies**

Personal health depends partially on the active, passive, and assisted cues people observe and adopt about their own health. These include personal actions for preventing or minimizing the effects of a disease, usually a chronic condition, through [integrative care.](https://en.wikipedia.org/wiki/Disease_management_(health)) They also include personal [hygiene](https://en.wikipedia.org/wiki/Hygiene) practices to prevent infection and illness, such as [bathing](https://en.wikipedia.org/wiki/Bathing) and [washing hands](https://en.wikipedia.org/wiki/Washing_hands) with soap; [brushing and flossing teeth;](https://en.wikipedia.org/wiki/Oral_hygiene) storing, preparing and handling [food safely;](https://en.wikipedia.org/wiki/Food_safety) and many others. The information gleaned from personal [observations of daily living](https://en.wikipedia.org/wiki/Observations_of_Daily_Living) – such as about sleep patterns, exercise behavior, nutritional intake and environmental features – may be used to inform personal decisions and actions (*e.g.*, "I feel tired in the morning so I am going to try sleeping on a different pillow"), as well as clinical decisions and treatment plans (*e.g.*, a patient who notices his or her shoes are tighter than usual may be having exacerbation of left-sided heart failure, and may require diuretic medication to reduce fluid overload).[[54]](#page11)



A lady washing her hands c.



1655

Personal health also depends partially on the social structure of a person's life. The

maintenance of strong [social relationships,](https://en.wikipedia.org/wiki/Social_relation) [volunteering,](https://en.wikipedia.org/wiki/Volunteering) and other social activities have been linked to positive mental health and also increased longevity. One American study among [seniors](https://en.wikipedia.org/wiki/Old_age) over age 70, found that frequent volunteering was associated with



reduced risk of dying compared with older persons who did not volunteer, regardless of physical health status.[[55]](#page11) Another study [from Singapore reported that volunteering retirees had significantly better cognitive performance scores, fewer depressive](https://en.wikipedia.org/wiki/Mood_disorder)



[symptoms, and better mental well-being and](https://en.wikipedia.org/wiki/Mood_disorder) [life satisfaction](https://en.wikipedia.org/wiki/Life_satisfaction) [than non-volunteering retirees.](https://en.wikipedia.org/wiki/Mood_disorder)[[56]](#page11)



Prolonged [psychological stress](https://en.wikipedia.org/wiki/Psychological_stress) may negatively impact health, and has been cited as a factor in [cognitive impairment](https://en.wikipedia.org/wiki/Cognitive_impairment) with aging,



depressive illness, and expression of disease.[[57]](#page11) [Stress management](https://en.wikipedia.org/wiki/Stress_management) is the application of methods to either reduce stress or increase tolerance to stress. [Relaxation techniques](https://en.wikipedia.org/wiki/Relaxation_technique) are physical methods used to relieve stress. Psychological methods include [cognitive therapy,](https://en.wikipedia.org/wiki/Cognitive_therapy) [meditation,](https://en.wikipedia.org/wiki/Meditation) and [positive thinking,](https://en.wikipedia.org/wiki/Optimism) which work by reducing response to stress. Improving relevant skills, such as [problem solving](https://en.wikipedia.org/wiki/Problem_solving) and [time management](https://en.wikipedia.org/wiki/Time_management) skills, reduces uncertainty and builds confidence, which also reduces the reaction to stress-causing situations where those skills are applicable.



**Occupational**



In addition to [safety](https://en.wikipedia.org/wiki/Safety) risks, many jobs also present risks of disease, illness and other long-term health problems. Among the most [common occupational diseases are various forms of pneumoconiosis, including silicosis and coal worker's pneumoconiosis (black](https://en.wikipedia.org/wiki/Coalworker's_pneumoconiosis) [lung disease).](https://en.wikipedia.org/wiki/Coalworker's_pneumoconiosis) [Asthma](https://en.wikipedia.org/wiki/Occupational_asthma) [is another](https://en.wikipedia.org/wiki/Coalworker's_pneumoconiosis) [respiratory illness](https://en.wikipedia.org/wiki/Respiratory_illness) [that many workers are vulnerable to. Workers may also be vulnerable to skin](https://en.wikipedia.org/wiki/Coalworker's_pneumoconiosis)



diseases, including [eczema,](https://en.wikipedia.org/wiki/Eczema) [dermatitis,](https://en.wikipedia.org/wiki/Dermatitis) [urticaria,](https://en.wikipedia.org/wiki/Urticaria) [sunburn,](https://en.wikipedia.org/wiki/Sunburn) and [skin cancer.](https://en.wikipedia.org/wiki/Skin_cancer)[[58][59]](#page11) Other occupational diseases of concern include [carpal tunnel syndrome](https://en.wikipedia.org/wiki/Carpal_tunnel_syndrome) and [lead poisoning.](https://en.wikipedia.org/wiki/Lead_poisoning)



As the number of [service sector](https://en.wikipedia.org/wiki/Service_sector) jobs has risen in developed countries, more and more jobs have become [sedentary,](https://en.wikipedia.org/wiki/Sedentary_lifestyle) presenting a different array of health problems than those associated with [manufacturing](https://en.wikipedia.org/wiki/Manufacturing) and the [primary sector.](https://en.wikipedia.org/wiki/Primary_sector) Contemporary problems, such as the growing rate of [obesity](https://en.wikipedia.org/wiki/Obesity) and issues relating to [stress](https://en.wikipedia.org/wiki/Stress_(psychological)) and [overwork](https://en.wikipedia.org/wiki/Overwork) in many countries, have further complicated the interaction between work and health.



Many governments view occupational health as a social challenge and have formed public organizations to ensure the health and [safety of workers. Examples of these include the British Health and Safety Executive and in the United States, the National](https://en.wikipedia.org/wiki/National_Institute_for_Occupational_Safety_and_Health)



[Institute for Occupational Safety and Health, which conducts research on occupational health and safety, and the Occupational](https://en.wikipedia.org/wiki/Occupational_Safety_and_Health_Administration) [Safety and Health Administration, which handles regulation and policy relating to worker safety and health.](https://en.wikipedia.org/wiki/Occupational_Safety_and_Health_Administration)[[60][61][62]](#page12)



**See also**



[Disease burden](https://en.wikipedia.org/wiki/Disease_burden)



[Environmental health](https://en.wikipedia.org/wiki/Environmental_health)



[Healing](https://en.wikipedia.org/wiki/Healing)



[Human enhancement](https://en.wikipedia.org/wiki/Human_enhancement)



[Men's health](https://en.wikipedia.org/wiki/Men's_health)



[One Health](https://en.wikipedia.org/wiki/One_Health)



[Population health](https://en.wikipedia.org/wiki/Population_health)



[Women's health](https://en.wikipedia.org/wiki/Women's_health)



[Youth health](https://en.wikipedia.org/wiki/Youth_health)

