

Under five mortality rate

Indicator ID	1
Definition	<p>The under five mortality rate measures the probability of a child born in a specific year or period dying before reaching the age of five, if subject to age-specific mortality rates for that period. Strictly speaking this is not a rate (i.e., the number of deaths divided by the number of individuals at risk during a certain time period), but a probability of death derived from a life table and expressed as a rate per 1,000 live births.</p> <p>Live birth refers to the complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of the pregnancy, which, after such separation, breathes or shows any other evidence of life - e.g. beating of the heart, pulsation of the umbilical cord or definite movement of voluntary muscles - whether or not the umbilical cord has been cut or the placenta is attached. Each product of such a birth is considered live born.</p>
Level of disaggregation	By country
Rationale for use	Under five mortality rate is a leading indicator of child health and overall human development. It is indicative of government commitment to maternal, perinatal, infant and child health. The fourth Millennium Development Goal (MDG) indicator is: 'Reduce by two-thirds, between 1990 and 2015, the under-five mortality rate'. The use of this indicator as part of GAVI's strategy reflects GAVI's commitment to contributing to global and country goals related to the improvement of child health.
How it is measured	This indicator will be measured using population weighted estimates from the UN Child Mortality Estimates (CME) for the 72 GAVI eligible countries (as of 2010). Generating accurate estimates of under-five mortality poses a considerable challenge because of the limited data available for many developing countries. The UN Inter-agency Group for Child Mortality Estimation (IGME) was established in 2004 to enhance country capacity to produce timely and properly assessed estimates of child mortality. This is led by UNICEF and WHO, and includes the World Bank and United Nations Population Division as full members. The CME take vital registration systems as the preferred source of data on child mortality because they collect information as events occur and cover the entire population. However, many developing countries lack vital registration systems that accurately record all births and deaths. Therefore, household surveys, such as the UNICEF supported Multiple Indicator Cluster Surveys (MICs) and the USAID-supported Demographic and Health Surveys (DHS), are the primary source of data on child mortality in developing countries. The IGME seeks to compile all available national-level data on child mortality, including data from vital registration systems, population censuses, household surveys and sample registration systems. For each country a regression line is then fitted to the data points that meet data quality standards established by the IGME and extrapolated to a common reference year.
Data source	UN Child Mortality Estimates
Strengths and weaknesses	A strength of including the under-five mortality rate as part of the GAVI strategy is that this is a key impact indicator used globally for multiple purposes, including the MDGs. This indicator measures the ultimate impact of GAVI support at the population level.

A weakness of using the under-five mortality rate as an indicator for GAVI's strategy is that many other factors not directly under the influence of GAVI affect a country's under five mortality rate—including poverty, conflict, nutrition and many other factors. This indicator may also be slow in responding to policy changes given that it is at the end of a long results chain. In addition, there are a number of issues related to measurement. The UN produces estimates of under-five mortality for each year, but new data points are only released every two years. Many countries have new data available only when censuses or household surveys are conducted—meaning that in practice the UN Child Mortality Estimates depend on modelling exercises to update mortality estimates for intervening years.

Useful references

For further information on methodology:

http://www.childinfo.org/mortality_methodology.html

For current country estimates: http://www.childinfo.org/mortality_ufmrcountrydata.php

Number of future deaths averted

Indicator ID	2
Definition	Number of future deaths averted as a result of penta, pneumo, rota, yellow fever, men A, JE, HPV, typhoid and rubella vaccination in 72 GAVI eligible countries (as of 2010)
Level of disaggregation	By vaccine
Rationale for use	This indicator measures GAVI's impact in terms of averting future deaths from vaccine preventable diseases. Mortality reduction is the ultimate impact of GAVI support, and is therefore necessary to track on an ongoing basis. It is recognised that GAVI's contributions toward averting these future deaths are intertwined with many other investments and actions—most importantly those made by countries themselves. This indicator serves to measure GAVI's contribution to this impact, rather than exclusively attributing a portion of the impact to GAVI.
How it is measured	<p>At present, the targets are defined using GAVI's Long Range Cost and Impact (LRCI) model. The LRCI model was originally developed to support the GAVI Alliance Vaccine Investment Strategy. The estimate of number of children immunised is derived from the Strategic Demand Forecast v2.0. A metric of number of deaths averted per 1000 children immunised is then applied to estimate the number of future deaths averted resulting from that vaccination. The estimates of number of future deaths averted per 1000 children immunised used are as follows:</p> <p>Pentavalent: 12.5 Pneumococcal: 7.4 Rotavirus: 3.4 Yellow Fever: 0.2 Meningitis A: 0.65 Japanese Encephalitis: 0.89 Human Papilloma Virus: 13 Rubella: 0.03 Typhoid: 1.7</p> <p>As superior data sources and methods become available in the future, the data and methods used to produce targets will be revisited and the targets updated.</p> <p>Progress against these targets will be measured through a combination of direct and indirect measurement. Comprehensive public health effectiveness evaluations will be conducted in five countries to measure impact directly. These evaluations will also inform the production of model-based estimates of impact in the remaining countries that GAVI supports.</p>
Data source	Direct measurement in 5 countries (to be selected) through comprehensive public health effectiveness evaluations and indirect measurement in the remaining countries that GAVI supports through modelling informed by the direct measurement in 5 countries.
Strengths and weaknesses	<p>The strength of this indicator is that it tracks GAVI's ultimate impact on mortality and relates it specifically to vaccine preventable diseases. This will provide information on the extent to which GAVI is achieving its mortality reduction goals, based on its support for different vaccines. This indicator is also powerful for advocacy and resource mobilisation purposes.</p> <p>The primary limitation of this indicator is that there is substantial measurement error. Model based estimates of impact rely on a number of assumptions that are difficult to test. In addition, this indicator is based on counts rather than rates, and therefore does not provide information on whether mortality rates associated with vaccine preventable diseases are decreasing over time.</p>
Useful references	

Number of children immunised

Indicator ID	3
Definition	Number of children fully immunised as a result of GAVI support
Level of disaggregation	By vaccine
Rationale for use	This indicator is important for tracking the extent to which GAVI's mission to increase access to immunisation in poor countries is being realised.
How it is measured	This indicator refers to the total number of children reached with the last recommended dose of any GAVI-supported vaccine, corrected on a country-by-country basis so that children receiving multiple vaccines are not double-counted. The targets for this indicator are defined through the Strategic Demand Forecast. Performance against these targets will be measured by WHO, using WHO/UNICEF coverage estimates and United Nations Population Division estimates of the size of the target population in each country.
Data source	WHO/UNICEF coverage estimates and United Nations Population Division estimates of population size
Strengths and weaknesses	<p>The strength of this indicator is that it directly measures the number of children reached with GAVI support, and thus provides information on the extent to which GAVI is contributing toward increasing access to immunisation in poor countries.</p> <p>The primary limitation of this indicator is that it is based on a count rather than a rate, and thus does not measure whether immunisation coverage is increasing over time. Coverage is, however, measured through indicators 5 (new and underused vaccines) and 7 (DTP3).</p>
Useful references	<p>For further information on methods used in producing WHO/UNICEF estimates: http://www.who.int/bulletin/volumes/87/7/08-053819/en/index.html</p> <p>For current country coverage estimates: http://apps.who.int/immunization_monitoring/en/globalsummary/timeseries/tswucoveredtp3.htm</p>

Country introductions of underused and new vaccines

Indicator ID	4
Definition	Number of countries that have introduced underused and new vaccines to date
Level of disaggregation	By vaccine
Rationale for use	This indicator directly measures the extent to which GAVI's first strategic goal is being met: i.e., the acceleration of uptake and use of underused and new vaccines.
How it is measured	<p>WHO records data on vaccine introduction dates. An introduction is defined as an official launch date. This indicator is tracked both in cumulative terms (i.e., the number of countries that have introduced new and underused vaccines by a certain time period) and as new introductions occurring each year (i.e., the number of new introductions that occur within a specific calendar year). All of the 72 GAVI eligible countries are tracked for this indicator, and countries are counted irrespective of whether they introduce the vaccine with or without GAVI support. However, for cases in which the vaccine is introduced without GAVI support, this is noted in the documentation, in order to track which countries introduced with GAVI support and which did not. Results will be reported as counts (number of countries introducing, per vaccine) as well as proportions (proportion of GAVI eligible countries for which the vaccine is recommended that has introduced the vaccine). Vaccines included in the indicator are pentavalent, pneumo, rota, yellow fever, mening A, HPV, JE, typhoid and rubella.</p> <p>The targets for this indicator are derived from the Accelerated Vaccine Introduction Strategic Demand Forecast v2.0. Progress against these targets will be measured through the WHO Vaccine Introduction Database.</p>
Data source	WHO Vaccine Introduction Database
Strengths and weaknesses	<p>The strength of this indicator is that it is a direct measure of progress in achieving GAVI's new vaccine introduction goal.</p> <p>The primary weakness of this indicator is that it counts countries rather than population, and thus treats large population and small population countries the same. When considered together with indicator 5, however, one captures a more balanced picture. Indicator 5 tracks the percentage of the target population in GAVI eligible countries reached with these same vaccines.</p>
Useful references	<p>WHO New Vaccine Introduction Database: http://www.who.int/immunization_monitoring/data/year_vaccine_introduction.xls</p>

Coverage of underused and new vaccines

Indicator ID	5
Definition	Coverage of underused and new vaccines in GAVI eligible countries
Level of disaggregation	By vaccine
Rationale for use	This indicator, along with indicator 4, directly measures the extent to which GAVI's first strategic goal is being met: i.e., the acceleration of uptake and use of underused and new vaccines.
How it is measured	<p>This indicator is measured using population weighted coverage estimates from WHO and UNICEF. Three vaccines are included and tracked separately: penta, pneumo and rota. It is proposed that the denominator include all 72 GAVI eligible countries rather than limiting it to only those countries that have introduced the vaccine. Whereas indicator 4 tracks the number of countries that introduce vaccines, irrespective of population size, indicator 5 tracks the percentage of the population across all of the countries that has been reached. If the denominator were limited only to countries that have introduced the vaccine, the denominator would change substantially on a year-on-year basis as new countries introduce vaccines. This would create difficulties in interpreting the values for this indicator—for example, in the year that a large population country introduces the vaccine, the value for this indicator would decrease, assuming that a low percentage of the target population in the country is reached during the first year¹.</p> <p>The targets for this indicator are derived from the Accelerated Vaccine Introduction Strategic Demand Forecast v2.0. Progress against these targets will be measured through WHO/UNICEF estimates.</p>
Data source	WHO/UNICEF coverage estimates
Strengths and weaknesses	<p>The strength of this indicator is the directness with which it measures progress against the new vaccine introduction strategic goal. This indicator provides direct information on the proportion of the overall target population in GAVI eligible countries that is reached with penta, pneumo and rota.</p> <p>The primary weakness of this indicator is that when taken by itself it provides no information on the number of countries that have introduced the vaccines in question. However, when taken with indicator 4, information is provided both on the number of countries introducing and the percentage of the target population reached. An additional weakness is that without further analysis it is not possible to distinguish between children reached with GAVI supported vaccines and children reached with the same vaccines introduced without GAVI support.</p>
Useful references	<p>For further information on methods used in producing WHO/UNICEF estimates: http://www.who.int/bulletin/volumes/87/7/08-053819/en/index.html</p> <p>For current country coverage estimates: http://apps.who.int/immunization_monitoring/en/globalsummary/timeseries/tswucoveredtp3.htm</p>

¹ The denominator proposed here is changed from an earlier version of the indicators. This proposed change will be discussed with the Evaluation Advisory Committee during its next meeting.

DT1-DTP3 drop out rate

Indicator ID	6
Definition	The difference between DTP1 and DTP3 coverage in 72 GAVI eligible countries
Level of disaggregation	By country
Rationale for use	Drop out rates are a measure of the strength of a health and immunisation system—they show the ability of the system to reach children with the third dose in a series. In strong systems, the health system has a sufficient number of contacts with children at appropriate times to ensure high coverage with three doses of DTP vaccine. Weaker systems have the ability to reach a child with the first dose in the series, but not the third dose.
How it is measured	This indicator is measured as the difference between DTP1 and DTP3 coverage in the 72 GAVI eligible countries. Targets for this indicator are derived from an examination of historical data and the assumption that GAVI's investments in health and immunisation systems strengthening can support countries to decrease their drop out rate by approximately half a percentage point per year. Progress in achieving this target will be measured through WHO/UNICEF coverage estimates.
Data source	WHO/UNICEF estimates
Strengths and weaknesses	<p>The strength of this indicator is that it provides information on the strength of systems in ensuring that all children reached with a single dose of DTP vaccine are reached with the second and third doses also.</p> <p>The weakness of the indicator is that it does not reflect the absolute level of coverage (this is, however, measured in indicator 7). Additionally, although data are available annually from WHO and UNICEF to calculate this indicator, there is uncertainty regarding the accuracy of the DTP1 and DTP3 coverage estimates for many countries.</p>
Useful references	<p>For further information on methods used in producing WHO/UNICEF estimates: http://www.who.int/bulletin/volumes/87/7/08-053819/en/index.html</p> <p>For current country coverage estimates: http://apps.who.int/immunization_monitoring/en/globalsummary/timeseries/tswucoveredtp3.htm</p>

DTP3 coverage

Indicator ID	7
Definition	The weighted average DTP3 coverage in 72 GAVI eligible countries
Level of disaggregation	By country
Rationale for use	This is a direct measure of GAVI's ability to contribute to strengthening the capacity of integrated health systems to deliver immunisation. DTP3 coverage is a frequently used indicator of the strength of immunisation and health systems, because DTP3 requires three contacts with the health system at appropriate times and because DTP vaccine tends to be given through the routine system only rather than through campaigns.
How it is measured	DTP3 coverage is measured through the WHO/UNICEF estimates. Primary sources used by the WHO/UNICEF estimates include country administrative data, household survey data and other sources as appropriate.
Data source	WHO/UNICEF estimates
Strengths and weaknesses	<p>The strength of this indicator is that it is a direct measure of immunisation and health system strength.</p> <p>The primary weakness of this indicator is the lack of certainty of the coverage estimates for some countries. The quality of the WHO/UNICEF estimates is determined by the quality and availability of empirical data, which are lacking for many countries. It is also acknowledged that many other factors in a country influence the proportion of children reached with DTP3.</p>
Useful references	<p>For further information on methods used in producing WHO/UNICEF estimates: http://www.who.int/bulletin/volumes/87/7/08-053819/en/index.html</p> <p>For current country coverage estimates: http://apps.who.int/immunization_monitoring/en/globalsummary/timeseries/tswucoveredtp3.htm</p>

Equity in immunisation coverage

Indicator ID	8
Definition	Proportion of GAVI supported countries where DTP3 coverage in the lowest wealth quintile is +/- 20 percentage points of coverage in highest wealth quintile
Level of disaggregation	By country
Rational for use	Equity is an important measure of the capacity of integrated health systems to deliver immunisation. Although global access to vaccines has become more equitable, within-country disparities continue to exist in a large majority of countries. The most consistent disparity in immunisation coverage across a wide range of settings is between the poor and the non-poor. As of 2010, more than half of GAVI eligible countries with available survey data had a discrepancy of more than 20 percentage points between DTP3 coverage in the poorest wealth quintile and DTP3 coverage in the least poor quintile.
How it is measured	This indicator is measured using the latest available household survey data from each GAVI eligible country. As of July 2010, 57 out of 72 GAVI eligible countries had survey data available to calculate this indicator. To calculate this indicator, the difference is measured between DTP3 coverage in the poorest wealth quintile and DTP3 coverage in the least poor quintile. The proportion of the 72 GAVI eligible countries that have a difference of less than or equal to 20 percentage points between these two wealth quintiles is tracked. The cut off of 20 percentage points was selected based on the distribution of data observed from an analysis of available survey data conducted in July 2010. Slightly fewer than half of GAVI eligible countries with available survey data met this benchmark. DHS and MICS surveys are used for countries in which they are available. Where DHS and MICS are not available, other surveys that use comparable methodologies are used in their place. Starting in 2011, the criteria developed to determine whether to accept survey data for use in the proposed new window Incentives for Routine Immunisation Strengthening (IRIS) will be used to determine whether to accept survey data for the purposes of calculating this indicator.
Data source	DHS and MICS; other surveys that use comparable methods may be used where no DHS or MICS is conducted.
Strengths and weaknesses	<p>The strength of this indicator is that it directly measures the level of equity in immunisation coverage between the poor and the non-poor. This measure of equity is also simpler than many other measures of equity, including for example concentration indices, which are not transparent to non-specialists.</p> <p>A limitation of this indicator is that it treats all countries the same and does not take population into account—i.e., it treats small population and large population countries the same for measurement purposes. Also, not all countries have suitable household survey data available, so some countries are not captured in the calculation. Even for those countries that are included in the calculation, most will only have a new data point available every 2-5 five years. Therefore, some of the information captured in this indicator reflects the situation as of several years earlier. Furthermore, in basing the calculation only the poorest and the least poor quintiles, this indicator does not capture what is happening in the middle three quintiles.</p>
Useful references	Gwatkin 2007 on ten best resources on health equity: http://heapol.oxfordjournals.org/content/22/5/348.long

Resource Mobilisation

Indicator ID	9
Definition	Resources mobilised as a percentage of resources required to finance forecasted country demand for vaccine support
Level of disaggregation	By source
Rationale for use	This indicator is a direct measure of GAVI's ability to mobilise resources to finance forecasted country demand for vaccine support, and thus increase the predictability of global financing for immunisation.
How it is measured	The resources required to finance forecasted country demand are derived through the Accelerated Vaccine Introduction Strategic Demand Forecast v2.0. The amount of resources mobilised will be measured through GAVI Secretariat records.
Data source	Strategic Demand Forecast v2.0 and GAVI Secretariat records of amount of resources mobilised
Strengths and weaknesses	<p>The strength of this indicator is the directness with which it measures the mobilisation of resources in relation to the amount of resources required to finance country demand.</p> <p>The weakness of this indicator is that forecasts of country demand can change for a variety of reasons such as shifting country priorities, a slower/faster than expected country application process, and other reasons.</p>
Useful references	

Country investments in vaccines per child

Indicator ID	10
Definition	The average amount spent from national health budgets on vaccines per surviving infant
Level of disaggregation	By country
Rationale for use	This indicator measures the level of national financing for immunisation and the priority that the government places on vaccines as a core public function.
How it is measured	<p>The baseline and targets for this indicator were calculated by the GAVI Secretariat. The models estimate the total costs of introducing all vaccines in a country until 2020, using the following:</p> <ul style="list-style-type: none"> - The average amount (numerator) is calculated by estimating the fully loaded costs of all traditional vaccines already introduced in a country and projecting future costs based on population projections. Values are shown in constant 2008 US\$. - The co-financing amounts required based on GAVI's adjusted demand forecast were added to the costs of traditional vaccines. - The average amount does not include vaccines for campaigns. - Population weights based on surviving infants were then applied. - In the future, this indicator will be measured through the GAVI Annual Progress Report and the Joint Reporting Form.
Data source	WHO/UNICEF Joint Reporting Form (JRF); GAVI Annual Progress Reports; GAVI's Adjusted Demand Forecast; UNPD data
Strengths and weaknesses	<p>The strength of this indicator is that it directly measures the level of national financing for immunisation.</p> <p>The primary weakness of this indicator relates to data quality. This indicator will require additional work with countries to improve measurement and reporting against this indicator through the Joint Reporting Form and the GAVI Annual Progress Report. At present there are discrepancies between JRF information and data reported in the countries' comprehensive multi-year plans (cMYPs) and Annual Progress Reports to GAVI. In addition, the targets for this indicator contain several assumptions: all countries will introduce all the vaccines in GAVI's demand forecast, countries will fully fund all traditional vaccines, the GAVI Board will approve the new co-financing levels and countries will pay the required amounts.</p>
Useful references	

Fulfillment of co-financing commitments

Indicator ID	11
Definition	Proportion of countries that meet their co-financing commitments in a timely manner.
Level of disaggregation	By country
Rationale for use	The fulfillment of co-financing commitments is a measure of country commitment to financing vaccines, and thus a reflection of the sustainability ² of national financing for immunisation.
How is it measured	Data on fulfillment of co-financing commitments is collected by UNICEF Supply Division and the PAHO Revolving Fund. Both agencies record the receipt of country payments for vaccine, in relation to the deadline for submission of such payments.
Data source	UNICEF Supply Division and PAHO Revolving Fund
Strengths and weaknesses	<p>The strength of this indicator is that directly measures the government's capacity or willingness to finance vaccine costs. There are clear defined determinants to classify whether a country is in default and there are also agreed minimum co-financing levels for each country required to co-finance vaccines, so the determination of default is reasonably clear.</p> <p>The primary weakness of this indicator is that countries could meet their co-financing commitments in a timely manner, yet still not have sustainable national financing in the long term to finance the full cost of vaccines after graduating from GAVI support.</p>
Useful references	Detailed co-financing explanation on GAVI Alliance Website http://www.gavialliance.org/vision/policies/new_vaccines/cofinancing/index.php

²GAVI definition of financial sustainability: "Although self-sufficiency is the ultimate goal, in the nearer term sustainable financing is the ability of a country to mobilize and efficiently use domestic and supplementary external resources on a reliable basis to achieve current and future target levels of immunisation performance".

Change in vaccine price

Indicator ID	12
Definition	Change in the weighted average price per dose for penta, rota and pneumo vaccines
Level of disaggregation	By vaccine
Rationale for use	Tracking vaccine price over time is central to understanding the extent to which GAVI is achieving its goal to shape healthy vaccine markets for low income countries.
How it is measured	UNICEF Supply Division provides data on weighted average price per dose by vaccine on an annual basis. All prices are unloaded. Fully loaded costs are defined as the unit price of the vaccine net of wastage, and including unit costs of freight, the syringe and safety box (if necessary).
Data source	UNICEF Supply Division
Strengths and weaknesses	<p>The strength of this indicator is that it is a direct measure of GAVI's ability to shape vaccine markets, per its fourth strategic goal.</p> <p>The weakness of this indicator is that it does not capture other costs, including fully loaded costs of vaccines. This indicator also does not capture process steps in the pathway to reducing price.</p>
Useful references	Product menu for vaccines supplied by UNICEF for GAVI, with weighted average prices: http://www.unicef.org/supply/index_gavi.html