

<b>DIARRHOEA MORBIDITY RATE IN CHILDREN AGED 0-4 YEARS</b>	
<b>GENERAL CONSIDERATIONS</b>	
<i>Issues</i>	Diarrhoeal diseases
<i>Type of indicator</i>	Health outcome
<i>Rationale</i>	Diarrhoea and related gastrointestinal illnesses continue to be one of the most important causes of illness and death worldwide, especially amongst young children. Much of this illness is due to exposures to contaminated water or food, as a result, for example, of poor water quality, limited access to water, poor food hygiene and safety, or poor sanitation in the home. Major pathogens include Salmonella, Shigella, <i>Campylobacter</i> , <i>E. coli</i> and rotavirus. Although mortality rates have declined in many countries in recent years, largely as a result of environmental improvements (e.g. in access to effective sanitation and safe drinking water) and advances in health care and treatment (e.g. oral rehydration therapy), outbreaks of diarrhoeal diseases continue to affect many millions of children. This indicator provides a measure of the incidence of diarrhoeal diseases in young children.
<i>Issues in indicator design</i>	As with almost all measures of morbidity, a major problem with this indicator is data availability and quality. Routine reporting of diarrhoeal diseases tends to be patchy, largely because many cases may not be referred to hospital but may be treated either in the home or by primary health services. Diarrhoeal diseases also take many different forms and can occur in association with a wide array of other illnesses, so differences in diagnosis can occur, affecting the reported disease rates. For these reasons, also, design of the indicator (e.g. which ICD codes are included) should take account of the context and purpose of application, as well as the completeness and reliability of the available data.  An age range of 0-4 years is used for this indicator, since younger children tend to be most at risk.
<b>SPECIFICATION</b>	
<i>Definition</i>	Incidence of diarrhoea morbidity in children aged 0-4 years.
<i>Terms and concepts</i>	<b>Diarrhoea:</b> three or more watery stools in a 24-hour period, a loose stool being one that would take the shape of the container (WHO 1996), or local definition of diarrhoea.  <b>Episode of diarrhoea:</b> An episode of diarrhoea begins with a 24-hour period with three or more loose or watery stools. An episode of diarrhoea is considered to have ended after 48 hours without three or more loose watery stools within a 24-hour period.  <b>Incidence of diarrhoea morbidity:</b> total number of episodes of diarrhoea during a 1-year period amongst the children surveyed.  <b>Total population of children aged 0-4 years:</b> number of children less than five years of age in the survey, at the time of survey.
<i>Data needs</i>	Number of episodes of diarrhoea among children aged 0-4 years.  Total number of children aged 0-4 years.

<i>Data sources, availability and quality</i>	<p>Morbidity data for diarrhoea disease does not tend to be collected on a routine basis, and usually depends on special surveys.</p> <p>Methods for data collection by surveys are recommended by the WHO Division for the Control of Diarrhoea and Acute Respiratory Disease (CDD/ARI) household survey manual (see <i>Useful references</i>).</p> <p>The CDD/ARI Household Survey is designed to collect qualitative as well as quantitative information on diarrhoea episodes occurring in the past two weeks. The manual includes instructions on how to convert the results to an annual incidence taking into account seasonal variations.</p>
<i>Level of spatial aggregation</i>	Community, health district
<i>Averaging period</i>	Annual (or shorter term for major outbreaks)
<i>Computation</i>	<p>The indicator can be computed as a simple incidence rate:</p> $M_{diar} / C_{tot}$ <p>Where: <i>M<sub>diar</sub></i> is the incidence of diarrhoea in children aged 0-4 years in the survey;</p> <p><i>C<sub>tot</sub></i> the total number of children aged 0-4 years in the survey.</p>
<i>Units of measurement</i>	Number of cases per child per year.
<i>Worked example</i>	<p>Assume that 1 280 cases of diarrhoeal disease are reported within an area in one year, amongst a total of 17 900 children. In this case, the value of the indicator is calculated as</p> $1\ 280 / 17\ 900 = 0.07 \text{ cases per child per year.}$
<i>Interpretation</i>	<p>This indicator is a useful measure of health status of children, especially under conditions of inadequate water or food hygiene and basic sanitation. Action to improve these conditions can generally help to reduce morbidity rates. Like other infectious diseases, however, marked short-term variations in morbidity may occur, making identification of long-term trends difficult, especially on the basis of short-term or irregular surveys. Data on the incidence of diarrhoea are also subject to large margins of error due to inconsistencies in reporting and in definitions, and problems of ensuring adequate sampling in surveys.</p>
<i>Variations and alternatives</i>	<p>Variations on this indicator are possible, for example by focusing on different age groups, or by defining the indicator in terms of specific types of diarrhoeal disease (e.g. cholera or typhoid fever) or in terms of a broader classification (e.g. diseases of the digestive system - ICD codes 520-579). Stratification by gender may also be useful in some cases.</p>
<i>Examples</i>	<p>WHO <i>Catalogue of health indicators</i></p> <ul style="list-style-type: none"> <li>• <b>Annual incidence of diarrhoea in children under 5 years of age</b></li> </ul> <p>WHO <i>Environmental health indicators: framework and methodologies</i></p> <ul style="list-style-type: none"> <li>• <b>Diarrhoea morbidity in children</b></li> </ul> <p>WHO <i>Environmental health indicators for the European region</i></p> <ul style="list-style-type: none"> <li>• <b>Diarrhoea mortality rate in children aged 0-4 years</b></li> </ul>

<i>Useful references</i>	<p>WHO 1987 Diarrhoeal diseases morbidity, mortality and treatment surveys. <i>Control of Diarrhoeal Diseases Update</i> 1, 1-13.</p> <p>WHO 1992 <i>Readings on diarrhoea: student manual</i>. Division for the Control of Diarrhoea and Acute Respiratory Disease, Geneva: World Health Organization.</p> <p>WHO 1994 <i>Household survey manual: diarrhoea and acute respiratory infections</i>. WHO/CDR/94.8. Geneva: World Health Organization.</p> <p>WHO 1996 <i>Catalogue of health indicators: a selection of health indicators recommended by WHO programmes</i>. Geneva: World Health Organization (under revision).</p> <p>WHO 1999 <i>Environmental health indicators: framework and methodologies</i>. Geneva: World Health Organization. (Available at <a href="http://www.who.int/docstore/peh/archives/EHIndicators.pdf">http://www.who.int/docstore/peh/archives/EHIndicators.pdf</a> )</p> <p>WHO 2002 <i>Environmental health indicators: development of a methodology for the WHO European region</i>. Bonn: World Health Organization.</p>
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