

## RECURRENCE RATE OF OUTBREAKS OF DIARRHOEAL DISEASE AMONGST CHILDREN AGED 0-4 YEARS

### GENERAL CONSIDERATIONS

<i>Issues</i>	Diarrhoeal diseases
<i>Type of indicator</i>	Health outcome Can also be used as a measure of action in relation to policies and interventions targeted at controlling or responding to disease outbreaks.
<i>Rationale</i>	Diarrhoeal diseases such as cholera often occur as sudden outbreaks, affecting large numbers of people in a short time. These outbreaks not only place great stresses on the health care system, but also demonstrate longer-term, institutional and infrastructural weaknesses – for example in the quality of water supply systems, in food safety and hygiene, or in sanitation facilities. This indicator thus uses the frequency of such outbreaks to provide a measure of risks to children of infection.
<i>Issues in indicator design</i>	<p>As with other measures of morbidity, a major problem with this indicator is data availability and quality. Routine reporting of outbreaks 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.</p> <p>In measuring the number of outbreaks, a further problem is how best to quantify outbreaks – for example, by the number of separate outbreaks or the numbers of children affected. The latter might be expected to give a more complete measure of the scale of the risk, but may be subject to larger errors due to under-reporting of cases. It also has less relevance in terms of action, since intervention is usually aimed not at treating individual cases, but at preventing or controlling outbreaks at source.</p>

### SPECIFICATION

<i>Definition</i>	Recurrence rate of outbreaks of diarrhoeal diseases amongst children aged 0-4 years.
<i>Terms and concepts</i>	<p><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.</p> <p><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.</p> <p><b>Outbreak:</b> an occurrence of two or more linked cases of the same illness, or an increase in the number of observed cases over the expected number.</p> <p><b>Recurrence rate:</b> average frequency of outbreaks of diarrhoeal diseases, per thousand children aged 0-4 years</p>

<i>Data needs</i>	Number of outbreaks of diarrhoeal disease affecting children aged 0-4 years. Total number of children aged 0-4 years.
<i>Data sources, availability and quality</i>	Information on the number of outbreaks of diarrhoeal diseases can be derived from a variety of sources, including routine passive case reporting by health care workers, community-based surveillance programmes, special surveys and analysis of hospital admission or GP statistics and records. All of these are likely to lead to significant under-estimation of the number of outbreaks, due to incomplete referral and reporting. The age range of people affected may also not always be reported, making specific estimation of this indicator difficult. Serious inconsistencies in the estimates also occur between different areas or reporting periods because of variations in referral rates, in diagnosis and in reporting methods and accuracy.  Data on the total number of children aged 0-4 years can usually be obtained from national censuses and should be reliable.
<i>Level of spatial aggregation</i>	Community, health district
<i>Averaging period</i>	Annual or shorter-term (e.g. monthly)
<i>Computation</i>	The indicator can be computed as a simple incidence rate: $1000 * Odiar / Ctot$ where: <i>Odiar</i> is the incidence of outbreaks of diarrhoea in children aged 0-4 years; <i>Ctot</i> the total number of children aged 0-4 years in the survey.
<i>Units of measurement</i>	Number per 1000 children
<i>Worked example</i>	Assume that 12 outbreaks of diarrhoeal disease occur in one year in a city containing 47 000 children aged 0-4 years. In this case the value of the indicator is calculated as: $1\ 000 * (12 / 47\ 000) = 0.26 \text{ outbreaks per } 1\ 000 \text{ children}$
<i>Interpretation</i>	At a simple level, this indicator can be interpreted to show patterns or trends in the incidence of outbreaks of diarrhoeal diseases in young children. An increase in the indicator suggests a rise in the incidence of outbreaks; a reduction implies a decrease in the outbreak incidence. Considerable care is needed in interpretation, however, because of the inherent inconsistencies and inaccuracies in the available data. Major, largely random fluctuations in the number of outbreaks may also occur from year to year, making identification of trends difficult without a relatively long run of data.  Information relating to the incidence of outbreaks should also not be used to infer the absolute numbers of cases, since outbreaks may vary greatly in terms of the numbers of people affected.

<i>Variations and alternatives</i>	<p>The most obvious alternative to this indicator is to compute the number of children affected in outbreaks of diarrhoeal diseases, or the total morbidity. This provides a better measure of the total disease burden, but may fail to show clearly the sporadic and possibly localized nature of the events. Another alternative is to focus the indicator on specific types of diarrhoeal disease, such as cholera. A commonly used – but less specific alternative – is the frequency of outbreaks of water-borne diseases.</p>
<i>Examples</i>	<p>WHO <i>Environmental health indicators: framework and methodologies</i></p> <ul style="list-style-type: none"> <li>• <b>Outbreaks of water-borne diseases</b></li> </ul> <p>WHO <i>Environmental health indicators for the European region</i></p> <ul style="list-style-type: none"> <li>• <b>Outbreaks of water-borne diseases</b></li> </ul>
<i>Useful references</i>	<p>WHO 1982 <i>National and global monitoring of water supply and sanitation</i>. CWS series of Cooperative Action for the decade, No.2.</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> <p>WHO/UNICEF 2001 <i>Water supply and sanitation sector monitoring report, 2001</i>. World Health Organization /UNICEF Joint Monitoring Programme.</p>