

PREVALENCE OF CHRONIC RESPIRATORY ILLNESSES IN CHILDREN AGED 0-14 YEARS

GENERAL CONSIDERATIONS	
<i>Issues</i>	Respiratory diseases
<i>Type of indicator</i>	Health outcome
<i>Rationale</i>	<p>Long-term exposure to air pollution, both in the home and outdoors, is known to increase the risk of chronic respiratory illness in children. Probably the most important exposures are to environmental tobacco smoke, but in many developing countries domestic cooking and heating are also serious sources of exposure. Ambient air pollution, from industry and – increasingly – road traffic, as well as exposures to a wide range of other indoor risk factors, such as pets, house dust and dust mite, are also important in some populations. These various exposures contribute – along with a wide range of other factors – to several chronic illnesses in children, including asthma, chronic bronchitis, chronic obstructive airways disease (COAD) and emphysema.</p>
<i>Issues in indicator design</i>	<p>This indicator can be expressed as the prevalence of chronic respiratory diseases in children aged 0-14 years. This age range is chosen because risks tend to persist throughout the child's life (though often in response to differing risk factors). Chronic respiratory illnesses may be taken to include asthma, chronic bronchitis, chronic obstructive airways disease (COAD) and emphysema.</p> <p>Possibly the most important issue in this case is the difficulty in obtaining reliable data on the prevalence of these diseases in children. Problems arise both because of inconsistencies in diagnosis and because of variations in referral and reporting rates.</p>
SPECIFICATION	
<i>Definition</i>	Prevalence of chronic respiratory diseases amongst children aged 0-14 years.
<i>Terms and concepts</i>	Chronic respiratory diseases: asthma, chronic cough, chronic bronchitis, emphysema and chronic obstructive airways diseases.
<i>Data needs</i>	<p>Reported rate of chronic respiratory diseases amongst children aged 0-14 years.</p> <p>Total number of children aged 0-14 years.</p>
<i>Data sources, availability and quality</i>	<p>The main data sources for information on the prevalence of chronic respiratory diseases are likely to be routine reporting systems from hospitals (e.g. hospital admissions or discharge records) or through household surveys. Data may also be available in some cases from GPs or specialist clinics (e.g. asthma clinics). All these data, however, need to be used with care, because of inconsistencies over both time and space due to differences in referral practices, diagnosis, reporting rates and coding.</p> <p>Data on the total number of children aged 0-14 years should usually be available from national censuses and should then be reliable. Estimates for inter-censal years (or where census data are not available) may be made using population models or from births and deaths data.</p>
<i>Level of spatial aggregation</i>	Community or health district
<i>Averaging</i>	Annual

<i>period</i>	
<i>Computation</i>	<p>The indicator can be computed as:</p> $1000 * Mcri / Ctot$ <p>where: <i>Mcri</i> is the number of children aged 0-14 years reported to have experienced chronic respiratory illness over the previous year;</p> <p><i>Ctot</i> is the total number of children aged 0-14 years at the midpoint of the study year.</p>
<i>Units of measurement</i>	Number per 1 000 children
<i>Worked example</i>	<p>Assume that, in one area, there are 4 562 reported cases of chronic respiratory illness during one year, amongst a population of 33 960 children aged 0-14 years. In this case, the indicator value is:</p> $1\ 000 * 4\ 562 / 33\ 960 = 134.3 \text{ cases per } 1\ 000 \text{ children}$
<i>Interpretation</i>	<p>This indicator can be interpreted as a measure of the prevalence of chronic respiratory illnesses in children. Because environmental factors such as exposures to environmental tobacco smoke, indoor air pollution and ambient air pollution account for a large proportion of these diseases, an increase in the indicator implies a worsening of these environmental conditions, while a reduction in the indicator implies an improvement.</p> <p>Care is, nevertheless, required in interpreting the indicator because many other factors are implicated in chronic respiratory illness in young children, including inherited characteristics, birth defects, infections and a wide range of lifestyle factors (e.g. drug usage and diet). As with almost all morbidity indicators, also, considerable inaccuracies and inconsistencies may occur in the available data, making comparisons over time or space difficult.</p>
<i>Variations and alternatives</i>	<p>Several alternatives to and variations on this indicator are possible. For some applications, for example, it may be more appropriate to restrict the indicator to a narrower range of health outcomes, such as asthma and chronic cough, or chronic bronchitis: the choice of outcome should ideally reflect the exposures considered to be operative. The indicator may also be applied to a narrower age range of children (e.g. 0-4 years), since above an age of about 9-11, various factors (such as smoking behaviour) may make the indicator more difficult to interpret. Where data on chronic disease prevalence are not available, proxies may be developed, for example using data on usage or sales of bronchodilators. If resources permit, it may also be possible to base the indicator on biomarker data (e.g. from skin prick tests) or measurements of lung function (e.g. FEV).</p> <p>The prevalence period used to compute the indicator can also be varied – e.g. to cover the child's whole life. As the prevalence period is extended, however, increasing problems of data reliability are likely to occur if the data are obtained from surveys requiring 'recall' (e.g. by parents).</p>
<i>Examples</i>	None known

<i>Useful references</i>	<p>Âit-Khaled, N. Enarson, D. and Bousquet, J. 2001 Chronic respiratory diseases in developing countries: the burden and strategies for prevention and management. <i>Bulletin of the World Health Organization</i> 79, 971-9.</p> <p>Strachan, D.P. and Carey, I.M. 1995 Home environment and severe asthma in adolescence: a population based case-control study. <i>British Medical Journal</i> 311 1053-6.</p> <p>Strachan, D.P., Anderson, H.R., Limb, E.S., O'Neill, A. and Wells, N. 1994 A national survey of asthma prevalence, severity and treatment in Great Britain. <i>Archives of Disease of Children</i> 70, 174-8.</p> <p>Von Mutius, E., Weiland, S.K., Fritsch, C., Duhme, H. and Keil, U. 1998 Increasing prevalence of hay fever and atopy among children in Leipzig, East Germany. <i>Lancet</i> 351, 862-6.</p>
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