

## BIRTHS TO MOTHERS LIVING IN UNSAFE OR HAZARDOUS HOUSING

### GENERAL CONSIDERATIONS

<i>Issues</i>	Perinatal diseases
<i>Type of indicator</i>	Exposure (proximal) Can also be used as a measure of action in relation to housing quality.
<i>Rationale</i>	<p>The adequacy of housing is an important determinant of maternal exposures to environmental hazards during pregnancy. <i>Inter alia</i>, housing quality affects levels of exposure to indoor pollutants, food and water hygiene, levels of sanitation, exposures to physical hazards, and general quality of life. Housing may be unsafe, therefore, for a variety of reasons, including: dangerous construction, inadequate ventilation, inadequate heating, dangerous or inadequately maintained services, inadequate size for the number of residents (i.e. overcrowding) or location in a hazardous area (e.g. areas prone to flooding or earthquakes, or on contaminated land). Living in inadequate housing is therefore likely to result in increased risks of a variety of gestational and neonatal problems, including infections, congenital anomalies and physical injury.</p> <p>This indicator provides a general measure of the adequacy of the housing stock, and the level of exposures to these hazards in relation to perinatal diseases.</p>
<i>Issues in indicator design</i>	<p>Although potentially valuable, this indicator is difficult to define and measure in a clear and systematic manner. In many cases, the most appropriate measure may be the percentage (or number) of births to mothers living in unsafe, unhealthy or hazardous housing. Defining the terms 'unsafe', 'unhealthy' and 'hazardous', however, poses severe difficulties for these are all to a large extent both environmentally and culturally dependent, and thus are liable to vary from one area (or one time) to another.</p> <p>Problems may also exist in devising a single indicator that combines all these different conditions in a single measure, since in terms of health they may not be equivalent. As an alternative, therefore, separate indicators can be developed, relating to specific aspects of housing condition and quality. Thus, indicators might be compiled of overcrowding, access to basic amenities, indoor air pollution, flood risk, avalanche risk, earthquake risk etc. The disadvantages of this approach are the large number of indicators that might need to be compiled, and the difficulties of comparing between them or of using them to provide a general overview of housing conditions.</p>

### SPECIFICATION

<i>Definition</i>	Percentage of births to mothers living in unsafe, unhealthy or hazardous housing.
<i>Terms and concepts</i>	<p><b>Unsafe, unhealthy or hazardous housing:</b> housing which is:</p> <ul style="list-style-type: none"> <li>• physically unsound and likely to be dangerous to its occupants, because of its poor construction, or inadequately maintained services (e.g. electricity); or</li> <li>• is located in a physically hazardous area (e.g. an area of flood or earthquake risk) or is sited on contaminated land (e.g. by chemical wastes, radioactivity); or</li> <li>• provides serious risks of exposures to indoor pollution (e.g. air pollutants) or pathogens (e.g. moulds, ticks, fleas); or</li> </ul>

	<ul style="list-style-type: none"> <li>provides inadequate shelter (e.g. due to poor insulation, inadequate roofing) and basic amenities (e.g. cooking facilities, heating).</li> </ul> <p><b>Total number of births:</b> the total number of live- and still-births</p>
<i>Data needs</i>	Number of births by quality of housing
<i>Data sources, availability and quality</i>	Data on the quality of the housing stock, and the number of births to women living in unsafe, unhealthy or hazardous housing is rarely available from routine sources. In some countries, an approximation to this may be available from census statistics (e.g. by cross-tabulating births and data on housing lacking basic amenities). Generally, however, data will need to be obtained by special surveys. In all cases, these data are liable to considerable margins of error and inconsistency due to difficulties of definition, inconsistent reporting and difficulties of ensuring representative sampling.
<i>Level of spatial aggregation</i>	Administrative district
<i>Averaging period</i>	Annual
<i>Computation</i>	<p>The indicator can be computed as:</p> $100 * B_{unsafe} / B_{tot}$ <p>where: <i>B<sub>unsafe</sub></i> is the number of children living in unsafe, unhealthy or hazardous housing;</p> <p><i>B<sub>tot</sub></i> is the total number of live and still births.</p>
<i>Units of measurement</i>	Percentage or number
<i>Worked example</i>	<p>Assume that a survey of housing conditions shows that 1 090 births, from a total of 9 720 births, are to women living in homes classified as unsafe, unhealthy or hazardous. In this case the value of the indicator is:</p> $100 * 1\ 090 / 9\ 720 = 11.2\%$
<i>Interpretation</i>	<p>This is an important indicator, which has wide-ranging significance for policy. In providing a measure of the adequacy of the housing stock, it also acts as an indicator of perinatal health risks associated with poor sanitation, exposures to indoor air pollution, and access to safe water. It can therefore help to interpret a range of other issues and indicators.</p> <p>Like all general-purpose indicators, however, it needs to be interpreted carefully. The characteristics which render housing unsafe, unhealthy or hazardous may clearly vary; without information on these specific characteristics it can be misleading to infer either the existence of particular health risks or effects, or the need for specific actions. Definitional issues are also likely to pose major difficulties for comparisons between different areas, or between different surveys, unless standard protocols have been used. A clear understanding of the data is, therefore, essential before interpretations are made.</p>
<i>Variations and alternatives</i>	This indicator can be based upon a wide range of locally defined classifications of housing quality – for example, temporary or non-permanent housing, housing without adequate amenities, housing built on unsafe or unstable land, or houses at risk of flooding.
<i>Examples</i>	<p>WHO <i>Environmental health indicators: framework and methodologies</i></p> <ul style="list-style-type: none"> <li><b>Population living in unsafe housing</b></li> </ul> <p>WHO <i>Environment health indicators for the European region</i></p>

	<ul style="list-style-type: none"> <li>• <b>Percentage of the population living in substandard housing</b></li> </ul> <p>UNCHS (Habitat) <i>Urban Indicators Programme</i></p> <ul style="list-style-type: none"> <li>• <b>Permanent structures (percentage of housing units located in structures expected to be maintain their stability for 20 years or longer under local conditions with normal maintenance)</b></li> <li>• <b>Housing in compliance (percentage of the total housing stock in compliance with current regulations)</b></li> <li>• <b>Housing destroyed (percentage of the housing stock destroyed by natural or man-made disasters over the past ten years)</b></li> </ul>
<p><i>Useful references</i></p>	<p>UNCHS Urban Indicators Programme web page:  <a href="http://www.urbanobservatory.org/indicators/database/">http://www.urbanobservatory.org/indicators/database/</a></p> <p>WHO 1994 <i>Implementation of the Global Strategy for Health for All by the year 2000. Second evaluation. Eighth report on the world health situation.</i> Geneva: World Health Organization Regional Office for Europe, Volume 5, European Region.</p> <p>WHO 1997 <i>Health and environment in sustainable development. Five years after the Earth Summit.</i> Geneva: World Health Organization.</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>