

## Annex E

### Countdown to 2015 measuring equity in maternal, newborn and child health through the coverage gap index: technical notes

#### 1. Coverage indicators

The measure of equity constructed for this report is called the 'coverage gap index'. For guidance on interpreting the coverage gap graphs in the country profiles, please see section 4 below. The coverage gap index combines information on four intervention areas across the Continuum of Care: family planning, maternal and newborn care, immunisation and treatment of sick children. Data from Demographic and Health Surveys and Multiple Indicator Cluster Survey on eight coverage indicators in these four intervention areas was used to construct the coverage gap index. Table E1 defines the indicators.

Table E1. Coverage gap index indicator definitions

No.	Indicator	Definition
1a.	Need for family planning satisfied (FP)	Percentage of currently married women who say that they do not want any more children or that they want to wait two or more years before having another child, and are using contraception
1b.	Contraceptive prevalence rate (CPR)	Percentage of women currently married or in union aged 15–49 that are using (or whose partner is using) a modern contraceptive method
2.	Antenatal care (ANC)	Percentage of women attended at least once during pregnancy by skilled health personnel for reasons related to the pregnancy in the three years prior to the survey
3.	Skilled birth attendance (SBA)	Percentage of live births in the three years prior to the survey attended by skilled health personnel (doctor, nurse, midwife or auxiliary midwife)
4.	Measles vaccination (MSL)	Percentage of children aged 12–23 months who are immunized against measles
5.	Diphtheria, pertussis and tetanus vaccination (three doses of combined diphtheria/pertussis/tetanus vaccine)	Percentage of children aged 12–23 months who received three doses of DPT vaccine
6.	BCG vaccination	Percentage of children age 1–23 months currently vaccinated against BCG
7.	Oral rehydration therapy (ORT)	Percentage of under-five children with diarrhoea in the last two weeks who received ORT (ORS packets, recommended home solution or increased fluids) and continued feeding
8.	Treatment of acute respiratory infection (ARI)	Percentage of children aged 0–59 months with suspected pneumonia (cough and dyspnoea) who sought care from a health provider

#### 2. Calculation of the coverage gap index

The coverage gap index was calculated using the formula:

$$100 \text{ per cent} - \left( \frac{[\text{ORT} + \text{ARI}]}{2} + \text{FP} + \frac{[\text{SBA} + \text{ANC}]}{2} + \frac{[\text{MSL} + 2 * \text{DPT3} + \text{BCG}]}{4} \right) / 4$$

Each of the four intervention areas is given equal weight.

Note: If need satisfied for family planning (FP) was not available, the contraceptive prevalence rate (CPR) among married women 15–49 years was used to estimate the need satisfied according to the following formula:  $\text{FP} = \text{CPR} * 1.07 + 27$ . This formula was derived from analysis of more than 100 Demographic and Health Surveys with data on both unmet need and contraceptive prevalence rate.

#### 3. Wealth index

The coverage gap index was calculated for the total sample for each country and data point. To measure equity, one needs to divide the total sample into groups by socioeconomic status. The Demographic and Health Surveys and Multiple Indicator Cluster Survey do not collect information on income and expenditure, which could be used to divide the sample into socioeconomic groups. However, the Demographic and Health Surveys and Multiple Indicator Cluster Survey do collect information on asset ownership and availability of basic household services. For the purposes of analyzing socioeconomic inequalities in health, it has been shown that using such variables to develop an index of socioeconomic status leads to similar results as using income and/or expenditure data.<sup>1</sup>

For coverage of health interventions in the Demographic and Health Surveys, we used data from an analysis conducted by Gwatkin and colleagues (2005). They used information in Demographic and Health Surveys on household assets and access to basic household services to construct a wealth index.<sup>2</sup> The index was used to

rank households and then divide the household population into quintiles. Results from recent Demographic and Health Surveys results were also included. For Multiple Indicator Cluster Surveys, we used data provided by UNICEF through the MICS website (<http://childinfo.org>) for those countries and data points for which a wealth index had been constructed.<sup>3</sup>

#### 4. Explanation and interpretation of coverage gap graph

The x-axis shows the wealth quintiles; from the poorest 20 per cent to the best-off 20 per cent. The y-axis shows the coverage gap, which is measured as a percentage as explained in section 2. No percentage gap implies maximum coverage for all interventions. A 20 per cent gap means that the coverage as calculated in the index is 80 per cent. Given that the gap is measured as maximum coverage minus actual coverage, a low figure is preferable to a high figure.

The difference between the poorest and richest quintiles and shape of the line show the patterns of inequality within a country. First, the greater the inequality between the poorest and richest quintiles, the steeper the downward slope. With a few exceptions, the coverage gap line declines as one moves from the poorest quintile to the best-off quintile in the country profiles. A horizontal line indicates relative equity, which was observed in some of the surveys in Central Asian Republics.

The shape is equally important.<sup>4</sup> The way the lines are curved can illustrate where inequities are concentrated. There are three main patterns. First, bottom inequity occurs when the poorest lag behind. Second, top inequity occurs when the richest do substantially better than the other quintiles. The intermediate pattern is more or less linear. The coverage gap increases by a similar fraction as one goes from the richest to the poorest quintile.

The shape of the coverage gap line can inform policies to address inequities. Many country graphs have relatively straight downward-sloping lines from the poorest to the best-off quintile, which would suggest that efforts should be made to increase the overall coverage of interventions, but with special attention paid to the poor. A top inequity pattern, as illustrated in the Burkina Faso and Niger country profiles, with a relatively small coverage gap among the best off 20 per cent, suggests that inequities would be reduced by raising the overall population coverage of interventions.

A downward slope from the poorest quintile to the second-poorest quintile and then a more or less straight line (or at least less steep) to the best-off quintile would be an example of bottom inequity, as shown in the Brazil country profile. Such a pattern indicates that inequities are concentrated among the poorest and that the most appropriate policy response would be to target that particular group.

For coverage gap graphs with data from two or more surveys, it can also be used to analyze trends, both by overall levels by wealth quintile and patterns between quintiles. A good example of the change from top inequity to linear pattern to bottom inequity as the overall coverage gap is reduced over time is Nepal between 1996 and 2006.

#### 5. Explanation and interpretation of coverage gap ratio

The 'coverage gap ratio' was derived by dividing the coverage gap for the poorest quintile with that of the best-off quintile. A ratio of 1 indicates equity in coverage in terms of comparing those two quintiles (there could still be inequities with regards to the three middle quintiles). A ratio of less than 1 indicates a lower coverage gap (higher coverage of interventions) among the poor, while a ratio of more than 1 indicates a lower coverage gap among the best-off. The higher the ratio, the more inequity there is in coverage of interventions.

#### 6. Explanation and interpretation of coverage gap difference

The difference is derived by subtracting the coverage gap of the best-off quintile from that of the poorest quintile. A positive difference implies that the coverage gap is larger among the poor; that is, coverage of interventions is lower among the poor. A relatively large poorest–best-off difference can occur in all patterns: top or bottom inequality or linear patterns. A small difference tends to occur in countries with smaller coverage gaps.

#### Notes:

<sup>1</sup> Wagstaff and Watanabe 2003.

<sup>2</sup> Gwatkin, Rutstein, Johnson, and others 2005.

<sup>3</sup> For more information on the calculation of the wealth index from DHS and MICS data, please refer to Rutstein and Johnson 2004.

<sup>4</sup> Victora, Fenn, Bryce and Kirkwood 2005.