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## **Equity Analysis Guidance Notes**

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### **Why measure inequalities in health?**

Aggregate national-level statistics often hide important within-country inequalities. For example, it is quite common for under-five mortality of children from the poorest 20% of all families to be at least twice as high as the mortality rate in the richest 20%, or for coverage of interventions such as skilled birth attendance to vary substantially from urban to rural areas.

Inequalities or disparities in health are defined as any consistent differences in health outcomes between population subgroups. For example, boys usually show higher under-five mortality rates than girls, due to biological reasons. Inequities are inequalities that are not only unnecessary and avoidable, but in addition unfair and unjust (Whitehead 1992). For example, social class differences in child health are inequities, not only inequalities. And higher mortality among boys than girls represents inequality, but not inequity.

Equity analyses are important when considering human rights issues, but also because measurement and documentation of inequalities can help improve health programmes; for example by targeting specific population subgroups that are not being reached with life-saving interventions.

### **What equity analyses are available from Countdown to 2015?**

Since its inception, Countdown has emphasised the need to address inequities in maternal and child health as a key strategy for improving health and survival (Victora, Wagstaff et al. 2003). Stratified analyses of key coverage indicators have been an essential part of Countdown reports (Countdown to 2015, 2005; Countdown to 2015, 2008; Countdown to 2015, 2010; Countdown to 2015, 2012), country profiles, and publications (Bryce and Victora 2005; Bryce, Terreri et al. 2006; Boerma, Bryce et al. 2008; Bhutta, Chopra et al. 2010; Barros, Ronsmans et al. 2012).

Within Countdown, the Equity Working Group is in charge of reanalysing national surveys, including Demographic and Health Surveys (DHS), Multiple-Indicator Cluster Surveys (MICS) and other surveys, to produce disaggregated analyses aimed at monitoring inequities in coverage of health interventions.

Five stratification variables are used in the Countdown analyses: gender, wealth, maternal education, urban/rural residence, and region of the country. All of these variables are self-explanatory, with the exception of wealth.

Asset indices have become the most commonly used approach for measuring wealth in population surveys (Filmer and Pritchett 1988). Typically, it is derived from a relatively short list of household possessions (radio, television, refrigerator, etc.) and characteristics of the house (building materials, toilet, electricity, etc.). These variables, available in surveys such as DHS and MICS, are subjected to principal component analysis, a data reduction technique that produces linear combinations of the variables, the components. The first component, or factor, is extracted in a way that it retains as much variability as possible from all of the variables (Jolliffe 2002), from which a continuous score is derived. Each household is then assigned a score that is usually broken down into quintiles, or fifths of the population. The poorest quintile corresponds to the 20% of the households with the lowest scores in the asset index, and so on. Quintiles are labelled

in Countdown analyses as Q1 to Q5, from the poorest 20% (Q1) to the richest 20% (Q5). Quintiles are relative, not absolute measures. For example, Q1 families in a middle-income country may be as rich as families in Q2 or Q3 in a low-income country.

Because of the large number of possible breakdowns of coverage indicators according to the five stratification variables used in the Countdown, analyses are restricted to 16 indicators that are widely available in surveys including:

- Need for family planning satisfied
- Contraceptive prevalence rate (modern methods)
- Antenatal care (at least one visit by skilled provider)
- Antenatal care (four or more visits, any provider)
- Skilled attendant at birth
- Caesarean section rate
- Early initiation of breastfeeding
- Postnatal care for babies who were born at home
- Postnatal care for all babies
- Bacille Calmette-Guerin (BCG) vaccine
- Three doses of combined diphtheria/ tetanus/pertussis vaccine (DTP3)
- Measles vaccine
- Vitamin A supplementation in the last 6 months
- Children under age 5 sleeping under insecticide-treated nets
- Oral rehydration therapy and continued feeding for children with diarrhoea
- Care seeking for pneumonia
- Improved drinking water source
- Improved sanitation facility

Indicator definitions are available at

[http://www.countdown2015mnch.org/documents/2012Report/2012Equity/How\\_to\\_use\\_2012\\_equity\\_profile.pdf](http://www.countdown2015mnch.org/documents/2012Report/2012Equity/How_to_use_2012_equity_profile.pdf)

Countdown equity analyses also include two summary indicators, which aggregate several coverage measures. These are the composite coverage indicator and co-coverage.

**Composite coverage indicator or CCI:** This is a weighted average of the coverage of eight interventions selected from four areas (family planning, maternity care, child immunisation, and case management). This indicator was developed for Countdown (Boerma, Bryce et al. 2008) with the aim of providing a summary measure of coverage that could be used to assess and report on equity in the context of multi-country and time-trend analyses. Its formula is:

$$CCI = \frac{1}{4} (FPS + (SBA + ANCS) / 2 + (2DPT3 + MSL + BCG) / 4 + (ORT + CPNM) / 2)$$

where FPS stands for family planning needs satisfied, SBA for skilled birth attendant, ANCS for antenatal care with skilled provider, DPT3 for three doses of DPT vaccine, MSL for measles immunisation, BCG for BCG immunisation, ORT for oral rehydration therapy for children with diarrhoea, and CPNM for care-seeking for pneumonia.

The CCI is calculated at group level, for example by wealth quintile or gender, by averaging coverage of the above-listed interventions in each group.

**Co-coverage:** The other combined indicator is co-coverage. In contrast to the CCI, which is

calculated at group level, co-coverage is calculated at individual (mother and child) level. It is restricted to preventive indicators which should reach all mothers and children. It is obtained by adding the number of interventions received by each child; the eight core interventions include vaccines (BCG, diphtheria-pertussis-tetanus, and measles vaccines), tetanus toxoid for the mother, vitamin A supplementation, antenatal care, skilled delivery, and safe water. In countries with endemic malaria, a ninth intervention (insecticide treated nets for the child) is also included. Because curative interventions such as ORT or pneumonia care are not required by all children — but only for those who were ill in the period before the survey — they are not included in the co-coverage index. Co-coverage is therefore a score ranging from zero to eight (or nine, in malaria-endemic countries), which can be broken down by wealth quintiles, gender, urban/rural residence, etc.

All Countdown equity analyses took into account the survey design, including sampling weights and clustering. Country-level results for each indicator and country were checked against published results to verify the accuracy of our calculations.

### ***How can I access Countdown equity analyses for my country?***

Equity profiles are available on the Countdown website for all countries with recent MICS or DHS surveys that included information on household assets and other stratification variables (sex of the child, urban/rural residence, maternal education, and region of the country). These data are much more detailed than those included in the Countdown country profiles, or in the Countdown reports.

Equity analyses carried out for the 2012 Countdown Report can be downloaded at:

[http://www.countdown2015mnch.org/documents/2012Report/2012Equity/full\\_equity\\_profiles\\_2012.pdf](http://www.countdown2015mnch.org/documents/2012Report/2012Equity/full_equity_profiles_2012.pdf)

Equity analyses carried out in preparation for the 2010 Countdown report can be downloaded at: <http://www.countdown2015mnch.org/documents/DHS-country-profiles.pdf>

For several countries, the data in both reports are the same, because there were no new surveys that were included in the 2012 report.

Detailed instructions on how to interpret the 2012 Countdown equity profiles are available at

[http://www.countdown2015mnch.org/documents/2012Report/2012Equity/How\\_to\\_use\\_2012\\_equity\\_profile.pdf](http://www.countdown2015mnch.org/documents/2012Report/2012Equity/How_to_use_2012_equity_profile.pdf)

### ***What other equity data are available elsewhere for my country?***

Equity data are also provided by sources other than Countdown. If your country has had a DHS survey, you can obtain equity breakdowns of several coverage, mortality, and nutrition indicators using the STATcompiler calculator, which is very user-friendly. STATcompiler can be accessed at [www.statcompiler.com](http://www.statcompiler.com).

Sometimes the results obtained with STATcompiler are slightly different from those in the Countdown equity tabulations. This is due to different definitions of the indicators used and adopted by DHS and by Countdown.

UNICEF also produces equity breakdown of several indicators by country, according to gender, urban/rural residence, and wealth quintile. These are available at

[http://www.childinfo.org/country\\_profiles.php?input=4](http://www.childinfo.org/country_profiles.php?input=4)

Lastly, the Global Health Observatory at the World Health Organization (<http://www.who.int/gho/en/>) also provides equity breakdowns on a large number of indicators related to maternal, newborn, and child health. These equity results will soon be made available at the GHO webpage, at which time a direct link will be provided on the Countdown website.

There is a considerable amount of overlap among the Countdown equity tabulations and those that may be obtained from the above sources, but country teams are encouraged to visit all of these sites in preparation for the Country Countdown.

### ***Should we carry out additional equity analyses to support our Country Countdown?***

As shown above, there are considerable amounts of information on inequities in the health of women and children available from different sources. If your country had a recent DHS or MICS, you will be able to download the raw data file, or else obtain a copy from the national institution that carried out the survey, often the National Statistical Office or Census Bureau.

However, the analysis of the raw data files is complex, and statistical procedures must take into account the clustered nature of the sample, and the sampling weights for different parts of the country. For these reasons, you should only embark on such analyses if the above-listed data sources do not already provide the information on inequities that you are interested in, and if you have the technical and financial resources necessary for carrying out original analyses.

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