



# Countdown to 2015

*Maternal, Newborn & Child Survival*

## SURVEY DATA DHS & MICS

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# Household surveys

- Traditional strategy to obtain population representative estimates
- Most countries carry
  - Surveys attached to population census
  - Surveys on income, living standards and employment
  - Surveys on health status and utilization of health services
  - And so and so on
- Representativeness is a strong trait
  - Nationally
  - Geographical regions
  - Provinces
  - Metropolitan areas
  - Rural area



# Sample design

- Is the key to representativeness
- Each population group that can have separate estimates is called a “domain”
  - Households in each domain must be selected in a way to provide a representative estimate (back to this soon)
- Precision
  - Sample size calculations needed to guarantee minimum precision
  - Precision is defined as the width of the confidence interval
  - Maximum acceptable CI width (and budget) defines sample size
  - Each domain must meet the sample size requirements



# How to select a sample?

- Easiest way = simple random sample
  - Names on paper mixed in a bag
  - In this case everybody has the same probability of selection
  - But usually there is no up-to-date complete list of households!
- To be called a **SAMPLE**
  - All units must have a known, non-zero probability of selection
- How to select households, then?



# Multi-stage cluster samples

- Break down your problem into steps
  - The number of steps may vary
  - Often, two steps
- 1. Within the domain, first, select a cluster
  - Usually a census tract
- For each cluster selected
  - Enumerate all existing households
- 2. From the list
  - Select the desired number of households



# Pros and cons

- Advantages
  - Drastically reduce the need to identify households
  - Limit the area to be covered by interviewers
- Disadvantages
  - More complicated to implement
  - Due to similarity within clusters
    - Less information = less precision = more variability
    - Increase the sample size compared to SRS
  - More complicated to analyse
- On balance, reduce the cost of the survey



# Stratification

- Population groups have different sizes
  - Men and women are about the same
  - More adults than children or elders
  - More poor than rich
  - More urban than rural (or the opposite in some places)
- If subgroups are proportionally represented in the sample
  - We may end with very few rich households
  - Or very few elders
- Stratification
  - Disproportionate sampling of some groups
  - → reduction in sample size while keeping precision overall
  - Need to know the population proportion of each group!
  - Imply in different weights for households



# Analysis must take

- Sample design into account!
- Failing to take clusters into account
  - Will produce variances that are underestimated
- Failing to take stratification into account
  - Will produce variances that are overestimated
- Failing to take sample weights into account
  - Will produce biased point estimates
  - Impossible to predict in what direction






- Demographic Health Surveys
  - Funded by USAID
  - Started in 1985 in El Salvador

## El Salvador: Standard DHS, 1985

**DHS Final Reports** FR.15

[El Salvador 1985 DHS Final Report \(Spanish\)](#)

 PDF, 1938K

Country: [El Salvador](#)

Contract Phase: DHS-I

Recode Structure: DHS-I

Implementing Organization: [Asociación Demográfica Salvadoreña](#)

Organization: Salvadoreña

Fieldwork: May 1985 - July 1985

Status: Completed

### Respondents

Households: Sample Size: 4922

Female: (All Women)

Age: 15 to 49

Sample Size: 5207

Male: No male respondents

Facilities: N/A

### Survey Characteristics

- Micronutrients
- Social Marketing

**Survey Datasets**

Data Available

**HIV Testing**

Not Collected

**GPS Datasets**

Not Collected

**SPA Datasets**

Not Applicable



# DHS phases

- DHS I – 1985-89
- DHS II – 1990-94
- DHS III – 1995-99
- DHS IV – 2000-04
- DHS V – 2005-09
- DHS VI – 2010-14

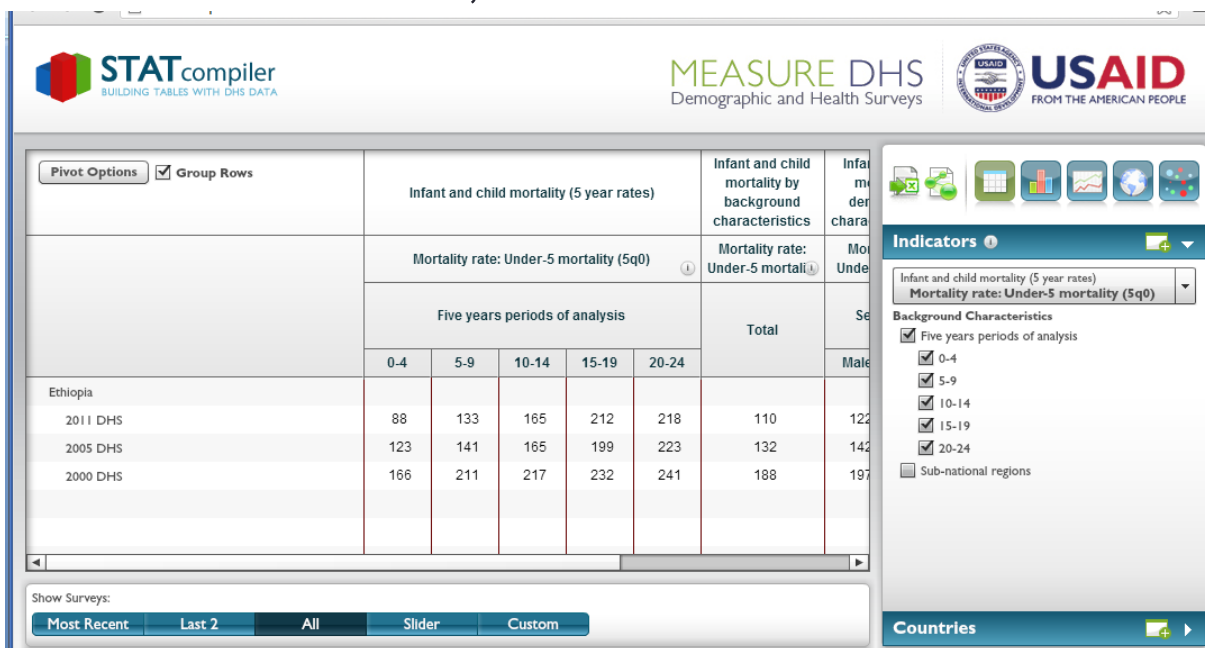
## Most common topics in the surveys

|                                 |           |
|---------------------------------|-----------|
| Anthropometry                   | 200       |
| HIV Knowledge                   | 182       |
| HIV Behavior                    | 149       |
| Maternal Mortality              | 126       |
| Reproductive Calendar           | 123       |
| Micronutrients                  | 121       |
| Tobacco Use                     | 103       |
| Women's Status                  | 102       |
| Iodine salt test                | 99        |
| Birth Registration              | 90        |
| Anemia Testing                  | 87        |
| Social Marketing                | 85        |
| Vitamin A Questions             | 82        |
| <i>Malaria/Bednet Questions</i> | <i>57</i> |
| <i>Malaria Module</i>           | <i>55</i> |



# DHS resources

- Measure DHS site
  - Info on surveys – manuals, questionnaires
  - Survey lists – by country, year, region, etc.
  - Statcompiler – custom tables/graphs of indicators, possible to obtain national estimates, and some stratifications



The screenshot displays the STATcompiler interface for the Measure DHS (Demographic and Health Surveys) data. The main table shows mortality rates for Ethiopia across three surveys (2011, 2005, 2000) and five age periods (0-4, 5-9, 10-14, 15-19, 20-24). The total mortality rate for each survey is also provided.

|          | Infant and child mortality (5 year rates) |     |       |       |       | Total | Infant mortality rate (5 year rates) |   |
|----------|---|-----|-------|-------|-------|-------|--------------------------------------|---|
|          | Mortality rate: Under-5 mortality (5q0)   |     |       |       |       |       |                                      | Mortality rate: Under-5 mortality (5q0) |
|          | 0-4                                       | 5-9 | 10-14 | 15-19 | 20-24 |       |                                      |   |
| Ethiopia |   |     |       |       |       |       |                                      |   |
| 2011 DHS | 88  | 133 | 165   | 212   | 218   | 110   | 122                                  |   |
| 2005 DHS | 123                                       | 141 | 165   | 199   | 223   | 132   | 142                                  |   |
| 2000 DHS | 166                                       | 211 | 217   | 232   | 241   | 188   | 197                                  |   |

The interface includes a 'Pivot Options' section with 'Group Rows' checked. On the right, there are panels for 'Indicators' (showing 'Mortality rate: Under-5 mortality (5q0)') and 'Background Characteristics' (with checkboxes for 'Five years periods of analysis', '0-4', '5-9', '10-14', '15-19', '20-24', and 'Sub-national regions'). A 'Countries' panel is also visible at the bottom right.



# MICS

- Multiple indicator cluster surveys
  - Funded & managed by Unicef
  - Started in 1995:
  - MICS1 (1995)
  - MICS2 (2000)
  - MICS3 (2005-06)
  - MICS4 (2009-11)
  - MICS5 (2012-14)

## MICS4 Questionnaires

Flow of Questionnaires v3.0

Core Questionnaires

Household Questionnaire

Questionnaire for Individual Women (With Birth History)

Questionnaire for Individual Women (Without Birth History)

Questionnaire for Individual Men

Questionnaire for Children Under Five

Additional Questionnaire Forms

Questionnaire Form for Child Disability

Questionnaire Form for Vaccinations at Health Facility

Changes to MICS4 Questionnaires v2.1 to v3.0



# MICS resources

- Childinfo site
  - Information on surveys – manuals, questionnaires, reports
  - Survey lists
  - MICScompiler - separate site where you can build tables, graphs and maps



**MICS COMPILER**  
Access to Multiple Indicator Cluster Survey Data

**START**

| Name  | Maternal and Child Health | Infant and Young Child Feeding | Household and Community Environment |
|---|---------------------------|--------------------------------|-------------------------------------|
| Low Birth Weight  | 61                        | 12                             | 27                                  |
| Stunted Children  | 61                        | 12                             | 27                                  |
| Wasting Children  | 61                        | 12                             | 27                                  |
| Underweight Children                                      | 61                        | 12                             | 27                                  |
| Overweight Children                                       | 61                        | 12                             | 27                                  |
| Children with Stunted Growth                              | 61                        | 12                             | 27                                  |
| Children with Wasting                                     | 61                        | 12                             | 27                                  |
| Children with Underweight                                 | 61                        | 12                             | 27                                  |
| Children with Overweight                                  | 61                        | 12                             | 27                                  |
| Children with Stunted Growth and Wasting                  | 61                        | 12                             | 27                                  |
| Children with Stunted Growth and Underweight              | 61                        | 12                             | 27                                  |
| Children with Stunted Growth and Overweight               | 61                        | 12                             | 27                                  |
| Children with Wasting and Underweight                     | 61                        | 12                             | 27                                  |
| Children with Wasting and Overweight                      | 61                        | 12                             | 27                                  |
| Children with Underweight and Overweight                  | 61                        | 12                             | 27                                  |
| Children with Stunted Growth, Wasting, and Underweight    | 61                        | 12                             | 27                                  |
| Children with Stunted Growth, Wasting, and Overweight     | 61                        | 12                             | 27                                  |
| Children with Stunted Growth, Underweight, and Overweight | 61                        | 12                             | 27                                  |
| Children with Wasting, Underweight, and Overweight        | 61                        | 12                             | 27                                  |
| Children with Stunted Growth, Underweight, and Overweight | 61                        | 12                             | 27                                  |
| Children with Wasting, Underweight, and Overweight        | 61                        | 12                             | 27                                  |

**TABLES**

**GRAPHS**

**MAPS**

Access key indicators collected through Indicator Cluster Surveys.

MICS Compiler allows users to search indicators, and the results are displayed in the following forms:

The indicators in MICS Compiler use standard definitions for international comparability and are based on representative samples.

Click **START** to begin.

**Take a Tour**



# Available surveys

| country               | Countdown | year    |         |         |         |           |              |         |  |
|-----------------------|-----------|---------|---------|---------|---------|-----------|--------------|---------|--|
| Afghanistan           | y         | 2000(a) | 2003(a) | 2010    | 2010(n) |           |              |         |  |
| Ethiopia              | y         | 2000    | 2005    | 2011    |         |           |              |         |  |
| Kenya                 | y         | 1989(a) | 1993    | 1998    | 2000(a) | 2003      | 2008         | 2008(n) |  |
| Lebanon               | n         | 2000(a) |         |         |         |           |              |         |  |
| Malawi                | y         | 1992(a) | 1995(a) | 2000    | 2004    | 2006      | 2010         |         |  |
| Pakistan              | y         | 1990(a) | 2006    |         |         |           |              |         |  |
| Pakistan(Balochistan) | y         | 2010    |         |         |         |           |              |         |  |
| Peru                  | y         | 1986(a) | 1991(a) | 1996    | 2000    | 2004-2008 | 2009-2012(n) |         |  |
| Rwanda                | y         | 1992(a) | 2000    | 2000(a) | 2005    | 2007      | 2010         |         |  |
| Tanzania              | y         | 1991(a) | 1996    | 1999    | 2004    | 2010      |              |         |  |

| Legend   |                        |
|--|------------------------|
|  | MICS                   |
|  | DHS standard           |
|  | DHS continuous         |
|  | DHS special or interim |
| # non-standard DHS   |                        |
| a = old survey for which data are available but were not analyzed (MICS1, MICS2, DHS1, DHS2)         |                        |
| b = old survey for which data are not available or have restricted access (MICS1, MICS2, DHS1, DHS2) |                        |
| n = recent survey for which data are not available (MICS3 onwards, DHS3 onwards)                     |                        |
| z = survey that was recently made available - yet to be analyzed                                     |                        |



# ICEH - original objectives

- Analyze all DHS or MICS starting with DHS3 and MICS3 and update analyses as new surveys become available
  - coverage of a set of core Countdown maternal, neonatal and child health interventions + WHO selected indicators
  - the composite coverage indicator
  - the co-coverage index for preventive interventions
- Do original analysis & write up papers
- Maintain an equity database



# Coverage indicators

- Contraceptive prevalence / demand for family planning
- Skilled attendant at delivery
- Antenatal care (1+ visit with skilled provider)
- Antenatal care (4+ visits)
- C-section rate
- Early initiation of breastfeeding
- Postnatal visit for baby
- DPT3, measles, polio vaccine
- Oral rehydration therapy for children with diarrhea
- Careseeking for pneumonia
- Insecticide-treated bednets (child slept under last night)
- Vitamin A supplementation
- Improved drinking water source
- Improved sanitation





# Stratifiers

- Sex
- Place of residence
- Wealth quintiles
  - Q5/Q1 ratio & difference
  - Slope index of inequality (absolute inequality)
  - Concentration index (relative inequality)
- Maternal education
- Region of the country
- In 2013 adding maternal age



# What we have done so far

- Re-analysis of 207 DHS & MICS surveys
- Indicators estimated
  - All coverage estimates relevant to Countdown and GHO
  - Under-5 mortality and all components
  - Age-specific fertility rates
  - Nutritional scores, % of deficit and % children obese
- All estimates stratified by
  - Wealth quintiles, maternal education, urban/rural, geographic area, sex of the child



# What our analyses added

- From compilers
  - Not all indicators are directly available (e.g. SBA)
  - Stratifications vary by indicator
- All our estimates have
  - N's (important to assess validity)
  - SE's (direct estimation or jackknife for mortality & fertility)
- Composite indicators
  - Composite coverage index
  - Co-coverage (only estimable from microdata)

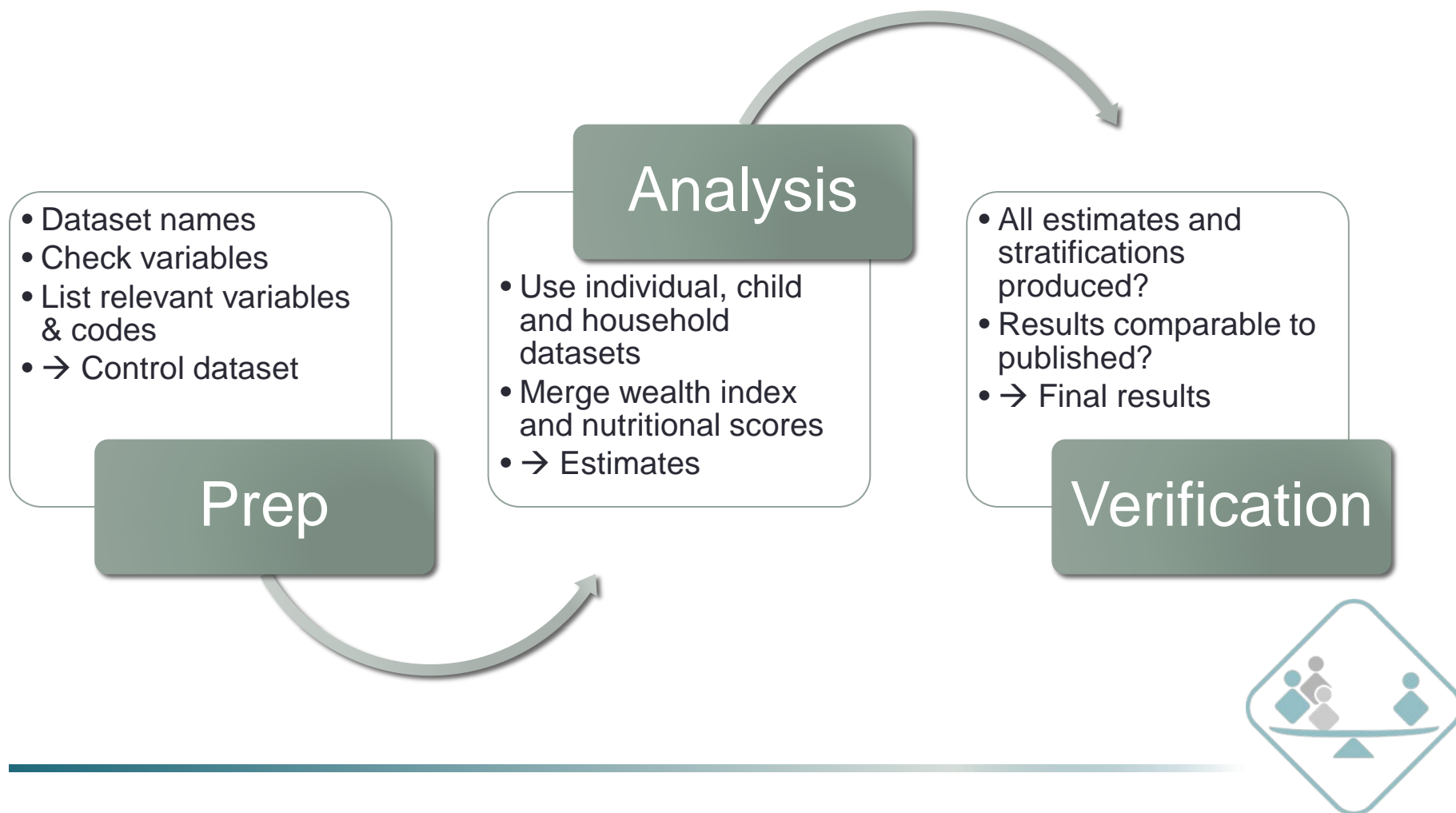


# Individual vs batch analysis

- From start, our idea was to build a platform allowing for standardized analyses of a large number of surveys
- Advantages
  - Quick response to new indicators or stratifiers
  - Comparable estimates, independent of local adaptations or political decisions
  - Ability to produce specific indicators such as the CCI and co-coverage



# The analysis process



# Equity datasets

- Our main statistical package = Stata
- Results in 6 Stata datasets
  - 1 for national estimates = “all.dta”
  - 1 for each stratifier
    - Wealth quintiles = “wiq.dta”
    - Maternal education = “meduc.dta”
    - Area of residence (urban/rural) = “area.dta”
    - Region of the country = “region.dta”
    - Sex of the child = “sex.dta”
- Also, results in a single Excel spreadsheet
  - Each original Stata dataset in one separate sheet
  - Tabs have the same names as the Stata datasets

Plenty of opportunity to work with the datasets in the practical sessions



# Full equity profile

Azerbaijan (DHS 2006)

Table - Coverage of Countdown Indicators at national level and by key equity stratifiers.

|                           | Family planning methods used | Contraceptive prevalence | Unmet need for family planning | Infant mortality rate (IMR) (per 1,000 live births) | Stillbirth rate (per 1,000 live births) | Under-five mortality rate (U5MR) (per 1,000 live births) | Child mortality rate (CMR) (per 1,000 live births) | Early initiation of breastfeeding | Exclusive breastfeeding for at least 4 months | Prevalence of low birth weight for children 0-5 years | Prevalence of stunting for children 0-5 years | Wasting (WU) under-5s | Measles vaccine | Measles 1st dose | DTP and combined routine | Coverage for measles | DTP coverage by children | Integrated child case management | Coverage of 3 or more interventions | Composite coverage index |
|---------------------------|------------------------------|--------------------------|--------------------------------|---|---|--|--|-----------------------------------|---|---|---|-----------------------|-----------------|------------------|--------------------------|----------------------|--------------------------|----------------------------------|-------------------------------------|--------------------------|
| <b>National</b>           | 85.8                         | 81.1                     | 76.2                           | 47.2  | 36.9                                    | 43.7   | 35.9   | 82.9                              | 82.8  | 12.7  | 11.8  | 25.8                  | 82.9            | 83.1             | 81.2                     | 82.1                 | 80.7                     | 82.8                             | 42.8                                | 47.7                     |
| <b>Urban/rural</b>        |                              |                          |                                |   |   |  |  |                                   |   |   |   |                       |                 |                  |                          |                      |                          |                                  |                                     |                          |
| Urban                     | 71.1                         | 81.2                     | 81.2                           | 40.7  | 27.9                                    | 3.8  | 42.3   | 84                                | 86.6  | 11.3  | 10.6  | 16.9                  | 1.7             | 27.2             | 111.5                    | 111.5                | 80                       | 86.9                             | 2.6                                 | 47.9                     |
| Rural                     | 88.1                         | 80.9                     | 80.9                           | 53.7  | 46.4                                    | 1.6  | 27.6   | 1.4                               | 71.6  | 14.7  | 14.4  | 34.4                  | 1.4             | 27.8             | 62.9                     | 62.9                 | 80                       | 80.7                             | 1.9                                 | 74.3                     |
| <b>Age</b>                |                              |                          |                                |   |   |  |  |                                   |   |   |   |                       |                 |                  |                          |                      |                          |                                  |                                     |                          |
| 0-4                       | 85.8                         | 81.1                     | 81.1                           | 47.2  | 36.9                                    | 43.7   | 35.9   | 82.9                              | 82.8  | 12.7  | 11.8  | 25.8                  | 82.9            | 83.1             | 81.2                     | 82.1                 | 80.7                     | 82.8                             | 42.8                                | 47.7                     |
| 5-14                      | 78.4                         | 77.2                     | 76.5                           | 74.8  | 66.4                                    | 4.1  | 46.4   | 14.7                              | 17.6  | 18.6  | 16.9  | 36.3                  | 11.5            | 27.6             | 119.9                    | 119.9                | 80                       | 86.4                             | 11.3                                | 47.9                     |
| <b>Education</b>          |                              |                          |                                |   |   |  |  |                                   |   |   |   |                       |                 |                  |                          |                      |                          |                                  |                                     |                          |
| 0-2 years                 | 1.1                          | 1.2                      | 1.8                            | 3.7   | 1.3                                     | 0.8  | 1.8  | 1.8                               | 1.8   | 1.8   | 1.8   | 1.8                   | 1.8             | 1.8              | 1.8                      | 1.8                  | 1.8                      | 1.8                              | 1.8                                 | 1.8                      |
| 3-5 years                 | 7.1                          | 2.8                      | 4.3                            | 16.3  | 7.9                                     | 1.3  | 20.8   | 8.7                               | 11.1  | 48.3  | 19.4  | 29.9                  | 6.8             | 11.4             | 8.8                      | 11.4                 | 8.8                      | 8.8                              | 8.7                                 | 45.1                     |
| 6+ years                  | 2.1                          | 1.3                      | 11.4                           | 24.8  | 1.3                                     | 8.1  | 14.3   | 25.3                              | 8.3   | 11.3  | 20.1  | 13.4                  | 8.3             | 11.8             | 14.3                     | 11.8                 | 14.3                     | 11.8                             | 7.3                                 | 34.8                     |
| <b>Income</b>             |                              |                          |                                |   |   |  |  |                                   |   |   |   |                       |                 |                  |                          |                      |                          |                                  |                                     |                          |
| 1                         | 7.8                          | 2.8                      | 13.4                           | 43.1  | 16.3                                    | 3.3  | 28.4   | 18.9                              | 43.9  | 48.1  | 16.4  | 17.6                  | 11.2            | 8.3              | 21.9                     | 11.8                 | 11.8                     | 11.8                             | 11.8                                | 11.8                     |
| <b>Health insurance</b>   |                              |                          |                                |   |   |  |  |                                   |   |   |   |                       |                 |                  |                          |                      |                          |                                  |                                     |                          |
| None                      | 47.6                         | 51.4                     | 85.4                           | 44.7  | 33.4                                    | 8.9  | 29.8   | 8.9                               | 18.2  | 30.9  | 7.6   | 7.9                   | 6.3             | 100.0            | 8.9                      | 8.9                  | 8.9                      | 8.9                              | 11.8                                | 44                       |
| Primary                   | 18.8                         | 25.6                     | 52.7                           | 44.4  | 16.1                                    | 7.4  | 45.1   | 1.7                               | 40.8  | 15.1  | 1.9   | 3.4                   | 1.9             | 1.9              | 1.9                      | 1.9                  | 1.9                      | 1.9                              | 1.9                                 | 1.9                      |
| Secondary +               | 48.4                         | 51.4                     | 77.6                           | 48.8  | 47.7                                    | 4.7  | 31.7   | 11.3                              | 13.9  | 13.9  | 20.4  | 45.1                  | 4.9             | 11.9             | 12.9                     | 12.9                 | 12.9                     | 12.9                             | 12.9                                | 12.9                     |
| <b>Religion</b>           |                              |                          |                                |   |   |  |  |                                   |   |   |   |                       |                 |                  |                          |                      |                          |                                  |                                     |                          |
| None                      | 84                           | 84                       | 77.8                           | 47.3  | 46.8                                    | 1.4  | 32.9   | 15.8                              | 12.4  | 11.4  | 16.4  | 4.4                   | 1.4             | 11.8             | 16.3                     | 16.3                 | 16.3                     | 16.3                             | 16.3                                | 16.3                     |
| Islamic                   | 84                           | 84                       | 79.4                           | 42.6  | 46.4                                    | 1.4  | 31.7   | 15.8                              | 12.4  | 11.4  | 16.4  | 4.4                   | 1.4             | 11.8             | 16.3                     | 16.3                 | 16.3                     | 16.3                             | 16.3                                | 16.3                     |
| <b>Place of residence</b> |                              |                          |                                |   |   |  |  |                                   |   |   |   |                       |                 |                  |                          |                      |                          |                                  |                                     |                          |
| Urban                     | 71.1                         | 81.2                     | 81.2                           | 40.7  | 27.9                                    | 3.8  | 42.3   | 84                                | 86.6  | 11.3  | 10.6  | 16.9                  | 1.7             | 27.2             | 111.5                    | 111.5                | 80                       | 86.9                             | 2.6                                 | 47.9                     |
| Rural                     | 88.1                         | 80.9                     | 80.9                           | 53.7  | 46.4                                    | 1.6  | 27.6   | 1.4                               | 71.6  | 14.7  | 14.4  | 34.4                  | 1.4             | 27.8             | 62.9                     | 62.9                 | 80                       | 80.7                             | 1.9                                 | 74.3                     |
| <b>Country migration</b>  |                              |                          |                                |   |   |  |  |                                   |   |   |   |                       |                 |                  |                          |                      |                          |                                  |                                     |                          |
| Urban                     | 84.1                         | 81.2                     | 81.2                           | 40.7  | 27.9                                    | 3.8  | 42.3   | 84                                | 86.6  | 11.3  | 10.6  | 16.9                  | 1.7             | 27.2             | 111.5                    | 111.5                | 80                       | 86.9                             | 2.6                                 | 47.9                     |
| Rural                     | 88.1                         | 80.9                     | 80.9                           | 53.7  | 46.4                                    | 1.6  | 27.6   | 1.4                               | 71.6  | 14.7  | 14.4  | 34.4                  | 1.4             | 27.8             | 62.9                     | 62.9                 | 80                       | 80.7                             | 1.9                                 | 74.3                     |
| <b>Maternal education</b> |                              |                          |                                |   |   |  |  |                                   |   |   |   |                       |                 |                  |                          |                      |                          |                                  |                                     |                          |
| 0-2 years                 | 48.4                         | 47.6                     | 84.8                           | 44.4  | 34.4                                    | 4.4  | 31.7   | 11.3                              | 13.9  | 13.9  | 20.4  | 45.1                  | 4.9             | 11.9             | 12.9                     | 12.9                 | 12.9                     | 12.9                             | 12.9                                | 12.9                     |
| 3-5 years                 | 78.4                         | 80.7                     | 78.4                           | 48.8  | 47.7                                    | 4.7  | 31.7   | 11.3                              | 13.9  | 13.9  | 20.4  | 45.1                  | 4.9             | 11.9             | 12.9                     | 12.9                 | 12.9                     | 12.9                             | 12.9                                | 12.9                     |
| 6+ years                  | 74.1                         | 77.9                     | 84.3                           | 51.8  | 47.8                                    | 4.8  | 1.7  | 10.4                              | 13.2  | 48.3  | 13.2  | 10.7                  | 1.3             | 10.0             | 8.9                      | 8.9                  | 8.9                      | 8.9                              | 8.9                                 | 8.9                      |
| <b>Maternal wealth</b>    |                              |                          |                                |   |   |  |  |                                   |   |   |   |                       |                 |                  |                          |                      |                          |                                  |                                     |                          |
| 1                         | 7.8                          | 2.8                      | 13.4                           | 43.1  | 16.3                                    | 3.3  | 28.4   | 18.9                              | 43.9  | 48.1  | 16.4  | 17.6                  | 11.2            | 8.3              | 21.9                     | 11.8                 | 11.8                     | 11.8                             | 11.8                                | 11.8                     |
| 2                         | 13.4                         | 13.4                     | 13.4                           | 13.4  | 13.4                                    | 13.4   | 13.4   | 13.4                              | 13.4  | 13.4  | 13.4  | 13.4                  | 13.4            | 13.4             | 13.4                     | 13.4                 | 13.4                     | 13.4                             | 13.4                                | 13.4                     |
| 3                         | 13.4                         | 13.4                     | 13.4                           | 13.4  | 13.4                                    | 13.4   | 13.4   | 13.4                              | 13.4  | 13.4  | 13.4  | 13.4                  | 13.4            | 13.4             | 13.4                     | 13.4                 | 13.4                     | 13.4                             | 13.4                                | 13.4                     |
| 4                         | 13.4                         | 13.4                     | 13.4                           | 13.4  | 13.4                                    | 13.4   | 13.4   | 13.4                              | 13.4  | 13.4  | 13.4  | 13.4                  | 13.4            | 13.4             | 13.4                     | 13.4                 | 13.4                     | 13.4                             | 13.4                                | 13.4                     |
| 5                         | 13.4                         | 13.4                     | 13.4                           | 13.4  | 13.4                                    | 13.4   | 13.4   | 13.4                              | 13.4  | 13.4  | 13.4  | 13.4                  | 13.4            | 13.4             | 13.4                     | 13.4                 | 13.4                     | 13.4                             | 13.4                                | 13.4                     |
| 6                         | 13.4                         | 13.4                     | 13.4                           | 13.4  | 13.4                                    | 13.4   | 13.4   | 13.4                              | 13.4  | 13.4  | 13.4  | 13.4                  | 13.4            | 13.4             | 13.4                     | 13.4                 | 13.4                     | 13.4                             | 13.4                                | 13.4                     |
| 7                         | 13.4                         | 13.4                     | 13.4                           | 13.4  | 13.4                                    | 13.4   | 13.4   | 13.4                              | 13.4  | 13.4  | 13.4  | 13.4                  | 13.4            | 13.4             | 13.4                     | 13.4                 | 13.4                     | 13.4                             | 13.4                                | 13.4                     |
| 8                         | 13.4                         | 13.4                     | 13.4                           | 13.4  | 13.4                                    | 13.4   | 13.4   | 13.4                              | 13.4  | 13.4  | 13.4  | 13.4                  | 13.4            | 13.4             | 13.4                     | 13.4                 | 13.4                     | 13.4                             | 13.4                                | 13.4                     |
| 9                         | 13.4                         | 13.4                     | 13.4                           | 13.4  | 13.4                                    | 13.4   | 13.4   | 13.4                              | 13.4  | 13.4  | 13.4  | 13.4                  | 13.4            | 13.4             | 13.4                     | 13.4                 | 13.4                     | 13.4                             | 13.4                                | 13.4                     |
| 10                        | 13.4                         | 13.4                     | 13.4                           | 13.4  | 13.4                                    | 13.4   | 13.4   | 13.4                              | 13.4  | 13.4  | 13.4  | 13.4                  | 13.4            | 13.4             | 13.4                     | 13.4                 | 13.4                     | 13.4                             | 13.4                                | 13.4                     |

Each country gets

- A big table
- 4 graphs

They sit at

[www.countdown2015mnch.org/reports-and-articles/equity](http://www.countdown2015mnch.org/reports-and-articles/equity)

There is also an Excel version for easier data access.

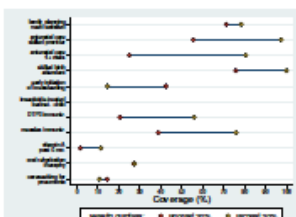


Figure 1 - Coverage levels in the poorest and richest quintiles for selected interventions along the continuum of care.

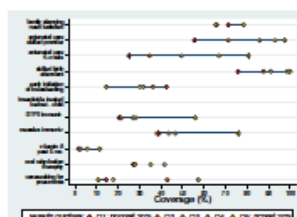


Figure 2 - Coverage levels in the five wealth quintiles for selected interventions along the continuum of care.

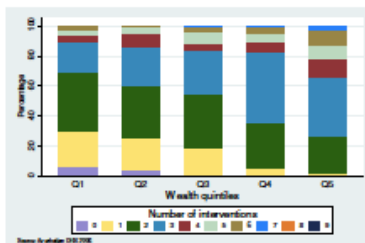


Figure 3 - Co-coverage of health interventions: percentage of children aged 1-4 years according to the number of key child-survival interventions received, by wealth quintile.

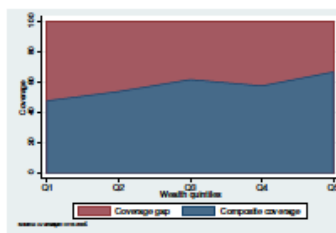


Figure 4 - Composite coverage of selected interventions and corresponding coverage gap (how much is needed to reach universal coverage), by wealth quintile.



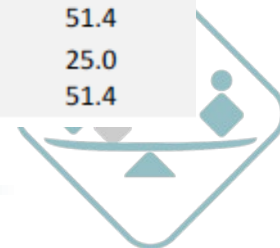
# The table rows

- Stratifiers in the rows
- 5 in total
  - Wealth quintiles
    - 1 to 5
  - Maternal education
    - No education
    - Primary
    - Secondary +
  - Child's sex
  - Urban/rural
  - Geographic region
    - Variable by country

## Azerbaijan (DHS 2006)

Table - Coverage of Countdown indicators at 1

|                           | Family<br>planning needs<br>satisfied | Contraceptive<br>prevalence rate |
|---------------------------|---------------------------------------|----------------------------------|
| <b>National</b>           | 69.4                                  | 51.1                             |
| <b>Wealth quintiles</b>   |                                       |                                  |
| Q1                        | 71.3                                  | 55.2                             |
| Q2                        | 65.5                                  | 48.0                             |
| Q3                        | 65.9                                  | 47.0                             |
| Q4                        | 65.6                                  | 48.4                             |
| Q5                        | 78.4                                  | 57.2                             |
| <b>Equity indicators</b>  |                                       |                                  |
| Q5/Q1 ratio               | 1.1                                   | 1.0                              |
| Q5-Q1 difference          | 7.1                                   | 2.0                              |
| Concentration index       | 2.1                                   | 1.3                              |
| SII                       | 7.5                                   | 2.8                              |
| <b>Maternal education</b> |                                       |                                  |
| none                      | 67.6                                  | 51.4                             |
| primary                   | 39.8                                  | 25.0                             |
| secondary +               | 69.6                                  | 51.4                             |





# The table columns

Table - Coverage of Countdown indicators at national level and by key equity stratifiers.

|                  | Family planning needs satisfied | Contraceptive prevalence rate | Antenatal care (1+ visits, skilled provider) | Antenatal care (4+ visits, any provider) | Skilled attendant at delivery | C-section rate | Early initiation of breastfeeding | Postnatal care for babies born at home |
|------------------|---------------------------------|-------------------------------|--|--|-------------------------------|----------------|-----------------------------------|--|
| National         | 69.4                            | 51.1                          | 76.9   | 45.2                                     | 88.6                          | 4.7            | 31.9                              | 10.8                                   |
| Wealth quintiles |                                 |                               |  |  |                               |                |                                   |  |

- Indicators in the columns

- FPS – family planning need satisfied
- Contraceptive prevalence
- ANC1s, ANC4
- SBA
- C-section
- Early BF
- Postnatal care for babies (born @ home & all)

- BCG, DTP3, Measles
- Vitamin A
- ORT
- Careseek for diarrhea
- ITN by children
- Improved drink water
- Cocoverage
- CCI – composite coverage index



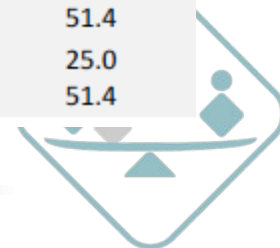
# Reading the table

- Each cell shows coverage
- For the whole country
- For wealth quintiles
- And so on...
  - Not getting into the definition of each one
- Oops
  - Not all rows are stratifiers!

## Azerbaijan (DHS 2006)

Table - Coverage of Countdown indicators at 1

|                           | Family planning needs satisfied | Contraceptive prevalence rate |
|---------------------------|---------------------------------|-------------------------------|
| <b>National</b>           | 69.4                            | 51.1                          |
| <b>Wealth quintiles</b>   |                                 |                               |
| Q1                        | 71.3                            | 55.2                          |
| Q2                        | 65.5                            | 48.0                          |
| Q3                        | 65.9                            | 47.0                          |
| Q4                        | 65.6                            | 48.4                          |
| Q5                        | 78.4                            | 57.2                          |
| <b>Equity indicators</b>  |                                 |                               |
| Q5/Q1 ratio               | 1.1                             | 1.0                           |
| Q5-Q1 difference          | 7.1                             | 2.0                           |
| Concentration index       | 2.1                             | 1.3                           |
| SII                       | 7.5                             | 2.8                           |
| <b>Maternal education</b> |                                 |                               |
| none                      | 67.6                            | 51.4                          |
| primary                   | 39.8                            | 25.0                          |
| secondary +               | 69.6                            | 51.4                          |





# Equity indicators

- Just after the coverage by wealth quintiles
  - Some equity indicators:
    - Richest / poorest ratio
    - Richest – poorest difference
    - Concentration index (CIX)
    - Slope index of inequality (SII)

We will discuss equity indicators in detail in the next equity lectures.

| Equity indicators   | FPS | CPR | ANC1s |
|---------------------|-----|-----|-------|
| Q5/Q1 ratio         | 1.1 | 1.0 | 1.8   |
| Q5-Q1 difference    | 7.1 | 2.0 | 42.1  |
| Concentration index | 2.1 | 1.3 | 11.4  |
| SII                 | 7.5 | 2.8 | 53.0  |



# Issues to bear in mind

- When using survey-based indicators
  - 1. Measurement error
    - Results only as good as the quality of info collected
    - Questionnaires rely on understanding and recall
      - Complex indicators are less reliable
      - Some definitions are loose – ex. pneumonia based on cough and difficulty breathing
    - Anthropometry is difficult!
      - Especially measurement of height/length



# Issues continued

- 2. Sampling error
  - Coverage and prevalence measured to a given precision
  - Subgroups have smaller Ns, and less precision
  - Need to take precision into account
    - Time trends, group comparisons
    - Evident differences may not be so evident!
- More issues will be covered in another lecture

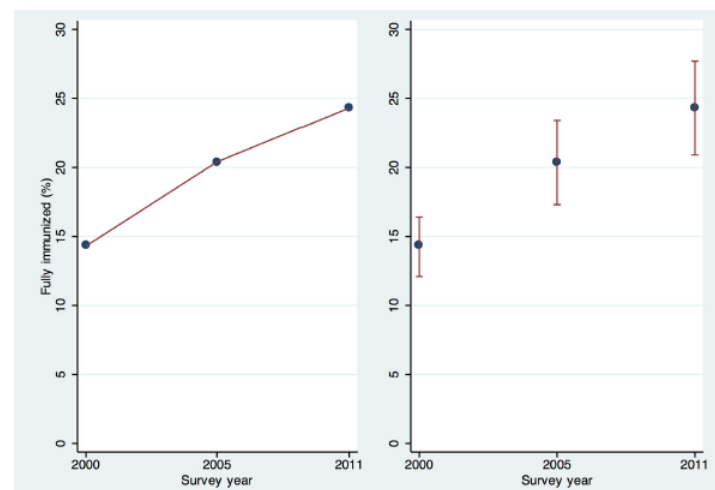


Figure 1. Two ways of looking at coverage of full immunization in Ethiopia—with and without confidence intervals. Ethiopia DHS surveys 2000, 2005, 2011 [33].  
doi:10.1371/journal.pmed.1001386.g001

