

Health inequality monitoring: with a special focus on low- and middle-income countries

Lecture 6: Reporting inequalities I



**World Health
Organization**

Audience-conscious reporting

- The target audience should always be considered when deciding how to report data, as different audiences will have different levels of understanding, technical expertise and requirements of what they need to take away from the data
 - For example, for researchers with strong statistical expertise it may be appropriate to present complex and subtle conclusions
 - For audiences with less technical expertise, it is better to present the most salient conclusions in a straightforward way
- Bear in mind the ultimate goal of health inequality monitoring: to help inform policies, programmes and practices to reduce inequality
 - Reporting should be viewed through the lens of how data can best be selected and presented to inform policies, programmes and practices

Methods of presenting data

- Three main tools to present health inequality data:
 - Tables
 - Graphs
 - Maps

Designing effective data visualizations

- Data presentation should be deliberate and comprehensible, conveying the appropriate amount and scope of data to the target audience
- The nature of the data and the needs of the audience should drive the choice of the visualization technique

Tables

- Provide a comprehensive overview of every part of the data, including relevant combinations of health indicators and equity stratifiers
 - Advantage: data values are stated explicitly
 - Disadvantage: require a certain degree of effort from the reader to derive conclusions
- Tables may be made easier to interpret by highlighting, colour-coding, bolding, etc.

Applied example: tables

Table 1 Wealth-based inequality in contraceptive prevalence (modern methods) in Egypt, DHS 1995, 2000 and 2005

Survey year	National average (%)	Quintile 1 (poorest) (%)	Quintile 2 (%)	Quintile 3 (%)	Quintile 4 (%)	Quintile 5 (richest) (%)	Difference (quintile 5 – quintile 1) (percentage points)	Ratio (quintile 5 / quintile 1)
1995	45.5	28.2	39.0	47.1	52.0	57.4	29.2	2.0
2000	53.9	42.7	50.0	54.3	58.3	61.1	18.4	1.4
2005	56.5	50.0	54.4	57.2	60.0	59.6	9.6	1.2

Graphs

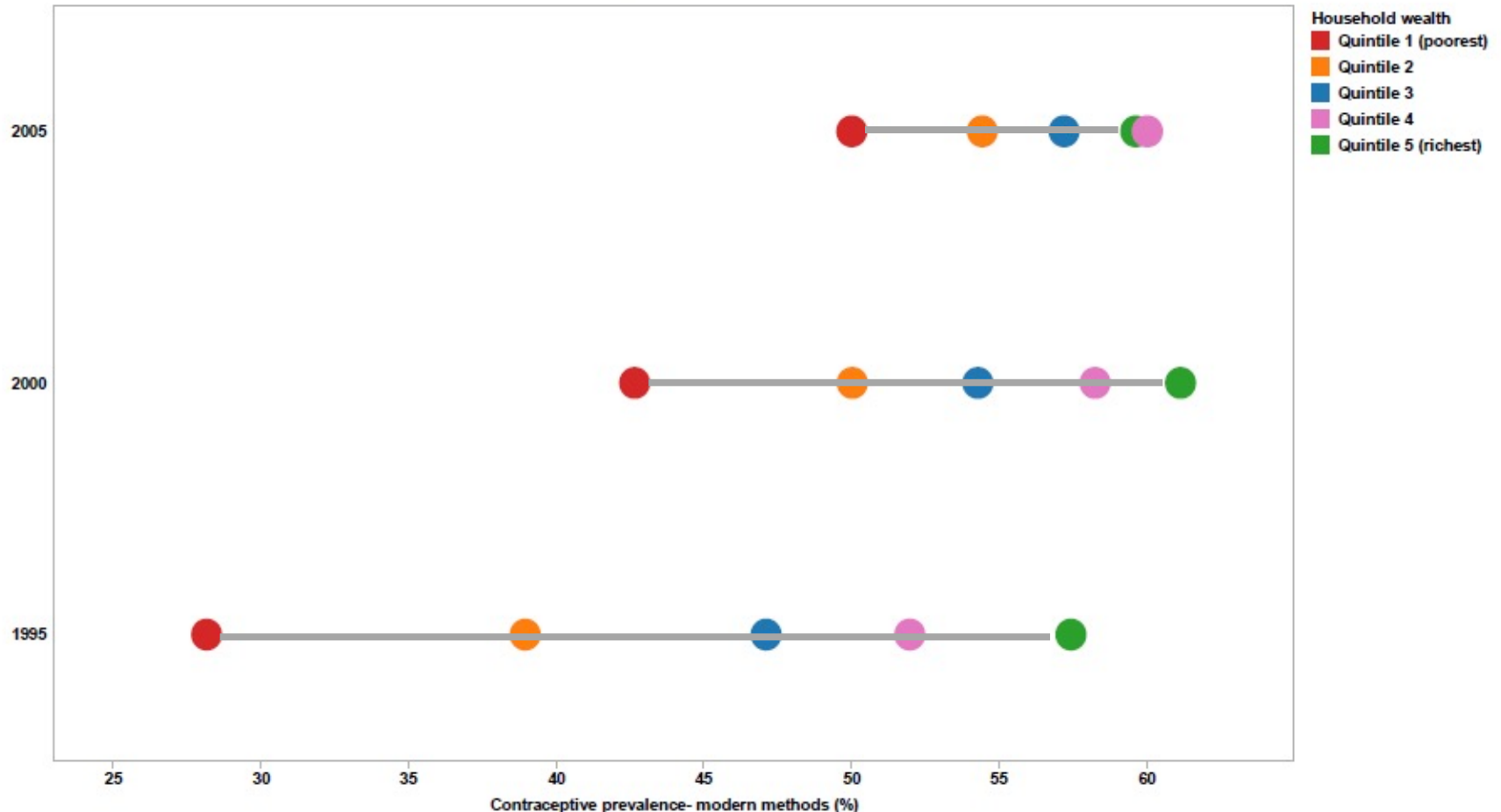
- Graphs can simplify complex messages when information is presented simply, clearly and accurately
 - Values for health indicators should be distinguishable
 - Conclusions should be evident
- Graphs should highlight important or relevant aspects of the analysis
- Graphs should not be used to show data that are very dispersed, contain too many values or show little or no variation
- The choice of graph should match the type of data
 - Generally best to stick to 1 or 2 types of graphs for consistency
- All graphs should contain labels, titles, and where applicable, legends

Using graphs to show ratios values as relative measures of inequality

- There are two important considerations when creating graphs that contain ratio values:
 1. 1 should always be adopted as the baseline for the graph; this shows a situation of *no inequality*
 2. The graph axis showing ratio must have a logarithmic scale to accurately represent the magnitude of inequality
 - Remember that a ratio of 2 is equivalent to the reciprocal ratio of 0.5; these ratio values can only be shown as equivalent using a baseline of 1 and a logarithmic scale

Applied example: graphs

Figure 1 Contraceptive prevalence (modern methods) in Egypt, by wealth quintile, DHS 1995, 2000 and 2005



Maps

- Maps can be an effective way to present health inequality data that have a geographical component
 - For example, regional data
- Should contain a clear and objective message
 - Explain all colours, symbols, text, etc.
- Be cautious...
 - Audiences may be unfamiliar with geographical areas
 - The size of the country or region may not correspond with the population size or density

Key aspects of health inequality reporting

- Latest status
- Trend over time
- Benchmarking

Latest status

- Shows the state of inequality using the most recent data available
- The health indicators that have the greatest and least absolute and relative inequality should be identified
- Answer the following questions:
 - What is the situation?
 - How is the country doing?
 - What should be the current priority areas for action?

Applied example: reporting latest status

Table 2 Latest status of wealth-based inequality in selected health service indicators in Rwanda, DHS 2010

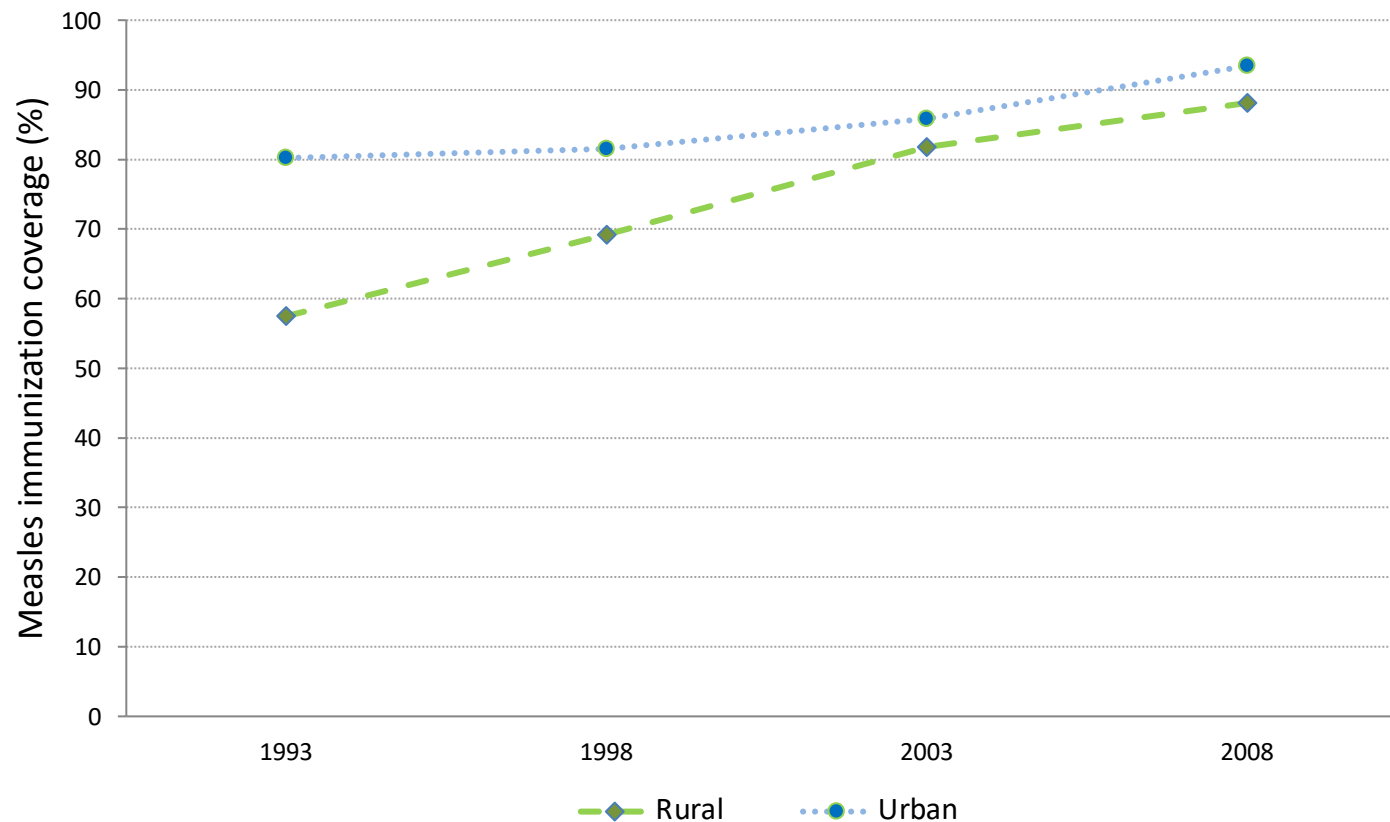
Indicator	Quintile 1 (poorest) (%)	Quintile 2 (%)	Quintile 3 (%)	Quintile 4 (%)	Quintile 5 (richest) (%)	Difference (quintile 5 – quintile 1) (percentage points)	Ratio (quintile 5 /quintile 1)
Antenatal care: at least one visit	96.6	97.4	98.6	99.1	98.9	2.3	1.0
Antenatal care: at least four visits	34.1	34.5	32.6	34.4	42.5	8.4	1.2
Births attended by skilled health personnel	61.2	63.5	66.7	72.6	85.9	24.7	1.4
DTP3 immunization among 1-year-olds	96.1	95.7	97.1	97.9	98.7	2.6	1.0
Early initiation of breastfeeding	69.8	69.6	70.9	75.5	68.2	–1.6	1.0
Family planning needs satisfied	65.2	69.6	75.2	78.6	79.6	14.4	1.2
Full immunization coverage among 1-year-olds	87.2	87.2	91.7	92.5	95.5	8.3	1.1
Vitamin A supplementation among children under five	91.5	91.7	92.3	95.2	94.6	3.1	1.0

Time trend

- Time trends indicate whether existing inequalities have improved or worsened
 - Are problems newly emerging or enduring?
- Identify indicators with the greatest increases and decreases
- Time trend analyses can help to identify standout problem areas for further study, or success stories of best practices

Applied example: reporting time trend

Figure 2 Time trend in measles immunization in Colombia, by place of residence, DHS 1993, 1998, 2003 and 2008



Benchmarking

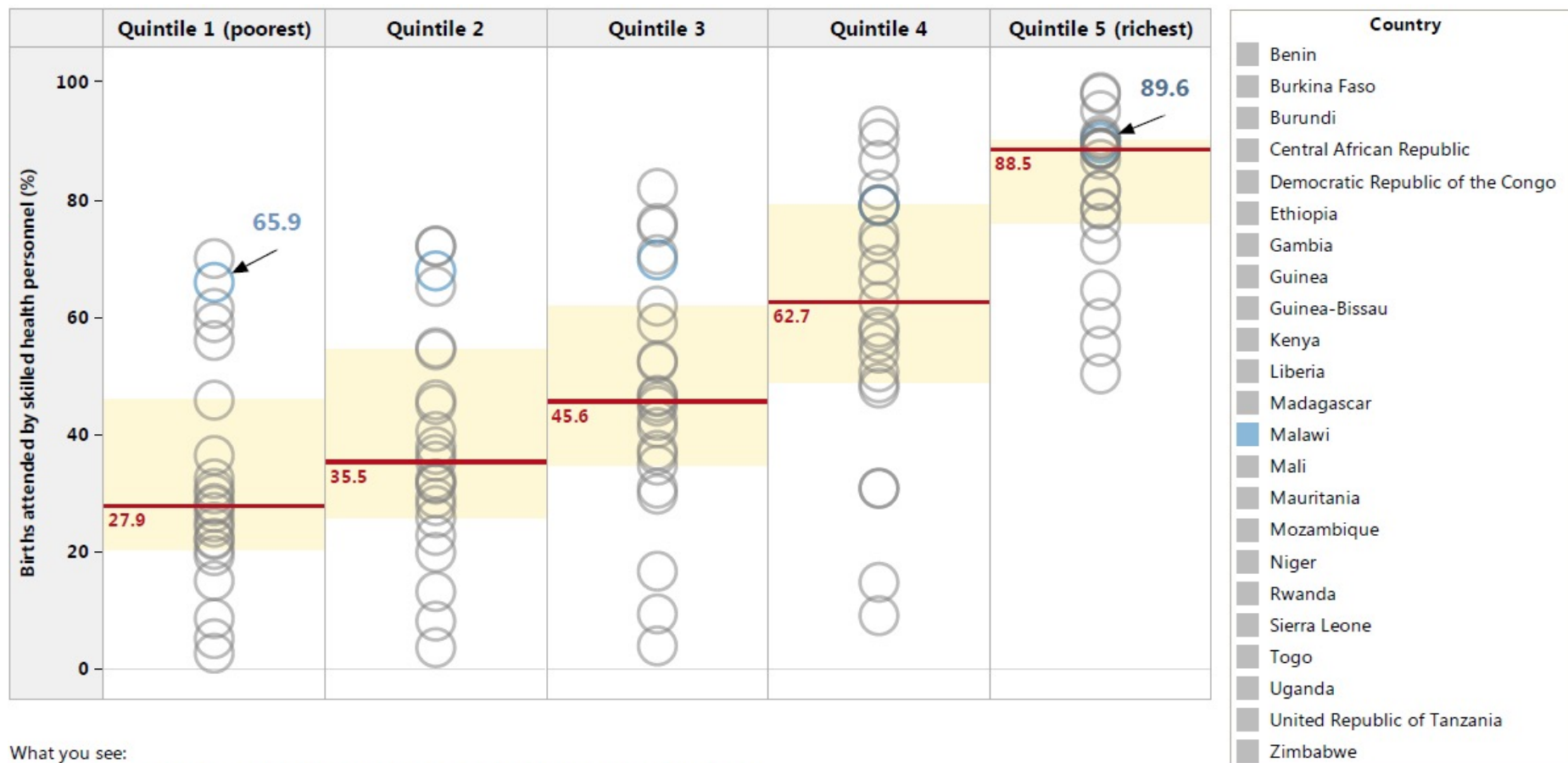
- Benchmarking is the process of comparing data from similar countries to get an idea of one country's level of inequality in relation to others
 - Could, or should, a country be doing better?
 - Benchmarking may involve comparing to other countries in the same region or income-level grouping
 - Benchmarking may be done using latest status data or time trend data

Applied examples: benchmarking

1. Latest status disaggregated data
 - Births attended by skilled health personnel by wealth in Malawi
2. Latest status complex measures of inequality
 - Births attended by skilled health personnel by wealth in Vanuatu
3. Time trend disaggregated data
 - Under-five mortality by place of residence in Zambia

Applied example: benchmarking(1)

Figure 3 Benchmarking the latest status of births attended by skilled health personnel in Malawi against 22 other low-income African countries, by wealth quintile, DHS 2005–2010



What you see:

Circles indicate countries - each study country is represented on the graph by five circles.

Horizontal red lines and labels indicate the median values of all countries within each quintile.

Light yellow bands indicate interquartile range (middle 50% of countries).

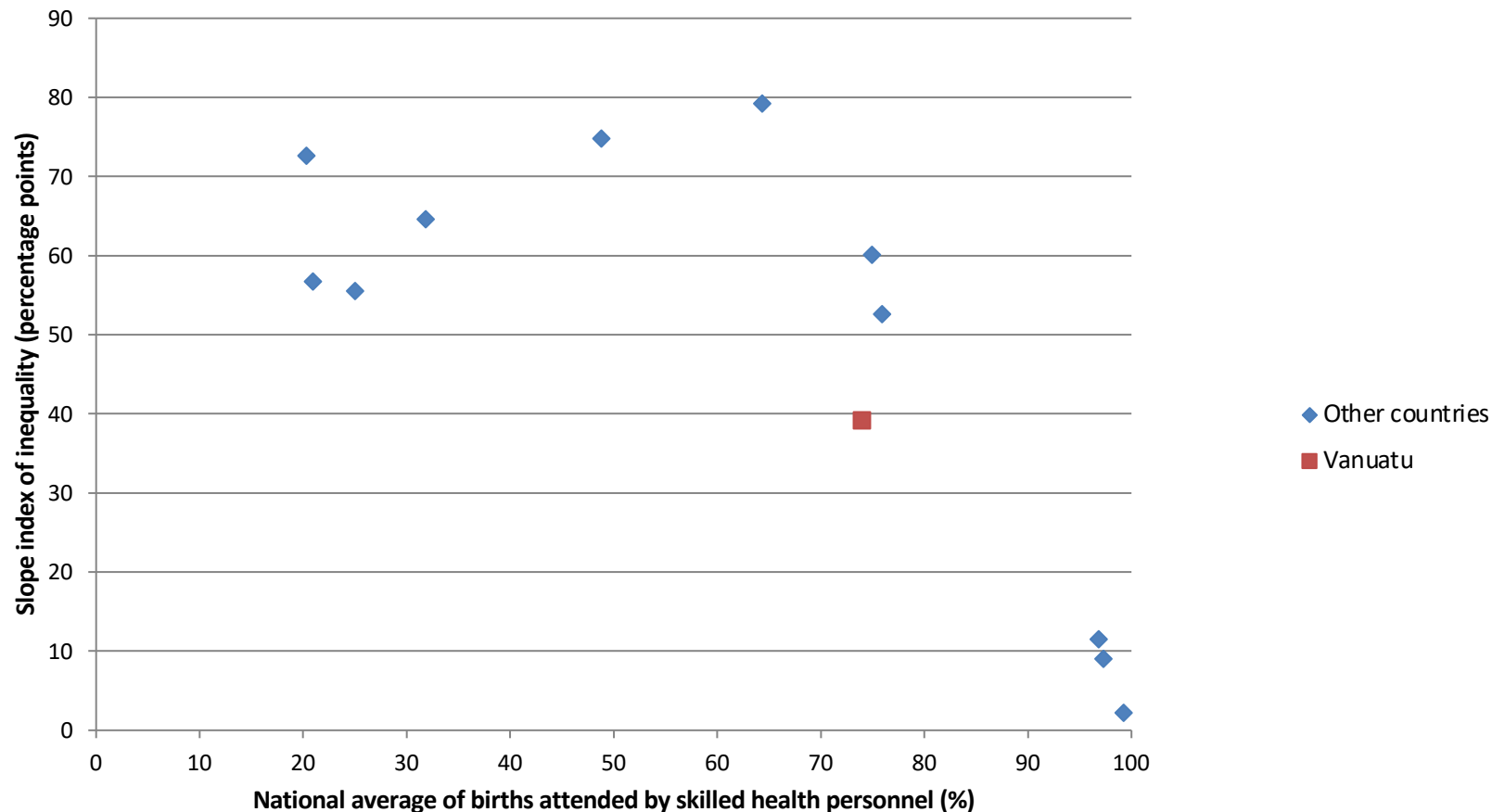
Applied example: benchmarking(2)

Table 3 Wealth-based inequality in births attended by skilled health personnel in low- and middle-income Asia-Pacific countries, DHS and MICS 2005–2010

Country	Survey	National average		Slope index of inequality	
		%	Standard error	Percentage points	Standard error
Bangladesh	DHS 2007	20.9	1.2	56.7	2.9
Cambodia	DHS 2010	75.9	1.4	52.6	3.1
India	DHS 2005	48.8	0.8	74.8	1.0
Indonesia	DHS 2007	74.9	1.1	60.1	2.3
Lao People's Democratic Republic	MICS 2006	20.3	1.9	72.6	4.0
Maldives	DHS 2009	96.8	0.6	11.5	2.5
Mongolia	MICS 2005	99.2	0.2	2.2	1.2
Nepal	DHS 2006	25.0	1.6	55.5	3.5
Philippines	DHS 2008	64.3	1.4	79.2	1.8
Thailand	MICS 2005	97.3	0.6	9.0	3.2
Timor-Leste	DHS 2009	31.8	1.6	64.6	2.6
Vanuatu	MICS 2007	74.0	2.9	39.1	7.9

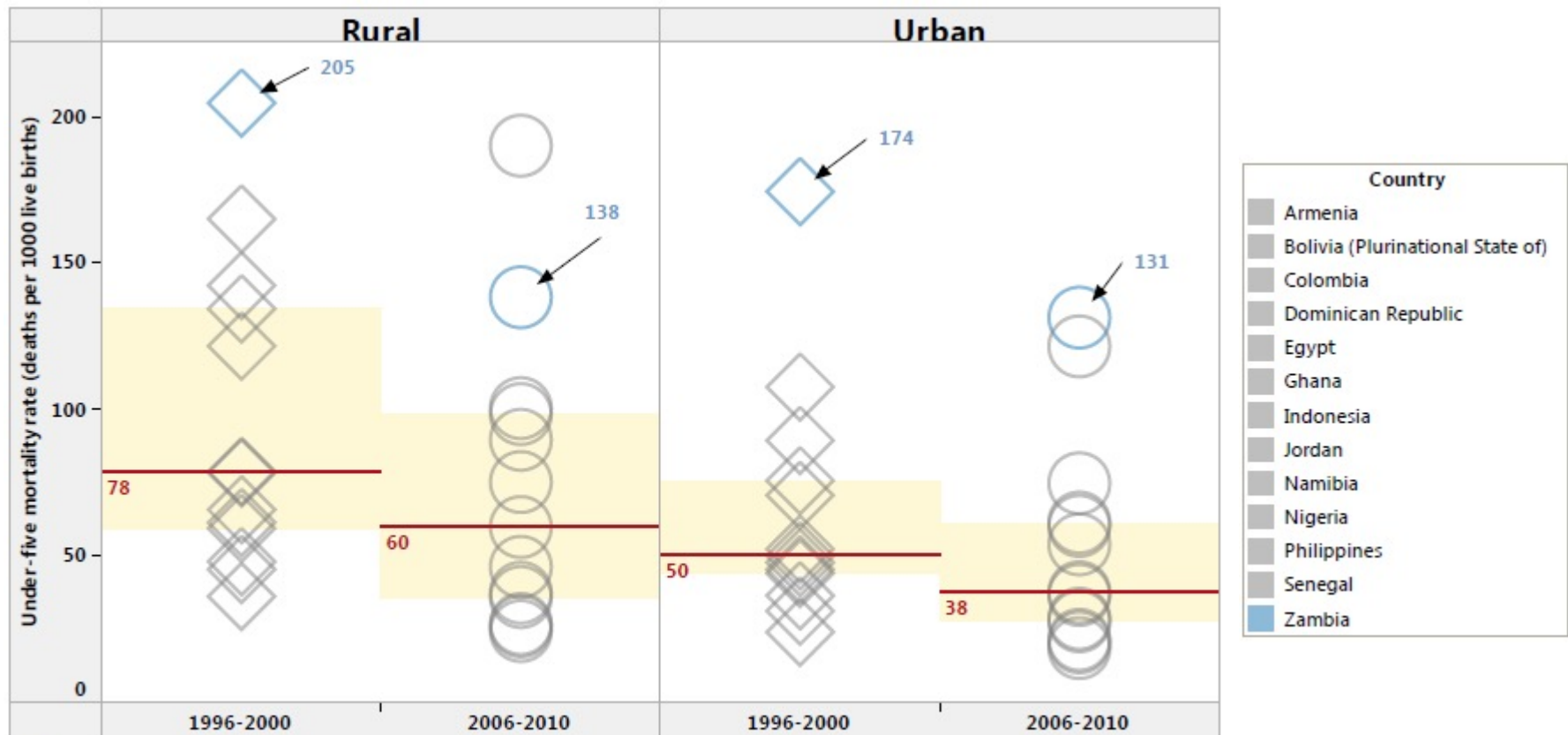
Applied example: benchmarking(2)

Figure 4 Benchmarking the latest status of wealth-based absolute inequality in births attended by skilled health personnel in Vanuatu against 11 other low- and middle-income Asia-Pacific countries, DHS and MICS 2005–2010



Applied example: benchmarking(3)

Figure 5 Benchmarking time trend in under-five mortality rate in Zambia against 12 other middle-income countries, by place of residence, DHS 1996–2000 and 2006–2010



What you see:

Diamonds and circles indicate countries – each study country is represented on the graph by four shapes.

Horizontal red lines and labels indicate the median values of all countries.

Light yellow bands indicate interquartile range (middle 50% of countries).

Benchmarking time trends

- May be done between countries, but also within countries
 - For example, between provinces or districts
- When reporting benchmarking of time trends, it is important to consider the level of health at baseline
 - Better performance at baseline means less room to improve
 - Poor performance at baseline means that there is a lot of progress to make; improvements in terms of inequality may be substantial, but overall health may still be lagging behind

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Full text available online:

http://apps.who.int/iris/bitstream/10665/85345/1/9789241548632_eng.pdf

HANDBOOK ON

Health Inequality Monitoring

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