Poverty and health in Malawi
Subtitle – How health data can be used

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Poverty and health
Underlying concepts

• Health affects poverty and poverty affects health.
• Poverty limits an individual’s ability to respond to events, such as famine or a serious illness in the family.
• Lack of income is one limiting factor; others are lack of
  – education
  – political freedom
  – ability to buy and sell goods
  – land tenure
• Poverty
  – absolute, measure - a poverty line below which people are indigent (lack the means of subsistence)
  – relative, when some families in a country are poorer than others.
• Development as Freedom – Amartya Sen
  – Reducing poverty to increase capabilities will increase freedom
  – Poverty reduction remedies—political, social, health, economic, security and education
Is Malawi poor?

- **Malawi is the poorest nation in the world measured by national income (GNP per head)** – in 2011 9th poorest
- **NDI = 171st of 187**
- **65% of people live below the poverty line**
- **28% of people are ultra poor**
- **income inequality is similar to the USA**
## HIS 2010

### Table 13. Poverty line in Malawi Kwacha per person per year, Malawi 2011

<table>
<thead>
<tr>
<th></th>
<th>IHS2</th>
<th>IHS3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Food</strong></td>
<td>10,029</td>
<td>22,956</td>
</tr>
<tr>
<td><strong>Non-food</strong></td>
<td>6,136</td>
<td>14,045</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>16,165</td>
<td>37,002</td>
</tr>
</tbody>
</table>
Figure 13. Proportion of poor and ultra-poor persons, Malawi 2011
Territory size shows the proportion of worldwide spending on public health services that is spent there. This spending is measured in purchasing power parity.

- © Copyright 2006 SASI Group (University of Sheffield) and Mark Newman (University of Michigan).
  www.worldmapper.org
Integrated Household survey 2004

Figure 1.1: Proportion of poor and ultra-poor persons by region in 2005

Bar chart showing the proportion of poor and ultra-poor persons by region in 2005. The regions are:
- Southern rural region
- Central rural region
- Northern rural region
- Urban

The chart compares the proportion of poor and ultra-poor individuals across these regions.
Urban poverty – Malawi 2005

Figure 1.2: Map of poverty headcount in urban areas

Figure 1.3: Map of poverty headcount at Traditional Authority level

Poverty Rate

- 0 - 15%
- 15 - 30%
- 30 - 40%
- 40 - 50%
- 50 - 60%
- 60 - 70%
- 70%

Areas with less than 100 households

Figure 1.4: Distribution of per capita consumption expenditure in 2005

Per Capita Consumption Expenditure

Ultra-Poverty Line

Poverty Line

Source: National Statistical Office, IHS2
Measuring poverty in Malawi

- Why use expenditure and not income?
- Should non-monetary expenditure be included?
Figure 1.5: Per capita consumption expenditure by decile in 2005

Source: National Statistical Office, IHS2
Figure 1.6: Lorenz Curve in 2005

Lorenz Curve for Malawi 2004-05

Source: National Statistical Office, IHS2
Figure 10.3: Concentration curves for access to health services

Lorenz Curves for Access to Health Services

Source: National Statistical Office, IHS2
<table>
<thead>
<tr>
<th>Region</th>
<th>1998</th>
<th>2005</th>
</tr>
</thead>
<tbody>
<tr>
<td>Malawi</td>
<td>0.39</td>
<td>0.39</td>
</tr>
<tr>
<td>Urban</td>
<td>0.44</td>
<td>0.48</td>
</tr>
<tr>
<td>Overall Rural</td>
<td>0.33</td>
<td>0.34</td>
</tr>
<tr>
<td>North</td>
<td>0.36</td>
<td>0.34</td>
</tr>
<tr>
<td>Central</td>
<td>0.31</td>
<td>0.32</td>
</tr>
<tr>
<td>South</td>
<td>0.33</td>
<td>0.35</td>
</tr>
</tbody>
</table>

Source: National Statistical Office, IHS2
## Income inequality

<table>
<thead>
<tr>
<th>Country</th>
<th>Gini index</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Africa</td>
<td>57.8</td>
</tr>
<tr>
<td>Zambia</td>
<td>50.7</td>
</tr>
<tr>
<td>Mozambique</td>
<td>45.6</td>
</tr>
<tr>
<td>USA</td>
<td>40.8</td>
</tr>
<tr>
<td>Malawi</td>
<td>39.0</td>
</tr>
<tr>
<td>Tanzania</td>
<td>37.6</td>
</tr>
<tr>
<td>UK</td>
<td>36.0</td>
</tr>
<tr>
<td>Denmark</td>
<td>24.7</td>
</tr>
</tbody>
</table>

*Source: UNDP 2011 and 2009*

Less inequality in Malawi than USA
Trend in poverty - Malawi

Figure 1.7: Proportion of the population deemed poor and ultra-poor in 1998 and 2005

Comparison of poverty and ultra-poverty in 1998 and 2005

Trend in poverty

- What has been the trend over the last 7 years?
- Identify possible reasons, taking into account the National Poverty Reduction Strategy
- Should poverty reduction be a national priority?
- If so, should it be to reduce absolute or relative poverty?
Determinants of poverty in Malawi

• What are the major determinants of poverty?
• What might be the mechanisms?
Figure 2.24: The determinants of poverty in Malawi in 2005 (percentage change effect)

- Female household head
- Age of household head: 26-35 years
- Age of household head: 36-45 years
- Age of household head: 56-65 years
- Age of household head: 66+ years
- Widowed household head
- Household size
  - Number of children 0-4
  - Number of children 5-10
  - Number of children 11-14
- Highest education: some primary
- Highest education: completed primary
- Highest education: post primary
- Household head has wage/salary
- Household has a non-farm enterprise
- Ln total hectares of rainfed plots
- HH had any dimba plot
- Household head grew tobacco in last season
- EA is a Boma or Trading center
- Travel to nearest boma: >30-45mins
- Travel to nearest boma: >45-60mins
- Travel to nearest boma: >60mins
- Tarmac/asphalt road in community
- Health clinic in community
- ADMARC market in the community
- North region
- Central region
- Urban
Determinants of health in Malawi

• What are the major determinants of health?
• What might be the mechanisms?
• If poverty is a key determinant, how does it interact with other factors?
• How has changes in poverty over time affected health?
Determinants of health in Malawi

- Culture
- Wealth
- Rural/urban living
- Nutrition
- Education
- Sanitation
## Childhood mortality – IHS1 1998

<table>
<thead>
<tr>
<th></th>
<th>Rural</th>
<th></th>
<th>Urban</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Children ever born to women aged 15 to 45 who are still alive (%)</td>
<td>78.5</td>
<td>76.4</td>
<td>87.4</td>
<td>89.7</td>
</tr>
<tr>
<td>Women aged 15-45 who have given birth who have had no children die (%)</td>
<td>55.2</td>
<td>57.3</td>
<td>73.4</td>
<td>78.2</td>
</tr>
</tbody>
</table>

*Explain this slide*
Childhood mortality – IHS1

<table>
<thead>
<tr>
<th></th>
<th>Rural</th>
<th>Urban</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Poor</td>
<td>Non-poor</td>
</tr>
<tr>
<td>Children ever born to women aged 15 to 45 who are still alive (%)</td>
<td>78.5</td>
<td>76.4</td>
</tr>
<tr>
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<td>55.2</td>
<td>57.3</td>
</tr>
</tbody>
</table>

*Rural life is more disadvantageous than poverty*
Fertility – IHS1

Mean number of children ever born to women aged 15-45, by mother’s educational level

- Poor
- Non-poor

Less than Std. IV | Standard IV | Standard VIII | More than Std. VIII

Explain this slide
Fertility – IHS1

Full primary education eliminates unequal fertility rates
Malnutrition – IHS1

Underweight children as percentage of children aged 6 to 59 months, by educational level of mother.

- Poor
- Non-poor

- less than Stnd. IV
- Standard IV
- Standard VIII
- more than Stnd. VIII

Explain this slide
Both education and poverty seem to play a part in malnutrition.

Maternal Health

<table>
<thead>
<tr>
<th></th>
<th>Improvement (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income per capita</td>
<td>2.0</td>
</tr>
<tr>
<td>Female literacy</td>
<td>3.0</td>
</tr>
<tr>
<td>Tetanus immunization</td>
<td>3.0</td>
</tr>
<tr>
<td>Access to health services</td>
<td>1.0</td>
</tr>
<tr>
<td>Access to safe water</td>
<td>8.0</td>
</tr>
</tbody>
</table>
Sanitation

• DHS 2010
  – 10.8% households – no toilet
  – 5.5% households share toilet
  – 20.1% - non-improved drinking water source
  – 42.1% (66.6% in 2000) > 15 minutes to water source
Child malnutrition and relative poverty – Malawi trend 1992 - 2010 [MDG 1, Target 2]

Children Underweight (% severe) by quintile (Goal 1, target 2).

Explain this slide
Severe malnutrition is worse the poorer the quintile group. But, improvement in the 18 years is greater in the poorest quintile.
Infant mortality and relative poverty – Malawi trend 1992 - 2010 [MDG 4, Target 5]

Infant Mortality Rate (IMR) by quintile - Malawi trend 1992-2010

Explain this slide
Infant mortality has improved since 2000 in all quintile groups, more in the poorer families, reducing inequality.
Child mortality and relative poverty – Malawi trend 1992 - 2010 [MDG 4, Target 5]

Under 5 Mortality Rate (U5MR) by quintile

Wealth by quintile

Explain this slide
Child mortality and relative poverty – Malawi
trend 1992 - 2010 [MDG 4, Target 5]

Under 5 Mortality Rate (U5MR) by quintile

Wealth by quintile

Deaths under 5 years per 1000 live births

Improved - more so in the poorer 4 groups reducing inequality
Skilled birth attendance and relative poverty – Malawi trend 1992 - 2010 [MDG 5, Target 6]

Explain this slide
Skilled birth attendance is much more common in the richer groups. There has been little change until 2010.
Use of contraceptives and relative poverty – Malawi trend 1992 - 2010 [MDG 6, proxies for Target 7]

Contraceptive Prevalence (%) of married women aged 15-49 years - Malawi trends 1992 - 2010

Explain this slide
Use of contraceptives and relative poverty – Malawi trend 1992 - 2010 [MDG 6, proxies for Target 7]

Contraceptive Prevalence (%) of married women aged 15-49 years - Malawi trends 1992 - 2010

Contraception was twice as common in the rich. Contraception has increased over time in all groups, more so in the poor reducing inequality.
Total fertility rate and relative poverty – Malawi trend 1992 – 2010

Explain this slide
Fertility has hardly declined in the poorest three groups in 18 years.
Maternal mortality based on DHS 2000

No inequality – please try to explain
How do you measure poverty and health?

• Wealth index – DHS
• Benefit incidence analysis
Socio-economics

Table 3.3.1 Children aged 12-23 months received Immunisation any time * Quintiles of wealth index

<table>
<thead>
<tr>
<th>DHS 2000 data</th>
<th>Quintiles of wealth index</th>
<th>Total</th>
<th>chi sq test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lowest quintile</td>
<td>Second quintile</td>
<td>Middle quintile</td>
</tr>
<tr>
<td>received BCG yes</td>
<td>91.8%</td>
<td>89.2%</td>
<td>90.6%</td>
</tr>
<tr>
<td>received DPT3 yes</td>
<td>78.7%</td>
<td>82.7%</td>
<td>84.6%</td>
</tr>
<tr>
<td>received polio3 yes</td>
<td>73.8%</td>
<td>75.9%</td>
<td>82.5%</td>
</tr>
<tr>
<td>received measles yes</td>
<td>78.3%</td>
<td>82.2%</td>
<td>82.9%</td>
</tr>
<tr>
<td>received polio0 yes</td>
<td>43.7%</td>
<td>46.2%</td>
<td>42.0%</td>
</tr>
<tr>
<td>received Vitamin A in last 6 months yes</td>
<td>76.9%</td>
<td>78.9%</td>
<td>78.3%</td>
</tr>
</tbody>
</table>

“Wealth differentiates in all except Vitamin A - but not by much”
EPI and changing inequalities

Changes in immunisation coverage and equality between 1992 and 2000 - 12-23 month children
Urban and rural children aged 12-23 months received immunisation any time by concentration index DHS 2000.

- **Vit A**: 0% - 100%
- **Polio0**: 0% - 100%
- **Measles**: 0% - 100%
- **DPT3**: 0% - 100%
- **BCG**: 0% - 100%

**Immunisation coverage**
- **Urban**
- **Rural**

**Polio3 95% CI**
Treatment of fever with an antimalaria

Asset scores (quintiles)

% of children

DHS 2000
DHS 1992

Reaching the poor
1992: 20.5% treated
2000: 21.5% treated

Equity
Poorest/least poor
1992: 0.63
2000: 0.83
Net ownership in 2000 and 2004

Asset Scores (Quintiles)

<table>
<thead>
<tr>
<th>Quintile</th>
<th>2000</th>
<th>2004</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (poorest)</td>
<td>0%</td>
<td>4.2%</td>
</tr>
<tr>
<td>2</td>
<td>10%</td>
<td>24%</td>
</tr>
<tr>
<td>3</td>
<td>30%</td>
<td>34%</td>
</tr>
<tr>
<td>4</td>
<td>50%</td>
<td>54%</td>
</tr>
<tr>
<td>5 (least poor)</td>
<td>70%</td>
<td>74%</td>
</tr>
</tbody>
</table>

Equity ratio
2000 = 0.15
2004 = 0.34

Reaching the poor
4.2% had net 2000
24% had net 2004
Benefit Incidence of Government Curative Health Services

Cumulative Use of Govt Health Facility & Benefit from Public Health Subsidy

Cumulative Per Capita Expenditure

Equality Line
Conc. Curve: Use of Govt Health Facility
Conc. Curve: Benefit from Govt Health Subsidy
Lorenz Curve
Benefit Incidence from Government Curative Health Services, by type of facility

Cumulative Use of, and Benefit from, Govt Health Services

Cumulative Per Capita Expenditure

Equality Line
Conc. Curve: Use - Govt Hospital
Conc. Curve: Benefit - Govt Hospital
Conc. Curve: Use - Govt Health Centre
Conc. Curve: Benefit - Govt Health Centre
Lorenz Curve
Health status by relative poverty

Part I: HNP Status - Malawi trends 1992-2010
Level of inequality for selected indicators

Concentration index
Indicator

Inequitable

Inequitable
Intermediate determinants of health


Concentration index

Indicator


Inequitable

Inequitable

1992
2000
2004
2006
2010

54
Intermediate determinants of health status


[Graph showing concentration index for different indicators over the years 2000 to 2010, with labels for indicators such as Bednet ownership, Treated bednet ownership, Bednet use by children, Exclusive breastfeeding, Timely complementary feeding, Availability of iodized salt in household, Vitamin A to Children, Vitamin A to Women, Tobacco use - Women, Tobacco - Men, Non-regular sexual partnerships: women, Non-regular sexual partnerships: men, Condom usage with non-regular partner: women, Condom usage with non-regular partner: men.]
Underlying determinants of health


Indicator

Concentration index

Primary school completion: women
Primary school completion: men
Knowledge about sexual transmission of HIV: women
Knowledge about sexual transmission of HIV: men
Knowledge about MTCT HIV transmission: women
Knowledge about MTCT HIV transmission: men
Attitudes toward HIV: women
Attitudes toward HIV: men
Woman can seek own health care
Woman can make daily household purchases
Woman can make large household purchases
Woman can travel to visit family/relatives
Woman can decide how to spend own money
Woman justifies domestic violence
Paternal orphan prevalence
Maternal orphan prevalence
Double orphan prevalence

Inequitable

1992
2000
2004
2006
2010
Conclusions about inequality

• Health status
  – now equal - mortality MDGs
  – Unequal – fertility
  – Getting worse - malnutrition

• Use of services (intermediate determinants)
  – Some equal – EPI, antenatal care
  – Some nearly equal – HCT,
  – Some improving but some way to go – bed nets, SBAs, FP – target in HSSP?

• Underlying determinants
  – Women’s autonomy worse
  – Orphan-hood better
Recapitulation – the link between poverty and health

- Malawi is one of the poorest country in the world
- Poverty in all its facets is a key underlying cause of ill health in Malawi
- A mixed picture of equality for
  - health status
  - health determinants
  - health care usage
- Inequality not found in relation to absolute poverty e.g. child mortality
- Inequality is found in relation to relative poverty e.g.
  - bed net and VCT which cost money
  - except where the health service overcomes access such as EPI and antenatal care
- Recent efforts to improve access through EHP seem to have improved equity of health determinants but not health status – takes patience and persistence.