Leaving no woman and child behind: Levels, trends and inequalities in indicators for reproductive, maternal, newborn, child and adolescent health in Uganda

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Countdown to 2030 for Women’s, Children’s and Adolescents’ Health

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1 BACKGROUND

In 2010, eight agencies working in global health including UNICEF, World Bank and World Health Organization issued a call for action to strengthen the capacity for analysis, synthesis, validation and use of health data in countries in an effort to meet the demand for evidence-based results and accountability.\(^1\) It was further agreed among these agencies that this should enable countries to better monitor and evaluate their own progress and performance. This includes ensuring that comparable estimates for common health indicators are made using the best available data and the most suitable methods. In this call to action, the eight agencies proposed four global actions to support the above goals which included:

- Increase Levels and Efficiency of Investments in Health Information;
- Develop a Common Data Architecture;
- Strengthen Performance Monitoring and Evaluation;
- Increase Data Access and Use.

To actualize the aspirations above and other development ambitions, the country has developed several strategic documents. For instance, Uganda’s health sector development plan, HSDP (2015-2020) articulates commitment to accelerating progress to universal access to health and related services to ensure a productive and healthy population. The national efforts to improve utilization of essential health services with a focus on reproductive, maternal, newborn, child, and adolescent (RMNCAH) health services are galvanized under the Uganda Reproductive, Maternal and Child Health Services Improvement Project (URMCHIP). The URMCHIP is a loan and grant facility worth USD 140 million received from the Global Financing Facility under the World Bank. The respective monitoring and evaluation frameworks have been developed to track progress and inform decision making.

In regard to improvements in health systems performance, the MDG era saw a significant improvement in a number of health indicators including a decrease in child and maternal mortality rates in LMICs although substantial challenges remain in all countries. Particularly, Uganda narrowly missed MDG goal 4 of reducing child mortality by two thirds and did not meet goal 5 of reducing maternal mortality ratio by three quarters.\(^2\) The targets under the SDGs are within reach only if robust evidence drives the implementation of appropriate, effective and efficient interventions, and responds to complementary challenges related to adolescent sexual and reproductive health, equity in access to quality health services and gender equality.

Effective inequality monitoring systems are essential to achieving meaningful progress in tackling health inequality and for improving accountability in public policy-making. A necessary prerequisite to creating an equity-oriented health sector is to systematically identify where inequalities exist, and then monitor how inequalities change over time. The evidence generated from monitoring contributes to better-informed policies, program and practices, providing the necessary feedback to determine whether actions in the health sector and beyond are successful in reducing inequalities\(^1\). Health inequality data provide a

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\(^2\) Uganda MDG 2015 Final Report
foundation for incorporating equity into evidence-based health planning, and also assessing whether current health initiatives promote equity.

In Uganda, survey data including regular UDHS, are at the basis of most of the information collected about reproductive, maternal, newborn and child health data (RMNCH&N). The primary analysis of existing survey data that forms the core of this report was carried out as a part of the Countdown to 2030 for Women’s, Children’s and Adolescents’ health initiative, a multi-institutional partnership aiming to accelerate momentum to achieve Sustainable Development Goals around ending preventable maternal, newborn, and child deaths. For Uganda, the institutions collaborating on this work are Makerere University School of Public Health and Ministry of Health (MOH).

Three workshops were held as part of the Eastern and Southern Africa (ESA) regional initiative of Countdown 2030 coordinated by African Population and Health Research Center (APHRC) that brings together research and public health institutions with ministries of health from 19 countries. The overall goals of the ESA initiative are to: 1) strengthen the evidence in support of reproductive, maternal, newborn, child, and adolescent health and nutrition (RMNCAH&N) programs through multi-country studies; 2) enhance the capacity of country and regional institutions to conduct RMNCAH&N-related analyses and research and effectively communicate the findings to policy makers.

Many societies view health as a right and not as a commodity. Therefore, each person has the right to the best health status she or he can achieve. Obviously, not every person can achieve the same health status. However, if the observable health differences between subgroups within a population (known as health inequality) are determined to be unjust, systematic, produced by social and not biological processes, unfair and avoidable, then they are referred to as health inequities (WHO 2010).

Inequality is the measurable dimension in health equity studies including differences, disparities, gaps in health status, exposure to risk factors, access to and use of health services in relation to several dimensions (or stratifiers) like wealth, ethnicity, gender, education, age. Health Inequality Analysis identifies where inequalities exist and where disadvantaged subgroups (demographically, economically, geographically or socially) stand in terms of health. It serves to; Identify population subgroups that are disadvantaged, and to track progress on how health improvements (or changes) are realized; has a role in the achievement of universal health coverage (UHC) i.e. When accelerated gains are realized in disadvantaged populations, coverage gaps are narrowed and there is improvement in the health of the general population.

This report provides an analysis of the levels and trends in inequalities for reproductive, maternal, newborn, child and adolescent health in Uganda. The primary goal of is to highlight key findings on health inequalities with a focus on coverage and child mortality at the sub-national, wealth and residence levels.
2 DATA AND METHODS

2.1 Data


2.2 Methods

The methods used in this report included mainly analysis of existing data. Key findings on health inequalities at the sub-national, wealth and residence levels are highlighted with a focus on two indicators; - a combination of coverage interventions (measured by the composite coverage index) and child mortality (measured by under 5 mortality rate).

2.2.1 Equity stratifiers

Health inequalities are the observable health differences between subgroups within a population. If they are determined to be unjust, systematic, produced by social and not biological processes, unfair and avoidable, then they are referred to as health inequities (WHO 2010). Inequality is the measurable dimension in health equity studies including differences, disparities, gaps in health status, exposure to risk factors, access to and use of health services in relation to several dimensions (or stratifiers). Some of the commonly used equity stratifiers include; economic status/wealth, education level, sex, region, place of residence, and ethnicity or race. In this report we focus on region (sub-national); wealth and residence.

Region: This report uses survey statistics by 15 sub-regions that were used in the UDHS 2016. For comparison purposes, all statistics from the previous surveys were recomputed. The previous surveys used 10 sub-regions but in the UDHS 2016, re-alignment was done to make 15 sub-regions as follows; Central 1 → South Central, Central 2 → North Central, East Central → Teso and Lango, Eastern → Busoga, Bukedi and Bugisu, North → Acholi, Western → Bunyoro and Tooro, Southwest → Kigezi and Ankole.

Wealth index: Households are given scores based on the number and kinds of consumer goods they own, ranging from a television to a bicycle or car, and housing characteristics such as source of drinking water, toilet facilities, and flooring materials. These scores are derived using principal component analysis. National wealth quintiles are compiled by assigning the household score to each usual (de jure) household member, ranking each person in the household population by her or his score, and then dividing the distribution into five equal categories, each comprising 20% of the population.³

³ Demographic Health Surveys
Residence: This describes whether the respondent population resides in urban or rural areas.

2.2.1 Indicators

Composite coverage index (CCI): The composite coverage index (CCI) - is the weighted average of the percentage coverage of 8 interventions along 4 stages of the continuum of care; Reproductive care: → family planning coverage (FPC); 2) Maternal care: → Skilled birth attendant (SBA), → At least one antenatal care visit by a skilled provider (ANC1). Here ANC4 was used. ; 3) Childhood immunization: → BCG vaccination, DTP3 vaccinations, Measles (MSL) vaccination; 4) Management of childhood illness: → Oral rehydration salts (ORS) for infant diarrhea, Care-seeking for childhood pneumonia (CAREP).

The formula is given by: \[ CCI = \frac{1}{4}[FPC + \frac{1}{2}(SBA + ANC4) + \frac{1}{4}(2\cdot DTP3 + BCG + MSL) + \frac{1}{2}(ORS + CAREP)]^4 \]

By summarizing the information from several different coverage indicators the composite coverage index provides useful summaries of the degrees of inequality of coverage in the country.

Under 5 Mortality Rate: This is simply the probability of dying between birth and the fifth birthday expressed as number of deaths per 1,000 live births. The reference period used was the 5 years before the survey to capture recent changes.

2.2.2 Measures of Inequality

Summary measures of inequality are grouped into two broad categories: those that measure absolute inequality (reflecting the magnitude of inequality); and those that measure relative inequality (reflecting proportional inequality). When analyzing data for health inequality monitoring, both absolute and relative summary measures should be used.

Each of the two categories of absolute and relative measures includes both simple and complex measures. The most straightforward measures – simple measures of inequality – use data from two subgroups, and include difference and ratio, which show absolute and relative inequality, respectively. In this report, these simple measures were employed.

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An example of an absolute measure of inequality is the difference between the extreme wealth quintiles—for example, measles immunization coverage is 10 percentage points higher in the top wealth quintile than in the bottom quintile. A relative measure of inequality is based on a ratio—for example, vaccine coverage is 20%, or 1.2 times, higher in the richest quintile than in the poorest. The distinction between percentage points and percentages is essential. If vaccine coverage in the richest and poorest groups is 70% and 50%, respectively, the absolute difference in coverage will be equal to 20 percentage points, while the relative ratio will be 1.4 (i.e., 70%/50%), or 40% (i.e., [1.4−1]×100%)\(^7\)

**Complex measures of inequality** use data from more than two subgroups and include slope index of inequality, between group variance, mean difference from the mean and population attributable risk to measure absolute inequality; and include concentration index, index of disparity, Theil index and population attributable fraction to measure relative inequality.

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3 KEY FINDINGS

3.1 Sub-national inequalities

This section uses survey data to explore the levels and trends of CCI and under-5 mortality at sub-national level. As mentioned earlier, the 15 sub-regions used in UDHS 2016 are used here.

3.1.1 Intervention coverage by sub-region

Kampala generally performed best amongst all regions over the 2011-2016 period. This could be explained by high levels of health systems investments, highest density of health facilities and health service providers in the city. Karamoja region was for some time considered to be the most disadvantaged region in the country. However, as observed in Table 3.1, Karamoja showed good coverage during the 2011 and 2016 UDHS rounds. This is most probably a result of concerted interventions by government and partners during the last two decades aimed at bridging the inequitites gaps facing Karamoja region. These improvements are a testimony that concerted comprehensive efforts can generate change. Kigezi region registered the biggest improvement in terms of coverage from 54.2% in 2011 (rank 12) to 71.6% in 2016 (rank 2). Other big improvement in coverage were registered in Ankole, Lango and Bugisu. High coverages of Measles & BCG vaccines in Kigezi and Ankole contributed to improvements in CCI.

There was a slight decrease in coverage for Kampala region from 73.6% in 2011 to 72.5% in 2016. Although Kampala was still the highest among all regions, there were remarkable improvements in other regions evidenced by reduction in percentage points between Kampala (in 1st position) and other regions for the two UDHS rounds. The improvements in other regions could be attributed to improvement in vaccination coverage. For instance, Tooro region had high coverages of Measles & DPT3 vaccines while slow progress in measles coverage was observed in Kampala.

Table 3.1: Ranking of regions according to CCI rates (UDHS 2011-2016)

<table>
<thead>
<tr>
<th>Region</th>
<th>2011</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CCI %</td>
<td>Rank</td>
</tr>
<tr>
<td>KAMPALA</td>
<td>73.6</td>
<td>1</td>
</tr>
<tr>
<td>KIGEZI</td>
<td>54.2</td>
<td>12</td>
</tr>
<tr>
<td>SOUTH CENTRAL</td>
<td>60.2</td>
<td>6</td>
</tr>
<tr>
<td>ACHOLI</td>
<td>62.0</td>
<td>3</td>
</tr>
<tr>
<td>NORTH CENTRAL</td>
<td>61.6</td>
<td>5</td>
</tr>
<tr>
<td>TOORO</td>
<td>57.3</td>
<td>10</td>
</tr>
<tr>
<td>KARAMOJA</td>
<td>62.0</td>
<td>3</td>
</tr>
<tr>
<td>ANKOLE</td>
<td>51.0</td>
<td>15</td>
</tr>
<tr>
<td>LANGO</td>
<td>54.1</td>
<td>13</td>
</tr>
<tr>
<td>WEST NILE</td>
<td>59.7</td>
<td>7</td>
</tr>
<tr>
<td>BUNYORO</td>
<td>62.6</td>
<td>2</td>
</tr>
<tr>
<td>Region</td>
<td>2016</td>
<td>2011</td>
</tr>
<tr>
<td>----------</td>
<td>------</td>
<td>------</td>
</tr>
<tr>
<td>BUKEDI</td>
<td>57.4</td>
<td>9</td>
</tr>
<tr>
<td>BUSOGA</td>
<td>59.2</td>
<td>8</td>
</tr>
<tr>
<td>BUGISU</td>
<td>51.7</td>
<td>14</td>
</tr>
<tr>
<td>TESO</td>
<td>55.9</td>
<td>11</td>
</tr>
<tr>
<td>National Average</td>
<td>58.8</td>
<td>66.5</td>
</tr>
</tbody>
</table>

Figure 3.1 presents an equiplot of the CCI by region to better visualize the differences between the sub-regions. The inequality gap between the sub-regions reduced over time as shown by the dots being close together in 2016 than in 2011.

**Figure 3.1: CCI by sub-region, UDHS 2011 and UDHS 2016.**

### 3.1.2 Under-5 mortality by sub-region

To monitor our progress in terms of child survival (reducing child mortality), it is imperative that we understand the levels and trends of child mortality indicators.

Figure 3.2 presents the trends in Under-5 mortality per 1,000 live births, from 1990-2016 surveys by sub-region and a clear improvement in all regions is observed and the gaps between regions have also decreased significantly. This could be explained by among other factors improvements in coverage of vital interventions demonstrated by improvements in CCI observed in section 3.1.1.

According to recent data (2011-2016), Karamoja still had the highest under-5 mortality (108), followed by Busoga, Bunyoro, North Central and West Nile (all over 70) and Tooro (66). These are also the poorest regions of Uganda and thus require continued concerted efforts to address drivers of disparities in child mortality.
mortality. All the other 9 sub-regions had under-5 mortality rates in the narrow range of 48-57 per 1,000 live births slightly lower than to national average of 64 deaths per 1,000 live births.
Figure 3.2: Under-5 mortality per 1,000 live births, trends 1990-2016, UDHS, by sub-region.

Figure 3.3 further shows the inequality gap between the sub-regions in an equiplot. A small reduction in the gap between the bottom and top sub-regions was observed from 2011 to 2016. Ankole and Busoga regions had the worst performance (after Karamoja) in 2011 but the former showed drastic improvements unlike the latter. There is need to further explore the drivers of improvements in Ankole.
3.2 Inequalities by wealth

3.2.1 Intervention coverage by wealth

Table 3.2 presents the summary of inequality gaps in select intervention coverage indicators by wealth represented by simple measures (difference and ratio). The table shows values of UDHS 2016 with values of 2011 indicated in parentheses.

Generally, the rich had better coverage of all services than the poor. The exception was for BCG in 2011 which was reversed in 2016. This confirms the notion that the richer have better health seeking behaviors than the poor. However, there was a general decrease in the inequality gaps between the richest and the poorest from 2011 to 2016 (as indicated by reductions in differences). In absence of targeted interventions for the poor, these reductions in inequality gaps could be explained by general improvements in the public health system which the poor use most. The government also abolished user fees in public facilities which reduce financial barriers to health care access.
Table 3.2: Inequality gaps in CCI and its components by wealth, UDHS 2011-2016

<table>
<thead>
<tr>
<th>COVERAGE INDICATOR</th>
<th>WEALTH (RICHEST VS POOREST)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ratio</td>
<td>Difference</td>
</tr>
<tr>
<td>Antenatal care -4th visit (ANC4)</td>
<td>1.3  (1.4)</td>
<td>13.6 (17.9)</td>
</tr>
<tr>
<td>Family planning coverage (FPC)</td>
<td>1.7  (2.5)</td>
<td>23.8 (34.4)</td>
</tr>
<tr>
<td>Skilled birth attendance (SBA)</td>
<td>1.4  (2.0)</td>
<td>28.7 (45.7)</td>
</tr>
<tr>
<td>Dpt3hibheb3 (Pentavalent vaccine 3rd dose)</td>
<td>1.0  (0.0)</td>
<td>1.0 (0.9)</td>
</tr>
<tr>
<td>BCG</td>
<td>1.0  (0.9)</td>
<td>2.5 (-0.9)</td>
</tr>
<tr>
<td>Measles</td>
<td>1.1  (1.1)</td>
<td>9.8 (6.5)</td>
</tr>
<tr>
<td>Oral rehydration salts (ORS)</td>
<td>1.0  (1.1)</td>
<td>1.9 (2.5)</td>
</tr>
<tr>
<td>Care seeking for pneumonia</td>
<td>1.1  (1.1)</td>
<td>6.1 (4.5)</td>
</tr>
<tr>
<td><strong>COMPOSITE COVERAGE INDEX (CCI)</strong></td>
<td>1.2  (1.3)</td>
<td>13.5 (17.8)</td>
</tr>
</tbody>
</table>

Figure 3.4 presents the summary index (CCI) by wealth quintiles in an equiplot. The richest generally have better coverage for the RMNCH interventions than the poorest counterparts. It is observed that there has been improvement in coverage (the dots further to the right in 2016 compared to 2011) and the inequality gaps have been reduced over time (dots close together in 2016 than in 2011).

**Figure 3.4: Composite coverage index (CCI) for RMNCH interventions by wealth quintiles, UDHS 2011-2016.**
3.2.2 Under-5 mortality by wealth

Between the surveys (2011 & 2016), there was a decrease in under-five mortality across all groups by wealth, though less significant among the richest (Figure 3.5 – left). The difference between the richest and the poorest decreased from 49.1% in 2011 to 28.9% in 2016. Further, the inequality pattern observed indicates that richest are farther away from other wealth groups. This implies that efforts to reduce the gap should still target the poorest.

A similar decreasing trend in under-5 mortality was observed in all the wealth quintiles over the 1990 to 2016 period. (Figure 3.5-Right). The gaps between the different classes of social economic status have decreased over time. Generally, efforts to address U-5 mortality in Uganda have not been targeted based on wealth profiles. The universal approach to programming partly explains the continued comparative advantage among the richest groups. There is also evidence (Figure 3.4) that the richest have better health service utilization that the poorest which translates into less U5MR (UNHS 2017).

Figure 3.5: Inequality disparities (up) and trends (down) in under-5 mortality per 1000 live births by wealth (UDHS 2011 - 2016)
3.3 Inequalities by place of residence (Urban Vs Rural)

3.3.1 Intervention coverage by residence

Table 3.3 presents the summary of inequality gaps represented by simple measures (difference and ratio) in CCI and its component indicators by residence. The table shows values of UDHS 2016 with values of 2011 indicated in parentheses.

There was a general decrease in the inequality gaps between 2011 and 2016 for most of the interventions. For example, the difference in ANC4 coverage between the urban and rural dwellers decreased from 11.8 to 7.6 percent points (or ANC4 coverage was 30%, or 1.3 times higher among urban residents than the rural residents in 2011. However, in 2016, it was 10%, or 1.1 times higher). The gap in overall coverage between the urban and rural residents measured by CCI, decreased from 12.9 in 2011 to 7.3 percent points in 2016. The coverage of 3rd dose of the pentavalent vaccine was slightly higher in rural areas than urban areas in 2016. The reasons for this trend requires further scrutiny.

Table 3.3: Inequality gaps in CCI and its components by place of residence, UDHS 2011 - 2016
<table>
<thead>
<tr>
<th>COVERAGE INDICATOR</th>
<th>RESIDENCE (URBAN VS RURAL)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ratio</td>
</tr>
<tr>
<td>Antenatal care -4th visit (ANC4)</td>
<td>1.1 (1.3)</td>
</tr>
<tr>
<td>Family planning coverage (FPC)</td>
<td>1.2 (1.6)</td>
</tr>
<tr>
<td>Skilled birth attendance (SBA)</td>
<td>1.3 (1.7)</td>
</tr>
<tr>
<td>Dpt3hibheb3 (Pentavalent vaccine 3rd dose)</td>
<td>1.0 (1.1)</td>
</tr>
<tr>
<td>BCG</td>
<td>1.0 (1.0)</td>
</tr>
<tr>
<td>Measles</td>
<td>1.1 (1.1)</td>
</tr>
<tr>
<td>Oral rehydration salts (ORS)</td>
<td>1.2 (1.1)</td>
</tr>
<tr>
<td>Care seeking for pneumonia</td>
<td>1.0 (1.0)</td>
</tr>
<tr>
<td>CCI</td>
<td>1.1 (1.2)</td>
</tr>
</tbody>
</table>

Figure 3.6 presents an equiplot in which the disparities in intervention coverage by place of residence (Urban-Rural) are shown. Generally, the rural areas performed better than urban areas over the two survey rounds. There was improvement in coverage for both urban and rural areas (both dots moving ahead in 2016 from 2011 levels). The improvement was larger amongst the urban group such that the inequality gaps reduced over the 2011-2016 period as seen by a smaller gap between the two dots in 2016 compared to 2011. However, overall, the coverage is still low compared to the ideal of 100%. This is important because in the era of universal health coverage, there is focus on reducing disparities been disadvantaged groups and the well off. Rural residence is usually associated with poverty as a key driver of ill health and associated barriers to health care access. Usually efforts are focused expansion of services closer to the rural communities with less attention to urban areas. This finding implies that there are underlying access barriers in urban areas despite being in proximity to health facilities. These could include the financial costs associated with care utilization. Exploring these issues further is important to develop strategic interventions targeting urban populations. To improve coverage overall, efforts should address barriers such as community perceptions, quality gaps and deficiencies in the supply side that undermine health provision and utilization.

Figure 3.6: Composite coverage index (CCI) for RMNCH interventions by place of residence, UDHS 2011-2016.
3.3.2 Under-5 mortality by residence

Generally, the U-5 mortality is much more in rural areas than urban areas despite higher CCI in rural areas. This partly because other leading causes of U-5 mortality such as malaria is not considered in the calculation of CCI. There was a reduction in USMR from 2011 to 2016 among the urban and rural in the two surveys though the reduction was higher among rural population and hence a narrowing in the gap between the two groups in 2016. The gap reduced from 30.4% in 2011 (Ratio = 1.5) to 15.7% in 2016 (Ratio = 1.3).
Nationally, the annual average rate of reduction (AARR) in under-5 mortality accelerated from -3.5% in the period between the years 1995 – 2005 to -7.7% in the MDG period (2005- 2015). To achieve the SDG set targets for under 5 mortality, Uganda needs to reduce the mortality at an annual average rate of 5.4% between 2015 and 2030.
4 CONCLUSION AND RECOMMENDATIONS

Generally, simple measures indicate sizeable inequality gaps by region, residence and socioeconomic status/wealth. However, inequalities in Uganda have generally reduced over time. Despite progress, important inequalities persist and need to be addressed to achieve the Sustainable Development Goal of “Leaving no one behind”. Karamoja region continues to perform poorly overall in most of the indicators. The largest gaps in coverage of interventions are observed by wealth (40% gap between richest and poorest).

4.1 Inequalities at Sub-national level (sub-region)

Key results

- The inequality gap between the top and the bottom performing regions reduced over time.
- Karamoja region traditionally considered the most disadvantaged region in the country showed good coverage for both 2011 and 2016 rounds attributable concerted investment efforts. High coverages of Measles & BCG vaccines in Kigezi and Ankole contributed to their higher CCI in 2016 compared to 2011. Kampala has maintained the best coverage albeit with the gap between it and the 2nd placed region reducing greatly.
- In general the levels of and differences in under-5 mortality among sub-regions are smaller in 2016 than previous UDHS surveys. According to recent data (2011-2016), Karamoja still had the highest under-5 mortality (108), followed by Busoga, Bunyoro, North Central and West Nile (all over 70) and Tooro (66). These regions are also the poorer parts of the country and will require prioritization with targeted comprehensive programmatic focus. The paradox between high coverage levels and the persistently high under 5 mortality in Karamoja indicate that the region will continue to need concerted efforts to reduce Under 5 mortality.
- All the other 9 sub-regions had under-5 mortality rates in the narrow range of 48-57 per 1,000 live births but slightly lower than national levels of 64 deaths per 1000 live births.

Recommendations

1. Ensure continued comprehensive intervention coverage across the board with prioritization of regions with the lowest CCI and the highest mortality (absolute) or lowest mortality reduction (relative). This is in line with the MOH Sharpened Plan Strategic shift number one: Focus geographically; Increase efforts in the districts where half of U5 deaths occur, prioritizing budgets and committing to action plans to end preventable deaths. Priority regions include Karamoja, Busoga, Bunyoro, North Central, West Nile and Tooro.
4.2 Inequalities by Wealth/ socio-economic status

Key results

- Intervention coverage improved in all wealth quintiles and the inequality gaps have been reduced over time. But the largest gaps in coverage of interventions are observed by wealth (40% gap between richest and poorest).
- Between the DHS surveys (2011 & 2016), there was a decrease in under-five mortality across all groups by wealth, though, surprisingly, less significant among the richest. Further, the observed inequality pattern indicates that the richest are farther part from other wealth groups indicating that efforts to reduce the gap should target the poor.

Recommendations

2. Continued efforts are required to sustain the observed positive progress in coverage improvements and reductions in under 5 mortality. Considering that the richest are a minority of Uganda, more universal approaches are required. The Ministry of Health and her partners should continue to invest in improving the functionality of the public health facilities that the poor use most.

3. The government removed user charges in the public health sector. The financial barriers to access to health services seem to continue to disproportionately affect the poor. The government should monitor the effects of poverty and financial barriers on health care access and devise corrective mechanisms such as subsidies for the poorest.

4. Adopt a multi-sectoral approach to address poverty as a structural determinant of health and to break the vicious cycle between poverty and ill health. This will be achieved through strengthening multi-level linkages, collaboration and coordination among partners in the government and non-state spheres of society.

4.3 Inequalities per place of residence (Urban Vs Rural)

Key results

- The disparities in coverage between the rural and urban dwellers have not changed much from 2011 to 2016. There is better coverage but worse under 5 mortality for rural areas than urban areas. However, there was a slightly higher reduction in U5MR among rural population and hence a narrowing in the gap between the two groups in 2016. The gap reduced from 30.4% in 2011 (Ratio = 1.5) to 15.7% in 2016 (Ratio = 1.3).

Recommendations

5. The government and her partners should continue the favorable prioritization of rural areas but also there is urgent need to develop urban health care policy and health service
delivery models that reach the poorest or those in slums to ensure that improved coverage translates into reductions in under 5 mortality.

6. Further inquiry is needed to identify special groups among the urban population that might require targeted efforts. Specifically, attention should be paid to the urban poor who may be overlooked by the relatively good mortality indicators in the urban setting.

**4.4 General recommendations**

7. Develop and sustain collective action and mutual accountability to drive transparency and responsibility relating to resources and results, monitoring and evaluating results to be able to sustain commitments and results.

8. Develop a list of specific technical assistance needs and plans for Uganda to support implementation of health inequality monitoring with road maps and roles and responsibilities of government, local and global partners.

9. Put in place mechanisms to facilitate better discussions on using health data to inform policy and programming in line with the Ministry’s “Sharpened Plan” for Reproductive, Maternal, Newborn, Child and Adolescent Health. For example, this could involve incorporation of health equity analysis into the institutional arrangements of the Makerere University School of Public Health in a way that is mutually beneficial and accommodates the variations in knowledge systems in both the university and the MOH. This incorporation will be by means of effective support structures that will work to intentionally engage the university and ministry of health in research for mutual benefit. Operating within the school of public health, these structures will function to streamline this health equity analysis program within regular academic dialogue, along with looking after other issues such as suitable policies, programs, funding, etc. meant to promote the growth of knowledge by collaboration, building collaborative networks and promoting ‘technical and indigenous human capital’.

10. Institute a core group of national experts and RMNCH&N programme managers trained on health equity analysis and oriented on the WHO Health Equity Assessment Toolkit and other similar resources.
ANNEX

*Can the urban patterns of child mortality and coverage be explained?*

Possible factors that explain the observed inequality patterns within urban areas and between urban and rural areas may include Access to Electricity or Years of Education.

**Figure A.1: Access to Electricity by residence**

Generally there is increased access to electricity by all location but the capital continued to have the highest access compared to other locations.

**Figure A.2: Years of education by Residence**

The capital (Kampala) has the highest education levels compared to the rural and other urban areas.
Table A.1: CCI and its individual components by sub-region (UDHS 2011-2016)

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CCI and Under-5 mortality by region - UDHS 2016

- CCI (%): Child Mortality

CCI Vs U5MR