



# KENYA

## Analysis of Reproductive, Maternal, Newborn, Child and Adolescent Health Indicators for 2020-2024: Synthesis Report

# ANALYSIS

# REPORT

# 2025



Countdown to 2030 in Partnership with Ministry of Health-Kenya, Global Financing Facility, WHO, WAHO, UNICEF  
Country Annual Meeting (CAM), Nairobi, 16-20 June 2025

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## 1

## Health facility data quality assessment: numerators and denominators

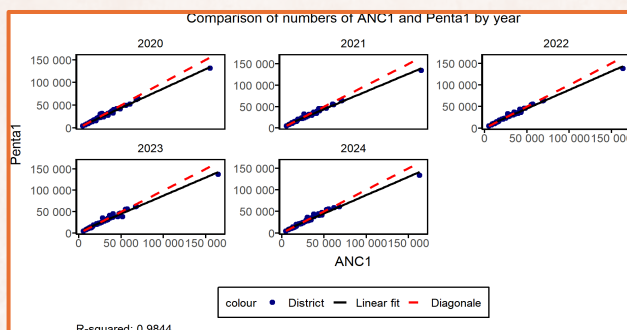
**NUMERATORS:** Routinely reported health facility data are an important data source for health indicators. The data are reported by health facilities on events such as immunizations given, or live births attended. As with any data, quality is an issue. Data are assessed for completeness of reporting by health facilities, extreme outliers and internal consistency. Appropriate adjustments are made to the data before use to compute statistics.

### Summary of reported health facility data quality, DHIS2, 2020-2024

| Data Quality Summary Table                                                                     |                                                              |      |      |      |      |      |
|------------------------------------------------------------------------------------------------|--------------------------------------------------------------|------|------|------|------|------|
| no                                                                                             | Data Quality Metrics                                         | 2020 | 2021 | 2022 | 2023 | 2024 |
| type: 1. Completeness of monthly facility reporting (mean of ANC, delivery, immunization, OPD) |                                                              |      |      |      |      |      |
| 1a                                                                                             | % of expected monthly facility reports (national)            | 96   | 96   | 97   | 97   | 97   |
| 1b                                                                                             | % of districts with completeness of facility reporting >= 90 | 90   | 97   | 93   | 96   | 95   |
| 1c                                                                                             | % of districts with no missing values for the 4 forms        | 82   | 85   | 84   | 85   | 85   |
| type: 2. Extreme outliers (mean of ANC, delivery, immunization, OPD)                           |                                                              |      |      |      |      |      |
| 2a                                                                                             | % of monthly values that are not extreme outliers (national) | 98   | 97   | 98   | 98   | 98   |
| 2b                                                                                             | % of districts with no extreme outliers in the year          | 87   | 88   | 92   | 94   | 90   |
| type: 3. Consistency of annual reporting                                                       |                                                              |      |      |      |      |      |
| 3a                                                                                             | Ratio anc1/penta1                                            | 1.11 | 1.08 | 1.06 | 1.06 | 1.05 |
| 3b                                                                                             | Ratio penta1/penta3                                          | 1.05 | 1.07 | 1.04 | 1.04 | 1.03 |
| 3c                                                                                             | % district with anc1/penta1 in expected ranged               | 96   | 92   | 87   | 85   | 79   |
| 3d                                                                                             | % district with penta1/penta3 in expected ranged             | 89   | 98   | 87   | 94   | 72   |
| 4                                                                                              | Annual data quality score                                    | 93   | 95   | 92   | 94   | 88   |

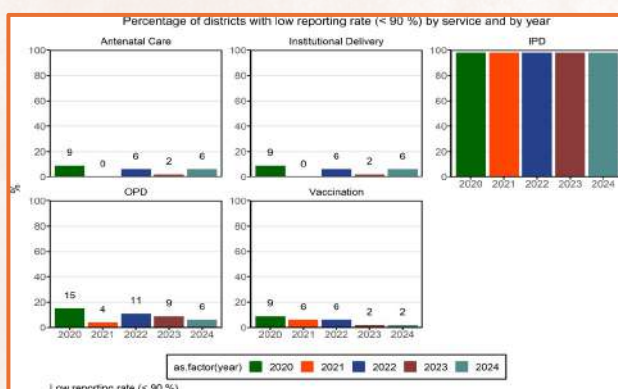
#### Interpretations

- The annual data quality score was consistently high (above 90%) between 2020 and 2023; it dropped to 88% in 2024
- High percentage of counties with outlier values for IPT3 in 2021 and 2022 due to targeted programming for IPT
- Penta1 to Penta3 ratio was consistent and within the expected range of 1.04-1.14.
- An adjustment factor of  $k=0.50$  was used to account for the under-reporting of deliveries in private facilities
- While a factor,  $k=0.25$  was used for immunizations to cover for any under-reporting.



### Interpretations

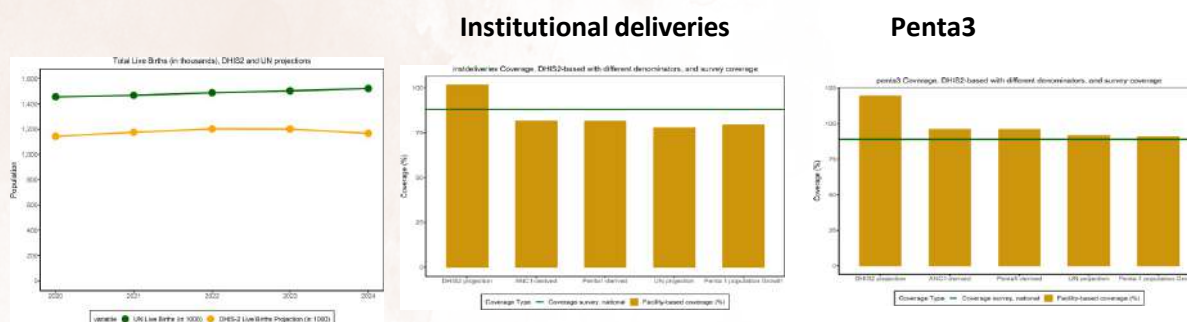
- Small inconsistency between ANC 1 and Penta 1 with an outlier county.



### Interpretations

- High reporting rates for OPD, deliveries, OPD and vaccination.
- Low reporting rates for IPD, explained by change that requires Counties to report inpatient data as events.

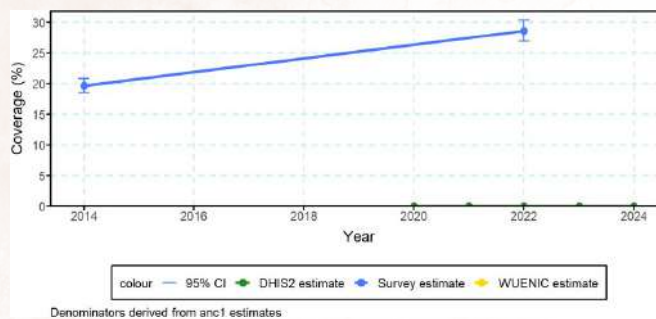
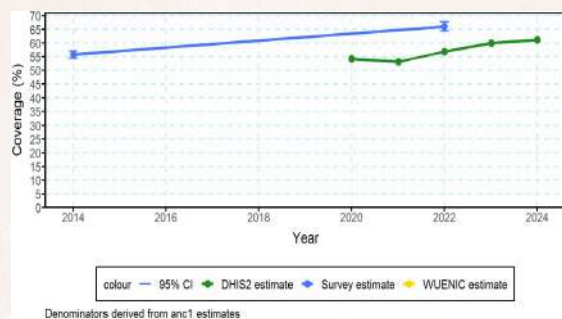
**DENOMINATORS:** Service coverage is defined as the population who received the service (numerator) divided by the population who need the services: (the denominator). We test four options for denominator measures using institutional live births and Pent-3 immunization coverage as shown below. The quality of the population projections in DHIS2 is assessed through consistency over time and comparison with the UN projections. Two denominators are also derived using near universal service such as ANC-1 and Penta-1. The most plausible is identified for use to generate other statistics.



### Interpretations

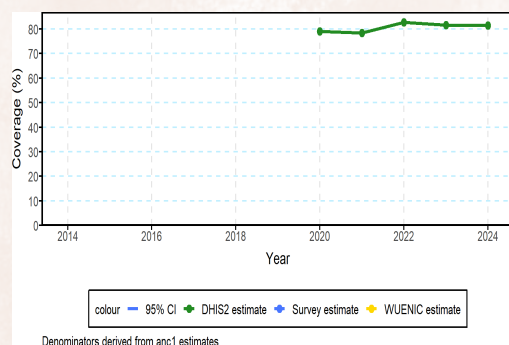
- Live births based on UN projections are significantly higher than DHIS2 projections; suggesting KHIS may be underestimating total live births, potentially affecting coverage estimates.
- Penta 1 population growth and UN projection performed well as denominators for Penta 3
- UN projection and Penta 1 are suitable denominators for institutional delivery
- The UN projection (89%) is the denominator of choice for Penta 3 while Penta 1 population growth (86%) is the most suitable denominator for computing coverages for institutional deliveries.

## Antenatal care: ANC4, ANC early visit, first trimester of pregnancy



- Survey coverage for ANC 4 shows slightly higher coverage than DHIS2, but both show consistency and an upward trend over time.
- ANC 4 has recorded a considerable increase over the assessment period.
- In Kenya, ANC in the first trimester is not tracked in DHIS2, although it's an important indicator.

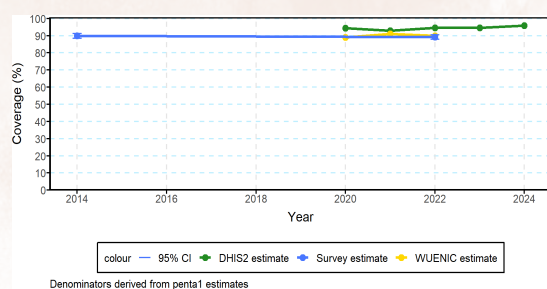
## Institutional delivery



## Interpretations

- Institutional deliveries have been high over the 5 years, with survey and DHIS2 data showing consistency.
- Counties recording over 80% institutional deliveries have also increased over the 5-year period, declining slightly in 2024 during the SHA transition period to 60%.

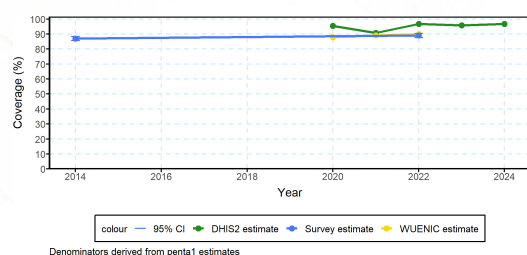
## Immunization: Penta 3, Measles 1

Pentavalent 3<sup>rd</sup> dose

## Interpretations

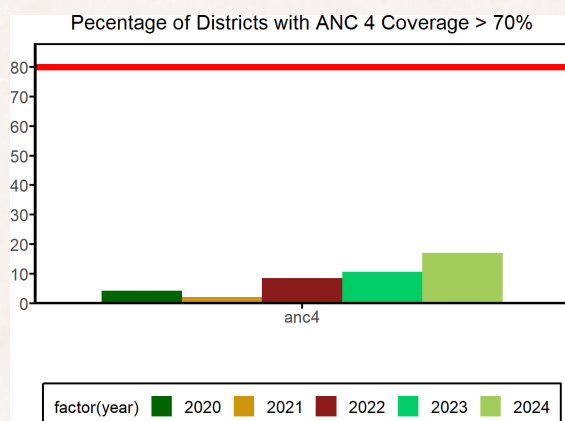
- DHIS2 data shows slightly higher performance compared to survey data, possibly due to a small under estimation of denominators
- Coverage for both Penta 3 and Measles 1 are quite high with nearly all children receiving the vaccines.

## Measles 1

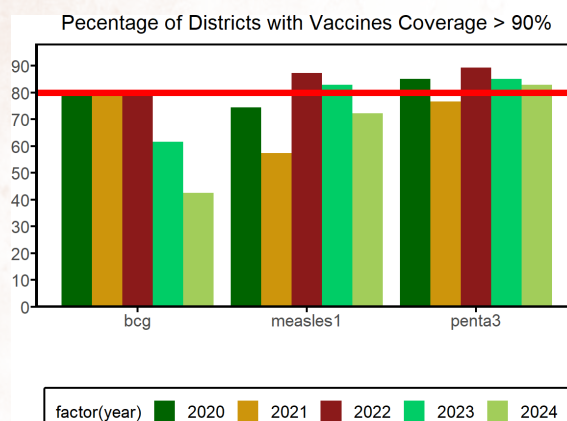


## Percent of districts achieving high coverage targets

### Maternal indicators



### Child Health Indicators



### Interpretations

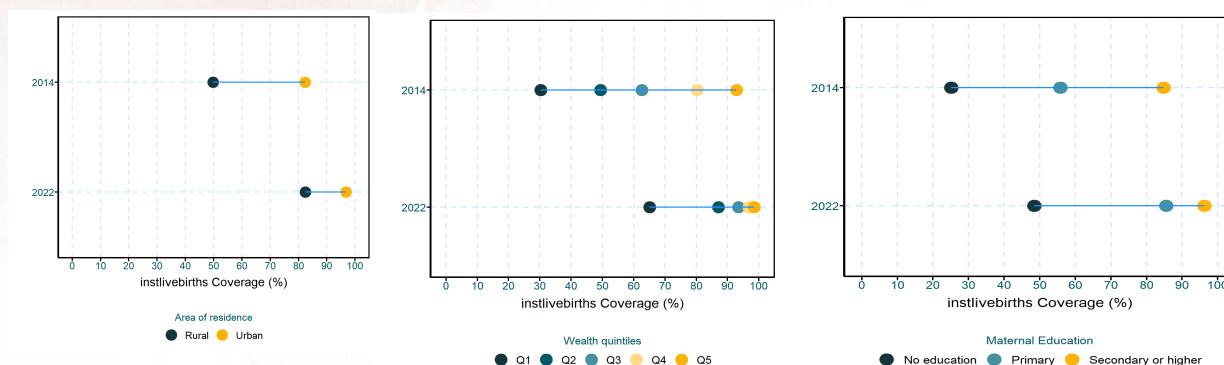
- Counties with ANC 4 coverages of over 70% have increased over the 5 years period.
- Although coverage for BCG had been universal in all counties since 2020, 40% and 60% of Counties did not achieve 90% coverage in 2023 and 2024 respectively, possibly due to frequent stock outs of the vaccines during these period (s).
- In 2021, 40% of Counties did not achieve 90% coverage for measles possibly due to stockout associated with the COVID-19 pandemic.
- Penta 3 has, however, maintained almost universal coverage across the 5-year period.

## 3

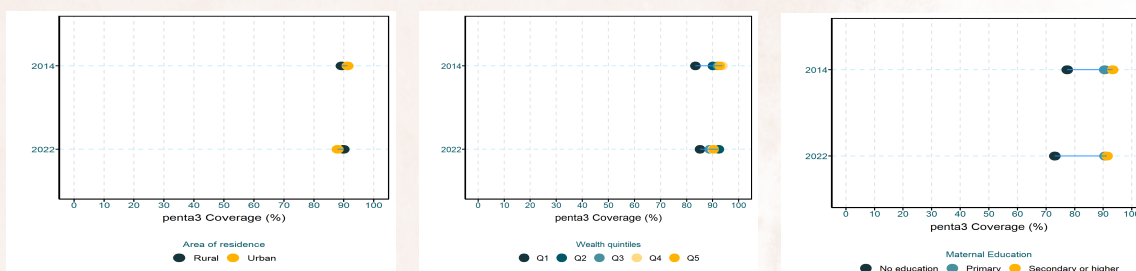
## Equity

### Equity by wealth, education, rural-urban residence (from surveys)

#### Institutional deliveries



## Pentavalent 3<sup>rd</sup> dose

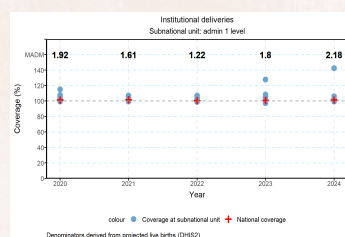


### Interpretations

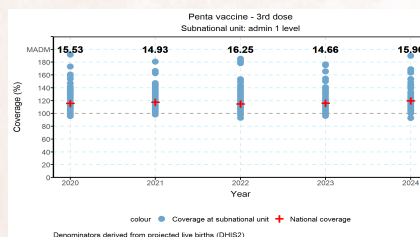
- Institutional Deliveries-** By location, the inequality between the rural and urban has reduced, with the rural coverage increasing from 50% to 85%. By wealth quantiles, the richest have higher coverage in both survey years. In addition, there's a bottom inequality with the poorest being left behind. By maternal education, the coverage among the primary school groups increased much more than among the uneducated and secondary or higher groups. The uneducated group's coverage was the lowest compared to the educated.
- Pentavalent 3rd dose-** The coverage was almost equal in both survey years by location, although the rural surpassed the urban in 2022. By wealth quantiles, the wealthiest group's coverage has decreased from 95% in 2014 to 90% in 2022, while the poorer groups have increased. By maternal education, the coverage among the uneducated decreased while the primary educated group remained constant in 2022 compared to 2014.

## Geographical inequalities (Health facility data)

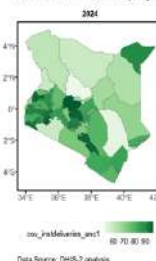
### Institutional deliveries



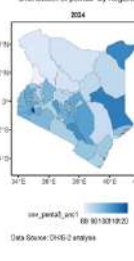
### Pentavalent 3<sup>rd</sup> dose



Distribution of institutional deliveries by Regions



Distribution of penta3 by Regions

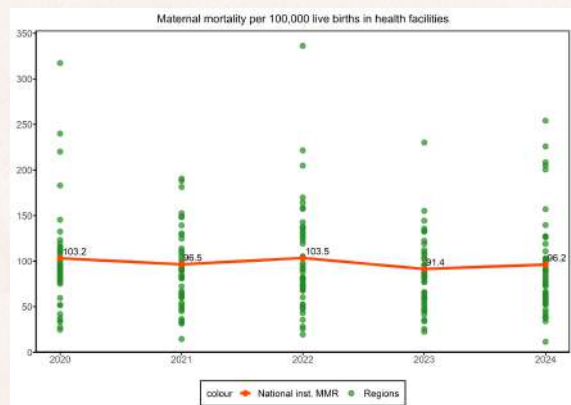


### Interpretations

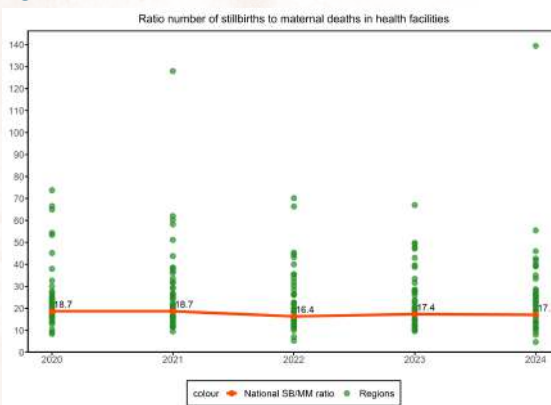
- For Institutional deliveries, the national coverage was consistent over the 5 years at 100%, with most counties concentrated around the same coverage through the period, with the MADM estimates ranging between 1 and 2
- For Penta 3, the national coverage was consistent over the 5 years at 118%, with the majority of the counties surpassing the national average, with the MADM estimates ranging between 15 and 16
- Although there are small inequality gaps between the Counties, all counties have coverages of  $\geq 90\%$  for both institutional deliveries and Penta 3. This could be due to clients crossing to other Counties where the services are accessible, and could explain why some counties have less than 100% coverage.
- For institutional deliveries, counties in the Central and Western part of the country (associated with densely populated areas, with relatively better health infrastructure) have higher coverages of more than 80%, compared to the northern and north-eastern parts (arid/semi-arid lands (ASALs) that have sparse populations, vast distances, and limited health facility access.
- For Penta 3, counties in the Central and parts of northeastern parts of the country have coverages of  $\geq 90\%$ , while the northern and eastern parts have lower coverage.

## Institutional Mortality Trends (iMMR, iSBR)

## iMMR



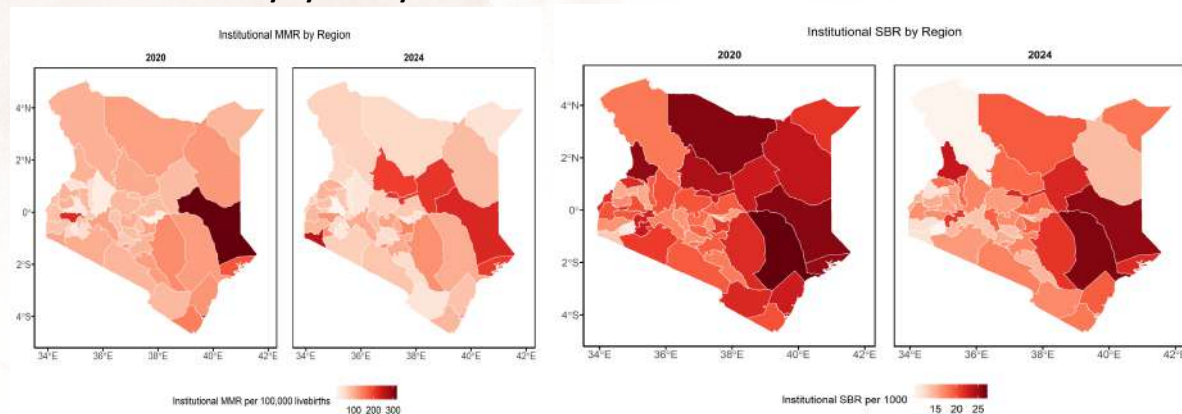
## iSBR



## Interpretations

- The national institutional maternal mortality (iMMR) has been fluctuating with a **high of 103.5** and a **low of 91.4** across the period under review.
- The high national MMR in 2020 can be attributed to outlier values in Garissa at 317.4, Mombasa at 240.0, and Kisumu 220.2, while for 2022 was due to Siaya at 336.34 and Garissa at 221.5
- Other outlier values noted include; 2023 in Garissa at 230.3 and 2024 Migori 254.2 and Garissa 226.0
- There has been a declining trend of the iSBR across the years, with most counties being concentrated around the national estimate and a few having outlier values.
- There were no counties with low iSBR (less than 6/1000 live births) across the 5 years.

## Institutional Mortality by County

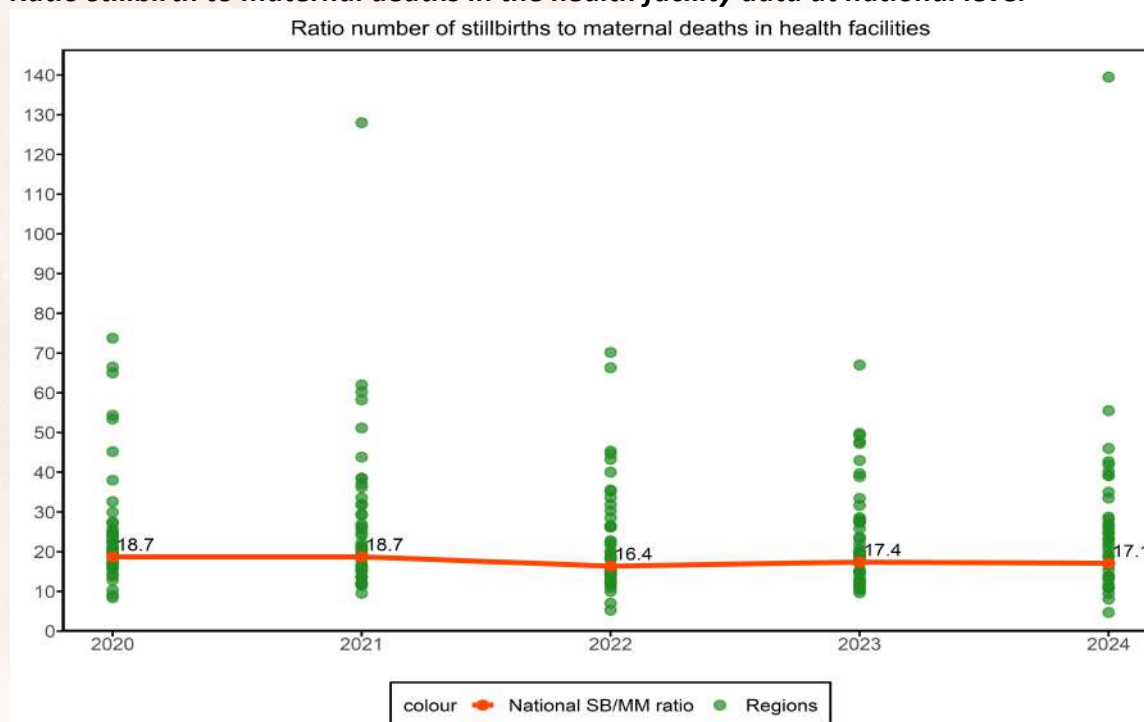


### Interpretations

- Variation of iMMR is observed where a few counties have high iMMR, mostly from the ASAL regions that still experience high maternal deaths and are less developed.
- Counties with low iMMR, which can be attributed to either underreporting or because of policies and interventions that have resulted in a decrease in maternal deaths in health facilities.
- In 2024, Nandi County had low iMMR (less than 25/100,000 live births), most likely due to underreporting. Samburu, Garissa, Isiolo and Migori counties had iMMR of more than 200/1000 live births.
- Variations in the iSBR across the years in 2020, most counties ranged between 11 and 28/1,000 live births, but this has declined to 10 to 27/1,000 live births in 2024.
- Ten counties from the western, northern and central part of the country had iSBR of less than 15 per 1,000 live births in 2024 and were similar to the national iSBR trend over the last 5 years.

### Data quality metrics

#### Ratio stillbirth to maternal deaths in the health facility data at national level

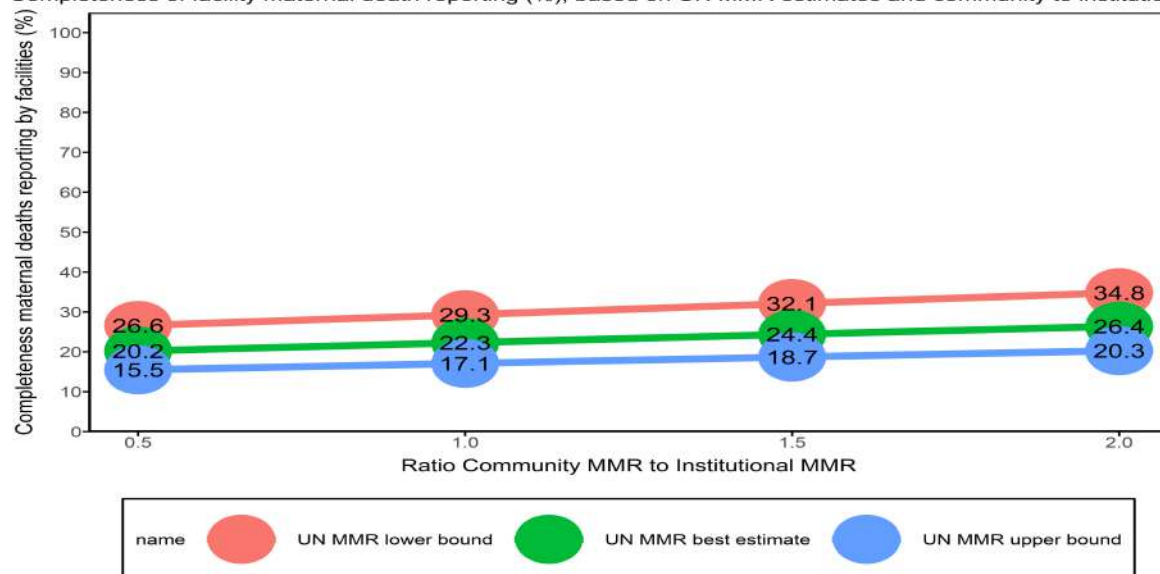


### Interpretations

- The national ratio was within the expected range of between 5 to 25 stillbirths per maternal death, and has been consistent across the period under review, with a high of 18.7 in 2020 and 2021, and a low of 16.4 in 2022. The ratio of stillbirth to maternal deaths is in the range of 16.4 - 18.7 across the 5 years, suggesting that there was underreporting of maternal deaths than of stillbirths; the underreporting could largely be from private facilities due to the fear of repercussions that follow a maternal death.
- There were some counties with outlier values of the ratio of stillbirth to maternal deaths, Baringo County in 2021 at 128 and Nandi County in 2024 at 139.5 suggesting severe underreporting of maternal deaths in the two counties.
- In Kenya, the reporting for maternal deaths on KHIS has generally been lower, with more counties reporting these deaths on the MPDSR system, making it a more reliable source for maternal deaths.

### Estimated completeness of facility maternal death and stillbirth reporting

Completeness of facility maternal death reporting (%), based on UN MMR estimates and community to institutional ratio



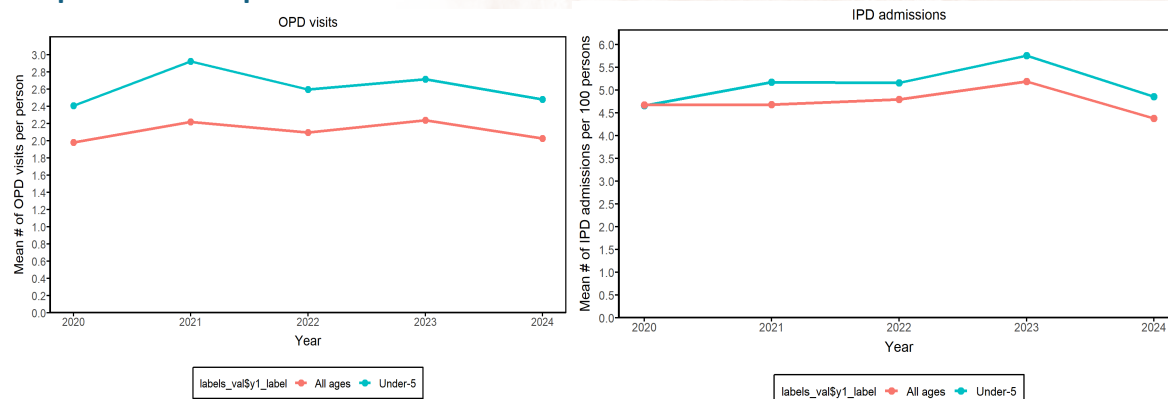
#### Interpretations

- Based on the institutional MMR of 103.2 per 100,000 live births and institutional live birth coverage of 78% in 2020, and the population MMR estimate of 355 (2019 Kenya Population Census), assuming a ratio of community to institutional mortality between 1.5 and 2, there is substantial under-reporting of institutional maternal mortality, of between 67.7% and 64.5%, respectively.
- Thus, the completeness of facility maternal death reporting for Kenya is based on the UN MMR lower bound estimate of between 32.1% and 34.8%.

## 5

### Curative health service utilization for sick children

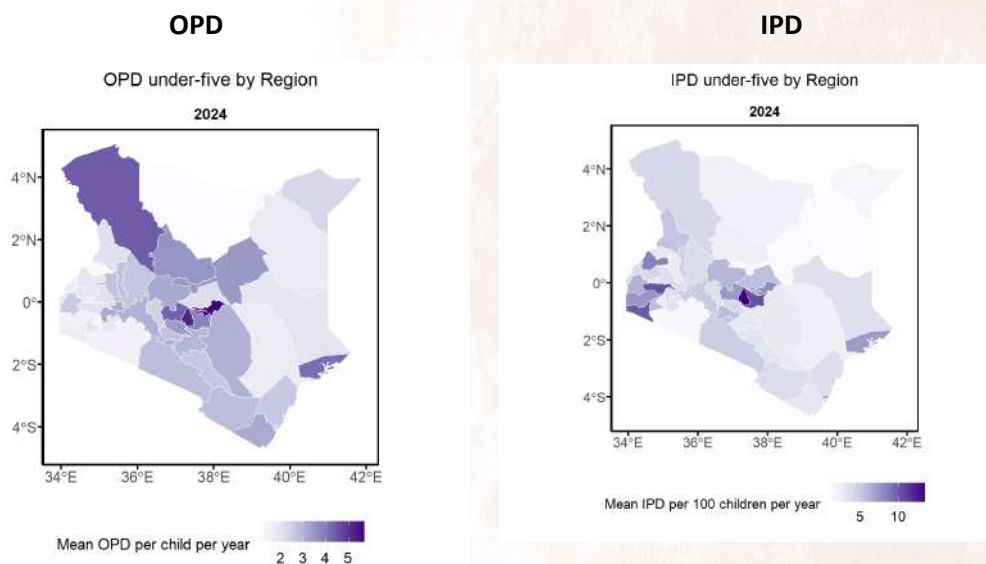
#### Outpatient and inpatient service utilization



### Interpretations

- The average recorded visits per person were 2.4 in 2020; 2.9 in 2021; 2.6 in 2022; 2.7 in 2023 and 2.5 in 2024. While there are slight variations year-to-year, the overall trend reveals a steady pattern of healthcare utilization, greater than one visit with a slight upshot observed between 2021 and 2024 which suggests good utilization of services. This consistent engagement with health services is encouraging, as it suggests that families are prioritizing health care for their children.
- The data quality is good and consistent over the years showing reliable data collection processes and enhanced health access.
- The IPD visits ranged between 4.5-5.5 visits across 2020-2024. The visits were higher than 2 per 100 children which suggests a higher access for services which shows a change in health care seeking behaviours.
- Significant disparities emerged in examining OPD visits by region in 2023. The top-performing region reported approximately 2.5 visits per child, while the bottom region recorded around 2.2 visits. This difference, though seemingly modest, highlights the varying levels of access to healthcare services across different areas. These disparities may be influenced by various factors including regional healthcare infrastructure, socioeconomic conditions, and public health initiatives aimed at improving healthcare access.

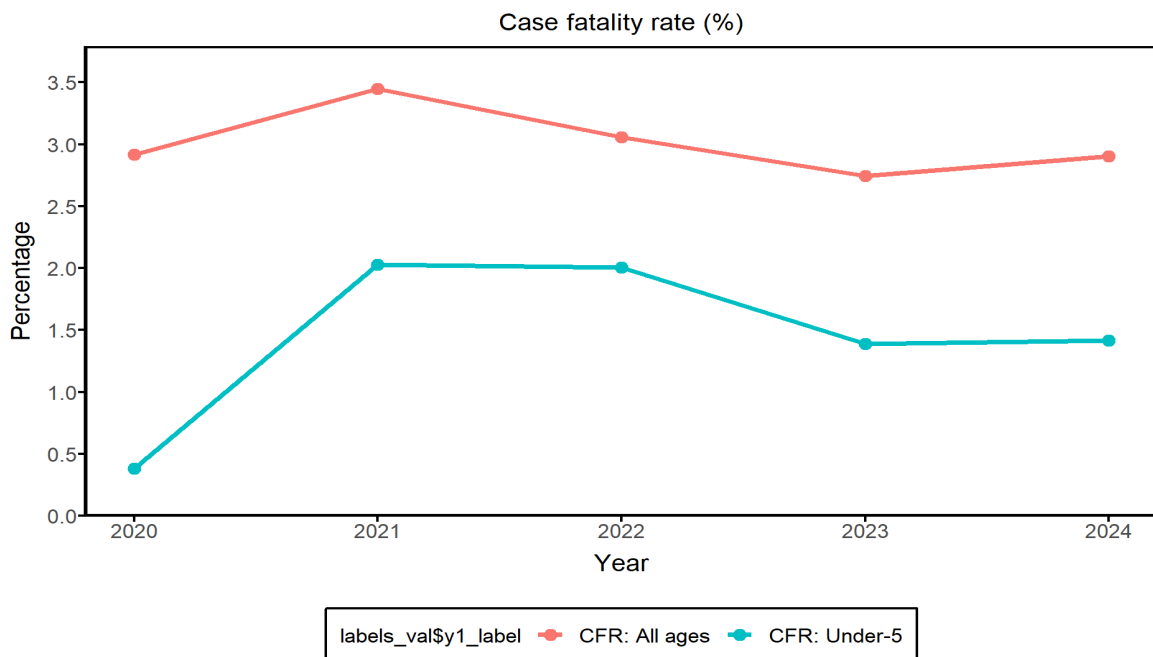
### Regional/provincial service utilization



### Interpretations

- The regions with high OPD were Rift valley (5 visits), Central (5 visits) and Coast 4 OPD visits. Regions with low OPD visits were North eastern, Western region and Eastern region having 2 OPD visits each.
- Regions with highest IPD were Central (10+visits), Western (5-10 visits) and Coast (less than 5)
- Regions with low IPD were Nyanza, North Eastern and Eastern recording less than 5 OPD visits
- The regions with high OPD/IPD visits have better healthcare access and those with low visits indicate barriers with health access.

### Case fatality rate among admissions under-five



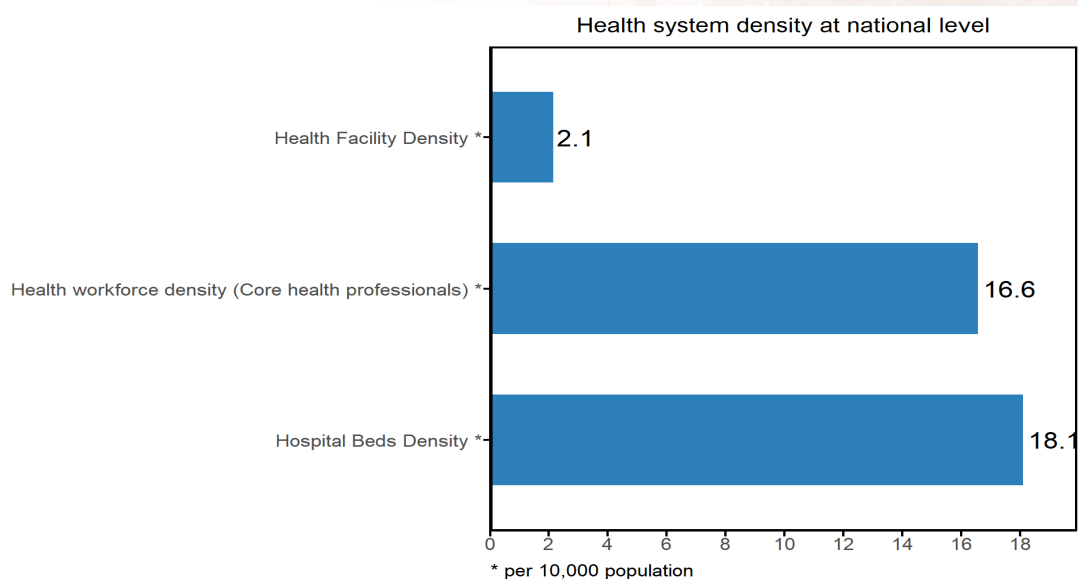
#### Interpretations

- The case fatality rates were 3.0 in 2020, with a hike in 2021 at 3.3 followed by a downward trend of 3.0 in 2022, 2.8 in 2023 and 2.9 in 2024
- The case fatality trends are decreasing consistently over the years from 2021-2024
- This suggests good quality of care and interventions to curb deaths among children under-fives.

## 6

### Health system progress and performance

#### Health system inputs

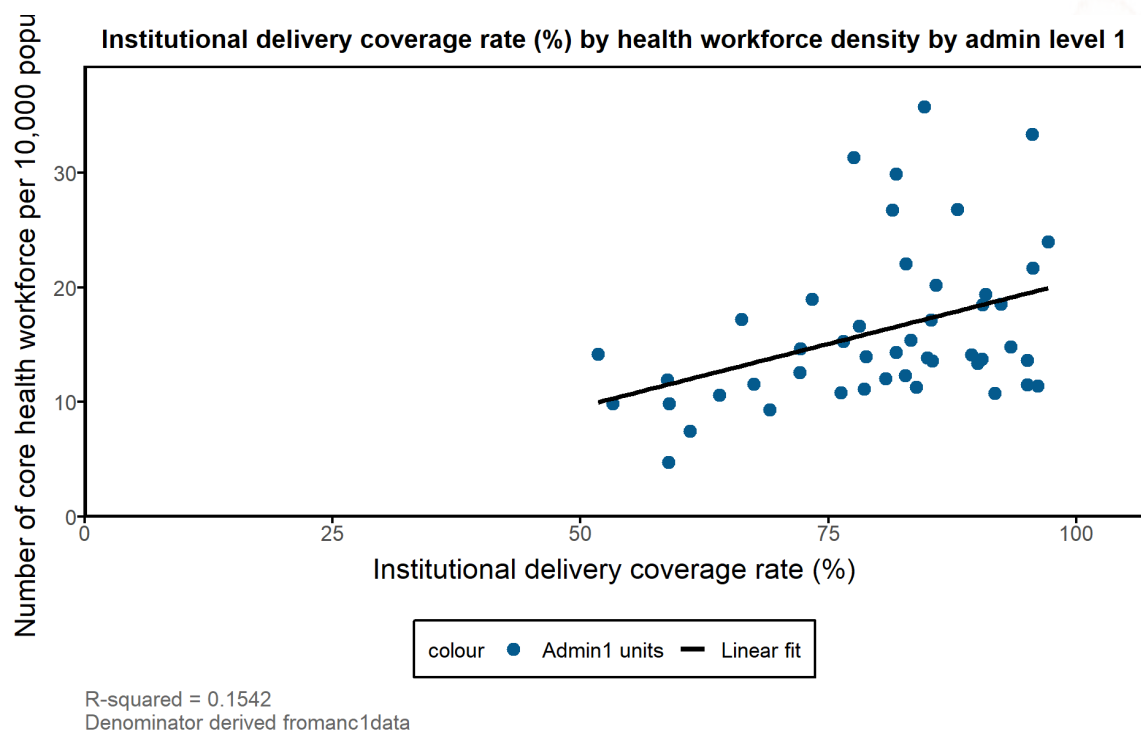


- The health data reported comprised of both public and private facilities.
- The current national health system inputs show some improvements but still fall short of the established benchmarks for optimal healthcare delivery. Currently, the Health Facility Density is at 2.1 per 10,000 population, which is an improvement but still below the benchmark of 2.5 suggesting a need for more health facilities to meet the ideal standard.
- Similarly, the Health Workforce Density, at 16.6, is higher than previously reported but still below the benchmark of 23, which is necessary for substantial progress in reducing maternal and child mortality. This shortfall highlights critical gaps in the availability of skilled healthcare professionals, which can impact the quality and accessibility of care.

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- Differences were noted in health facility density, for example, Trans Nzoia had the lowest density of 0.4 while Kisumu had the highest density of 3.8 and the national hospital density was at 1.6 which was lower than the required density bench mark of 2.
- Health work force varies across regions with Nairobi having a density of 35.8 and Narok having a density of 4.7. Nationally, the health worker density stands at 16.6 which is lower than the required benchmark of 23 health workers per 10,000 population.
- Unusual data patterns, such as the high bed density in regions like Migori (60.9 beds per 100,000), may suggest overreporting or discrepancies in the classification of what constitutes a hospital bed.
- The stark differences in hospital bed availability translate into real-life consequences for individuals and communities, where access to essential medical care can determine health outcomes. Overcrowded facilities, long wait times, and limited resources are the daily realities for many in underserved regions, underscoring the urgency of addressing these disparities.

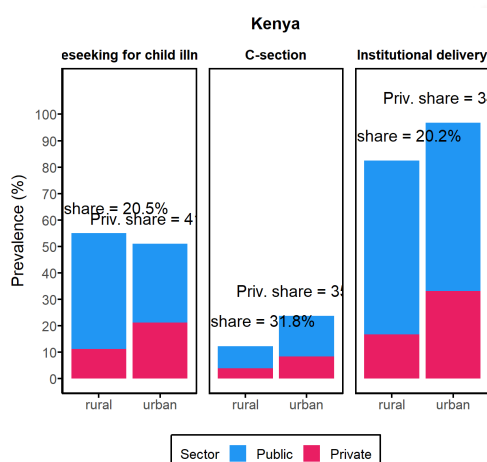
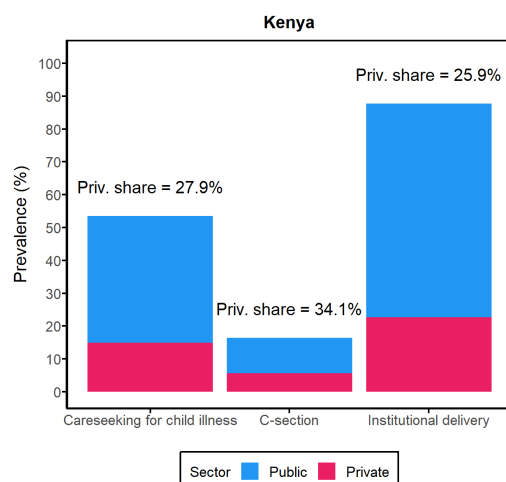
## Health outputs by inputs at the subnational level (County)



### Interpretations

- The wide scatter of data points, with some regions having high workforce density but low delivery coverage, underscores this variability and suggests potential underreporting or misclassification issues in some areas.
- Comparatively, when viewed alongside WHO database standards and other countries, Kenya's performance indicates potential underreporting of healthcare resources, especially in regions with unexpectedly low delivery coverage despite adequate workforce density. This discrepancy underscores the need for enhanced data collection and verification processes to ensure accuracy.
- The pattern by region aligns with some expectations, where more urbanized or better-resourced areas show higher delivery coverage. However, the data also reveals unexpected trends in certain regions, suggesting that local factors significantly influence healthcare outcomes.

## Private sector and RMNCAH service



## Interpretations

- In rural areas, families predominantly turn to public healthcare facilities when their children fall ill. The public sector accounts for a substantial share of care-seeking for child illnesses, reflecting the deep-rooted trust and reliance on government services that are often more accessible and affordable for these communities.
- However, as one moves into urban regions, the narrative shifts dramatically. The private sector emerges as a significant player, with nearly half of families opting for private healthcare services for their children's ailments. This urban preference may stem from a variety of factors, including the perception of higher quality care, shorter wait times, and a more comfortable environment in private institutions.

**Table of Results (National)**

|                                                                        | 2010 | 2014  | 2016 | 2017 | 2018 | 2019 | 2020  | 2021  | 2022  | 2023  | 2024  |
|------------------------------------------------------------------------|------|-------|------|------|------|------|-------|-------|-------|-------|-------|
| <b>Antenatal Care indicators</b>                                       |      |       |      |      |      |      |       |       |       |       |       |
| <b>ANC early visit, first trimester of pregnancy</b>                   |      |       |      |      |      |      |       |       |       |       |       |
| Survey                                                                 |      | 19.6  |      |      |      |      |       |       | 28.6  |       |       |
| Facility data                                                          |      |       |      |      |      | 0    | 0     | 0     | 0     | 0     | 0     |
| <b>ANC 4 or more visits</b>                                            |      |       |      |      |      |      |       |       |       |       |       |
| Survey                                                                 |      | 55.75 |      |      |      |      |       |       | 66    |       |       |
| Facility data                                                          |      |       |      |      |      |      | 54    | 53    | 57    | 60    | 61    |
| <b>Intermittent preventive therapy second dose (IPT2)</b>              |      |       |      |      |      |      |       |       |       |       |       |
| Survey                                                                 |      | 16.8  |      |      |      |      |       |       | 19.2  |       |       |
| Facility data                                                          |      |       |      |      |      |      | 17.7  | 18.5  | 20.5  | 19.7  | 18.2  |
| <b>Maternal and newborn health indicators</b>                          |      |       |      |      |      |      |       |       |       |       |       |
| <b>Institutional delivery</b>                                          |      |       |      |      |      |      |       |       |       |       |       |
| Survey                                                                 |      |       |      |      |      |      |       |       |       |       |       |
| Facility data                                                          |      |       |      |      |      |      | 79.1  | 78.3  | 82.7  | 81.5  | 83.4  |
| <b>Caesarean section rate among all live births</b>                    |      |       |      |      |      |      |       |       |       |       |       |
| Survey                                                                 |      | 19.2  |      |      |      |      |       |       | 16.5  |       |       |
| Facility data                                                          |      |       |      |      |      |      | 13.03 | 13.35 | 14.54 | 15.8  | 15.3  |
| <b>Postnatal care within 48 hours</b>                                  |      |       |      |      |      |      |       |       |       |       |       |
| Survey                                                                 |      | 53.58 |      |      |      |      |       |       | 78.38 |       |       |
| Facility data                                                          |      |       |      |      |      |      | 45.32 | 39.19 | 41.99 | 26.51 | 42.02 |
| <b>Low birth weight (&lt; 2500 g) among institutional live births</b>  |      |       |      |      |      |      |       |       |       |       |       |
| Survey                                                                 |      |       |      |      |      |      |       |       | 8.49  |       |       |
| Facility data                                                          |      |       |      |      |      |      | 4.02  | 5.41  | 2.07  | 4.53  | 4.61  |
| <b>Child Health Indicators - Immunization</b>                          |      |       |      |      |      |      |       |       |       |       |       |
| <b>Immunization: three doses of DTP / pentavalent vaccine coverage</b> |      |       |      |      |      |      |       |       |       |       |       |
| Surveys                                                                |      | 89.88 |      |      |      |      |       |       | 89.18 |       |       |
| Facility data                                                          |      |       |      |      |      |      | 94.34 | 92.89 | 94.65 | 94.48 | 95.84 |
| UN estimates                                                           |      |       |      |      |      |      | 90    | 91    | 90    |       |       |

| Measles vaccination (MCV1) coverage                           |  |       |  |  |  |     |       |       |       |       |       |
|---------------------------------------------------------------|--|-------|--|--|--|-----|-------|-------|-------|-------|-------|
| Surveys                                                       |  | 87.08 |  |  |  |     |       |       | 89.02 |       |       |
| Facility data                                                 |  |       |  |  |  |     | 95.4  | 90.67 | 96.7  | 95.85 | 96.7  |
| UN estimates                                                  |  |       |  |  |  |     | 88    | 89    | 90    |       |       |
| Measles vaccination (MCV2) coverage                           |  |       |  |  |  |     |       |       |       |       |       |
| Surveys                                                       |  |       |  |  |  |     |       |       | 30.81 |       |       |
| Facility data                                                 |  |       |  |  |  |     | 2.1   | 3.1   | 3.3   | 2.98  | 2.55  |
| UN estimates                                                  |  |       |  |  |  |     | 53    | 57    | 56    |       |       |
| Family Planning                                               |  |       |  |  |  |     |       |       |       |       |       |
| Demand for modern methods satisfied                           |  |       |  |  |  |     |       |       |       |       |       |
| Surveys                                                       |  |       |  |  |  |     |       |       |       |       |       |
| FPET estimate                                                 |  |       |  |  |  |     |       |       |       |       |       |
| Institutional Mortality                                       |  |       |  |  |  |     |       |       |       |       |       |
| MMR                                                           |  |       |  |  |  |     | 0.091 | 0.09  | 0.118 | 0.047 | 0.096 |
| SBR                                                           |  |       |  |  |  |     | 0.019 | 0.018 | 0.016 | 0.016 | 0.017 |
| NMR                                                           |  |       |  |  |  |     | 0.008 | 0.01  | 0.012 | 0.006 | 0.009 |
| Curative Health service utilization for children under-five * |  |       |  |  |  |     |       |       |       |       |       |
| N OPD visits per child per year                               |  |       |  |  |  | 2.4 | 2.9   | 2.6   | 2.7   | 2.5   | 2.4   |