



Statistics Sierra Leone  
Stats SL



GLOBAL  
FINANCING  
FACILITY



African Population and  
Health Research Center



Countdown to 2030  
Women's Children's & Adolescent's Health



# SIERRA LEONE

## Analysis of Reproductive, Maternal, Newborn, Child and Adolescent Health Indicators for 2019-2024: 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

### Team Members

1. Ibrahim Kamara - Statistics Sierra Leone
2. Mohamed Kanu - Ministry of Health
3. Ibrahim Koedoyoma - Statistics Sierra Leone
4. Anne Njeri - APHRC
5. Eliud Wekesa – APHRC
6. Dr. Tom Essay – Ministry of Health

## 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

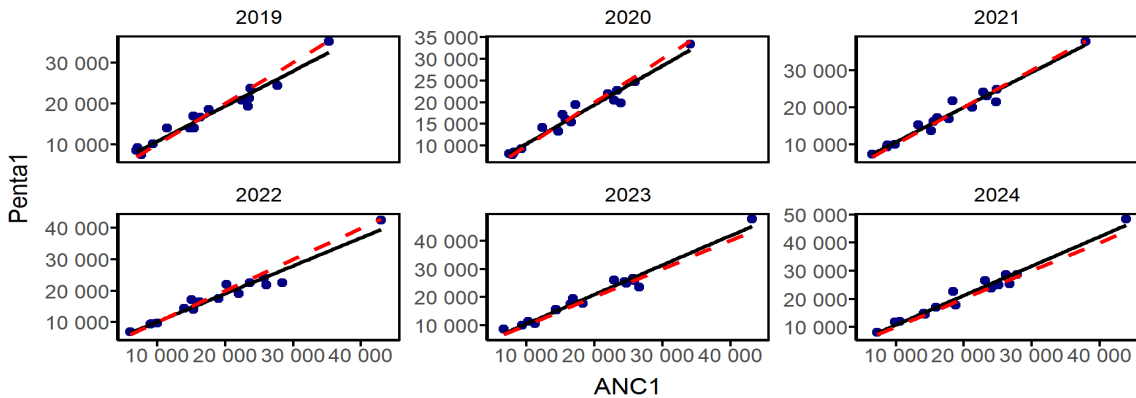
### Summary of reported health facility data quality, DHIS2, 2019-2024

no	Data Quality Metrics	2019	2020	2021	2022	2023	2024
<b>type: 1. Completeness of monthly facility reporting (mean of ANC, delivery, immunization, OPD)</b>							
1a	% of expected monthly facility reports (national)	99	95	95	93	94	98
1b	% of districts with completeness of facility reporting >= 90	100	94	86	77	78	100
1c	% of districts with no missing values for the 4 forms	87	87	97	97	98	99
<b>type: 2. Extreme outliers (mean of ANC, delivery, immunization, OPD)</b>							
2a	% of monthly values that are not extreme outliers (national)	97	98	100	99	98	98
2b	% of districts with no extreme outliers in the year	93	94	94	88	86	89
<b>type: 3. Consistency of annual reporting</b>							
3a	Ratio anc1/penta1	0.99	1.01	0.98	1.03	0.95	0.93
3b	Ratio penta1/penta3	1.00	1.02	1.01	1.01	0.99	1.02
3c	% district with anc1/penta1 in expected ranged	50	56	44	56	19	25
3d	% district with penta1/penta3 in expected ranged	50	75	75	56	50	62
<b>4</b>	<b>Annual data quality score</b>	<b>81</b>	<b>85</b>	<b>82</b>	<b>78</b>	<b>71</b>	<b>79</b>

#### Interpretations

- The overall data quality completeness is 89% which is less than the national target >= 90%
- Monthly Data completeness shows an irregular pattern from 2021 to 2023 indicating a lower national coverage below the >= 90% target.
- There are no problematic districts, however, there are factors contributing to the low reporting rate of 89% such as frequent stock out of HMIS reporting tools, Non reporting facilities in the DHIS2 etc.
- There are facilities assigned with HF3 in the DHIS2 but not providing ANC, delivery and postnatal care services (Marie stopes) which affect the denominator.
- There is consistency between ANC1 & Penta1 because they almost fall on the line of best fit.

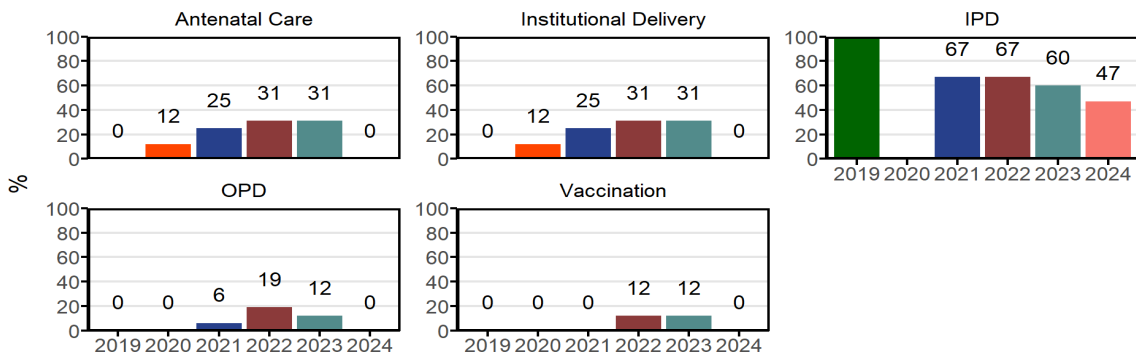
Comparison of numbers of ANC1 and Penta1 by year



colour ● District — Linear fit - - Diagonale

R-squared: 0.9506

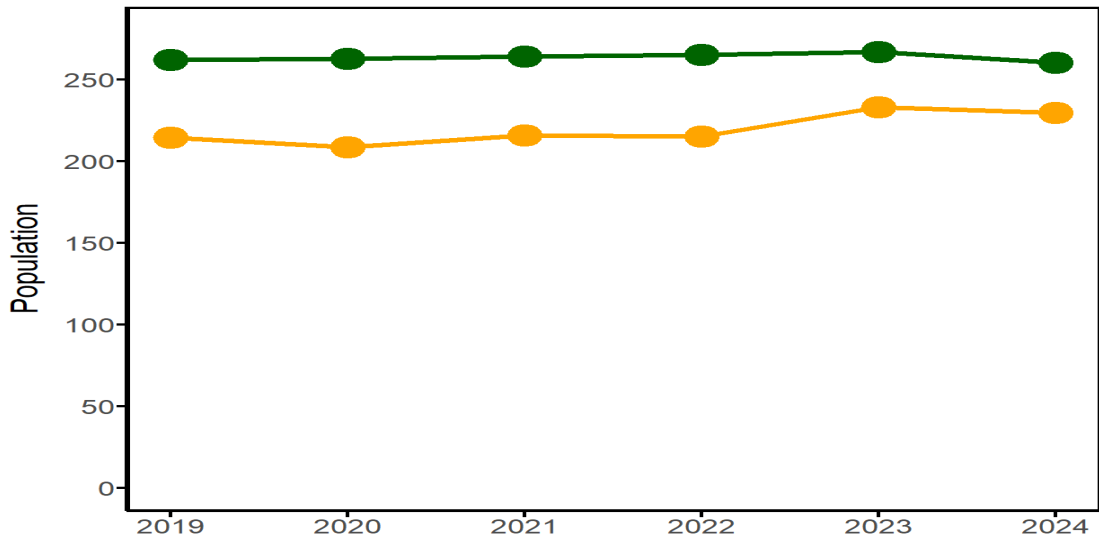
Percentage of districts with low reporting rate (< 90 %) by service and by year



as.factor(year) ■ 2019 ■ 2020 ■ 2021 ■ 2022 ■ 2023 ■ 2024

Low reporting rate (< 90 %)

Total Live Births (in thousands), DHIS2 and UN projections



variable ● UN Live Births (in 1000) ● DHIS-2 Live Births Projection (in 1000)

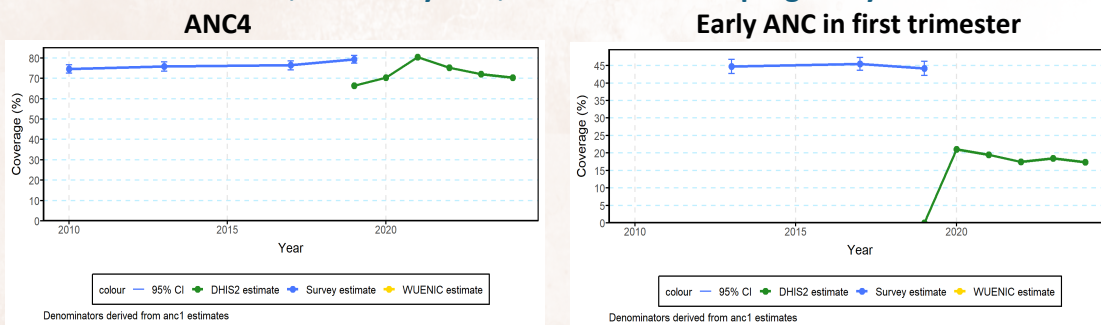
## Interpretations

- Both projections are close and consistent during the reporting period
- UN live birth population is consistently above the DHIS2 for the reporting period.
- Live birth population by DHIS2 shows slight increase in 2023 to 2024
- Whereas live birth by UN projection shows a slight deep in 2023 to 2024.

## 2

### National coverage trends: facility data and surveys

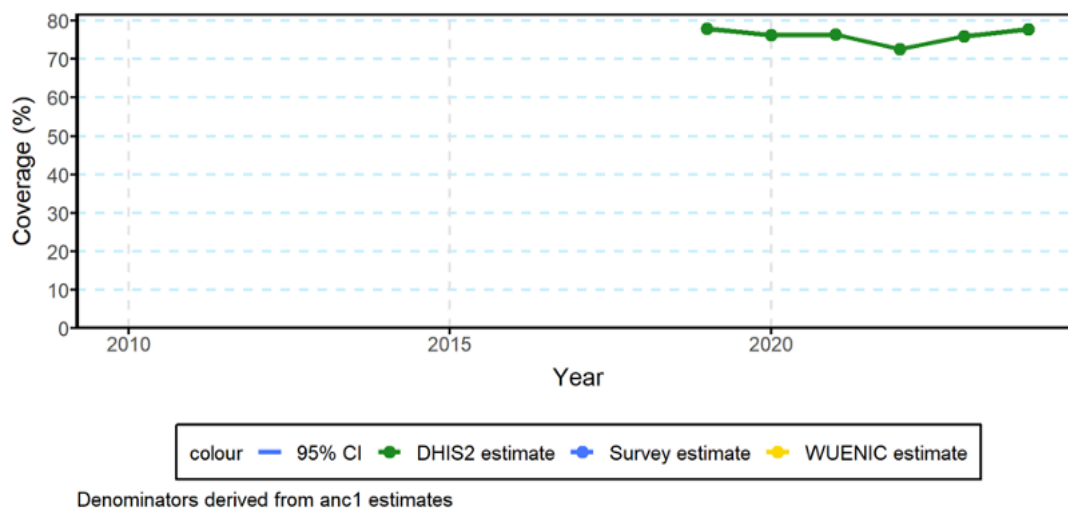
#### Antenatal care: ANC4, ANC early visit, first trimester of pregnancy



## Interpretations

- It is plausible for ANC visits because the survey estimate is closer to the facility data therefore there is good consistency between the facility and survey data
- Both the survey estimate and the coverage using DHIS 2 data are high in the region of 70% and consistent as well.
- However, the early ANC in the first trimester is quite low and is lower for the DHIS 2 coverage than the survey coverage.

#### Institutional delivery

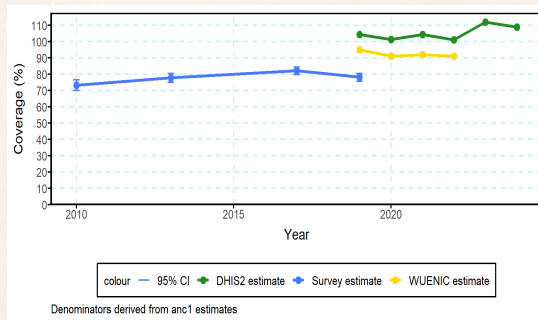


## Interpretations

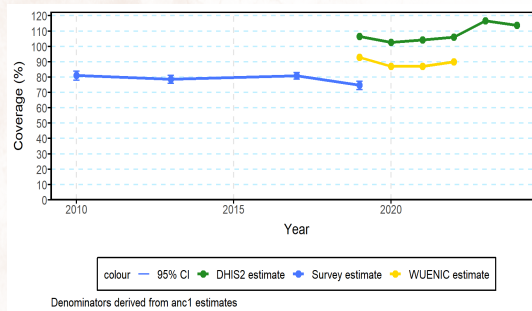
- There is a good consistency between survey estimate and the health facility data on DHIS2 for ANC 1+ visit with a very high and consistent coverage of 98% for the five year period (2019 – 2024).
- The overall ANC4 visits fall below survey estimates during the reporting period except for the year 2021 which had the coverage of 81%.

## Immunization : Penta 3, Measles 1

### Pentavalent 3rd dose



### Measles 1 vaccine

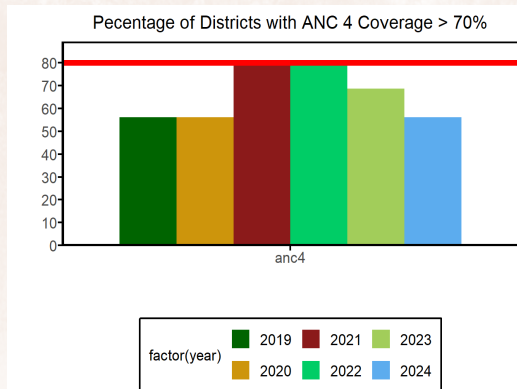


### Interpretations

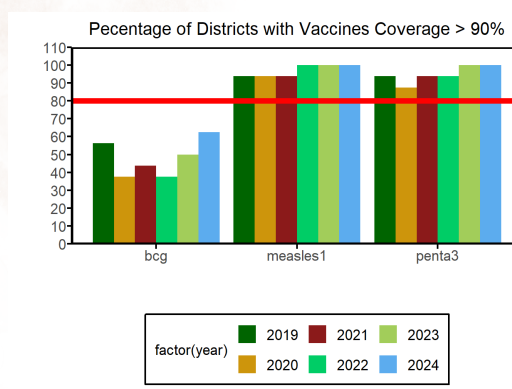
- The levels and trends are plausible because there is good consistency between the facility and survey data.
- The national vaccination coverage of Measles 1 and Penta 3 comparing survey data with that of WUENIC which could be clearly seen that the admin data is above both survey and WUENIC but closer to the WUENIC showing the level of consistency between the two.

## Percent of districts achieving high coverage targets

### ANC4



### Child health indicators



### Interpretation

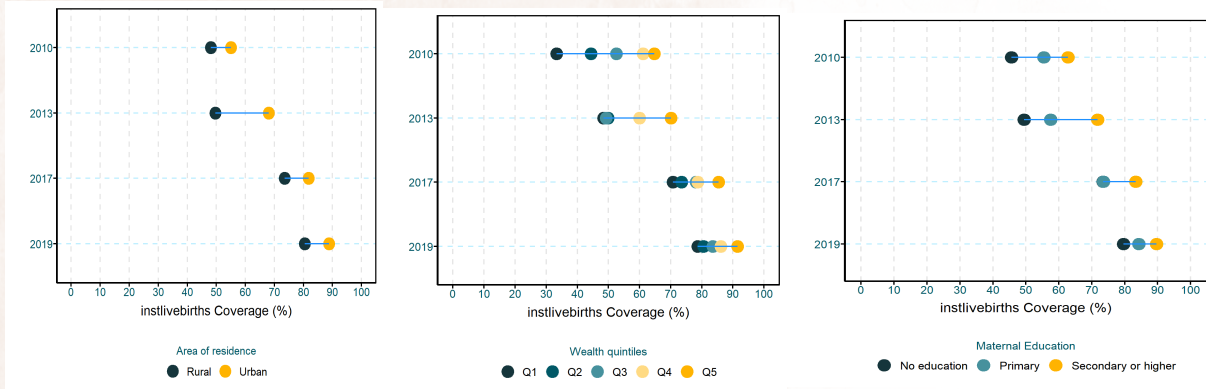
- The proportion of districts that achieved their target was highest in 2021 and 2022. This performance dropped in 2023 and 2024.
- The proportion of districts that achieved their target varied over time as seen on the graph for vaccine coverage

# 3

## Equity

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

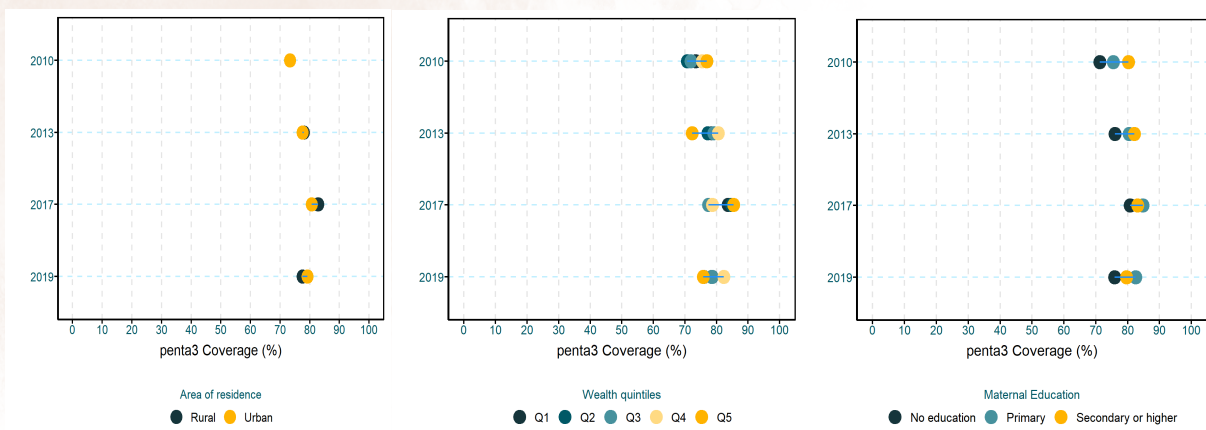
#### Institutional deliveries



#### Interpretations

- The variance in coverage for institutional delivery between rural and urban, wealth quintiles, and educational level have reduced from 2010 to 2019.

#### Pentavalent vaccine (3<sup>rd</sup> dose)



#### Interpretations

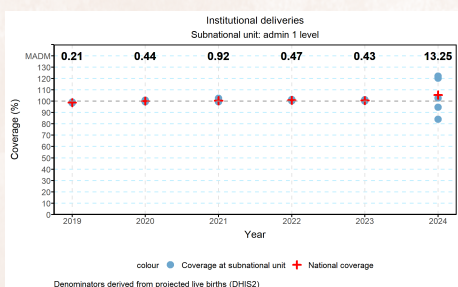
- The variance in coverage for Penta 3 between rural and urban, wealth quintiles, and educational level has been small and consistent between 2010 and 2019.

### Interpretations

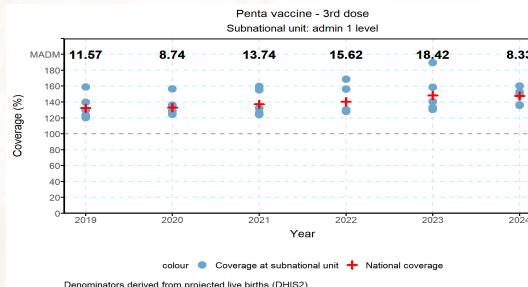
- In terms of place of residence, wealth quintile and maternal education, it could be deduce that there is no significant inequality for all groups as no group is systemically left behind for institutional delivery and penta 3 coverage.
- There are observable but not significant patterns of inequality among the subgroups
- All subgroups experience slight increase in coverage over the years
- Inequalities are changing over time

### Geographical inequalities: Health facility data

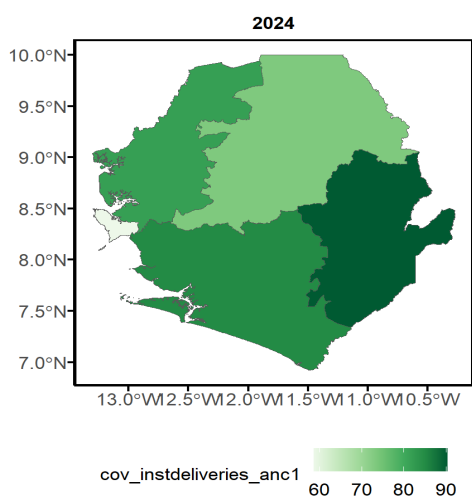
#### Institutional deliveries



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

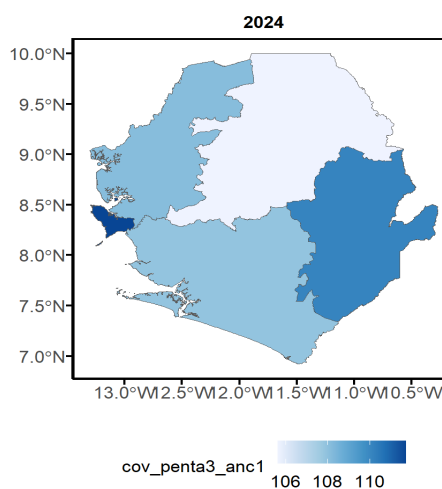


#### Distribution of instdeliveries by Regions



Data Source: DHIS-2 analysis

#### Distribution of penta3 by Regions



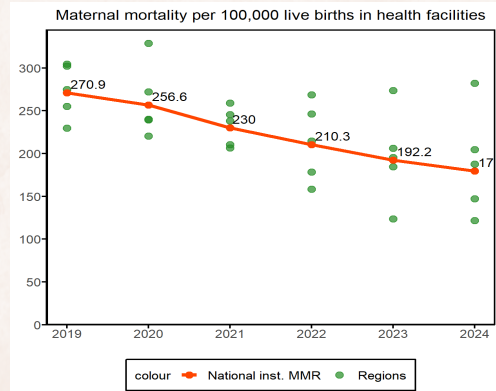
Data Source: DHIS-2 analysis

### Interpretations

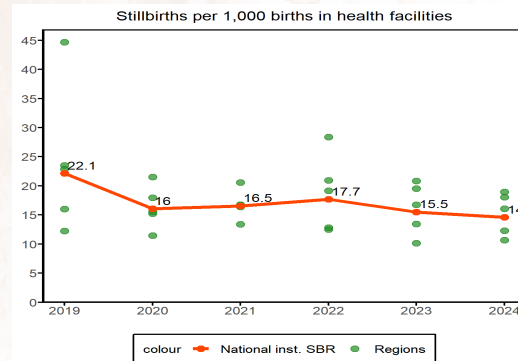
- The national coverage increase over time
- There is a slight change in inequality in 2024 as the data is seen more dispersed for institutional delivery which mean MADM (Mean Absolute deviation from the Median in that year) but for penta 3, we can deduce that there is more disparity throughout the reporting period. The least performing region is the Western area
- From the map, it could be clearly seen that the Eastern region has the highest institutional deliveries followed Southern and North West. Similarly, Western area has the highest penta 3 coverage followed by the Eastern. The least performing region is the Northern region.

## Institutional Mortality Trends (iMMR, iSBR)

## iMMR



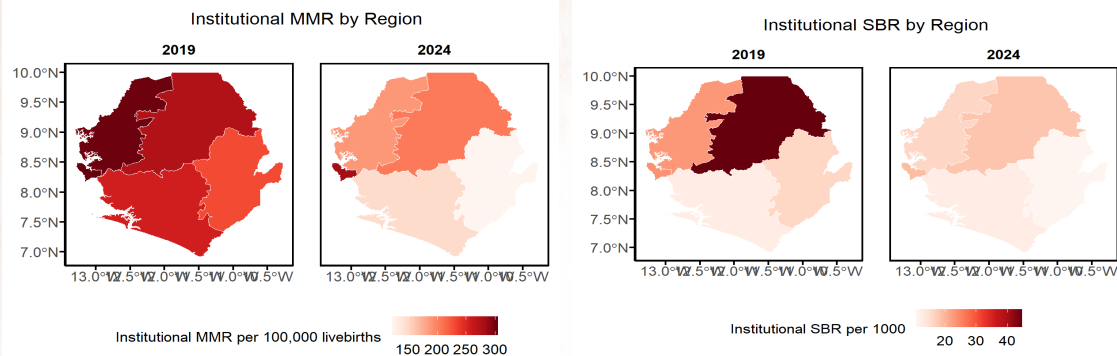
## iSBR



## Interpretations

- The trend of MMR has reduced progressively over the years from 270 per 100,000 live birth in 2019 to 179 per 100,000 live birth. This is absolute in line with the UN estimate.
- Also the trend of SBR per 1,000 births in health facilities is on average reducing.
- 

## Institutional Mortality by admin1 units



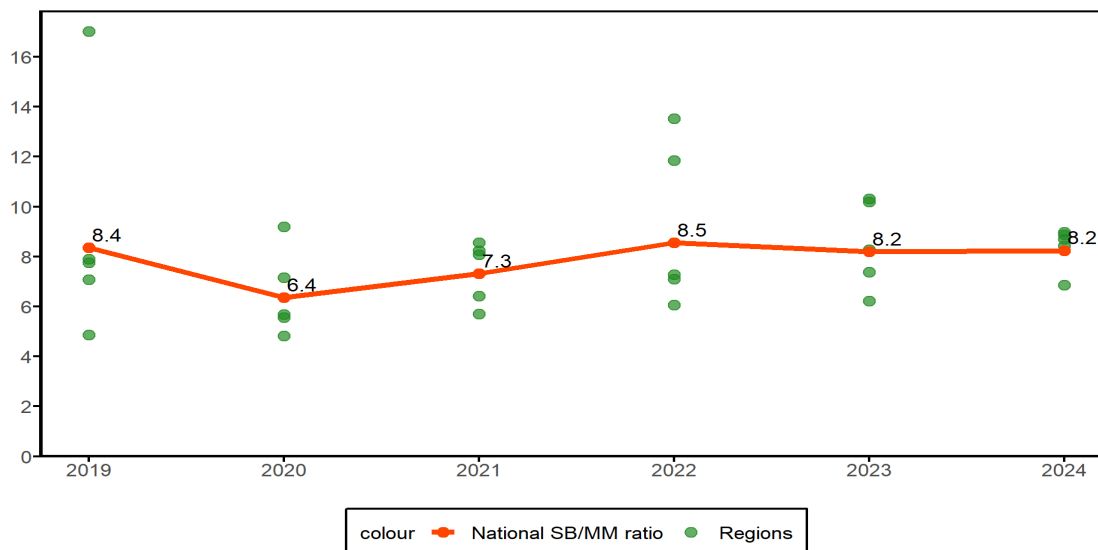
## Interpretations

- In 2019, the Institutional MMR at regional level is higher in North West and Western area followed by the Northern region. The lowest IMMR is recorded in the Eastern region. On the other hand, in 2024 the three (3) highest IMMR are Western Area, Northern and North West regions respectively. Similarly as in 2019, the lowest IMMR is in the Eastern region. This indicates data consistencies in reporting

## Data quality metrics

### Ratio stillbirth to maternal deaths: quality of mortality reporting by health facilities

Ratio number of stillbirths to maternal deaths in health facilities

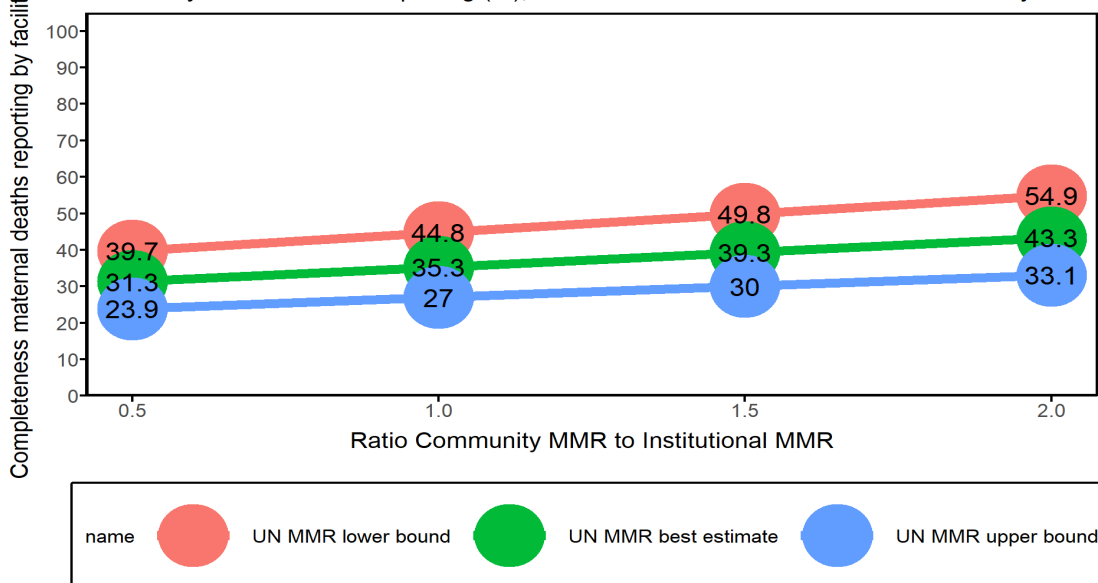


#### Interpretations

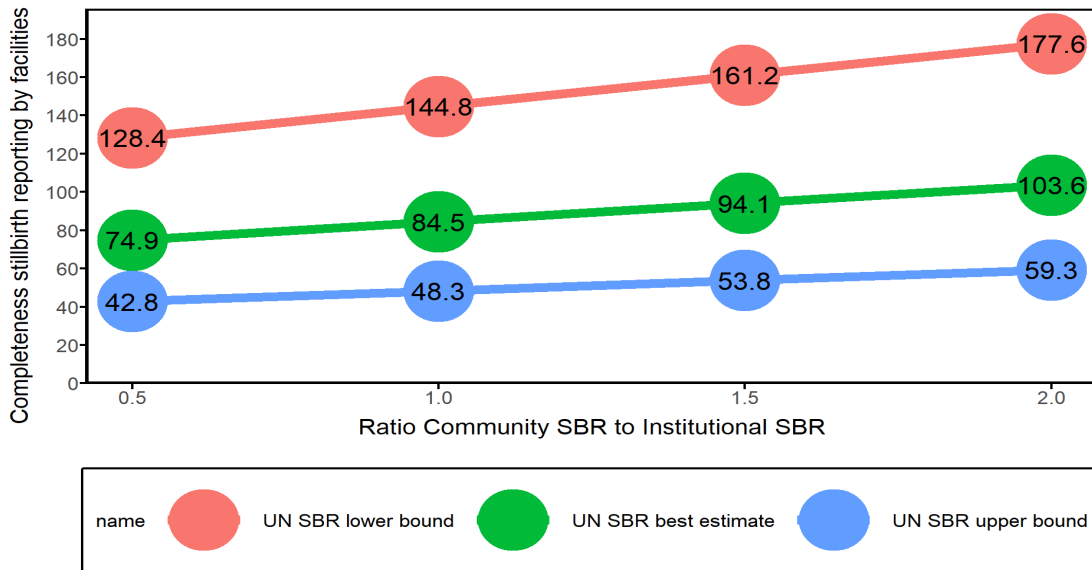
- Yes the stillbirth ratio to maternal death in 2019 stood at 8.4, then slightly reduce by 2.0 in 2020. It then increases slight from 6.4 in 2020 to 8.5 in 2022. There was a slight but steady decrease on average ratio of 8.2 in 2023 to 2024
- In 2019, ISBR is highest in the Northern region followed by the North West and Western Area whereas the lowest is in the Southern region. In 2024, ISBR is highest in the Northern region followed by the Western Area and North–West whereas the lowest is in the Eastern region

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

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



Completeness of facility stillbirth reporting (%), based on UN stillbirth estimates and community to institut



**Interpretations**

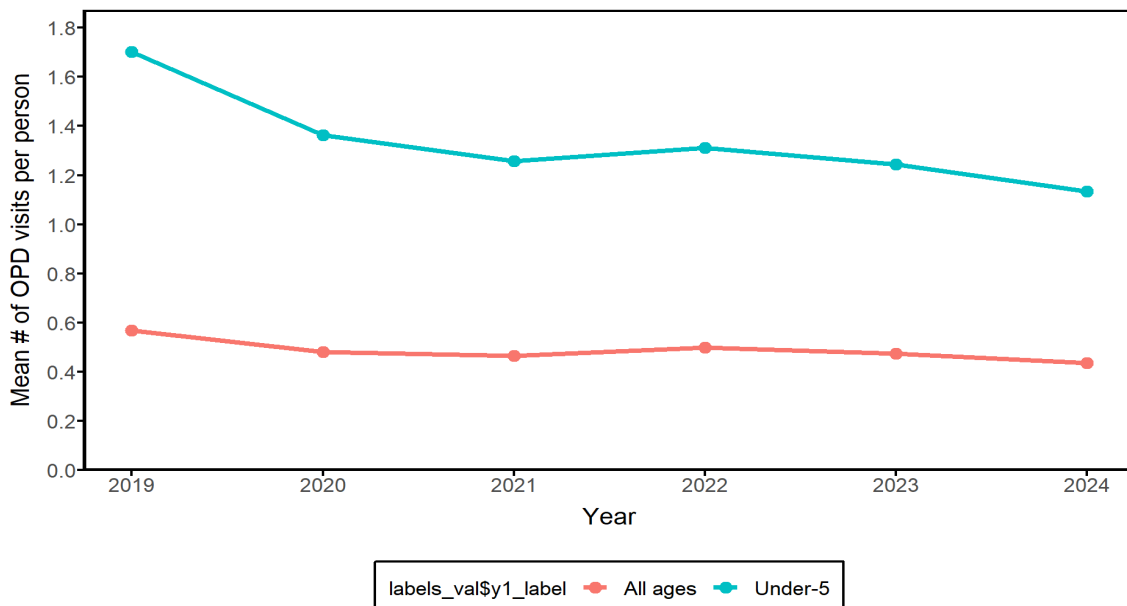
- The ratio of community SBR to ISBR reporting range from 74.9% to 84.5%. However, there is still a number of unreported stillbirth from the community and non reporting health facilities in the DHIS2.

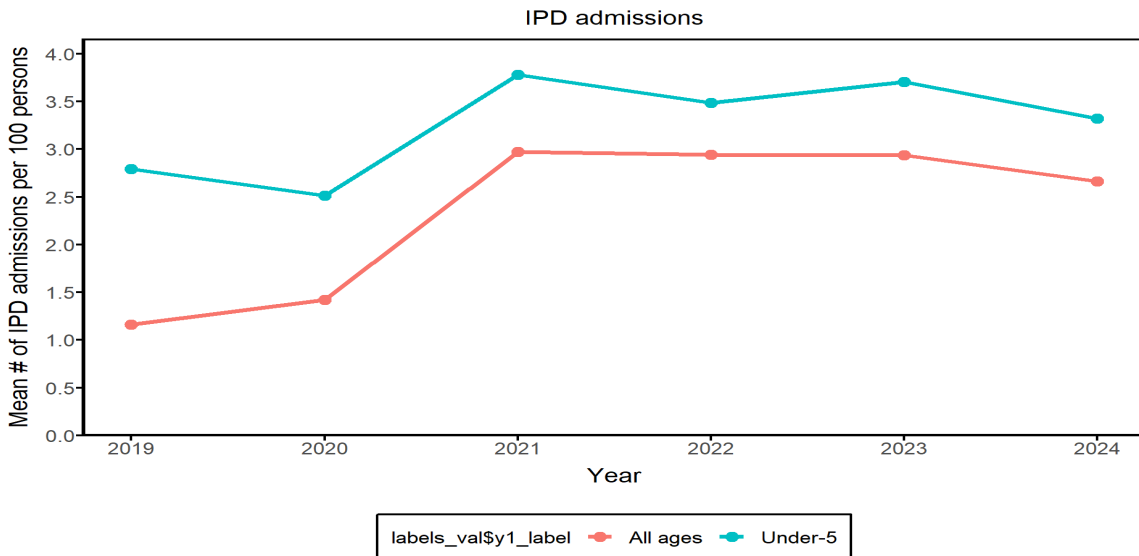
**5**

**Curative health service utilization for sick children**

**Outpatient and inpatient services utilization**

OPD visits





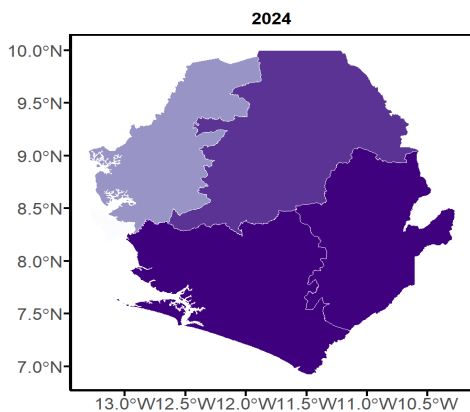
#### Interpretations

- In the year 2024, the total OPD admission per child per year is 1.2 visits which is higher than 1.0 visits per year showing higher OPD access per child per year. However, it is less than 1.8 OPD admission per child per year in 2019. This is an indication of downward trend in the OPD visits per year per child.
- The data quality is good as there is consistency of reported numbers between years from 2020 to 2024.
- The IPD visits per 100 children per year during 2019-2024 is increasing and greater than 2.0 indicating high IPD admission per year per 100 children.
- The main OPD admission per child per year is higher in Western, Southern and Eastern regions with a mean admission of 1.2 each showing high OPD admission rate. Additionally the Northwest has a mean OPD admission per child per year of 0.9.

#### Regional/provincial service utilization

##### OPD

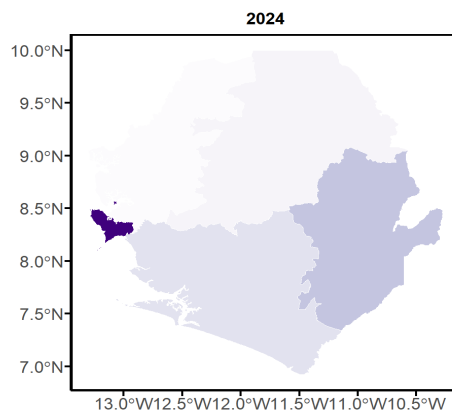
OPD under-five by Region



Mean OPD per child per year  
0.9 1.0 1.1 1.2

##### IPD

IPD under-five by Region

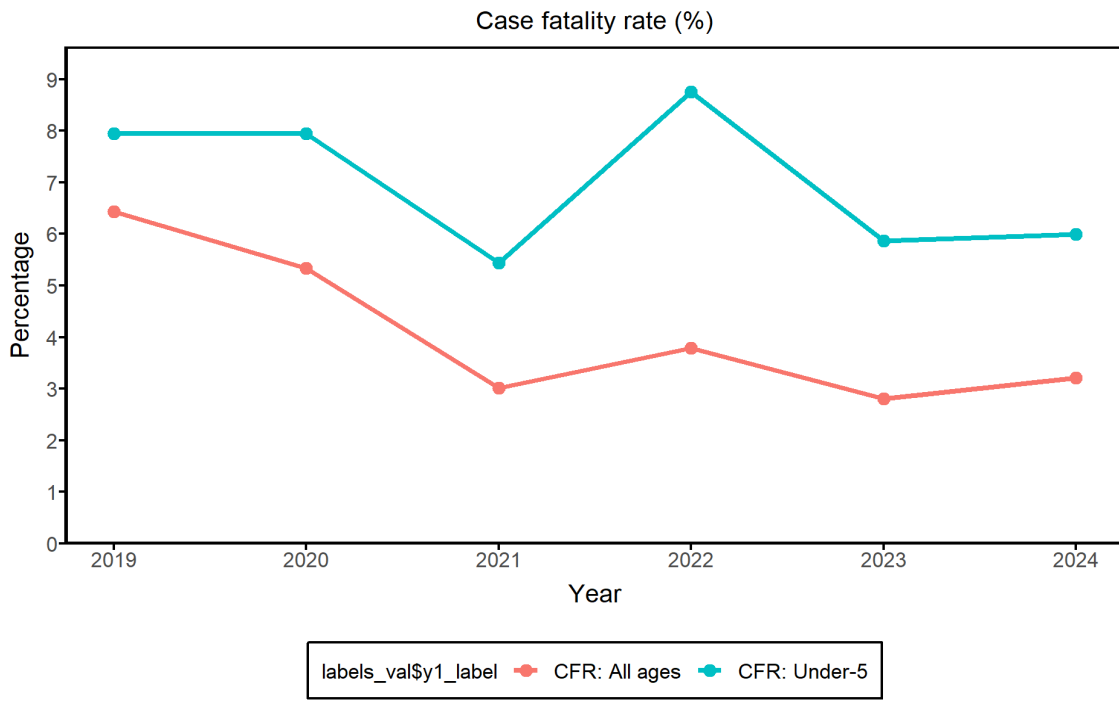


Mean IPD per 100 children per year  
2 3 4 5

### Interpretations

- The region with the highest OPD visits rate is Western area. This is followed by Southern and Eastern regions with each representing the mean OPD of 1.2 and the lowest is North-West with mean OPD of 0.9.
- On the other hand, IPD admissions is highest in the Western area, followed by Eastern and Southern regions represented by 5, 4 and 3 respectively. The lowest is North-West that is 2.0. These are densely populated areas. The only data potential issues is data completeness in reporting.

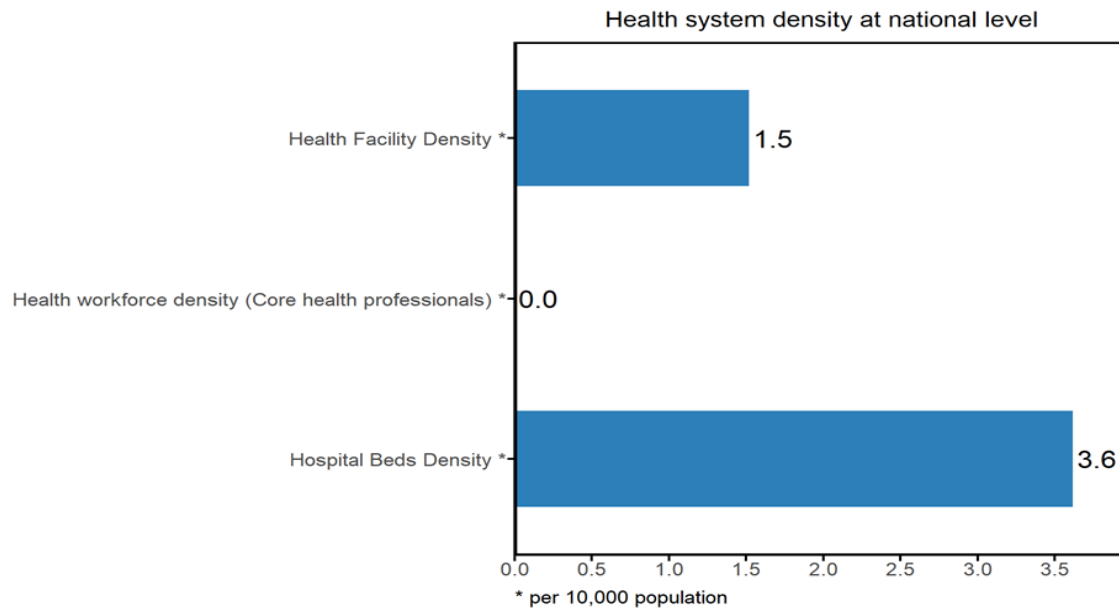
### Case Fatality Rate among Admissions for Children under five years



### Interpretations

- The case fatality rate among admission under-five is approximately 8.0 per 1,000 children.
- The trend in case fatality could be seen from 2019 to 2020 to be 8 and slight deep in 2021 by 2.0 and then increase sharply in 2022 by 3.0. It then dropped by 2.0 in 2023 and 2024.
- The quality of care is improved.

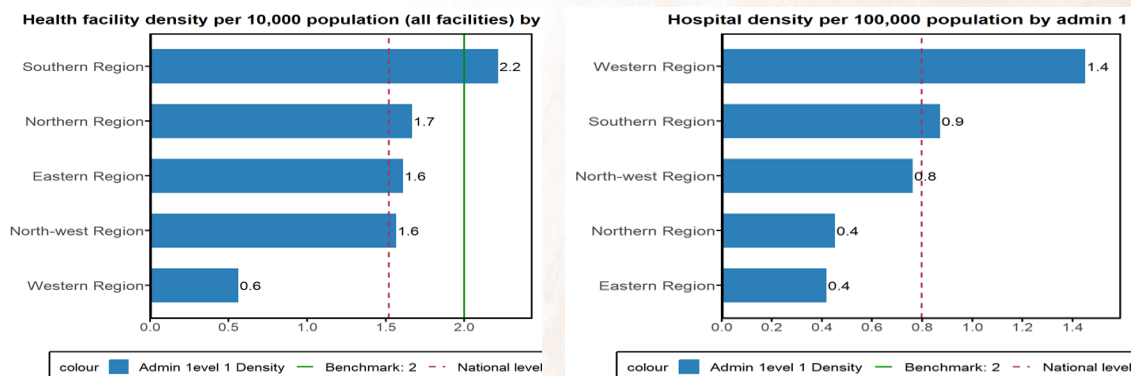
## Health system inputs



## Interpretations

- The health facility density of Sierra Leone is 1.5, which is slight below the Benchmark of 2.0.
- The hospital bed density for Sierra Leone is approximate 4.0 beds per 10,000 that is far below the benchmark of 25
- The health workforce density is critical in health service delivery. However, the health workforce data for the period under review is not available to determine the health workforce per 10,000 population.

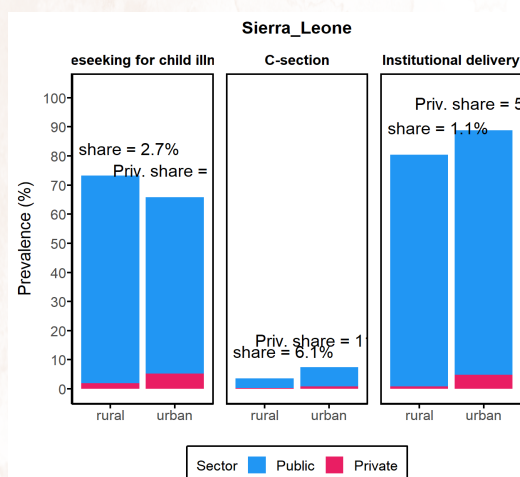
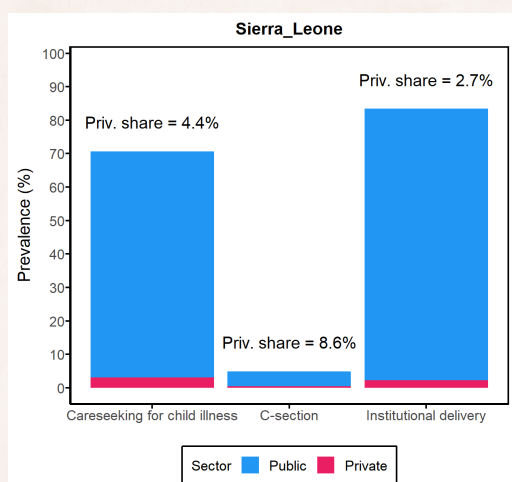
## Health system inputs by province



## Interpretations

- The health facility density per 10,000 population is higher in southern with 2.2 which is above the benchmark of 2.0 showing higher facility density and lowest in the Western region with 0.6 which is less than 2.0 showing low facility density per 10,000.
- None of the regions achieved the benchmark of 2.0 hospital density per 100,000 population. However, the Western region has the highest that is 1.4 and the Eastern region is the least with 0.4.

## Private sector and RMNCAH service



### Interpretations

- The achievement of the public sector in all indicators is higher than the private sector.
- There are more C-section in Urban areas than Rural areas. There are more services provided in the rural than the urban areas as a result of high facility density in the rural areas.

## 7

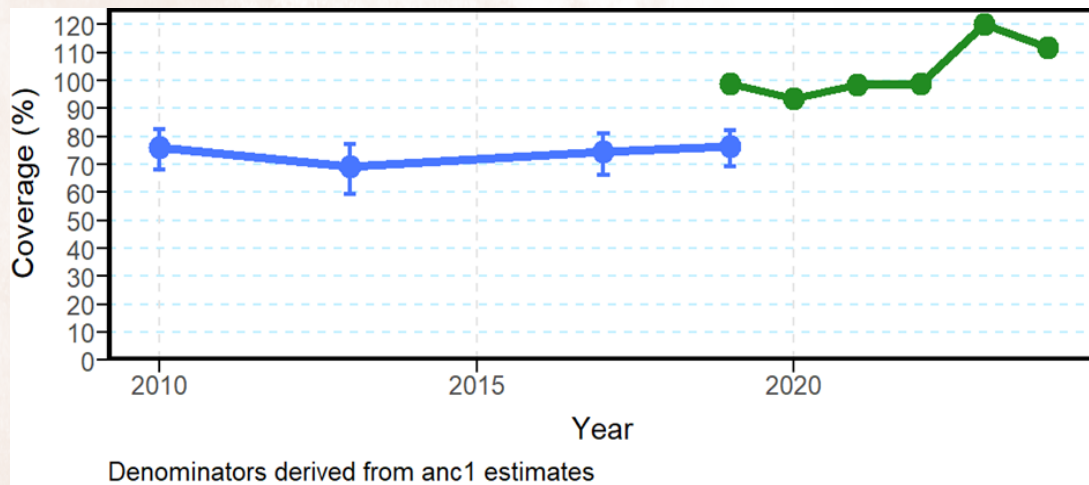
## Subnational Statistical Profile: Western Region

### Overall Score

no	Data Quality Metrics	2019	2020	2021	2022	2023	2024
<b>type: 1. Completeness of monthly facility reporting (mean of ANC, delivery, immunization, OPD)</b>							
1a	% of expected monthly facility reports (national)	97	97	90	92	90	99
1b	% of districts with completeness of facility reporting >= 90	100	100	38	62	50	100
1c	% of districts with no missing values for the 4 forms	84	86	96	96	98	100
<b>type: 2. Extreme outliers (mean of ANC, delivery, immunization, OPD)</b>							
2a	% of monthly values that are not extreme outliers (national)	100	99	99	98	96	98
2b	% of districts with no extreme outliers in the year	94	92	94	90	88	92
<b>type: 3. Consistency of annual reporting</b>							
3a	Ratio anc1/penta1	1.11	1.11	1.08	1.10	0.94	0.98
3b	Ratio penta1/penta3	1.00	1.04	0.99	0.99	0.95	0.99
3c	% district with anc1/penta1 in expected ranged	100	100	100	100	0	50
3d	% district with penta1/penta3 in expected ranged	50	100	50	50	0	0
<b>4</b>	<b>Annual data quality score</b>	<b>90</b>	<b>98</b>	<b>78</b>	<b>82</b>	<b>54</b>	<b>73</b>

### Interpretations

- The overall average of the data quality scores for the period under review in Western region is 79.2% indicating low reporting rate  $\geq 90\%$  national target.
- Penta 1 expected range in 2023 and 2024 are respectively 0% and 50% while Penta 3 expected range in 2023 and 2024 are respectively 0%. On the other hand it is also seen that Penta 3 expected range score for 2019, 2021 and 2023 are 50% each.
- In addition, the district yearly completeness for 2021, 2022 and 2023 are respectively 38%, 62% and 50% showing the high contribution of the nation's under reporting coverage.



### Interpretations

- The survey data slightly dropped from 2010 to 2013 but progressively increase from 2013 to 2020 while the admin data shows a positive increase in trend over the years.

District	ANC 4	Institutional Live Births	C-Section	PNC48h	Penta 3	MCV 1
Western Area Rural	52.8	61.9	0.8	61.8	102.3	102.7
Western Area Urban	54.1	58.1	11.9	51.1	117.5	120.2

### Interpretations

- The ANC4 coverage for both Western Area Rural and Urban are respectively 52.8 and 54.1 which are very low when compared to the national target of  $\geq 90\%$ .
- On the other hand, the percentage of livebirths are respectively 61.9 and 58.1 in comparison to immunization services (Penta3), their respective coverage are 102.3 and 117.5 showing the level of data inconsistencies in reporting which could be associated to population issues and access to quality of care in Urban setting.