RWANDA

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
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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.

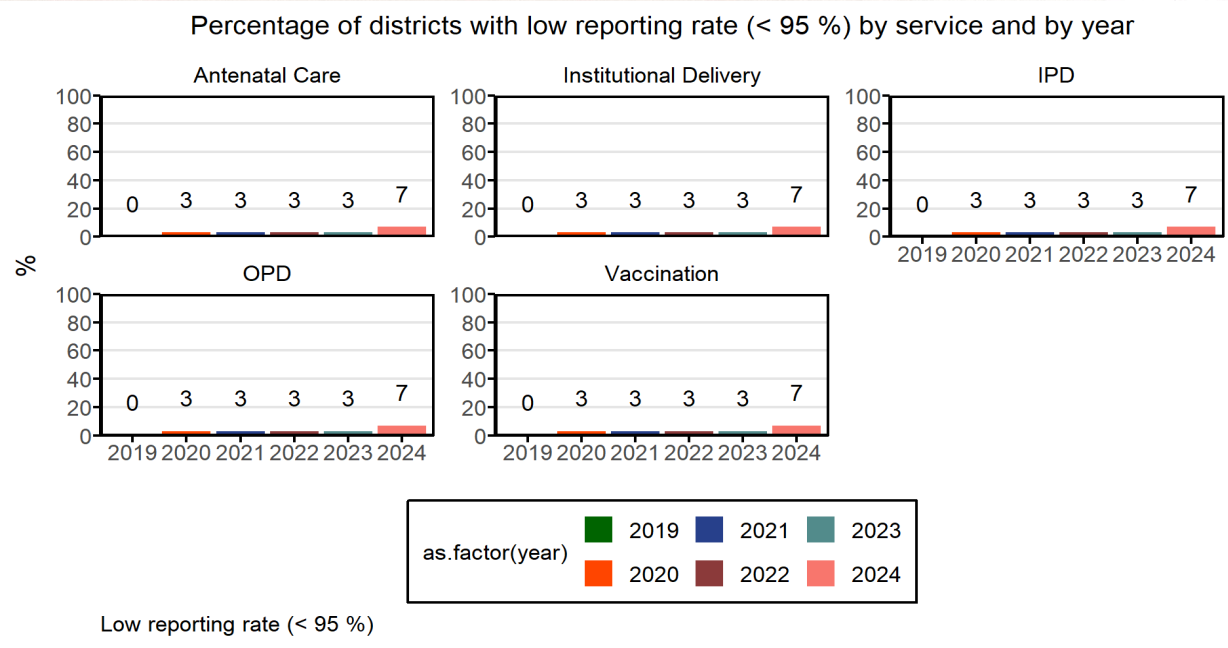
Summary of reported health facility data quality, DHIS2, 2019-2024

no	Data Quality Metrics	2019	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)	100	99	99	99	99	99
1b	% of districts with completeness of facility reporting >= 95	100	97	97	97	97	93
1c	% of districts with no missing values for the 4 forms	93	92	93	93	93	93
type: 2. Extreme outliers (mean of ANC, delivery, immunization, OPD)							
2a	% of monthly values that are not extreme outliers (national)	99	99	100	99	99	99
2b	% of districts with no extreme outliers in the year	95	85	92	82	83	76
type: 3. Consistency of annual reporting							
3a	Ratio anc1/penta1	1.06	1.11	1.14	1.14	1.07	1.14
3b	Ratio penta1/penta3	1.02	1.01	1.01	1.01	1.00	1.00
3c	% district with anc1/penta1 in expected ranged	87	90	97	93	73	97
3d	% district with penta1/penta3 in expected ranged	80	83	70	73	53	50
4	**Annual data quality score**	**94**	**92**	**92**	**91**	**84**	**86**

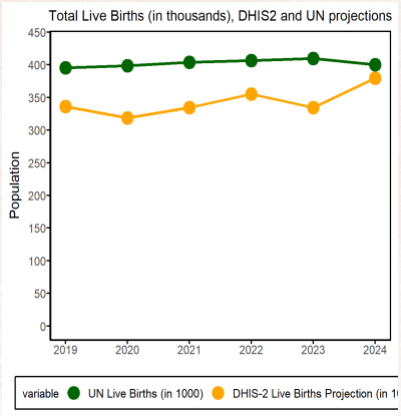
Interpretations

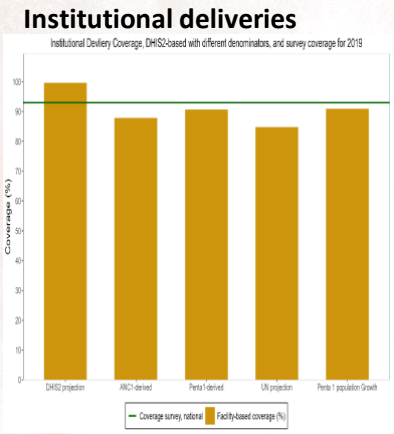
- Overall, the data quality is good and generally trending positively from 2023 to 2024. However, it has exhibited a decline in performance over the past two years.
- Reporting completeness has been consistently around 97%, however, with an abrupt decline in 2024.
- The percentage of districts with no missing values for 4 reporting forms consistently stands at 92%-93% since 2019.
- The percentage of monthly values that are not extreme outliers (national) looks good over time, but the percentage of districts with no extreme outliers in the year has considerably decreased over time, from 95% in 2019 to 76% in 2024.
- The percentage of districts with penta1/penta3 in the expected range (1-1.5) also considerably decreased from 80% in 2019 to half in 2024, something that should be carefully looked at.

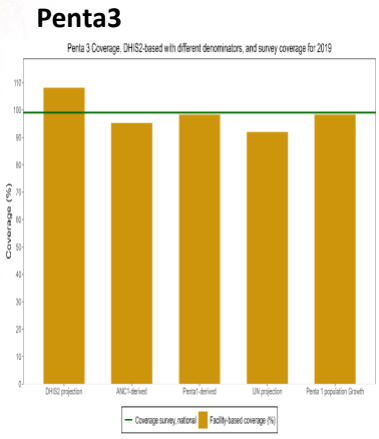
The percentage of districts with completeness of facility reporting >= 95 has consistently been over 95% since 2019, declining from 97% in 2024 to 93% in 2024.



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 (Figures 2c and 2d). 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.







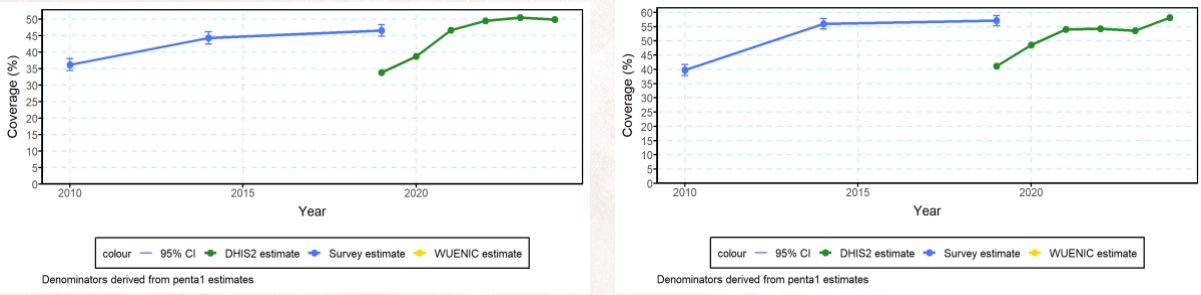
Interpretations

- The national projection of births does not align with the UN projection for many years, but it almost does in 2024.
- Penta 1 (as the denominator method) performed best at the national level for the live births coverage and penta3 coverage.
- Therefore, Penta 1 is selected for the maternal (institutional deliveries) and vaccination (Penta3) indicators in the coverage analyses.

2 National coverage trends: facility data and surveys

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

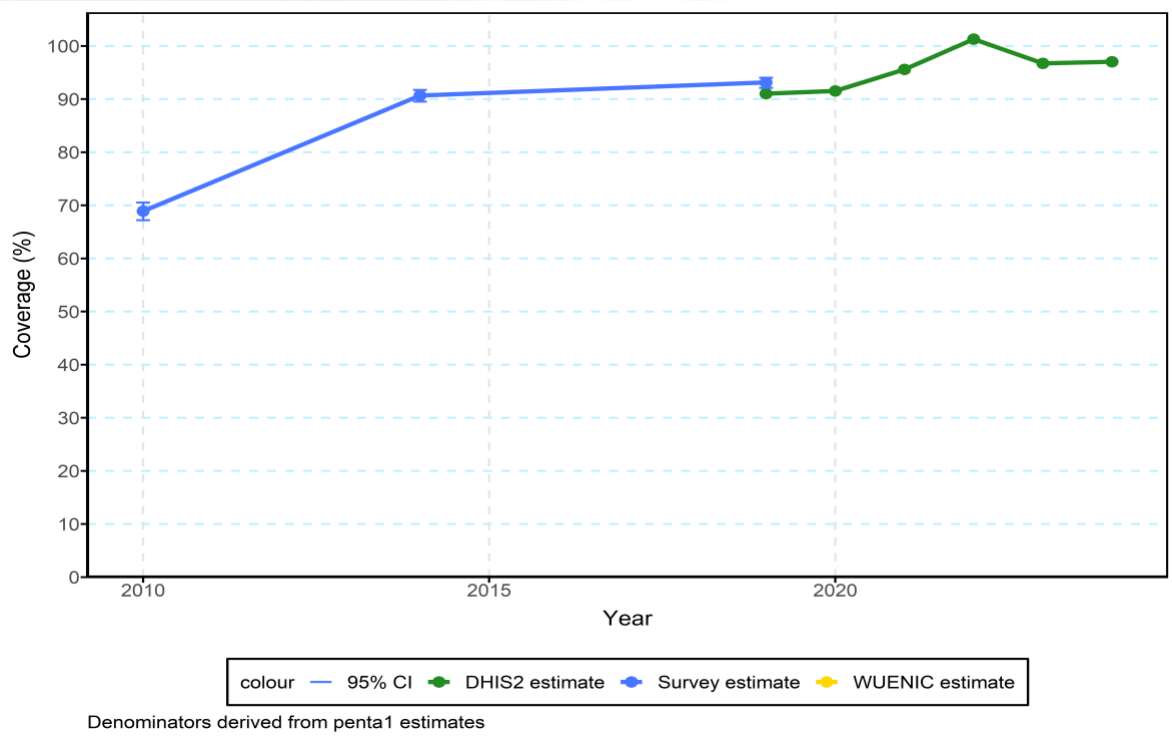
Antenatal care: ANC4 (Left), ANC early visit, first trimester of pregnancy (Right)



Interpretations

- The levels and trends are plausible, showing a consistent upward trajectory in coverage over time, with reasonable alignment between survey and DHIS2 data—though facility estimates are slightly higher, likely due to reporting or denominator differences. The big difference around the year 2020 could be attributed to the Covid-19 pandemic.

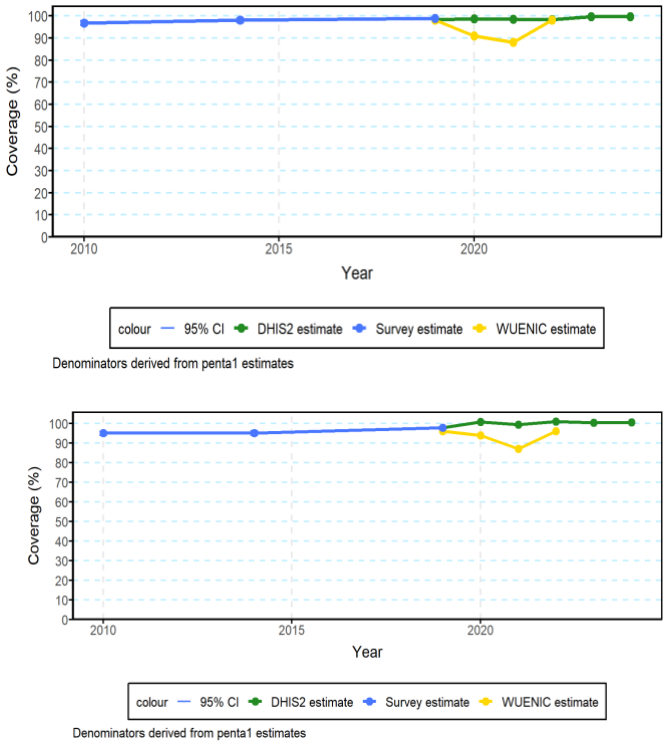
Institutional delivery



Interpretations

- The levels and trends plausible. There is good consistency between the facility and survey data.
- The country is performing great towards the 2029 targets (98%). The figure exhibits a very positive trend over time.

Immunization: Penta 3, Measles 1



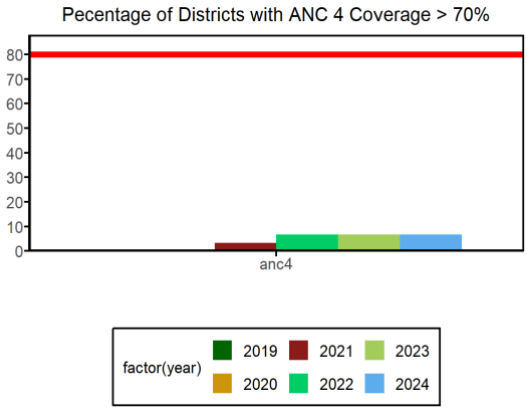
Interpretations

- The levels and trends are plausible. There is good consistency between the facility and survey data. However, according to the WUENIC estimates, it was projected to decrease the proportion from 2019 to 2021, then back to normal with the DHIS2 estimate in 2021. A similar pattern was also observed for measles 1 coverage with respect to the DHS and DHIS2 estimates.

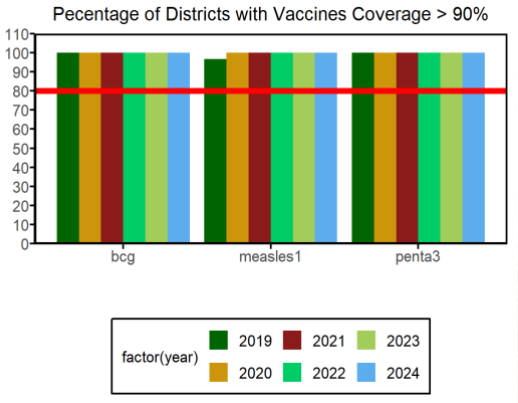
- The coverage performs better compared to the targets (90%). The positive trend has reached it peace since 2020 (100%) for both.

Percent of districts achieving high coverage targets

Maternal indicators



Child health indicators



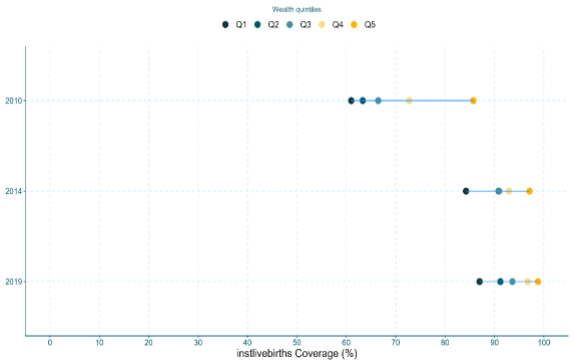
Interpretations

- The proportion of districts that achieved the target ANC 4 coverage >70% did not vary between 2022 and 2024. It remained very low.
- The proportion of districts that achieved the target of BCG, measles 1 and Penta 3 coverage >90% did not vary between 2022 and 2024. It consistently remained almost 100%.

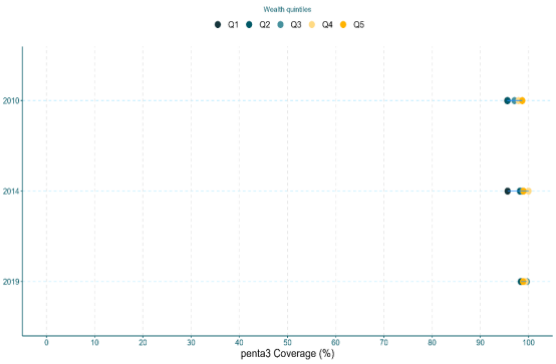
3 Equity

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

Institutional deliveries



Pentavalent 3rd dose

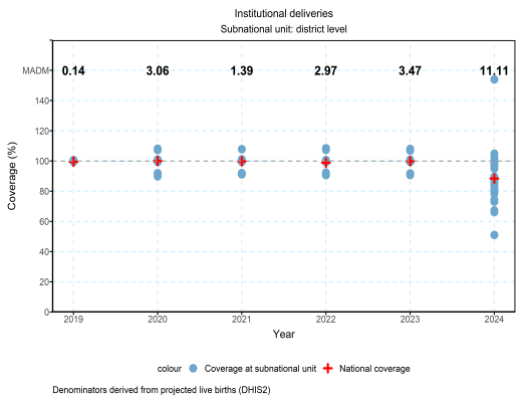


Interpretations

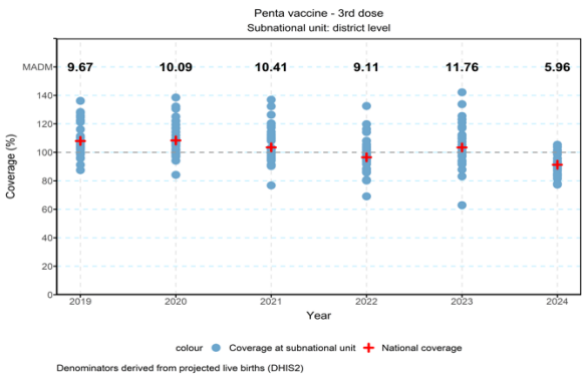
- There are systematic differences—poorer wealth quintiles (Q1, Q2) were systematically left behind, with large gaps for institutional deliveries, and small but visible for Institutional deliveries.
- In 2010, the equiplots reveal a clear bottom inequality pattern, where coverage of services like institutional deliveries and Penta3 immunization increased progressively across wealth quintiles from poorest (Q1) to richest (Q5), indicating that disparities were concentrated among the poorest households, but over time—particularly by 2019—these inequalities narrowed substantially, suggesting a shift toward greater equity in health service coverage across all socioeconomic groups.
- Accelerated improvements among the poorest quintiles, leading to convergence, looking at institutional deliveries (2010-2015), which became more evident from 2015 to 2019.
- Over time, the wealthiest quintiles improved faster, widening inequality temporarily, especially for institutional deliveries.
- Rwanda should sustain community-based health insurance, strengthen vaccination outreaches, address transport and education barriers, and regularly monitor equity using complex measures like SII and CIX for more insights.

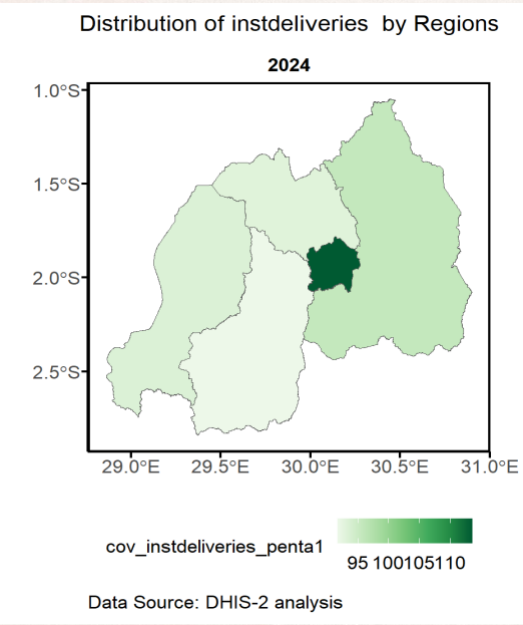
Geographical inequalities (Health facility data)

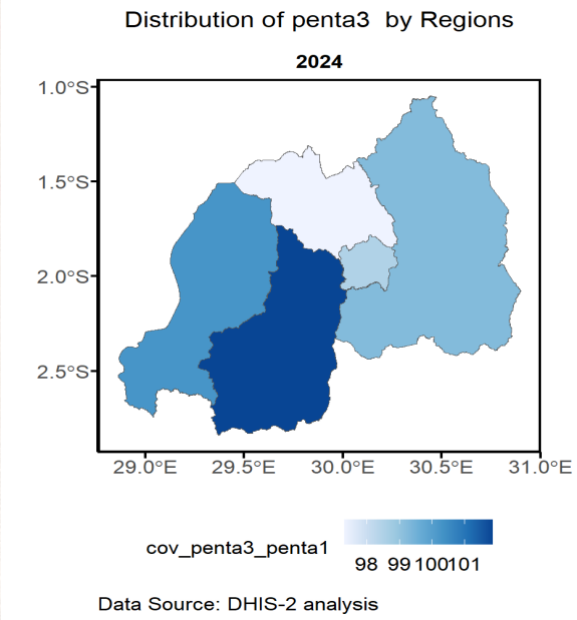
Institutional deliveries



Pentavalent 3rd dose







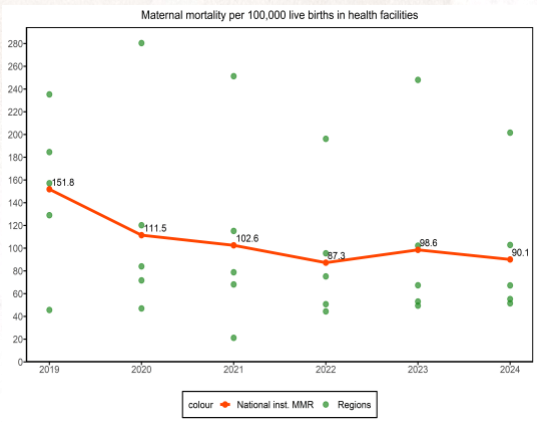
Interpretations

- The decline in institutional deliveries coverage in 2024 brought in high district disparities, the Mean Absolute Deviation from the Median(MADM) increasing from 3.47 in 2023 to 11.11 in 2024 (data point becoming more dispersed).
- The district inequalities in Penta 3 coverage did not change between 2010 and 2023, but considerably declined in 2024 (data points becoming less dispersed).
- Kigali City remains high in institutional deliveries in 2024, given its urban facilities with lots of qualified providers
- The southern province became high Penta 3 coverage in 2024, yet mostly rural; reflecting the level of efforts invested in immunization activities (outreach, effective cold chain, high service demand)

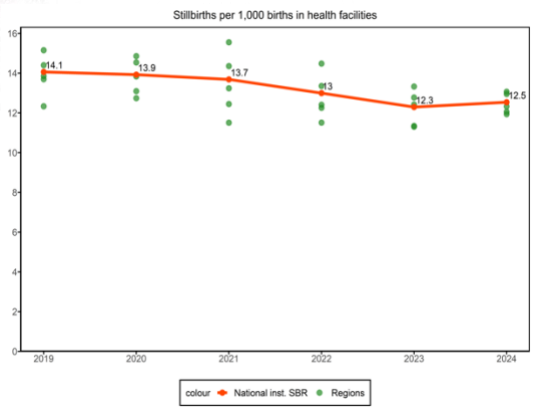
4 Institutional mortality

Institutional Mortality Trends (iMMR, iSBR) National Level

iMMR



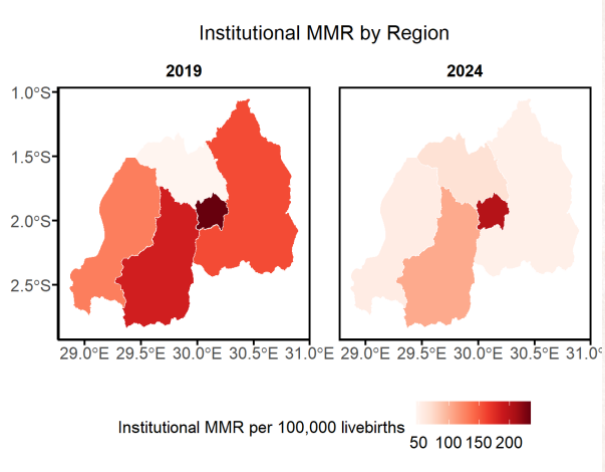
iSBR

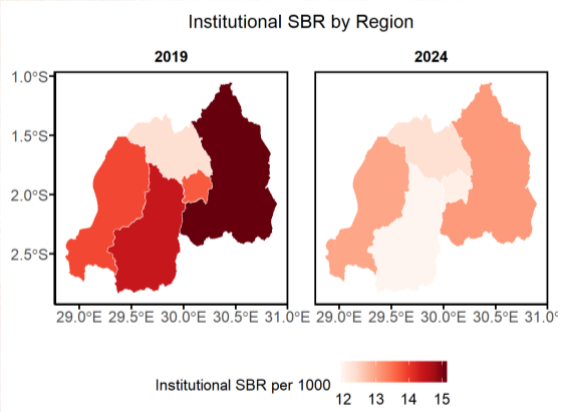


Interpretations

- MMR has not declined over the past three years, but it is relatively lower than in other countries in the region. The dispersed data points show Kigali City and Southern referral hospitals with more than 50% of maternal deaths, a result of receiving mothers in critical condition transferred from district hospitals.
- Though the SRB did not decline since 2023, it remains low; a result of implementing effective strategies, including EmONC, ANC 8 contacts.
- This is in line with what is expected based on UN estimates.

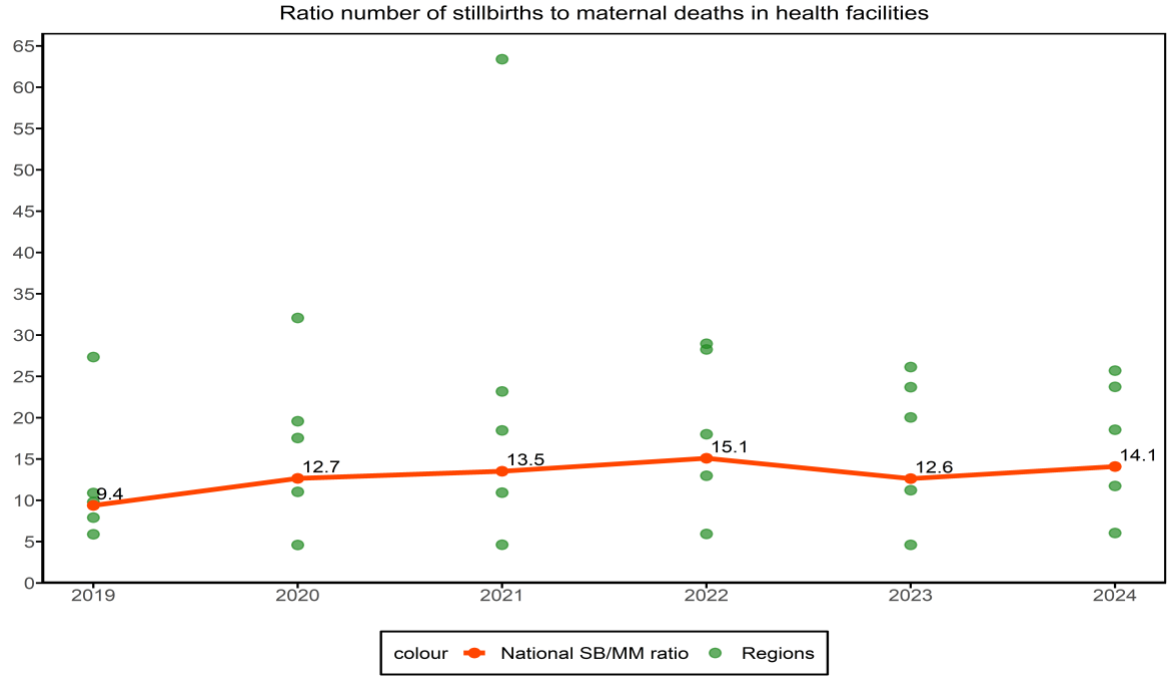
Institutional Mortality by admin1 units





Data quality metrics

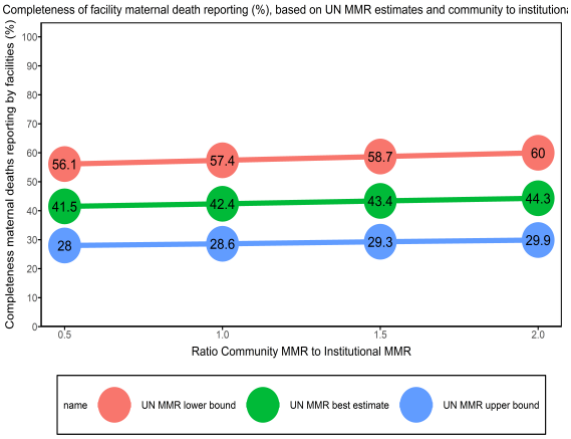
Ratio stillbirth to maternal deaths in the health facility data at national level

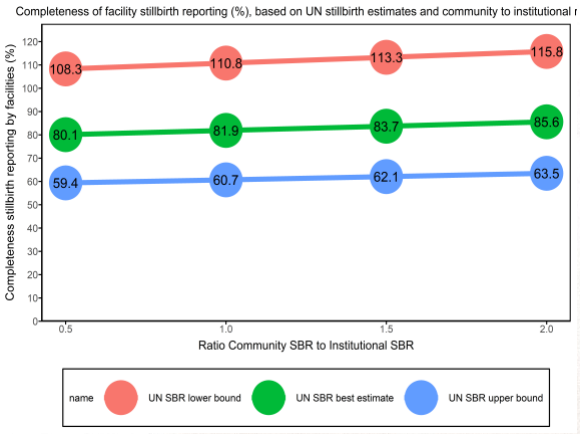


Interpretations

- A plausible ratio is in the range of 5 to 25 stillbirths per maternal death. The national ratio is within the expected range in Rwanda, suggesting that mortality levels are in the expected range.
- East, West and North are top regions, Kigali City and South the bottom regions.

Estimated completeness of facility maternal death and stillbirth reporting



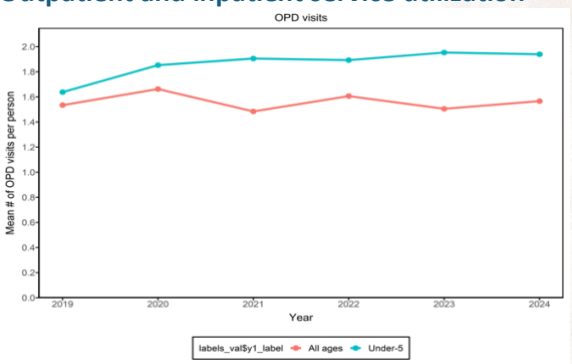


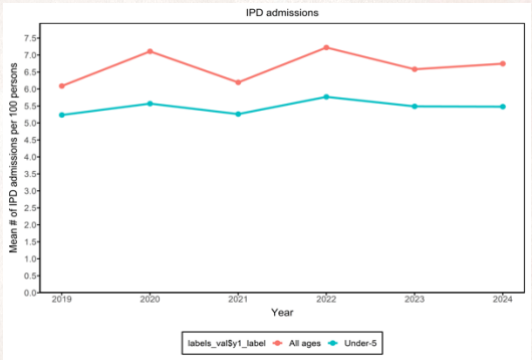
Interpretations

- The completeness of reporting of institutional MMR shows only 44.3%, i.e 55.7% of non-reporting, assuming a ratio of community MMR to institutional MMR of 1.5-2. Given the highly sensitive, predictive, and prompt maternal mortality reporting in Rwanda, this is underestimated.
- The completeness of reporting of institutional SBR based on the population SBR and the Community to Institutional ratio, shows 85.6%; something that could be somewhat acceptable, in view of the strong reporting system in the country (Maternal Perinatal Child Death Surveillance system and Civil Registration and Vital Statistics (CRVS).

5 Curative health service utilization for sick children

Outpatient and inpatient service utilization

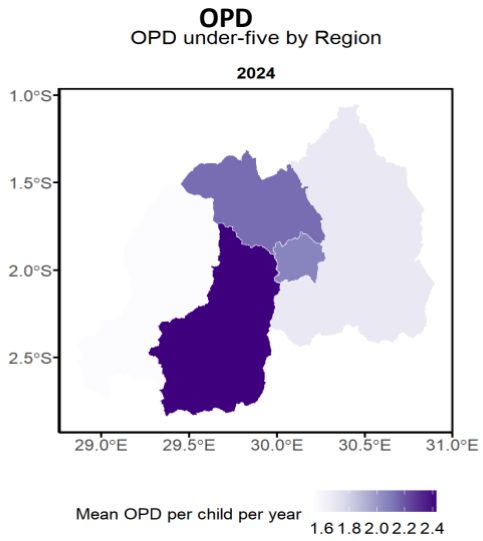


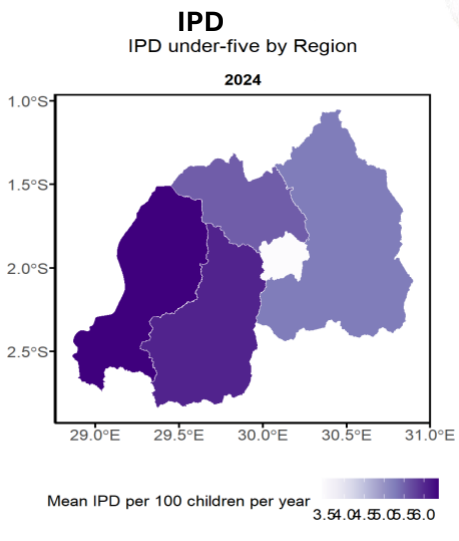


Interpretations

- The number of OPD visits per child per year during 2024 is 1,9; with a monotonic trend over time. This suggests good access to OPD services.
- The number of IPD visits per 100 children per year during 2019-2024, has been monotonically around 5. It is higher than 2 per 100 children under-five, which suggests relatively good access to care services.

Regional/provincial service utilization

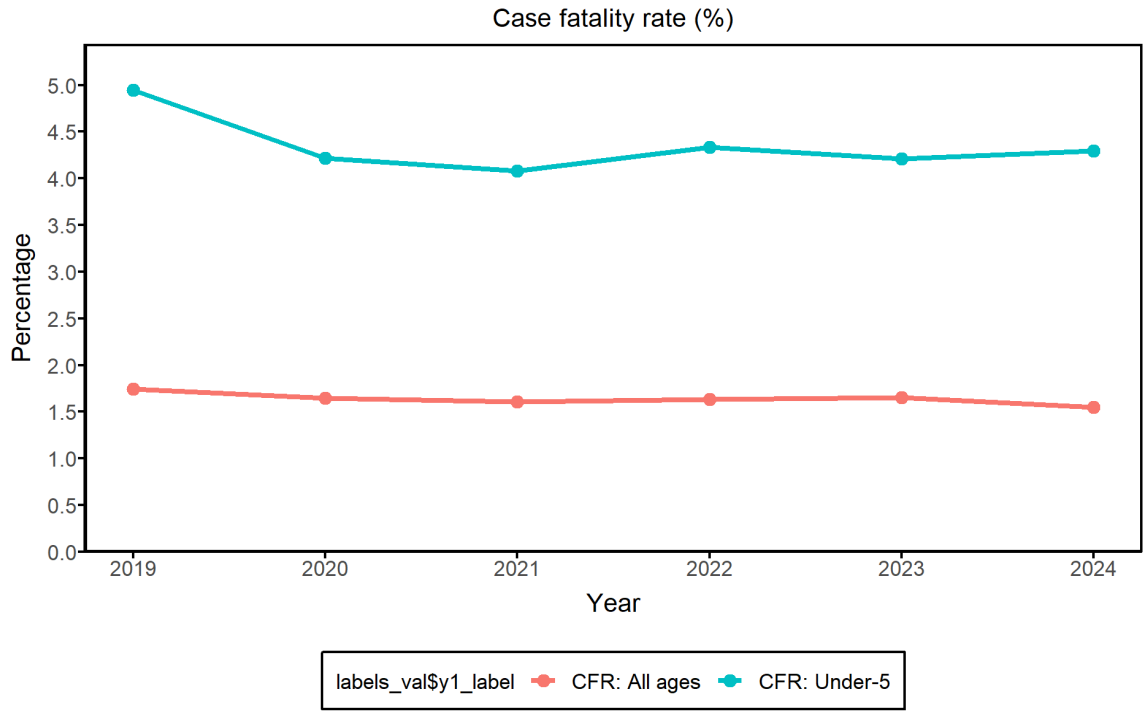




Interpretations

- In 2024, South, North and Kigali City are the three regions with the highest OPD rates, West having the lowest. West, South and Kigali City have the highest IPD rates, Kigali having the lowest.
- More health facilities and health insurance coverage, as well as many childhood illnesses, justify the relatively higher service utilization in under-five.

Case fatality rate among admissions under-five

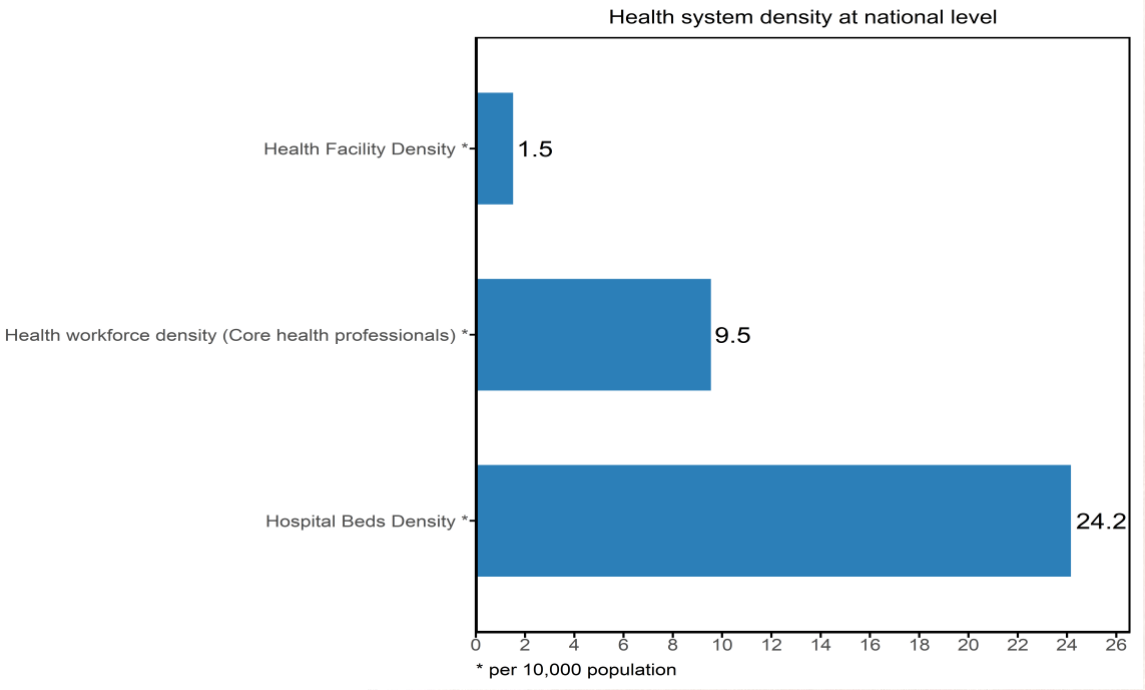


Interpretations

- The case fatality among admissions under-five remains relatively low, around 4%. However, it stands far higher than all ages, not surprisingly, looking at the high level of morbidity and mortality in under-five.
- The quality of care for under-fives calls for action, especially in IMCI training and staffing.

6 Health system progress and performance

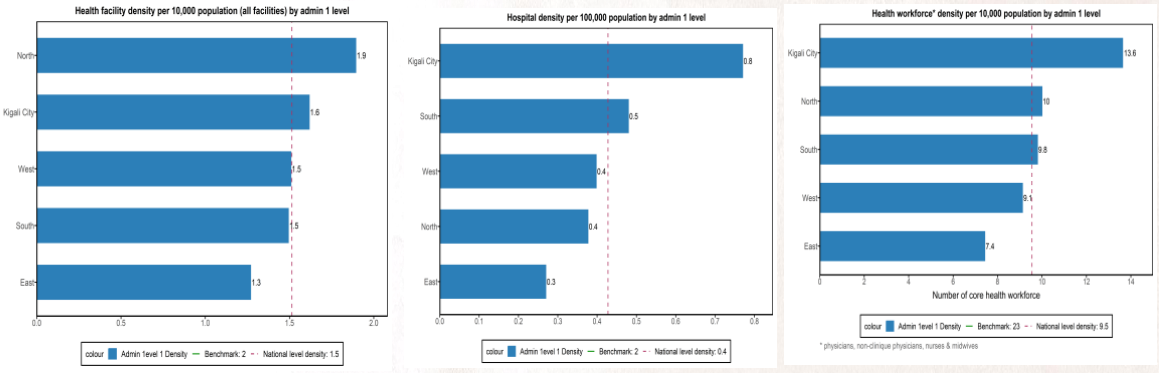
Health system inputs



Interpretations

- The completeness of the data (private sector included) is satisfactory
- The health facility density is slightly lower than the benchmark (2)
- The bed density is close to the benchmark (25)
- The health workforce density is far below the (Benchmark: 23). This strongly suggests the need to make major progress in reducing maternal and child mortality with high-skilled birth attendance (WHO). Each country should have 44.5 per 10,000 population to achieve universal health coverage.

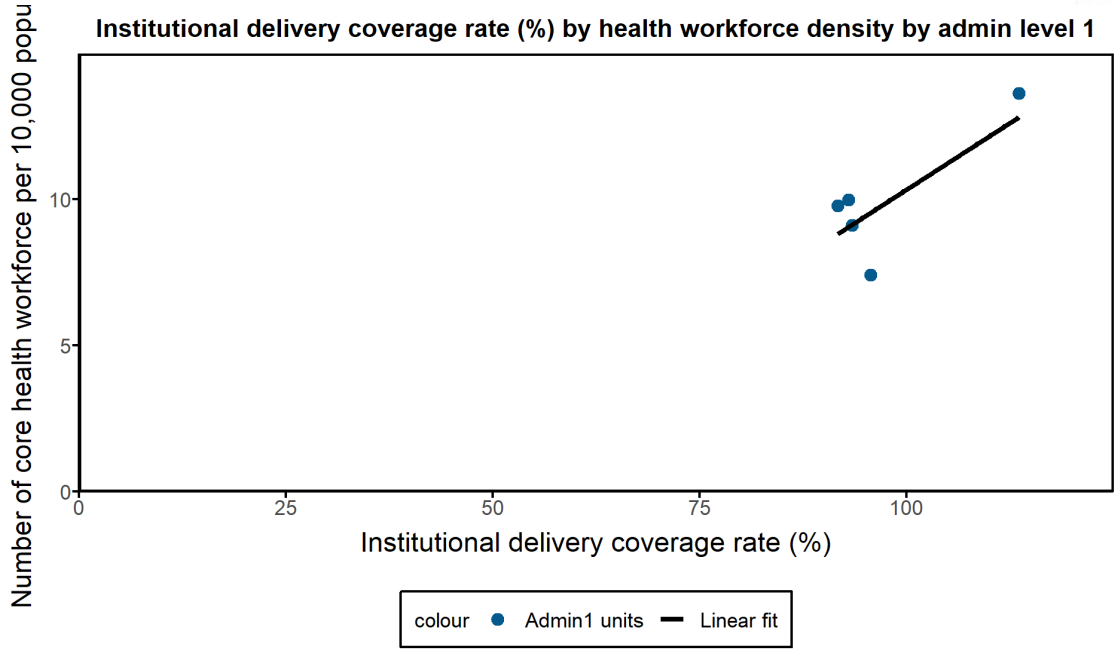
Health system inputs by county



Interpretations

- By provinces, the number of health facilities per 10,000 population varies considerably, higher in North and lower in East.
- The hospital density stands higher in Kigali City and lower in the East.
- The health workforce density stands higher in Kigali City and lower in the East as well.
- East remains at the bottom and Kigali City at the top regarding hospital density and health workforce

Health system outputs by inputs at the subnational level county

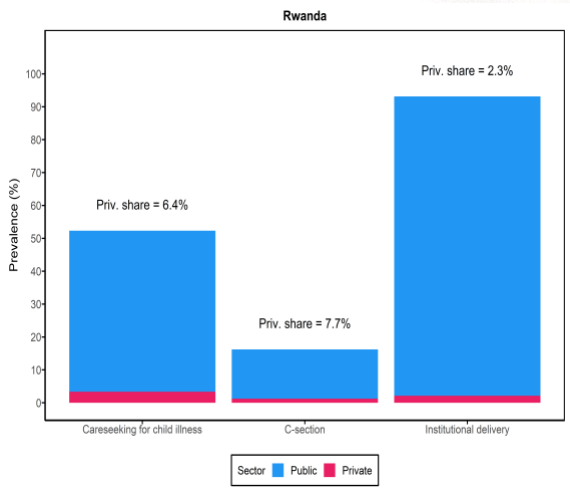


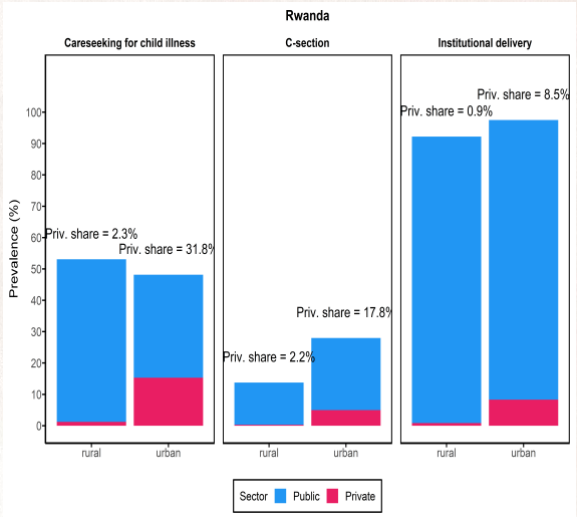
R-squared = 0.4594
Denominator derived frompenta1data

Interpretations

- The obtained picture has validity, showing a positive correlation between the number of workforce and institutional delivery coverage (with developed regions performing better).
- South poorly performs, and Kigali City does well.

Private sector and RMNCAH service





Interpretations

- C-section has a higher private share, followed by care-seeking for child illnesses.
- Rural/urban differences are evident, private share being higher in urban settings

Table of Results (National)

	2010	2014	2019	2020	2021	2022	2023	2024
Antenatal Care indicators								
ANC early visit, first trimester of pregnancy								
DHIS2 estimate			41.1	48.5	54.0	54.2	53.5	58.2
Survey estimates	39.8	56.0	57.1	-	-	-	-	-
ANC 4 or more visits								
DHIS2 estimate			33.8	38.8	46.7	49.5	50.5	49.9
Survey estimates	36.2	44.3	46.6	-	-	-	-	-
Maternal and newborn health indicators								
Institutional delivery (ilvebirth??)								
DHIS2 estimate			91.0	91.5	95.6	101.3	96.7	97.0
Survey estimates	68.9	90.7	93.1	-	-	-	-	-
Caesarean section rate among all live births								
DHIS2 estimate			16.5	19.5	21.8	23.4	23.2	23.9
Survey estimates	8.4	13.2	16.2	-	-	-	-	-
Postnatal care within 48 hours								
DHIS2 estimate			79.8	84.4	89.4	95.1	91.5	91.6
Survey estimates	17.6	43.0	70.4	-	-	-	-	-
Low birth weight (< 2500 g) among institutional live births								
DHIS2 estimate			5.8	5.8	5.7	6.4	6.2	5.8
Survey estimates		6.3	6.8	-	-	-	-	-
Child Health Indicators - Immunization								
Immunization: three doses of DTP / pentavalent vaccine coverage								
DHIS2 estimate			98	99	99	98	100	100
Survey estimates	97	98	99	-	-	-	-	-
WUENIC estimates			98	91	88	98	94	-
Measles vaccination (MCV1) coverage								
DHIS2 estimate			98	101	99	101	100	101
Survey estimates	95	95	98	-	-	-	-	-

WUENIC estimates			96	94	87	99	96	-
Measles vaccination (MCV2) coverage								
DHIS2 estimate			91	95	95	94	95	95
Survey estimates			63	-	-	-	-	-
WUENIC estimates			92	91	85	91	88	-
Family Planning								
Demand Satisfied with a Modern Method (%)								
FPET estimate				74.9	76.0	76.6	77.4	78.1
Surveys	60.4	66.0	73.4	-	-	-	-	-
Prevalence of Modern Methods (mCPR) (%)								
FPET estimate				58.1	59.1	60.0	60.7	61.3
Surveys	43.3	47.8	56.3	-	-	-	-	-
Institutional Mortality								
MMR			151.8	111.5	102.6	87.3	98.6	90.1
SBR			14.1	13.9	13.7	13.0	12.3	12.5
NMR			11.4	11.5	11.5	10.4	9.9	9.3
Curative Health service utilization for children under-five								
N OPD visits per child per year			1.6	1.9	1.9	1.9	2.0	1.9
N admissions per 100 children per year			5.2	5.6	5.3	5.8	5.5	5.5

Selected denominator (Health facility data):

- **Maternal indicators: Penta 1**
- **Child health indicators: Penta 1**