THE REPUBLIC OF UGANDA
MINISTRY OF HEALTH

MAKERERE UNIVERSITY

GLOBAL FINANCING FACILITY

APHRC
African Population and Health Research Center

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

UGANDA

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
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1 Health facility data quality assessment: numerators and denominators

NUMERATORS: Routine health facility data are an important source of information on health indicators. Health facilities report on events such as immunizations given or live births attended. As with any data, quality is often an issue. Facility data are assessed for completeness of reporting, extreme outliers, and internal consistency. Appropriate data adjustments are then made before its use to compute statistics.

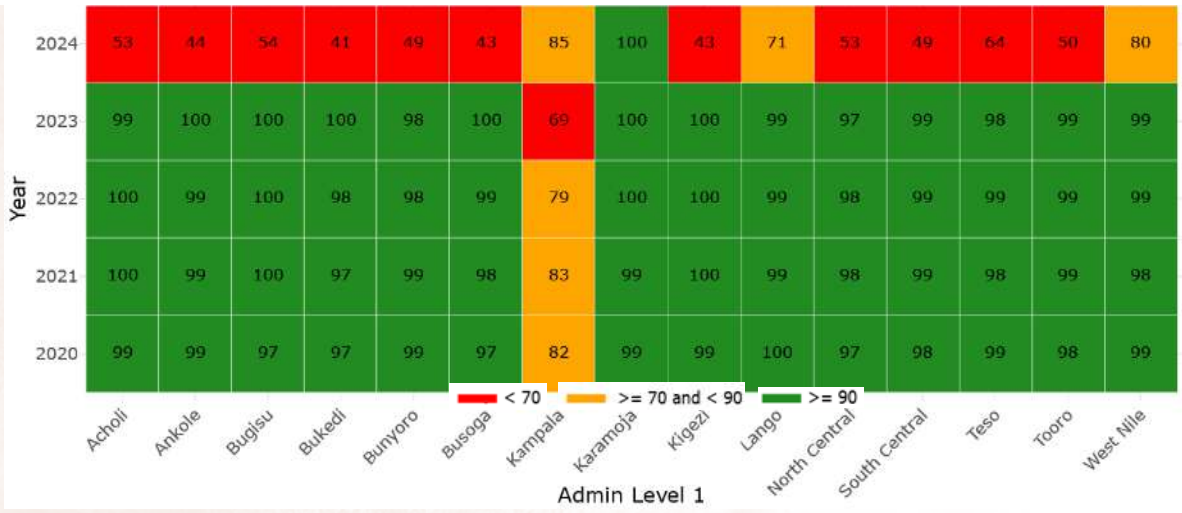
Summary of reported health facility data quality, DHIS2, 2020-2024

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)	97	97	97	97	87
1b	% of districts with completeness of facility reporting >= 90	97	98	97	99	79
1c	% of districts with no missing values for the 4 forms	91	91	94	96	97
type: 2. Extreme outliers (mean of ANC, delivery, immunization, OPD)						
2a	% of monthly values that are not extreme outliers (national)	99	100	99	96	95
2b	% of districts with no extreme outliers in the year	90	92	90	89	79
type: 3. Consistency of annual reporting						
3a	Ratio anc1/penta1	1.11	1.08	1.08	1.08	1.02
3b	Ratio penta1/penta3	1.06	1.06	1.05	1.04	1.03
3c	% district with anc1/penta1 in expected ranged	79	70	68	68	60
3d	% district with penta1/penta3 in expected ranged	86	87	86	82	75
4	**Annual data quality score**	**91**	**91**	**90**	**88**	**79**

Interpretations

- The overall data quality score showed a declining trend, falling to 79% in 2024 from 91% in 2020.
- 2024 data showed the lowest quality, including suboptimal reporting completeness, the presence of extreme values reported by 21% of districts, and reporting inconsistencies.
- One observed issue in 2024 was low reporting (<90%) of outpatient attendances, affecting 82% of districts across all regions, except Karamoja (Fig.1).
- The penta1/penta3 ratio was lower than expected, with a possibility of facilities overreporting penta3.
- These data quality gaps require further verification to determine whether they are due to actual poor reporting or a data extraction problem.

Fig.1. Completeness of reporting for outpatient attendances, 2024



DENOMINATORS: Service coverage is defined as the population that received the service (numerator) divided by the population that needs the service (denominator). Four denominator options are tested using institutional live births and Penta3 coverage. The quality of DHIS2 population projections is assessed based on consistency over time and comparison with UN projections. Two denominators are also derived using near-universal services such as ANC-1 and Penta-1. The most plausible is identified for use in generating other statistics.

Fig.2. DHIS2 and UN projections (total live births)

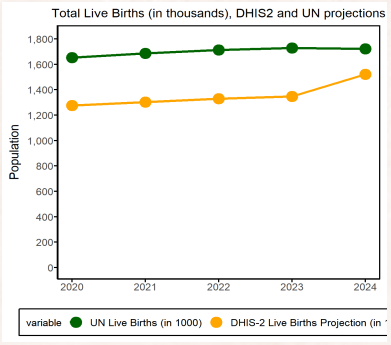
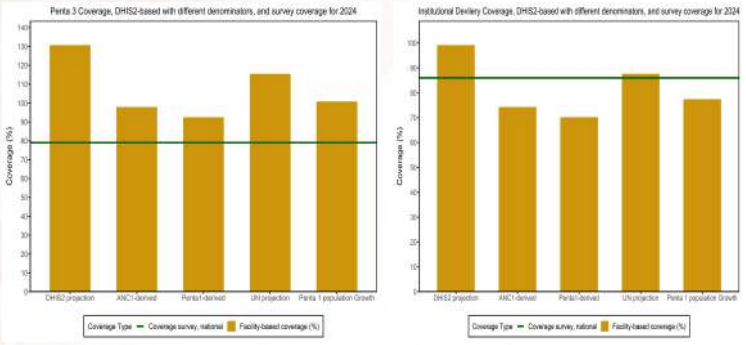


Fig.3. Denominator selection using the coverage of penta3 and institutional deliveries



Interpretations

- DHIS2 total live births projections were lower than the UN projections but improved in 2024, though still lower than expected **(Fig.2).**
- In comparison with survey results, the penta1-derived denominator method for penta3 coverage performed best (though still 11.6% higher than survey) and was selected for the immunization coverage analyses, as the DHIS2 projections performed poorly **(Fig. 3).**
- For institutional deliveries, the UN-projection method performed best at national level (Fig. 3). However, the ANC1-derived denominator method was chosen for the maternal and newborn health coverage indicators. This is because it provides more reliable estimates and analyses for subnational coverage of health services compared to the UN projections, an important aspect for assessing subnational inequalities.

2 National coverage trends: facility data and surveys

Antenatal care coverage trends

Fig. 2.1 National ANC4 coverage

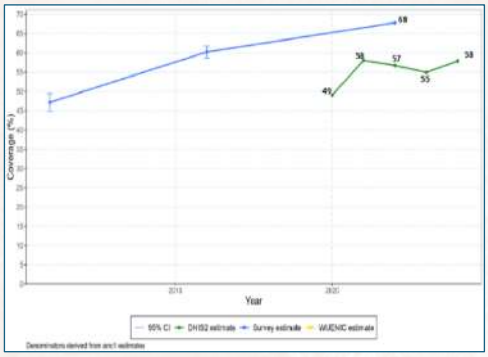
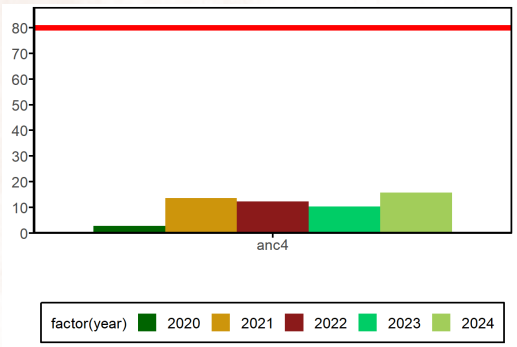


Fig. 2.2. Percentage of districts with >70% ANC4 coverage



Institutional delivery

Fig. 2.3. National institutional live births coverage

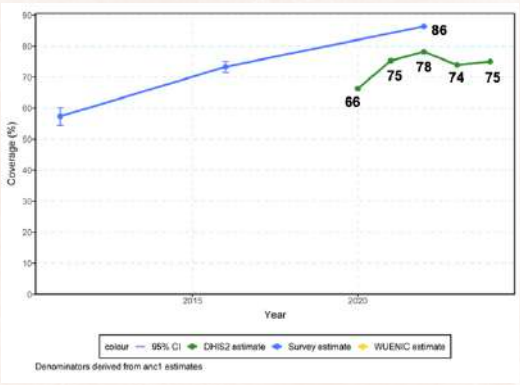
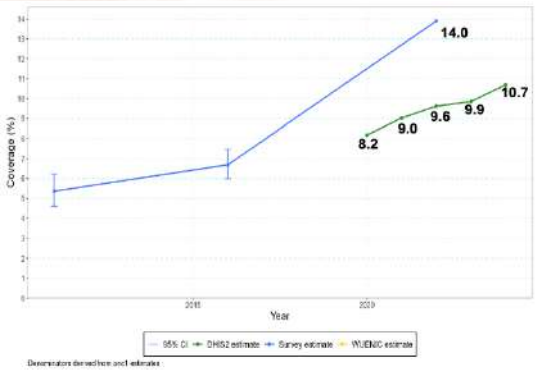


Fig. 2.4. Caesarean sections



Interpretations

- Facility data showed a fluctuating trend for the coverage of ANC4 (Fig. 2.1), remaining at 58% in 2024 with minimal change over time.
- The coverage of institutional live births was 75% in 2024 (Fig. 2.3), with minimal change between 2021 and 2024.
- The coverage of caesarean sections increased steadily to nearly 11% in 2024 (Fig. 2.4). This suggests an improvement in access to surgical obstetric interventions across the country.
- DHIS2 coverage estimates for all three maternal services were generally lower than the survey estimates. This implies that facility data may be underestimating actual population coverage, possibly due to incomplete or inaccurate reporting. Particularly, Kampala had the lowest reporting rates for ANC and live births, while inconsistent reporting by private facilities is the most likely cause for low caesarean section coverage.
- Subnational coverage is also low, for instance, with <20% (target 80%) of districts having an ANC4 coverage above 70% (Fig. 2.2).
- District-specific strategies are necessary to address barriers to access or the provision of quality maternal healthcare, while identifying and verifying potential data quality gaps.

Immunization: Penta 3, Measles 1

Fig. 2.5. Pentavalent vaccine (3rd dose)

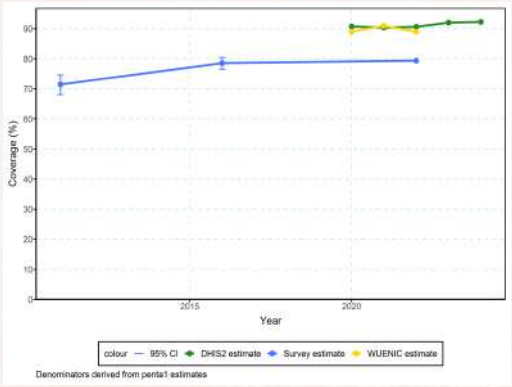


Fig. 2.6. Measles1 vaccine

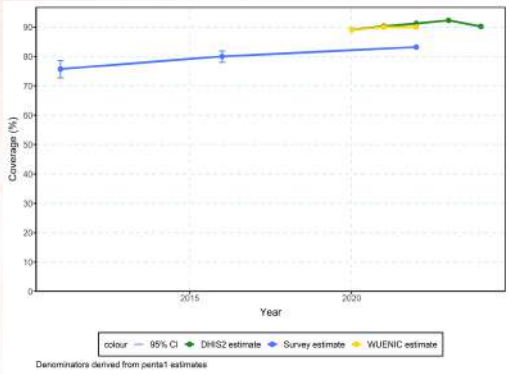
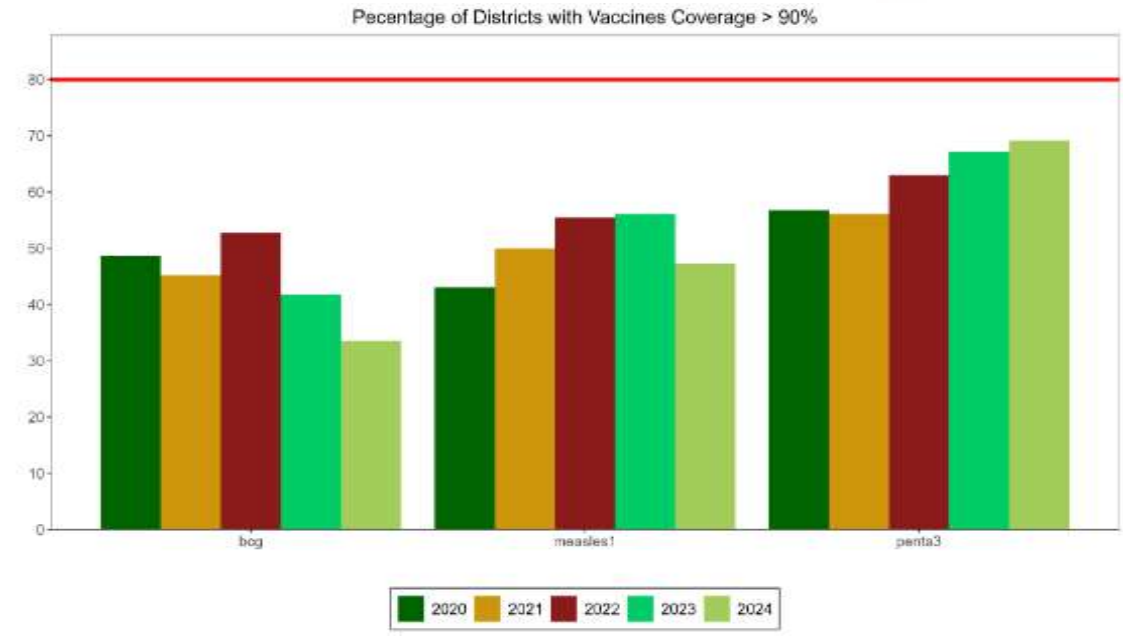


Fig. 2.7. Percentage of districts with vaccine coverage >90%



Interpretations

- Facility-based coverage estimates for penta3 (Fig. 2.5) and measles1 (Fig. 2.6) vaccines are higher (all >90%, ranging from 92% to 95%) compared to survey estimates (79% and 83%, respectively). This indicates that facilities could have overestimated the immunization coverage, possibly due to systematic overreporting of penta3 vaccinations, as reflected by the penta1/penta3 ratio in Table1. Overreporting of penta3 could be due to duplicate reporting or catchment area population changes, such as refugee settings, border districts.
- There is consistency in the facility-based and survey estimates for both indicators, reflecting an increasing trend; however, coverage appears to decrease in 2024 for the measles vaccine.
- At the subnational level, in 2024, DHIS2 immunization coverage estimates show that <70% of districts have penta3 and measles1 vaccine coverage rates above 90% (Fig. 2.7), with the percentage particularly being low for measles1 (<50% of districts).

3. Coverage Inequalities

Wealth and Residence Based Inequalities (based on survey estimates)

Fig. 3.1. Coverage of institutional deliveries: Reducing residence and wealth inequalities

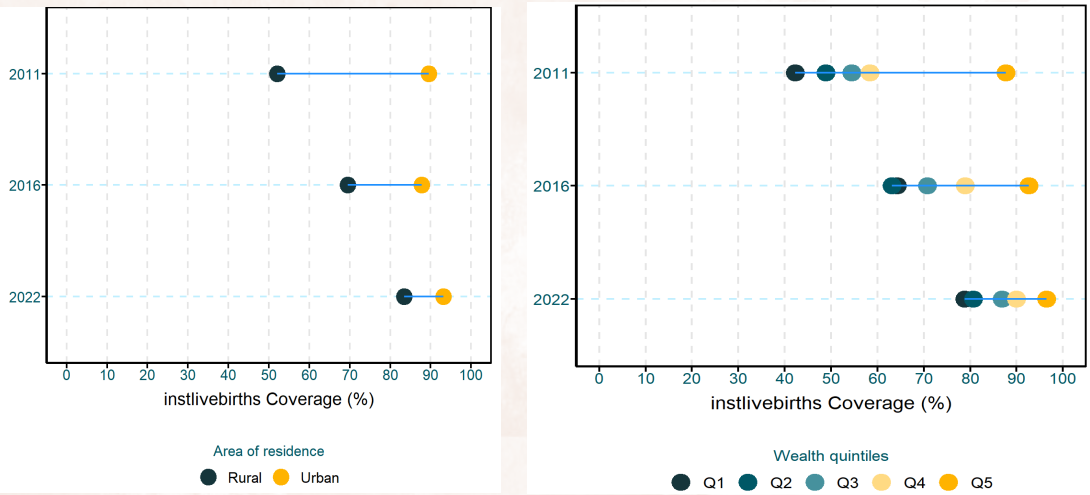
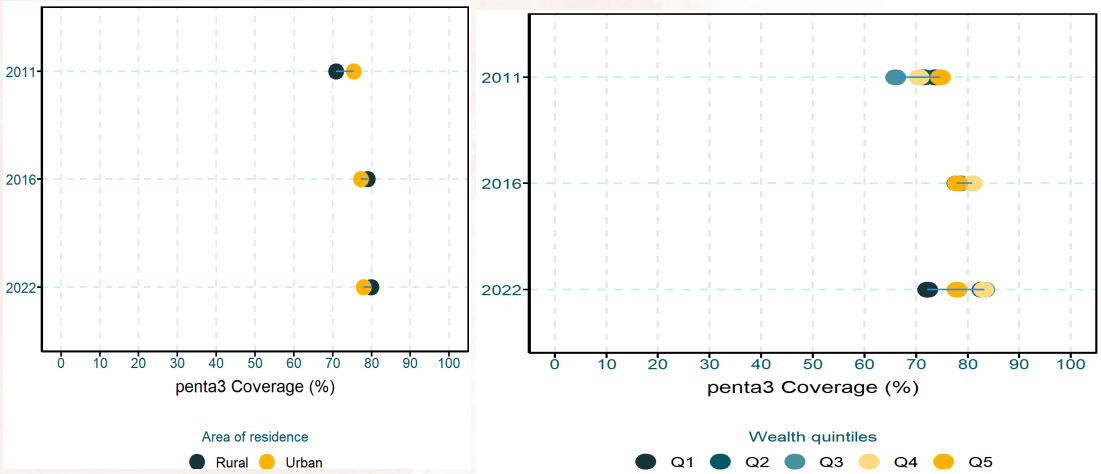


Fig. 3.2. Pentavalent vaccine (3rd dose): Residence inequality reduced, wealth gaps widened

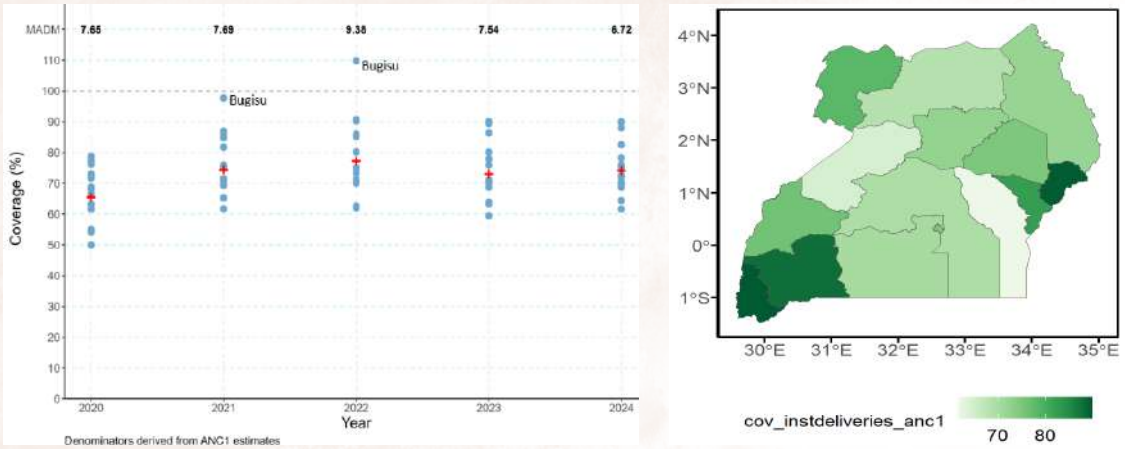


Interpretations

- There are more prominent residence and wealth-based inequalities in the coverage of institutional deliveries (Fig. 3.1) compared to penta3 (Fig. 3.2), though they reduced remarkably over time.
- For penta3, the inequality between the poorest and the richest appears to have widened in 2022, with a difference of about 10 percentage points. By residence, the higher coverage in rural areas in 2022 is likely due to the targeted rural Big-catch-up outreach campaigns in the post-COVID-19 recovery period.
- The wealth inequalities could be a result of a broader post-COVID-19 pandemic disruption in communities, in general service delivery and in community- and household-level access driven by challenges such as affordability of transportation to health facilities.
- Immunization strategies need to intensify their focus on disadvantaged populations, including the urban poor, to close the wealth inequalities.

Geographical inequalities: Health facility data

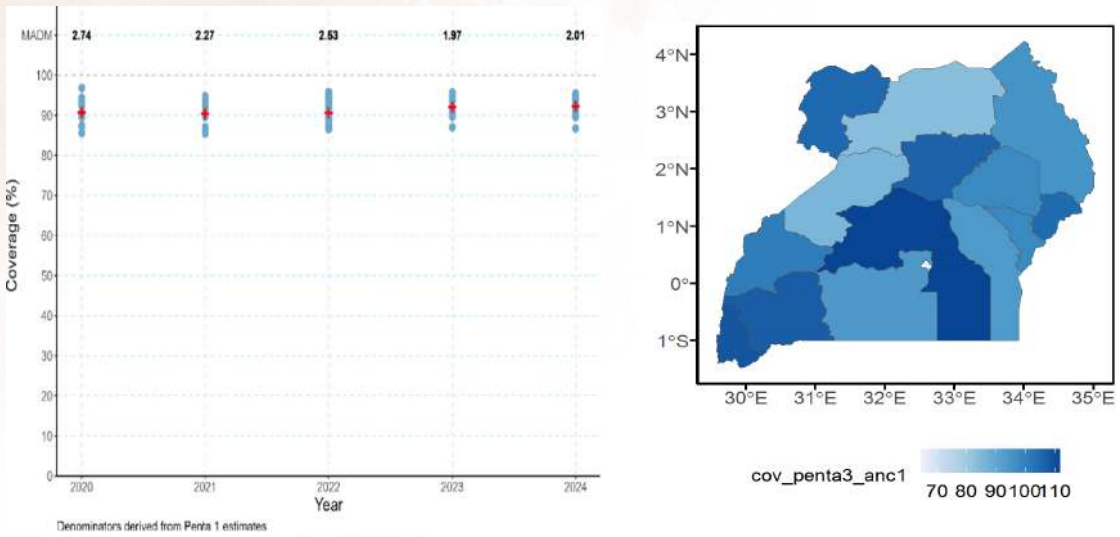
Fig. 3.3 Persistent regional inequalities in the coverage of institutional deliveries



Interpretations

- There are notable regional inequalities in institutional deliveries coverage (Fig. 3.3). However, the inequalities declined to their lowest gap (6.72) in 2024.
- Bugisu sub-region reported the highest coverage, while Busoga sub-region reported the lowest coverage levels.
- Tailored support to underperforming regions is essential to increasing coverage.
- Also, further engagement with high-performing sub-regions may uncover novel strategies that could be adopted elsewhere.

Fig. 3.4. Low levels of regional inequality in the coverage of penta3 vaccine

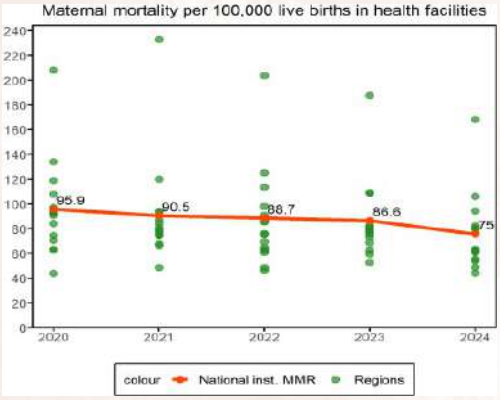


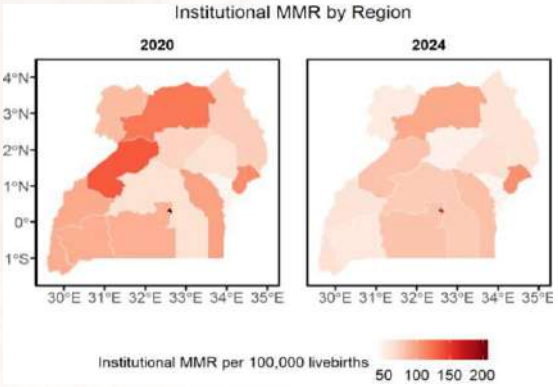
Interpretations

- Geographic variation in the coverage of penta3 (Fig. 3.4) is much smaller compared with institutional deliveries, with the lowest levels of inequalities in 2023 and 2024.
- This could be attributed to an improved national immunization program, employing multiple approaches to ensure children get vaccinated, including the big catch-up campaign, implemented with good fidelity across regions.
- The availability of adequate vaccine amounts at health facilities is also a possible contributor.
- Continued investment is crucial to maintaining and further increasing this coverage, especially in the context of supply chain disruptions, vaccine hesitancy, and other barriers.

4 Institutional mortality

National maternal mortality levels and regional variation

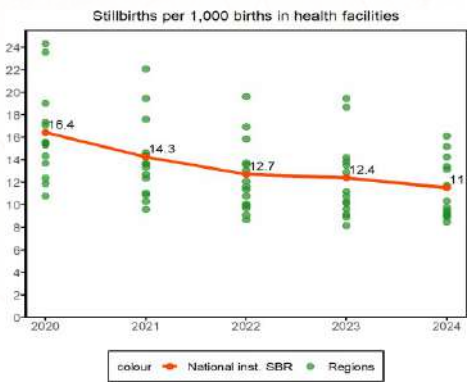


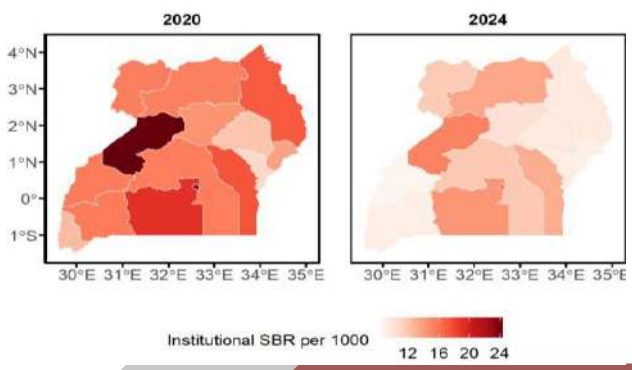


Interpretations

- The national institutional maternal mortality ratio (IMMR) showed a declining trend, from 96 per 100,000 live births in 2020 to 76/100,000 in 2024.
- Kampala, Bunyoro, and Bukedi experienced high IMMR, particularly Kampala, which consistently had high IMMR across all five years.
- Kampala's high IMMR is likely due to the presence of the National Referral Hospital, which receives a wide range of complicated obstetric referrals from within and outside Kampala, from near and distant districts.

National levels of stillbirths and regional disparities

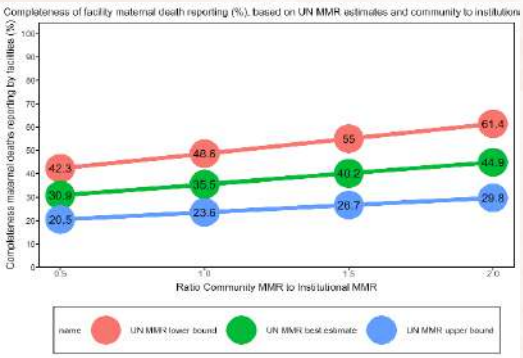


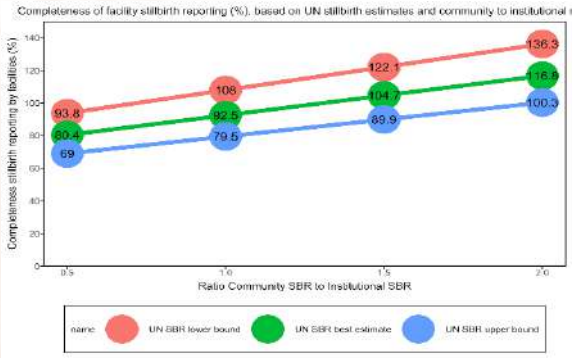


Interpretations

- The national institutional stillbirth ratio (SBR) consistently declined, from 16/1000 births in 2020 to 11 in 2024.
- All sub-regions showed improvement, but none had a very low SBR (<6). Levels ranged from 8 in Bukedi (2023) to 24.3 in Bunyoro (2020).
- Bunyoro, Acholi, South Central, and Busoga showed higher levels of stillbirths compared to other regions in 2024.
- Stillbirths, like maternal mortality, indicate poor quality of care and highlight the need for more intensified efforts to train skilled health professionals and ensure availability of other resources.

Data Quality for Institutional Mortality



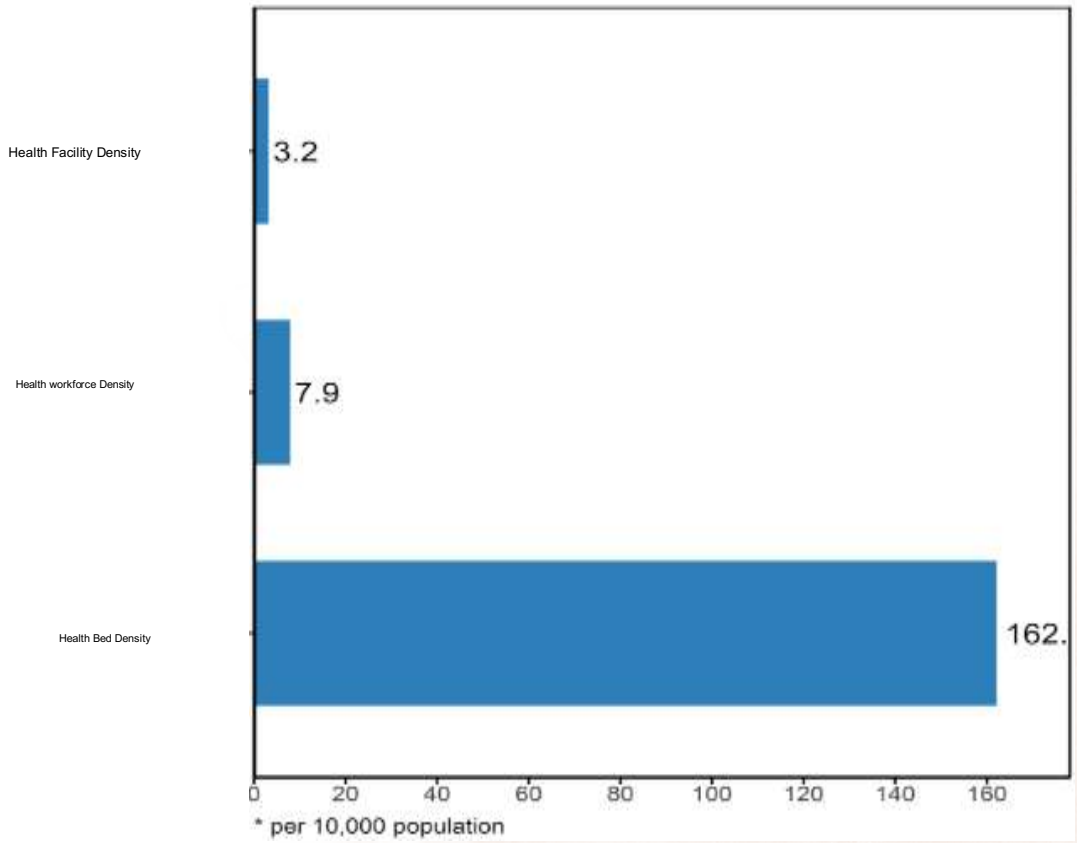


Interpretations

- Both DHIS2-based IMMR and iSBR are much lower than expected in comparison to the 2023 UN estimates for Uganda of the population MMR (170: 80% uncertainty interval 116-298) and the population SBR (14.6 per 1,000; 80% UI 12.5-16.9).
- Because institutional delivery coverage is high, the institutional and population mortality ratios need to be much closer.
- If we use the UN lower bound of MMR (116) and assume that community MMR is 2 times higher than IMMR, then the estimated completeness of institutional reporting of maternal deaths is 61.4%
- Underreporting of stillbirths is also likely. Using a community-to-facility rate of 1.5 and the UN lower bound of SBR of 12.5, stillbirths underreporting is about 10.1% (100-89.9%).
- For every reported facility maternal death, there were 15 stillbirths in 2024, suggesting that stillbirth reporting was slightly better than that for maternal deaths.
- Overall, there is significant underreporting of maternal deaths and stillbirths by health facilities in DHIS2 that should be verified and addressed accordingly.

5 Healthcare System Capacity

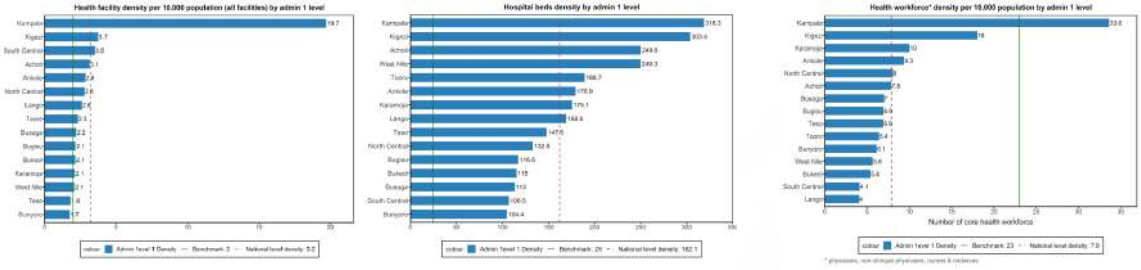
Health System Inputs (National)



Interpretations

- The number of health facilities available per 10,000 population was good, with about one facility for every 3000 population in 2024. This suggests relative access to basic or primary healthcare services. Given the good robustness of DHIS2 total population projections, it is more likely that the number of facilities in DHIS2 underrepresents the total number of facilities in the country.
- The health workforce density is critically low (7.9 per 10,000), falling far short of the WHO target (23). This highlights a severe shortage of skilled health professionals. However, there could be inaccurate reporting of available health workers by some facilities, given recent revisions to the health workforce structure, which should have increased the number of expected staff at different service delivery levels. Nonetheless, challenges in recruitment are also likely.
- DHIS2 data suggests that the bed density exceeds the global average (162 vs 27 per 10,000), but this warrants further verification, as some public facilities are often overcrowded, with some clients lacking beds.

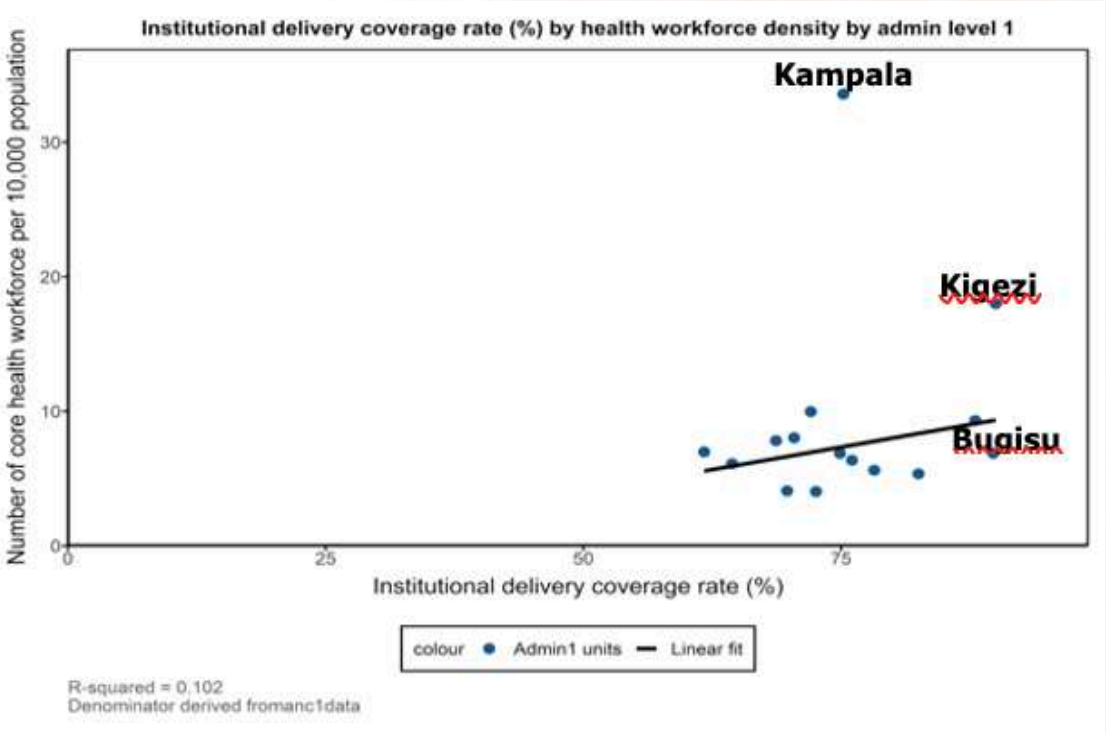
Regional Variation in Health System Inputs



Interpretations

- Overall, there is better availability of health facilities and hospital beds compared to health workers across regions. All regions had bed densities that exceeded the recommended level, and about 50% (7/15) of the regions had a facility density above the recommended level. However, inequalities are also present.
- Kampala and Kigezi regions consistently showed better health system capacity compared to other regions, showing facility and bed densities that were well above the recommended levels and national averages. Kampala also showed optimal health workforce density.
- However, Kampala's estimates should be interpreted with caution. Besides having the highest district-level population, Kampala also faces other complex dynamics, including a high transient population and a high volume of referrals from nearby and distant districts that substantially undermine existing healthcare infrastructure and human resources.

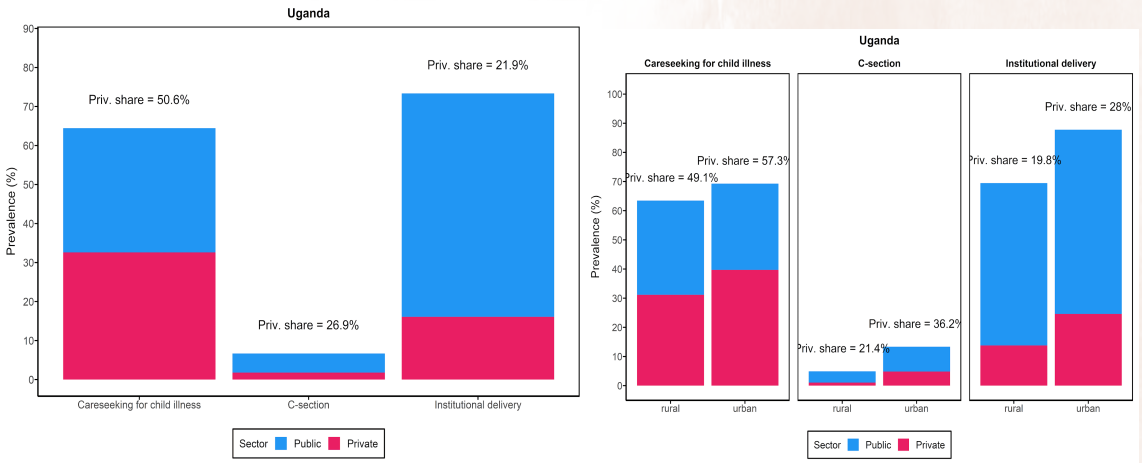
Health System Outputs by Inputs (Subnational Level)



Interpretations

- In 2024, there was a weak (R^2 = 0.102) but positive correlation between health workforce density and institutional delivery coverage. This means that the delivery rate increases for each additional core health worker. This aligns with the expectation that regions with denser health workforces should have higher institutional delivery rates.
- However, there are notable regional variations or inconsistencies. For example, with the highest health workforce density, Kampala's institutional delivery rate was lower than regions with lower workforce densities, such as Bugisu and Kigezi. Data quality issues are a potential contributor, given that Kampala had low reporting rates. These should be verified and addressed.
- Nonetheless, health system capacity and efficiency should be examined further in all regions, while addressing key contextual challenges.

Private sector and RMNCAH service



Interpretations

- The highest contribution of the private sector was observed in child health at 50.6% and the lowest for deliveries at 21.9% in 2024. This suggests that child health services are more affordable compared to maternal services in private facilities. It might also imply that curative child services in public facilities are inadequate compared to maternal services.
- Urban areas show higher private sector use across all services than rural areas.
- The potential role of the private sector should be increased across settings, given existing challenges within the public sector. Good governance will be key to this.

Table of Results (National)

	2010	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Antenatal Care indicators											
ANC early visit, first trimester of pregnancy											
Survey			28.6%								
Facility data							30.4%	35.6%	35.5%	34.4%	37.3%
ANC 4 or more visits											
Survey			60.2%						68.0%		
Facility data							49.1%	58.1%	56.7%	54.9%	57.9%
Intermittent preventive therapy second dose (IPT2)											
Survey			44.9%								
Facility data							71.2%	76.7%	73.4%	63.4%	64.5%
Maternal and newborn health indicators											
Institutional delivery											
Survey									86.0%		
Facility data							65.5	74.4	77.2	73.0	74.1
Caesarean section rate among all live births											
Survey			6.7%						14.0		
Facility data							8.2	9.0	9.6	9.9	10.7
Postnatal care within 48 hours											
Survey			55.0%						66.0%		
Facility data							58.9	70.3	73.5	70.3	71.3
Low birth weight (< 2500 g) among institutional live births											
Survey											
Facility data							3.7	3.8	4.0	3.9	3.8
Child Health Indicators - Immunization											
Immunization: three doses of DTP / pentavalent vaccine coverage											
Surveys			78.6%						79.0%		
Facility data							90.7	90.4	90.6	92.0	92.3
UN estimates											
Measles vaccination (MCV1) coverage											
Surveys			80.0%						83.0%		
Facility data							89.1	90.3	91.2	92.3	90.2
UN estimates							89	90	90		
Measles vaccination (MCV2) coverage											
Surveys									19.8		
Facility data							0.9	1.1	2.0	5.6	3.5
UN estimates									49		
Family Planning											
Demand for modern methods satisfied											
Surveys									58.0%		
FPET estimate						38.0%	39.4%	41.2%	42.2%	43.3%	44.3%
Institutional Mortality											
MMR/100,000 livebirths							95.9	90.5	88.7	86.6	75.9
SBR/1000 births							16.4	14.3	12.7	12.4	11.5
NMR/1000 livebirths							6.7	5.6	5.6	5.3	5.2
Curative Health service utilization for children under-five *											
Av. #OPD visits per child per year							0.08	0.07	0.1	0.09	0.08

Selected denominator (Health facility data):
Maternal indicators: **ANC1**
Child health indicators: **Penta1**