VERSE Equity Assessment

Report prepared by Christopher Xiao. For errors or omissions, please contact the VERSE team.

The Vaccine Economics Research for Sustainability and Equity (VERSE) project produces measures of efficiency (*vaccine coverage*) and equity to track the progress made by immunization programs worldwide. As equity measures, the present report features concentration indices (Wagstaff and Erreyger) and the absolute equity gap accounting for key unfair factors (as a **composite** measure, see VERSE Methods) or socioeconomic status only (the traditional **wealth** measure).

This analysis was produced by the Johns Hopkins Bloomberg School of Public Health.

Highlights

Key highlights from the DHS data

- Vaccine coverage in Rwanda is extremely high and equitable. There are no vaccine analyzed which has a coverage rate under 90% and there are no concerning inequities.
- Vaccine coverage rates vary slightly based on urban/rural residence and province of residence, indicating a likely combination of supply-side and demand-side factors which are impacting coverage and equity in Rwanda.
- While the coverage for the first dose of a measles-containing vaccine is very high (nationally around 98%), our decomposition analysis captured a significant influence of the sex of the child towards measles vaccination inequity. Further research may be warranted to understand why this is the case.

National overview

In 2019, Rwanda had vaccine coverage above 90% for every vaccine included in the VERSE model. Only approximately 3% of Rwandan children had not received a single vaccine dose. Vaccine coverage remains high for vaccines provided later, such as the third dose of DTP or POLIO. Vaccination coverage is also very equitable in Rwanda. Wagstaff and Erreyger Concentration Indices are low for all vaccines, indicating there are no significant equity problems regarding vaccination coverage. Overall, Rwandan vaccination coverage in 2019 was very high and equitable.

*Coverage and equity level estimates for Rwanda (2019)*

Vaccine	Coverage	Concentration indices (95% confidence interval)				Absolute Equity Gap
		Composite (Wagstaff)	Composite (Erreyger)	Wealth (Wagstaff)	Wealth (Erreyger)	Composite
ZERO	0.2958%	0.66 (0.386; 0.934)	0.005 (-0.269; 0.279)	0.001 (-0.008; 0.01)	0.003 (-0.006; 0.012)	0.007 (0.001; 0.013)
FULL	91.9440%	0.01 (0.004; 0.016)	0.036 (0.03; 0.042)	0.002 (-0.007; 0.011)	0.007 (-0.002; 0.016)	0.037 (0.012; 0.062)
COMPLETE	95.0974%	0.015 (0.006; 0.024)	0.058 (0.049; 0.067)	0.007 (-0.008; 0.022)	0.019 (0.004; 0.034)	0.072 (0.037; 0.107)
BCG	98.7011%	0.005 (-0.003; 0.013)	0.018 (0.01; 0.026)	0.001 (-0.008; 0.01)	0.004 (-0.005; 0.013)	0.024 (0.012; 0.036)
DTP1	98.8127%	0.005 (-0.001; 0.011)	0.019 (0.013; 0.025)	0.002 (-0.007; 0.011)	0.006 (-0.003; 0.015)	0.02 (0; 0.04)
DTP2	98.6689%	0 (-0.002; 0.002)	0 (-0.002; 0.002)	0 (-0.009; 0.009)	0 (-0.009; 0.009)	-0.002 (-0.024; 0.02)
DTP3	98.2455%	0.002 (-0.007; 0.011)	0.005 (-0.004; 0.014)	0.002 (-0.007; 0.011)	0.005 (-0.004; 0.014)	0.015 (-0.012; 0.042)
POLIO1	99.3768%	0.001 (-0.009; 0.011)	0.003 (-0.007; 0.013)	0.002 (-0.007; 0.011)	0.005 (-0.004; 0.014)	0.008 (-0.01; 0.026)
POLIO2	98.8099%	0.001 (-0.005; 0.007)	0.003 (-0.003; 0.009)	0 (-0.009; 0.009)	-0.001 (-0.01; 0.008)	0.007 (-0.015; 0.029)
POLIO3	96.6581%	0.007 (-0.002; 0.016)	0.026 (0.017; 0.035)	0.002 (-0.007; 0.011)	0.006 (-0.003; 0.015)	0.035 (0.006; 0.064)
PCV1	98.7924%	0.005 (-0.001; 0.011)	0.02 (0.014; 0.026)	0.002 (-0.007; 0.011)	0.007 (-0.002; 0.016)	0.023 (0.003; 0.043)
PCV2	98.7131%	0.002 (-0.002; 0.006)	0.006 (0.002; 0.01)	0.001 (-0.008; 0.01)	0.002 (-0.007; 0.011)	0.001 (-0.023; 0.025)
PCV3	98.1336%	0.001 (-0.007; 0.009)	0.004 (-0.004; 0.012)	0.003 (-0.006; 0.012)	0.008 (-0.001; 0.017)	0.007 (-0.02; 0.034)
MCV1	97.9549%	0.012 (0.001; 0.023)	0.035 (0.024; 0.046)	0.002 (-0.007; 0.011)	0.007 (-0.002; 0.016)	0.049 (0.01; 0.088)

ZERO: Zero-dose status is defined as the child not receiving either DPT, BCG, Polio, or MCV within the first year of life. FULL: Full immunization for age is defined as the child having received all scheduled vaccines for their current age (at the time of the survey). COMPLETE: Child is over two years old and has received all scheduled vaccines.
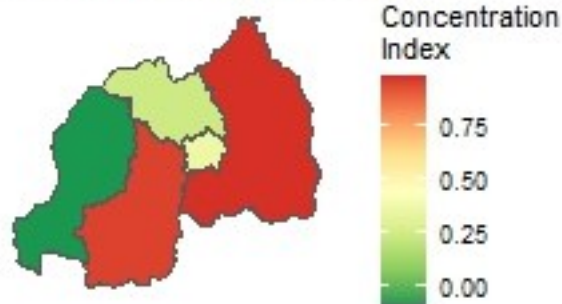
Zero-dose children

Zero-dose status is defined as the child not receiving either DPT, BCG, Polio, or MCV within the first year of life.
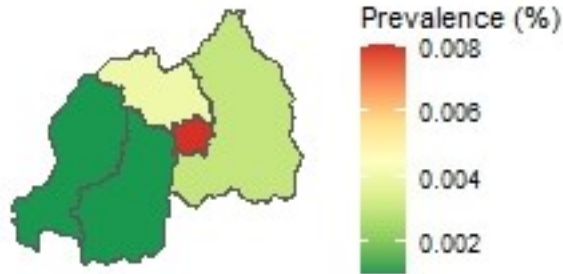
The prevalence of zero-dose status is extremely low in Rwanda. Kigali province has the highest prevalence of zero-dose with 0.8%, followed by the Northern and Eastern provinces. The prevalence in of zero-dose in Kigali can be reduced further to be in line with zero-dose prevalence in other provinces.
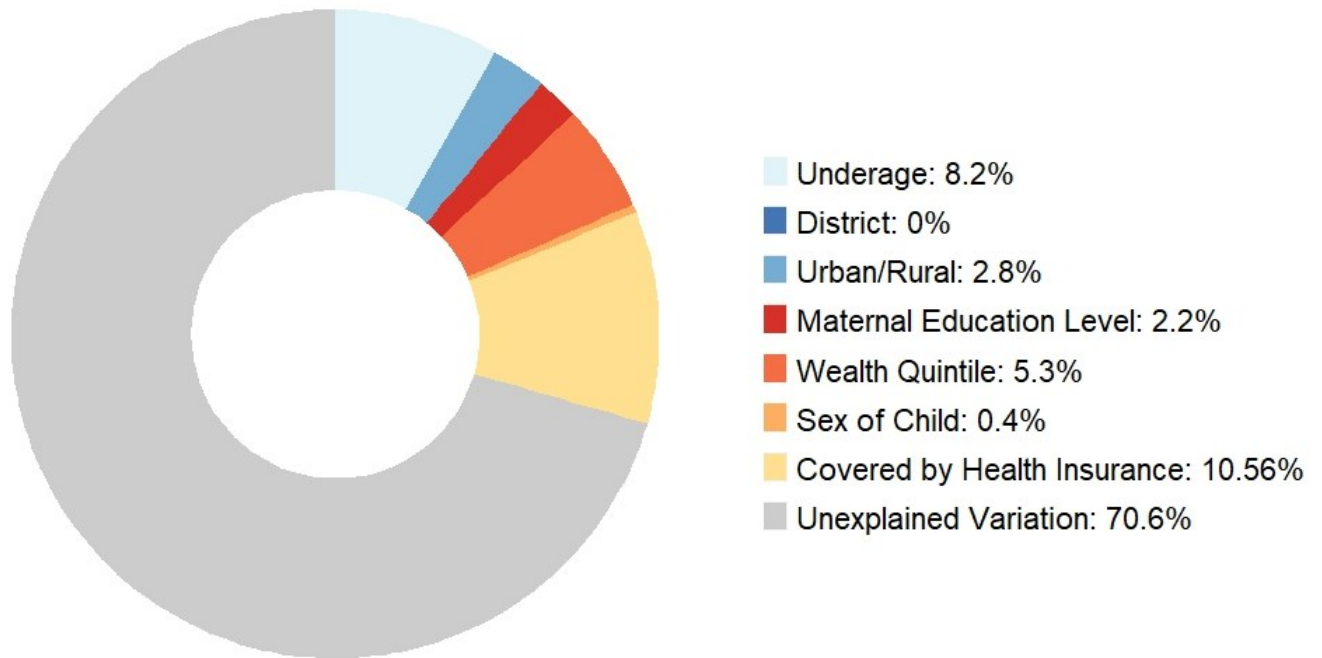
Zero-dose prevalence and equity by district

District	Coverage	Concentration indices			
		Composite (Wagstaff)	Composite (Erreyger)	Wealth (Wagstaff)	Wealth (Erreyger)
Kigali	**0.8%**	0.359	0.007	-0.012	-0.051
North	**0.4%**	0.234	0.002	-0.017	-0.045
East	**0.3%**	0.978	0.008	0.023	0.066
South	0.1%	0.951	0.003	-0.010	-0.026
West	0.1%	-0.097	0.000	-0.010	-0.027

Subnational regions as presented in the 2019 DHS for Rwanda.

For mathematical reasons, when the prevalence/coverage outcome is low, the Wagstaff and Erreyger indices may produce conflicting results in terms of order of magnitude: for instance, the Wagstaff (composite) index could report a value of 0.312 (significant inequity) whereas the Erreyger-corrected index would report 0.033 (very equitable distribution). Both indices are positive: privileged people benefit most.

Decomposition of Zero-Dose Inequity

Legend:
- Underage: 8.2%
- District: 0%
- Urban/Rural: 2.8%
- Maternal Education Level: 2.2%
- Wealth Quintile: 5.3%
- Sex of Child: 0.4%
- Covered by Health Insurance: 10.56%
- Unexplained Variation: 70.6%

Health insurance coverage influences most of the variation in zero-dose status prevalence in the country. Wealth is another factor that contributes to the variation in zero-dose status. Living in an urban or rural setting, maternal education level, and sex of child are other factors which play a smaller role in influencing the variation of zero-dose status. Efforts to expand insurance coverage may aid in reducing further the prevalence of zero-dose children.

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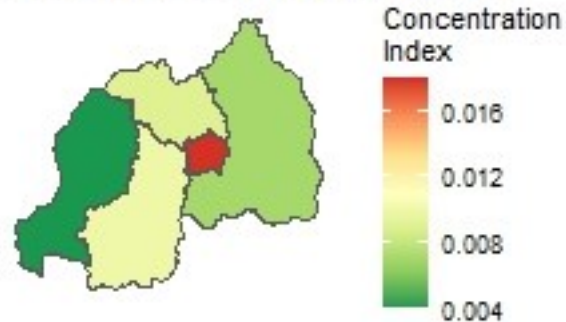International Vaccine
Access Center

Full immunization

Full immunization for age is defined as the child having received all scheduled vaccines for their current age (at the time of the survey).
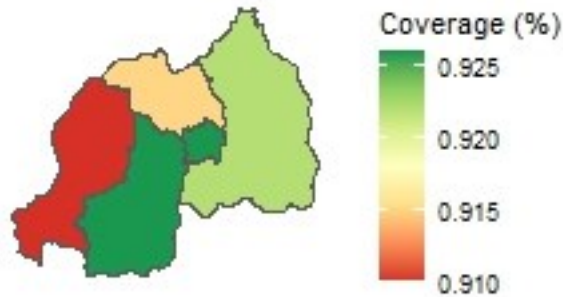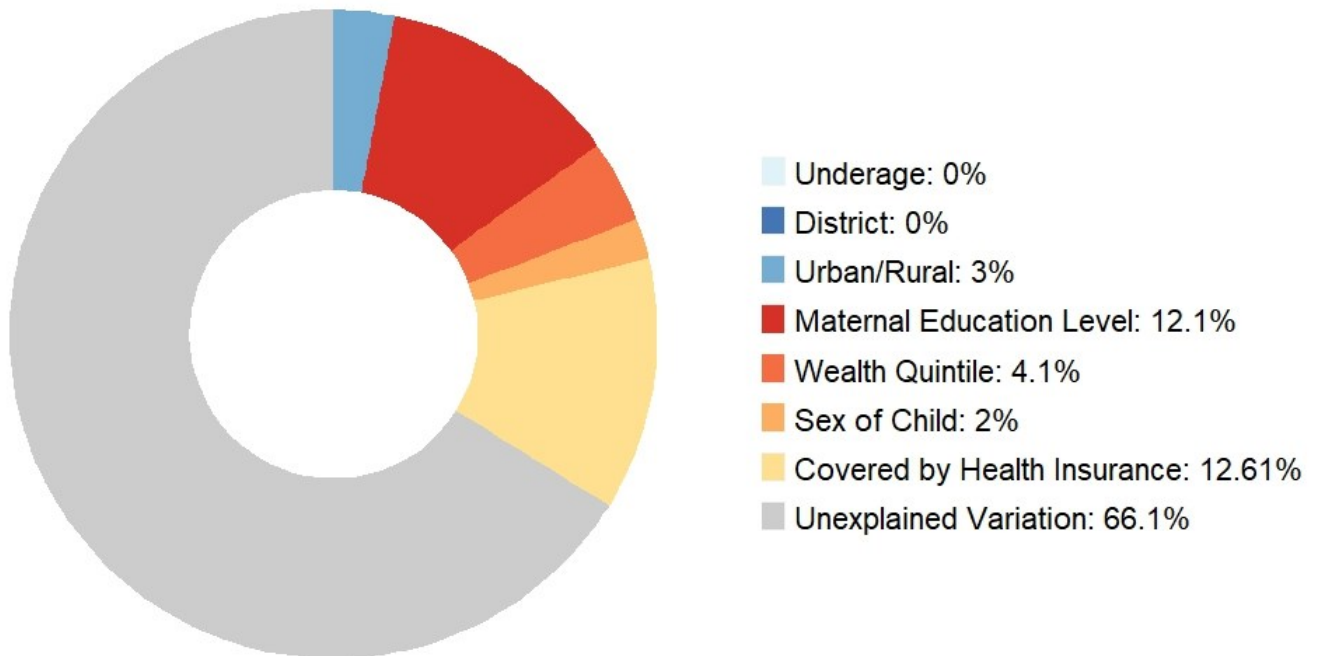

All provinces have full immunization coverage status rates above 90%. Kigali and South provinces have the best coverage (92.6% of children receiving all vaccines scheduled for age). The Western province has the least coverage with 91%. Based on Wagstaff and Erreyger concentration indices, coverage is fairly equitable in all provinces. Kigali province has the least equitable fully immunized status coverage as it was the only province with a Wagstaff concentration index above 0.01.

Fully immunized status coverage and equity by district

District	Coverage	Concentration indices			
		Composite (Wagstaff)	Composite (Erreyger)	Wealth (Wagstaff)	Wealth (Erreyger)
West	**91.0%**	0.004	0.015	-0.013	-0.035
North	**91.5%**	0.009	0.032	-0.018	-0.046
East	**92.2%**	0.007	0.026	0.025	0.072
Kigali	92.6%	0.018	0.068	-0.009	-0.037
South	92.6%	0.010	0.037	-0.002	-0.005

Subnational regions as presented in the 2019 DHS for Rwanda.

Decomposition of Fully Immunized for Age Equity

Underage: 0%
District: 0%
Urban/Rural: 3%
Maternal Education Level: 12.1%
Wealth Quintile: 4.1%
Sex of Child: 2%
Covered by Health Insurance: 12.61%
Unexplained Variation: 66.1%

Insurance coverage status (12.61%) and maternal education level (12.1%) contributed most to the variation in full immunization for age. Wealth, sex of child, and where the household was located also had minor contributions towards the variation in full immunization for age.
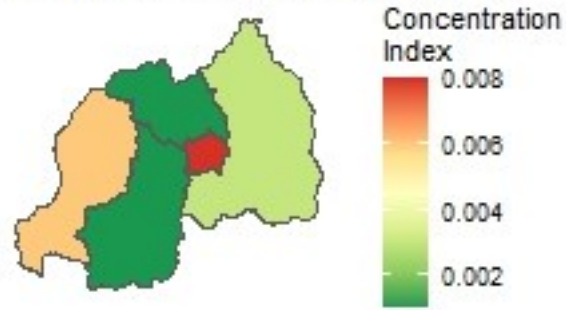
Individual vaccines

BCG immunization

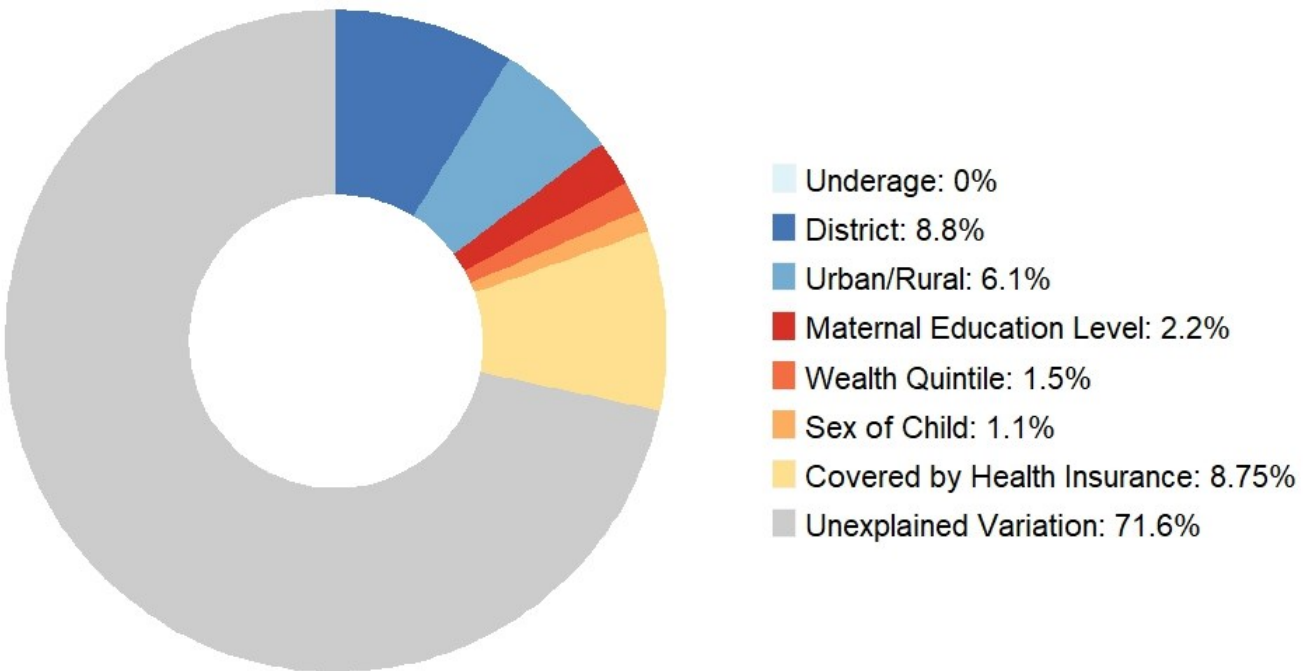The BCG vaccine is given at birth in Rwanda and protects against Tuberculosis.
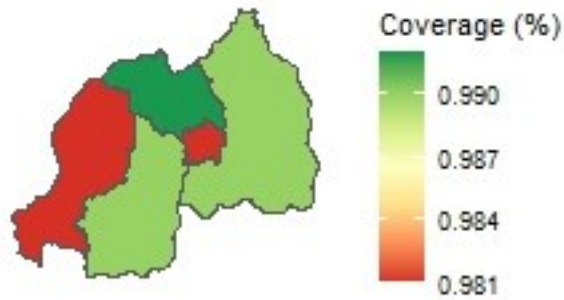
The BCG vaccine provided at birth is an essential component in child healthcare. All provinces have BCG coverage above 98%. Additionally, BCG immunization coverage is very equitable in all provinces.

BCG immunization coverage and equity by district

District	Coverage	Concentration indices			
		Composite (Wagstaff)	Composite (Erreyger)	Wealth (Wagstaff)	Wealth (Erreyger)
Kigali	**98.1%**	0.008	0.033	-0.015	-0.063
West	**98.1%**	0.006	0.025	-0.007	-0.018
South	**99.0%**	0.001	0.004	-0.004	-0.011
East	99.0%	0.003	0.012	0.020	0.058
North	99.2%	0.001	0.005	-0.015	-0.040

Subnational regions as presented in the 2019 DHS for Rwanda.

Decomposition of BCG Coverage Equity

Underage: 0%
District: 8.8%
Urban/Rural: 6.1%
Maternal Education Level: 2.2%
Wealth Quintile: 1.5%
Sex of Child: 1.1%
Covered by Health Insurance: 8.75%
Unexplained Variation: 71.6%

DTP1 immunization

The first dose of the DTP vaccine is given six weeks after birth as part of the Pentavalent vaccine (DTP-HepB-Hib) in Rwanda which provides protection against Diphtheria, Whooping Cough (Pertussis), Tetanus, Hepatitis B, and Haemophilus influenza type B.

DTP1 Vaccination Coverage Map
Coverage (%)
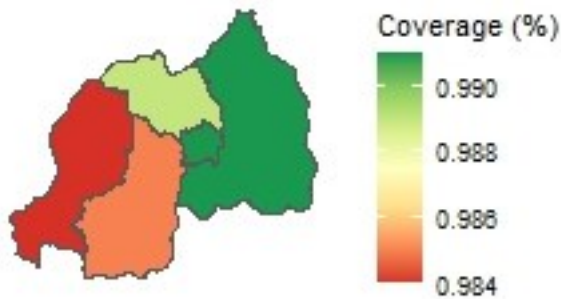
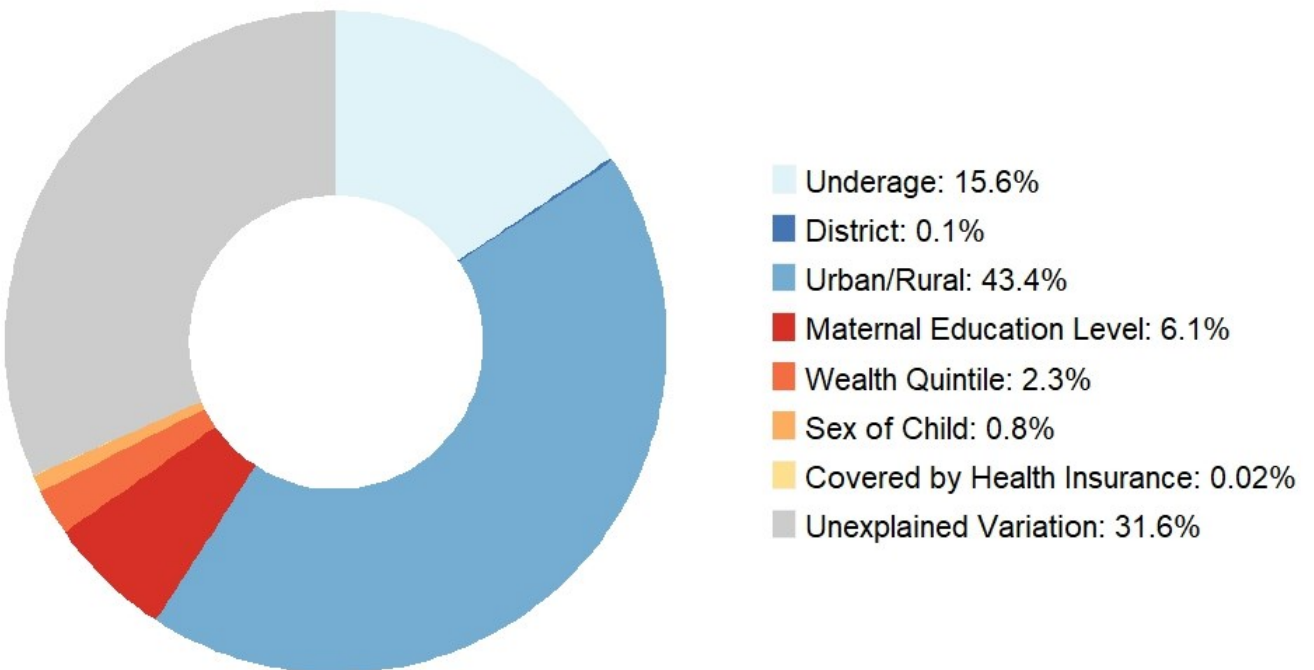DTP1 Vaccination Equity Heat Map
Concentration Index
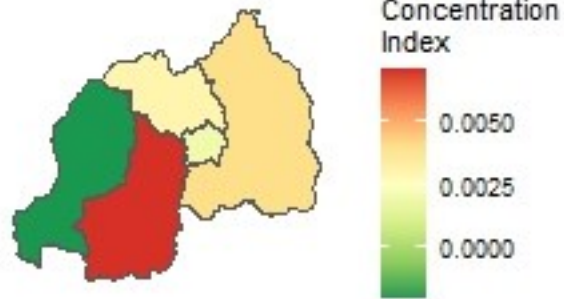
The first dose of DTP vaccine shows very high coverage, with the lowest coverage in the Western province at 98.40%. The delivery of the first dose is also very equitable, with some provinces even having a slight "pro-disadvantaged" distribution (shown by negative Wagstaff or Erreyger concentration indices).

DTP1 immunization coverage and equity by district

District	Coverage	Concentration indices			
		Composite (Wagstaff)	Composite (Erreyger)	Wealth (Wagstaff)	Wealth (Erreyger)
West	**98.40%**	-0.002	-0.007	-0.007	-0.019
South	**98.50%**	0.007	0.025	-0.004	-0.011
North	**98.90%**	0.003	0.012	-0.022	-0.057
Kigali	99.10%	0.002	0.008	-0.015	-0.065
East	99.10%	0.004	0.013	0.025	0.070

Subnational regions as presented in the 2019 DHS for Rwanda.

Decomposition of DTP1 Coverage Equity

- Underage: 15.6%
- District: 0.1%
- Urban/Rural: 43.4%
- Maternal Education Level: 6.1%
- Wealth Quintile: 2.3%
- Sex of Child: 0.8%
- Covered by Health Insurance: 0.02%
- Unexplained Variation: 31.6%

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DTP2 immunization

The second dose of the DTP vaccine is given ten weeks after birth as part of the Pentavalent vaccine (DTP-HepB-Hib) in Rwanda.
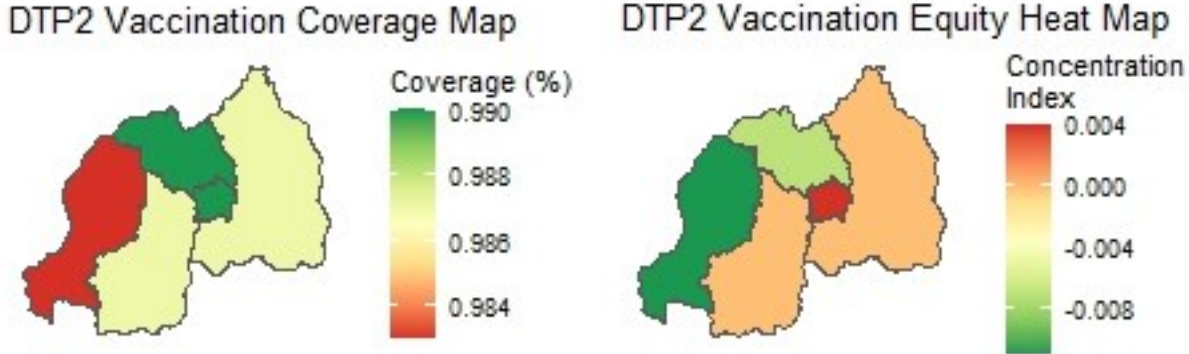
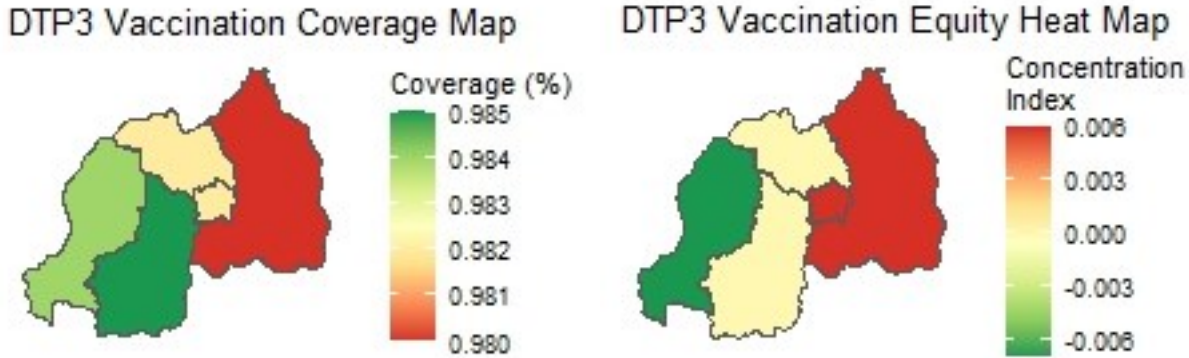Coverage for the second dose remains high and equitable.

DTP2 immunization coverage and equity by district

		Concentration indices			
District	Coverage	Composite (Wagstaff)	Composite (Erreyger)	Wealth (Wagstaff)	Wealth (Erreyger)
West	**98.3%**	-0.011	-0.041	-0.009	-0.025
South	**98.7%**	0.000	0.001	-0.006	-0.014
East	**98.7%**	0.000	0.002	0.021	0.059
Kigali	99.0%	0.004	0.015	-0.013	-0.057
North	99.0%	-0.007	-0.026	-0.026	-0.067

Subnational regions as presented in the 2019 DHS for Rwanda.

DTP3 immunization

The third dose of the DTP vaccine is given 14 weeks after birth as part of the Pentavalent vaccine (DTP-HepB-Hib) in Rwanda.
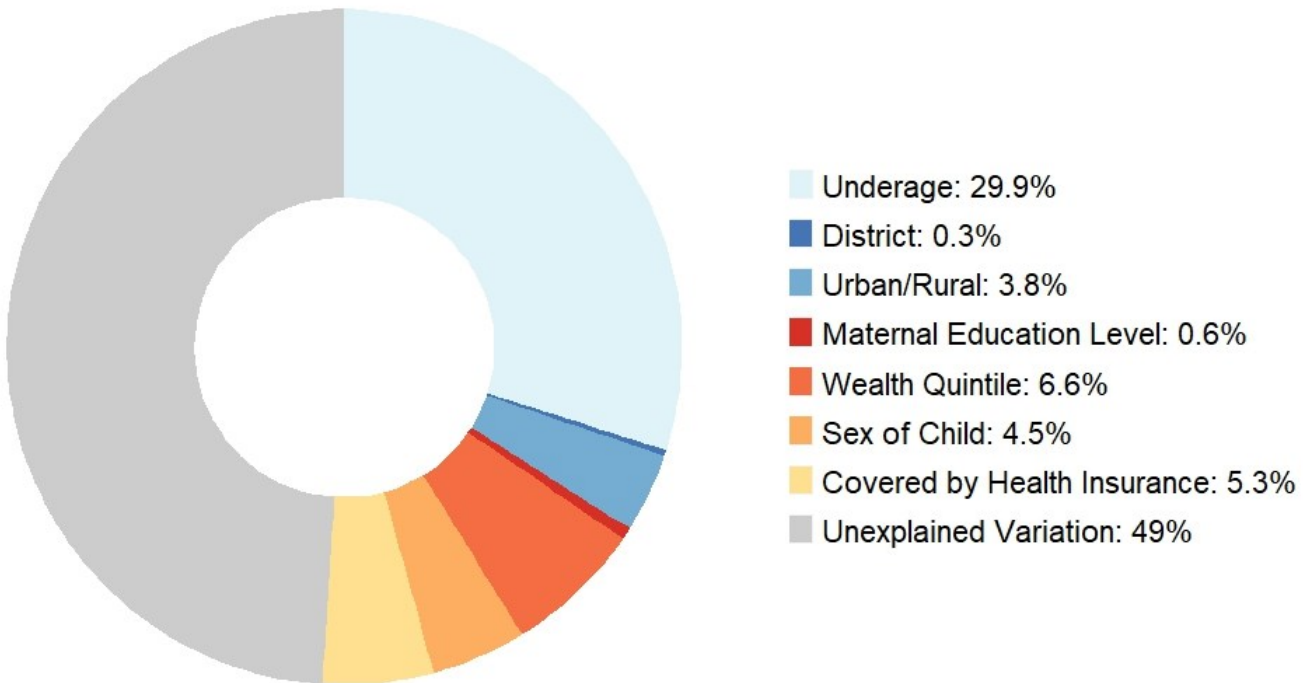

Again, coverage for the third dose remains very high and equitable.

DTP3 immunization coverage and equity by district

District	Coverage	Concentration indices			
		Composite (Wagstaff)	Composite (Erreyger)	Wealth (Wagstaff)	Wealth (Erreyger)
East	**98.00%**	0.006	0.022	0.024	0.069
Kigali	**98.20%**	0.006	0.023	-0.008	-0.036
North	**98.20%**	0.000	0.001	-0.023	-0.060
West	98.40%	-0.007	-0.024	-0.007	-0.020
South	98.50%	0.000	0.001	-0.007	-0.018

Subnational regions as presented in the 2019 DHS for Rwanda.

Decomposition of DTP3 Coverage Equity

- Underage: 29.9%
- District: 0.3%
- Urban/Rural: 3.8%
- Maternal Education Level: 0.6%
- Wealth Quintile: 6.6%
- Sex of Child: 4.5%
- Covered by Health Insurance: 5.3%
- Unexplained Variation: 49%

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POLIO1 immunization

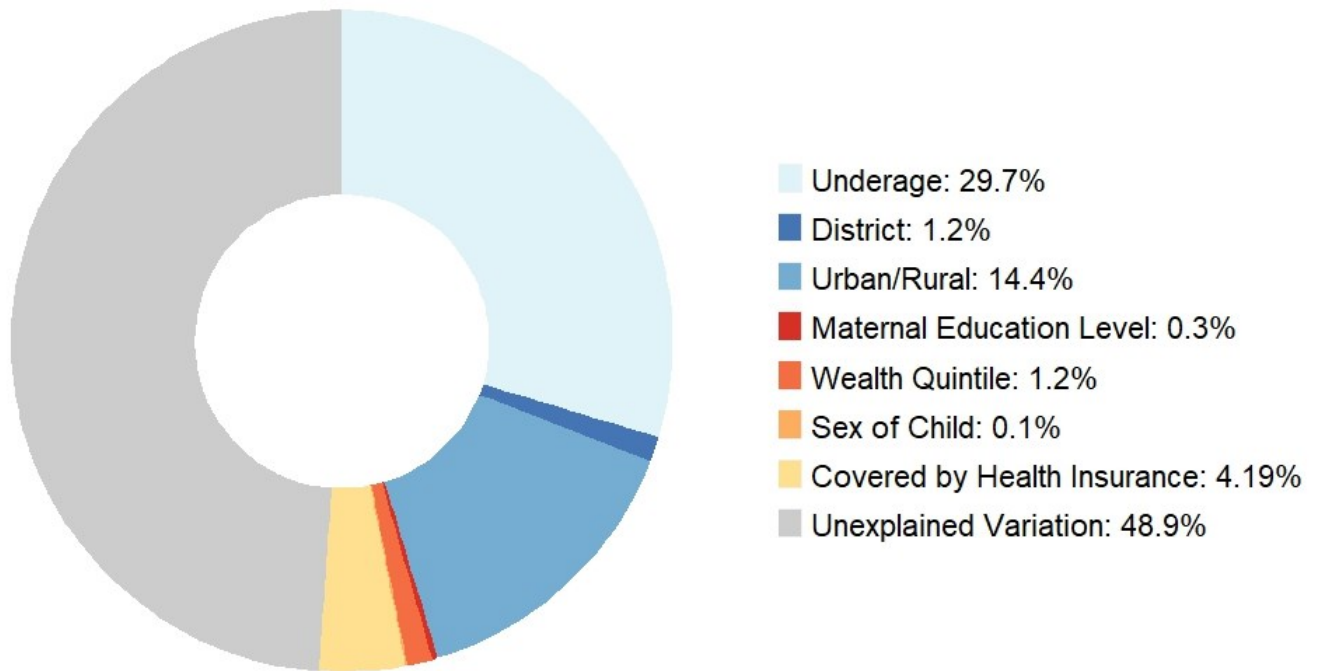The first dose of the polio vaccine is given six weeks after birth in Rwanda.
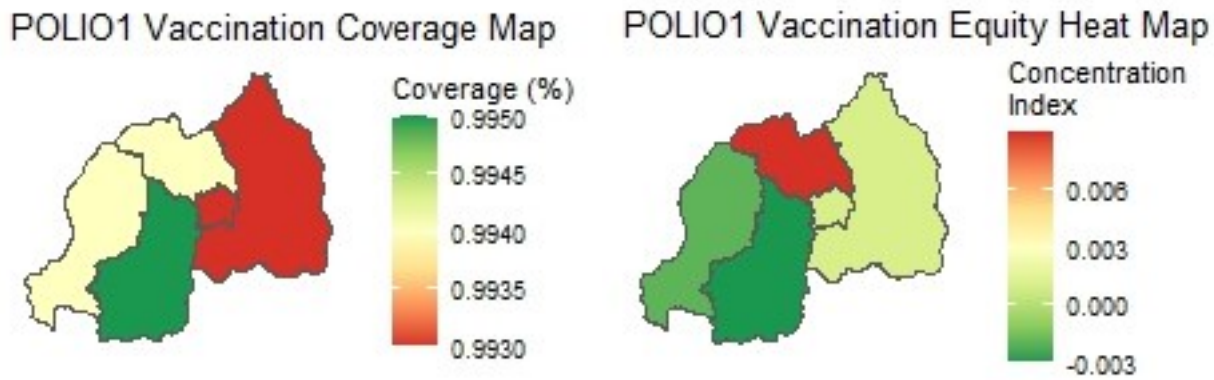
The first dose of the polio vaccine has extremely high coverage in every province. The vaccine is also equitably distributed.

POLIO1 immunization coverage and equity by district

		Concentration indices			
District	Coverage	Composite (Wagstaff)	Composite (Erreyger)	Wealth (Wagstaff)	Wealth (Erreyger)
Kigali	**99.30%**	0.001	0.004	-0.015	-0.063
East	**99.30%**	0.001	0.004	0.025	0.071
West	**99.40%**	-0.002	-0.008	-0.006	-0.017
North	99.40%	0.009	0.033	-0.021	-0.056
South	99.50%	-0.003	-0.011	-0.006	-0.015

Subnational regions as presented in the 2019 DHS for Rwanda.

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Decomposition of POLIO1 Coverage Equity

- Underage: 29.7%
- District: 1.2%
- Urban/Rural: 14.4%
- Maternal Education Level: 0.3%
- Wealth Quintile: 1.2%
- Sex of Child: 0.1%
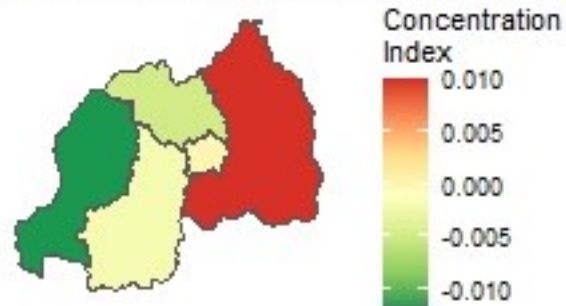- Covered by Health Insurance: 4.19%
- Unexplained Variation: 48.9%

POLIO2 immunization

The second dose of the polio vaccine is given ten weeks after birth in Rwanda.

POLIO2 Vaccination Coverage Map

Coverage (%)
0.992
0.991
0.990
0.989
0.988
0.987
0.986
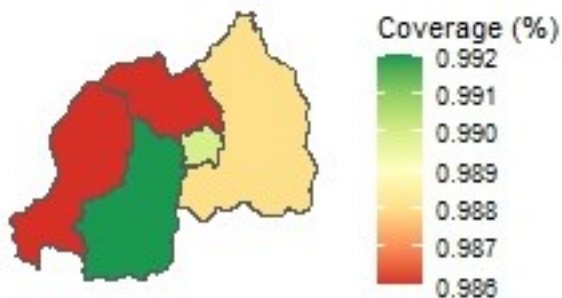
POLIO2 Vaccination Equity Heat Map

Concentration Index
0.010
0.005
0.000
-0.005
-0.010

While coverage rates are slightly lower for the second dose, the coverage remains very high and equitable.

POLIO2 immunization coverage and equity by district

District	Coverage	Composite (Wagstaff)	Composite (Erreyger)	Wealth (Wagstaff)	Wealth (Erreyger)
		Concentration indices			
West	**98.6%**	-0.012	-0.045	-0.009	-0.025
North	**98.6%**	-0.005	-0.017	-0.024	-0.062
East	**98.8%**	0.010	0.039	0.022	0.064
Kigali	99.0%	0.000	-0.002	-0.013	-0.057
South	99.2%	-0.002	-0.008	-0.009	-0.022

Subnational regions as presented in the 2019 DHS for Rwanda.

Decomposition of POLIO2 Coverage Equity

- Underage: 38.3%
- District: 1.4%
- Urban/Rural: 0%
- Maternal Education Level: 0%
- Wealth Quintile: 0%
- Sex of Child: 0.3%
- Covered by Health Insurance: 10.68%
- Unexplained Variation: 49.3%
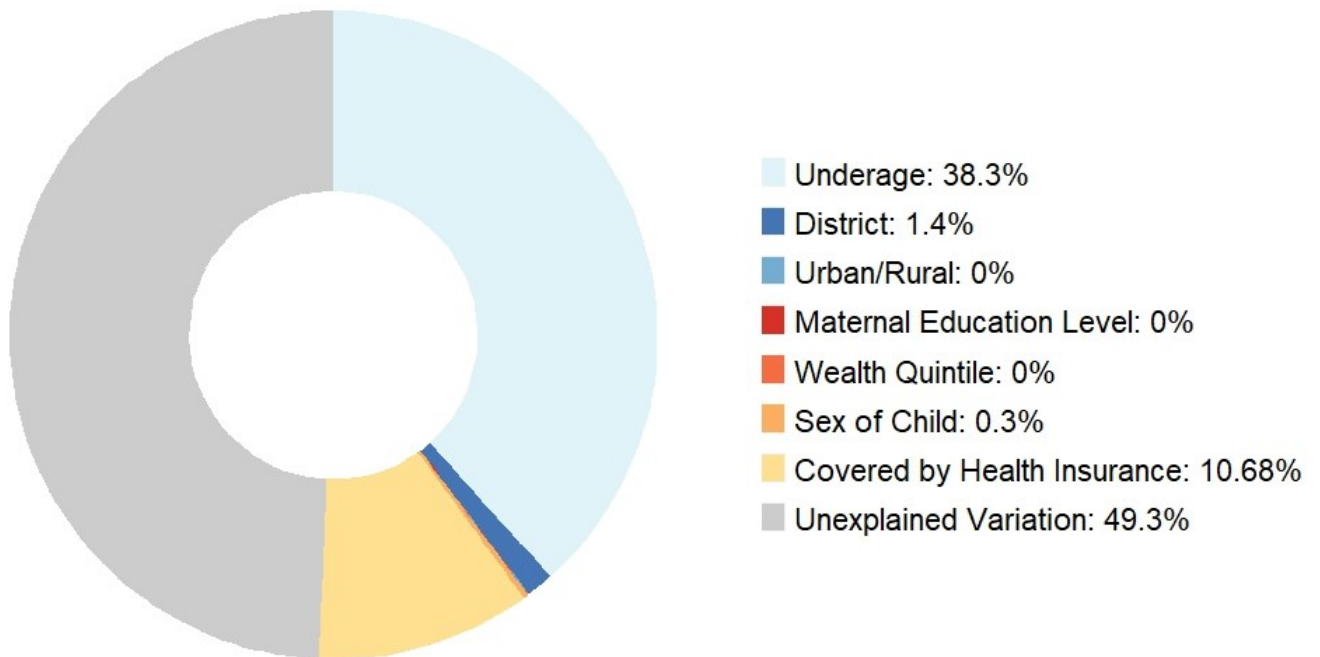
POLIO3 immunization

The third dose of the polio vaccine is given 14 weeks after birth in Rwanda.
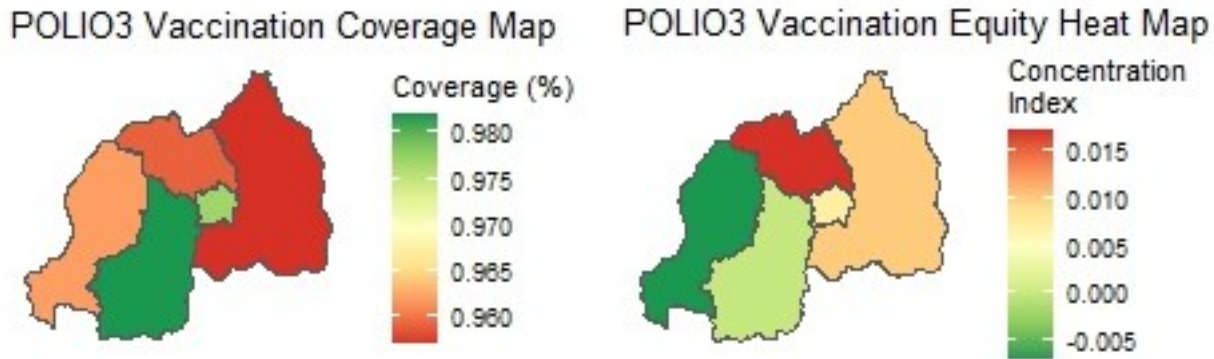
Coverage rates remain very high and equitable for the third dose of the polio vaccine. The lowest coverage rates occur in the Eastern and Northern provinces with coverage around 96%. Kigali and South provinces have the highest coverage rates (approximately 98%).

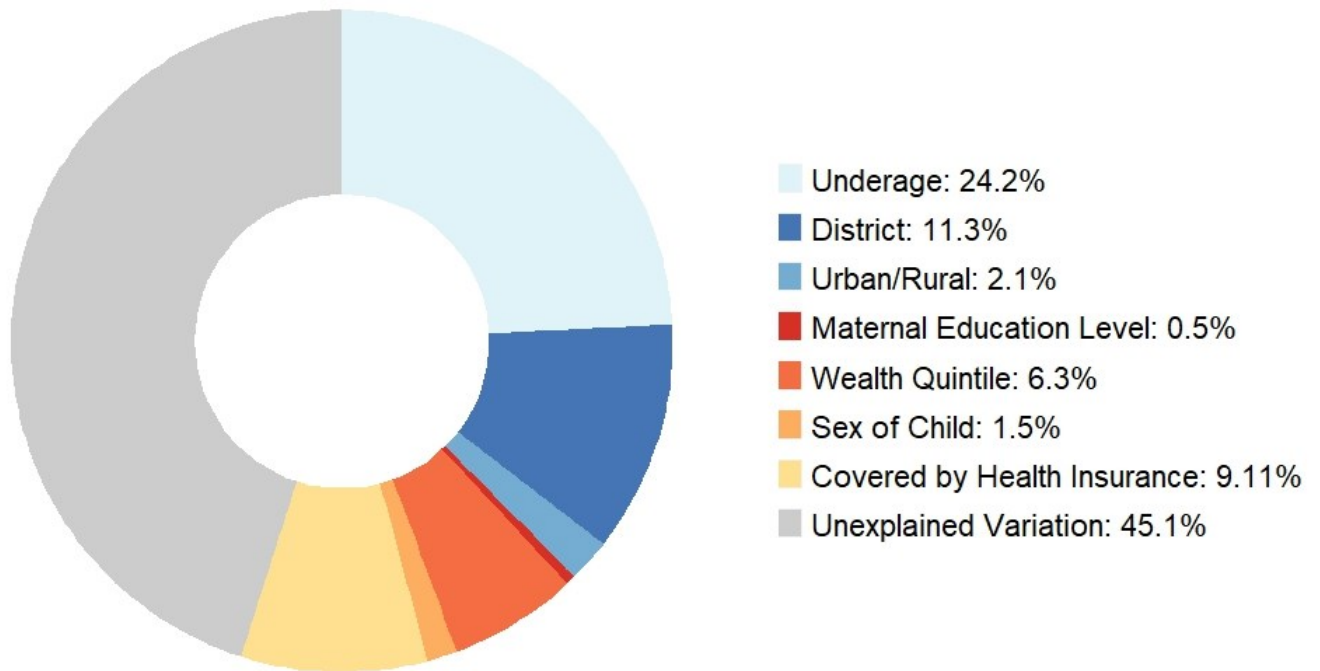*POLIO3 immunization coverage and equity by district*

		Concentration indices			
District	Coverage	Composite (Wagstaff)	Composite (Erreyger)	Wealth (Wagstaff)	Wealth (Erreyger)
East	**95.7%**	0.010	0.033	0.026	0.075
North	**95.9%**	0.017	0.059	-0.021	-0.055
West	**96.2%**	-0.007	-0.024	-0.009	-0.025
Kigali	97.7%	0.007	0.024	-0.008	-0.036
South	98.2%	0.000	0.001	-0.009	-0.022

Subnational regions as presented in the 2019 DHS for Rwanda.

Being underage is the only fair contributor towards variation in the VERSE model. Being underage is a significant contributor to the variation in third dose polio vaccination status. District and health insurance status are the main unfair contributors towards variation for POLIO3 coverage.

Decomposition of POLIO3 Coverage Equity

- Underage: 24.2%
- District: 11.3%
- Urban/Rural: 2.1%
- Maternal Education Level: 0.5%
- Wealth Quintile: 6.3%
- Sex of Child: 1.5%
- Covered by Health Insurance: 9.11%
- Unexplained Variation: 45.1%

MCV1 immunization

The first dose of the MCV is given nine months after birth in Rwanda and provides protection against measles.

MCV1 Vaccination Coverage Map

Coverage (%)
- 0.990
- 0.985
- 0.980
- 0.975
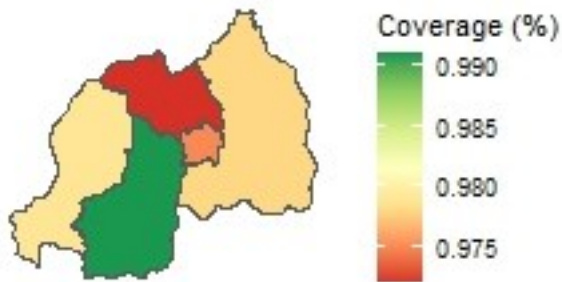
MCV1 Vaccination Equity Heat Map

Concentration Index
- 0.03
- 0.02
- 0.01
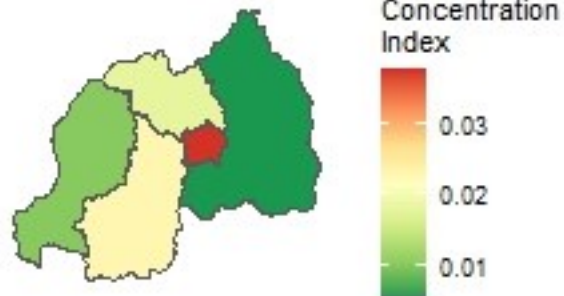
Measles vaccination coverage is high in all provinces and exceeds the 90% coverage target to prevent measles outbreaks. Kigali has the least equitable distribution of MCV1 coverage.

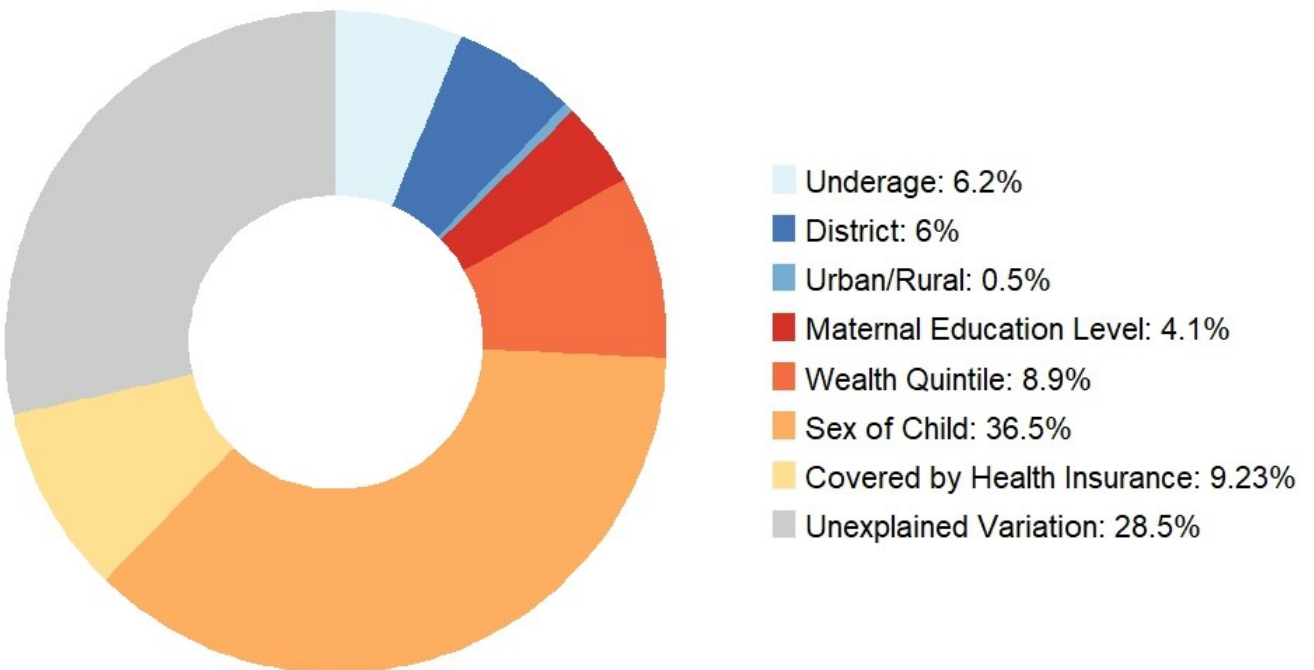*MCV1 immunization coverage and equity by district*

District	Coverage	Concentration indices			
		Composite (Wagstaff)	Composite (Erreyger)	Wealth (Wagstaff)	Wealth (Erreyger)
North	**97.20%**	0.018	0.054	-0.011	-0.030
Kigali	**97.50%**	0.038	0.110	-0.005	-0.021
East	**97.80%**	0.005	0.013	0.016	0.045
West	97.90%	0.010	0.029	-0.006	-0.017
South	99.10%	0.023	0.067	0.000	0.000

Subnational regions as presented in the 2019 DHS for Rwanda.

Sex of the child is the dominant contributor towards variation in MCV1 coverage at 36.5%. This finding is surprising, no other vaccine analyzed by the VERSE model in Rwanda has such a large amount of variation explained by sex of the child.

Decomposition of MCV1 Coverage Equity

- Underage: 6.2%
- District: 6%
- Urban/Rural: 0.5%
- Maternal Education Level: 4.1%
- Wealth Quintile: 8.9%
- Sex of Child: 36.5%
- Covered by Health Insurance: 9.23%
- Unexplained Variation: 28.5%

PCV1 immunization

The first dose of the PCV vaccine is given six weeks after birth in Rwanda.
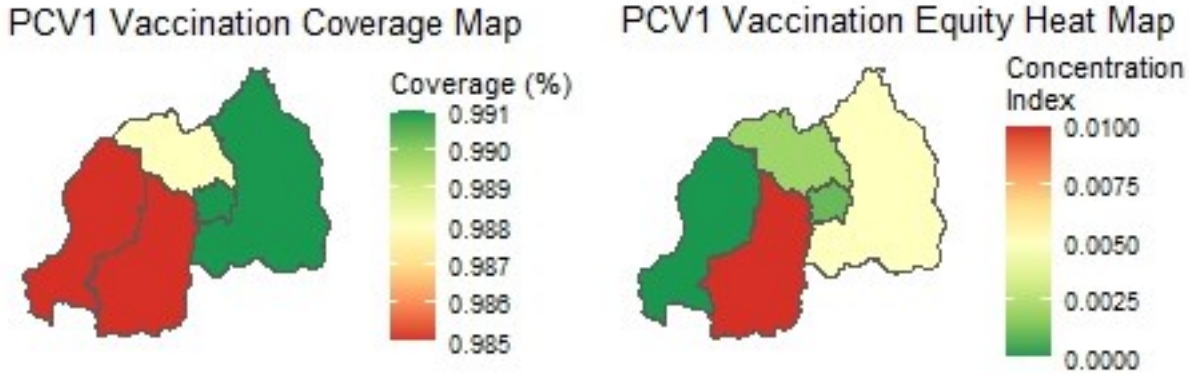
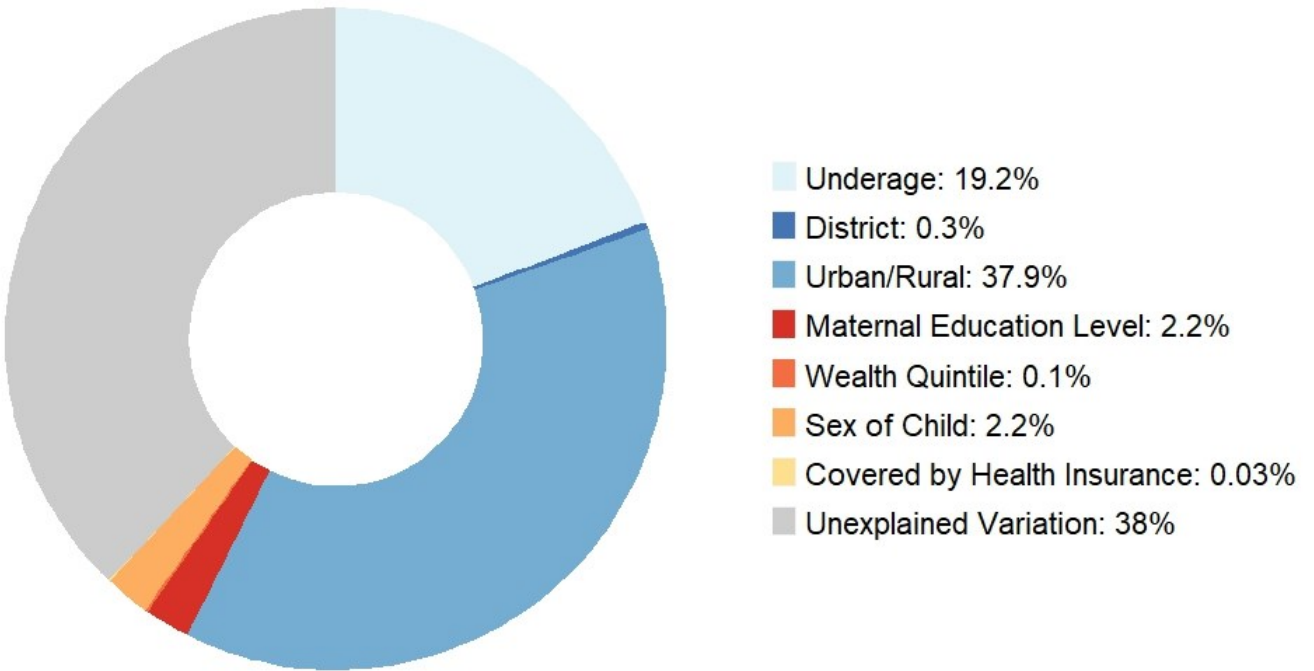PCV coverage in Rwanda is extremely high and equitable.

PCV1 immunization coverage and equity by district

		Concentration indices			
District	Coverage	Composite (Wagstaff)	Composite (Erreyger)	Wealth (Wagstaff)	Wealth (Erreyger)
South	**98.5%**	0.010	0.037	-0.004	-0.010
West	**98.5%**	0.000	-0.001	-0.007	-0.018
North	**98.8%**	0.002	0.009	-0.021	-0.054
Kigali	99.1%	0.001	0.005	-0.015	-0.065
East	99.1%	0.005	0.017	0.025	0.070

Subnational regions as presented in the 2019 DHS for Rwanda.

Living in an urban/rural setting was the dominant contributor towards variation at 37.9%. This determinant of variation is likely a supply-side constraint. Efforts to improve vaccine coverage in rural areas may help to reduce this source of variation.
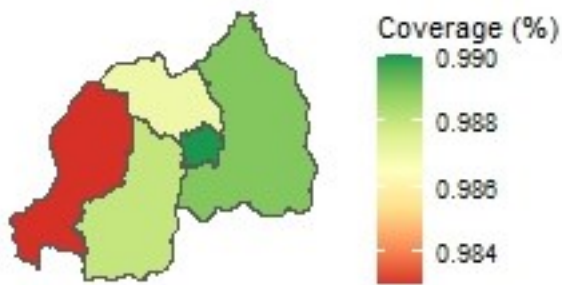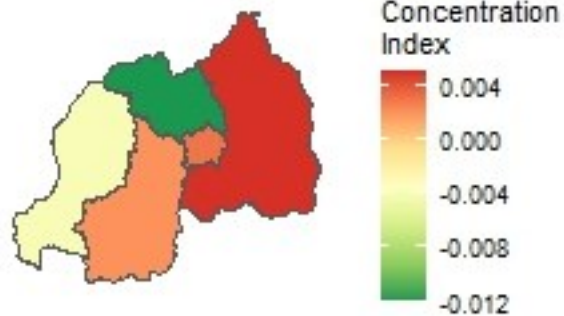
Decomposition of PCV1 Coverage Equity

- Underage: 19.2%
- District: 0.3%
- Urban/Rural: 37.9%
- Maternal Education Level: 2.2%
- Wealth Quintile: 0.1%
- Sex of Child: 2.2%
- Covered by Health Insurance: 0.03%
- Unexplained Variation: 38%

PCV2 immunization

The second dose of the PCV vaccine is given ten weeks after birth in Rwanda.

PCV2 Vaccination Coverage Map

Coverage (%)
- 0.990
- 0.988
- 0.986
- 0.984

PCV2 Vaccination Equity Heat Map

Concentration Index
- 0.004
- 0.000
- -0.004
- -0.008
- -0.012

PCV2 immunization coverage and equity by district

		Concentration indices			
District	Coverage	Composite (Wagstaff)	Composite (Erreyger)	Wealth (Wagstaff)	Wealth (Erreyger)
West	**98.30%**	-0.004	-0.015	-0.009	-0.025
North	**98.70%**	-0.012	-0.043	-0.022	-0.058
South	**98.80%**	0.002	0.007	-0.005	-0.012
East	98.90%	0.005	0.019	0.022	0.061
Kigali	99.00%	0.003	0.010	-0.013	-0.057

Subnational regions as presented in the 2019 DHS for Rwanda.

While living in an urban/rural setting was a dominant contributor towards variation in PCV1 coverage, it is a nearly insignificant contributor towards variation in PCV2 coverage.

Decomposition of PCV2 Coverage Equity

- Underage: 36.6%
- District: 0.1%
- Urban/Rural: 0.2%
- Maternal Education Level: 0.1%
- Wealth Quintile: 5.4%
- Sex of Child: 4.1%
- Covered by Health Insurance: 6.13%
- Unexplained Variation: 47.3%

PCV3 immunization

The third dose of the PCV vaccine is given 14 weeks after birth in Rwanda.

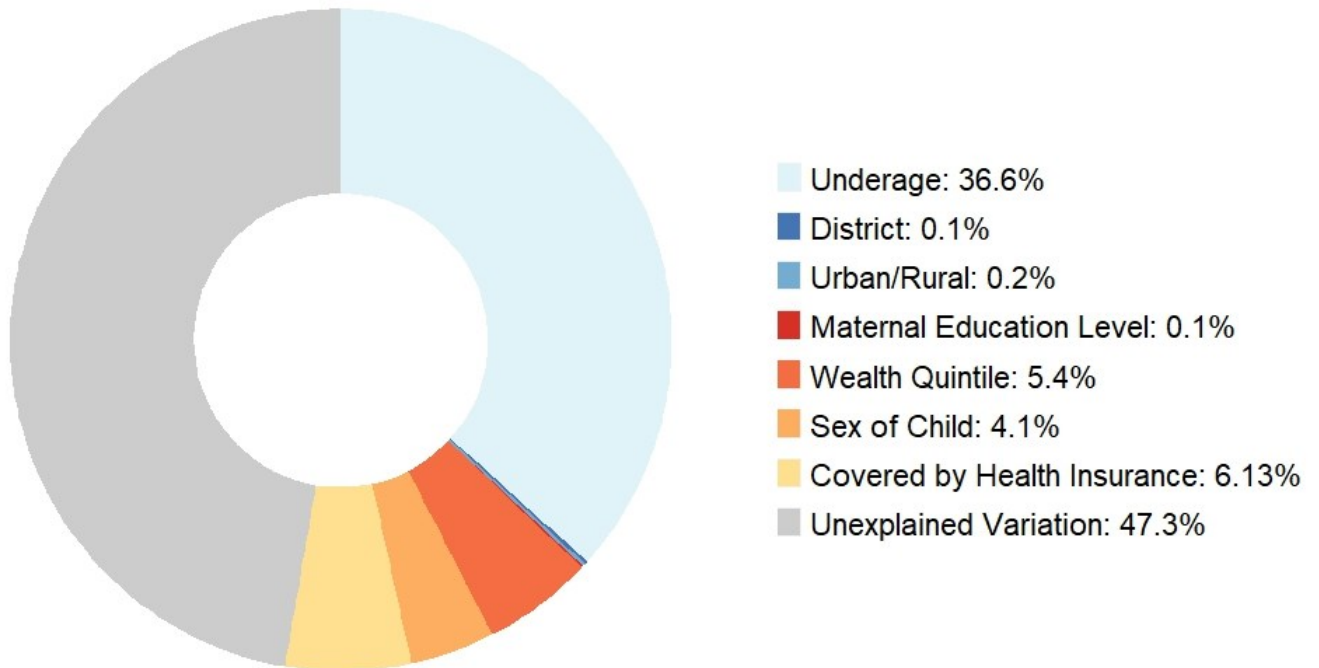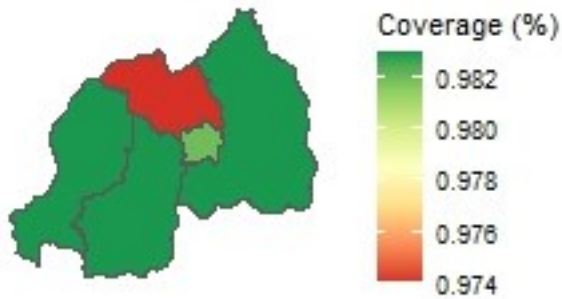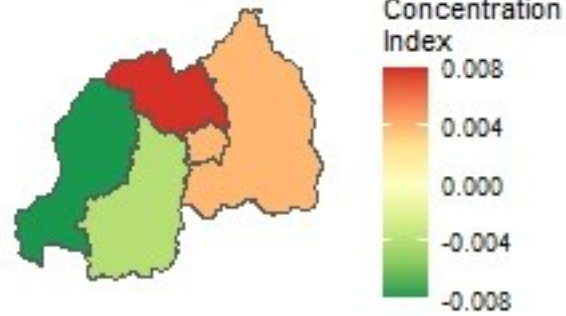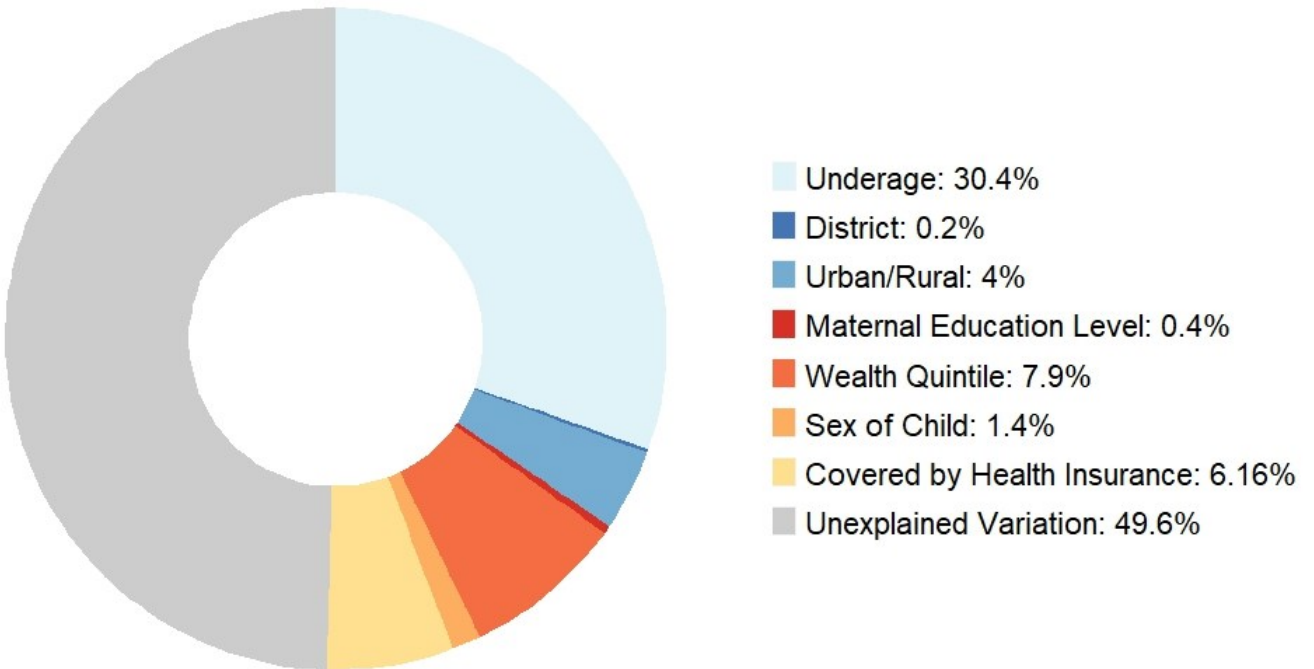*PCV3 immunization coverage and equity by district*

District	Coverage	Composite (Wagstaff)	Composite (Erreyger)	Wealth (Wagstaff)	Wealth (Erreyger)
		Concentration indices			
North	**97.40%**	0.008	0.029	-0.018	-0.047
Kigali	**98.20%**	0.004	0.015	-0.008	-0.036
South	**98.30%**	-0.004	-0.014	-0.009	-0.022
West	98.30%	-0.008	-0.030	-0.007	-0.019
East	98.30%	0.004	0.016	0.026	0.073

Subnational regions as presented in the 2019 DHS for Rwanda.

Decomposition of PCV3 Coverage Equity

- Underage: 30.4%
- District: 0.2%
- Urban/Rural: 4%
- Maternal Education Level: 0.4%
- Wealth Quintile: 7.9%
- Sex of Child: 1.4%
- Covered by Health Insurance: 6.16%
- Unexplained Variation: 49.6%

Publications & Resources

- Full Methodological Paper for the VERSE Equity Toolkit
  - Patenaude et al. (2022). A standardized approach for measuring multivariate equity in vaccination coverage, cost-of-illness, and health outcomes: Evidence from the Vaccine Economics Research for Sustainability & Equity (VERSE) project. *Social Science & Medicine, 302,* 114979.
- Global comparison of VERSE composite against wealth-based equity measures
  - Patenaude et al. (2023). Comparing Multivariate with Wealth-Based Inequity in Vaccination Coverage in 56 Countries: Toward a Better Measure of Equity in Vaccination Coverage. *Vaccines, 11*(3), 536.

Methods

VERSE Equity Toolkit

The Vaccine Economics Research for Sustainability and Equity (VERSE) Equity Toolkit provides a quantitative measure of immunization coverage and equity by (1) ranking the sample population with a composite direct unfairness index and (2) generating efficiency (coverage) and equity metrics.

Our fair source of variation is defined as the child's age – children too young to receive routine immunization are not expected to be vaccinated. Unfair sources of variation are the child's region of residence, whether they live in an urban or rural area, the mother's education level, the household's socioeconomic status, the child's sex, and their insurance coverage status. We identify a "more privileged" situation for each unfair variation source. Equity measures using socioeconomic status only ("wealth", traditionally used to discuss inequalities) are also presented for comparison.

The model enables analysts to assess the equity and efficiency tradeoffs in achieving the immunization program's targets, including reaching vulnerable populations. Read the full methodology on Social Science & Medicine (2022).

Data source

The toolkit was applied to the Demographic and Health Survey for Rwanda in 2019. The data are available to the public on dhsprogram.com.

How to read the metrics

- Efficiency metric
    - **Vaccine coverage**: An estimate (based on DHS data) of the vaccine coverage (or zero-dose status prevalence) in the national and district-level populations
- Equity metric
    - **Concentration index**: The difference between the current distribution of vaccine coverage and perfect equity.
    - **Absolute equity gap**: The difference between health outcome attainment between the most advantaged 20% of the population and the least advantaged 20% of the population.
    - **Relative equity gap**: The relative difference in vaccine coverage between two groups. Those two groups are defined based on one of the following binary unfair factors of inequity: health insurance, sex of the child, whether in a rural area.
    - **Slope index of inequity**: The difference in estimated values of a health indicator between the 20% most advantaged and 20% most disadvantaged households, while accounting for other subgroups.
    - **Relative index of inequity**: The relative difference in estimated values of a health indicator between the 20% most advantaged and 20% most disadvantaged households, while accounting for other subgroups.

Acronyms

- AEG: Absolute Equity Gap
- BCG: Bacille Calmette Guerin vaccine
- CI: Concentration index (Wagstaff)
- CIE: Concentration index (Erreyger)
- DHS: Demographic & Health Surveys
- DTP/DPT: Diphtheria Tetanus Pertussis vaccine
- EPI: Expanded Program for Immunization
- FULL: Fully immunized for age
- MCV: Measles-Containing Vaccine
- PCV: Pneumococcal Conjugate Vaccine
- SIA: Supplementary Immunization Activities
- VERSE: Vaccine Economics Research for Sustainability and Equity
- ZERO: Zero-dose status

For errors or omissions, please contact the VERSE team.