

OPV Routine Immunization Status of AFP Cases Aged 0–59 Months in Nigeria, 2023–2025

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ABSTRACT

ARTICLE DETAILS

Background: Zero-dose and under-immunized children remain central to the persistence of poliovirus transmission in high-risk settings. Acute Flaccid Paralysis (AFP) surveillance data provide a valuable proxy for assessing routine immunization (RI) performance, particularly oral poliovirus vaccine (OPV) coverage, among vulnerable populations.

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Objective: To assess zonal and state-level trends in OPV routine immunization status among AFP cases aged 0–59 months in Nigeria between 2023 and 2025.

Methods: A retrospective descriptive analysis of national AFP surveillance data from 2023–2025 was conducted. OPV RI status was classified as zero-dose versus received ≥ 1 OPV dose through routine immunization. Proportions of zero-dose AFP cases were analyzed by geopolitical zone and state, and trends were visualized using comparative bar charts.

Results: Marked geographic disparities were observed. The North West and North East zones consistently recorded the highest proportions of zero-dose AFP cases, with some states exceeding 60–70% in 2023. Although modest reductions were observed in several states by 2025, zero-dose prevalence remained unacceptably high in parts of Sokoto, Katsina, Zamfara, Kano, and Borno. In contrast, southern zones maintained low zero-dose proportions ($<10\%$) across most states throughout the study period.

Conclusion: Persistent high proportions of zero-dose AFP cases in northern Nigeria highlight chronic inequities in routine immunization access. While incremental improvements were observed between 2023 and 2025, intensified, geographically targeted RI strategies are required to interrupt poliovirus transmission and sustain eradication gains.

KEYWORDS: OPV, Routine immunization, Zero-dose children, AFP surveillance, Nigeria, Polio eradication

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INTRODUCTION

Routine immunization remains the foundation of sustainable polio eradication. Children who fail to receive OPV through routine services—commonly referred to as zero-dose children—are at greatest risk of poliovirus infection and are disproportionately concentrated in underserved communities. In Nigeria, zero-dose children have been repeatedly implicated in outbreaks of circulating vaccine-derived poliovirus (cVDPV).

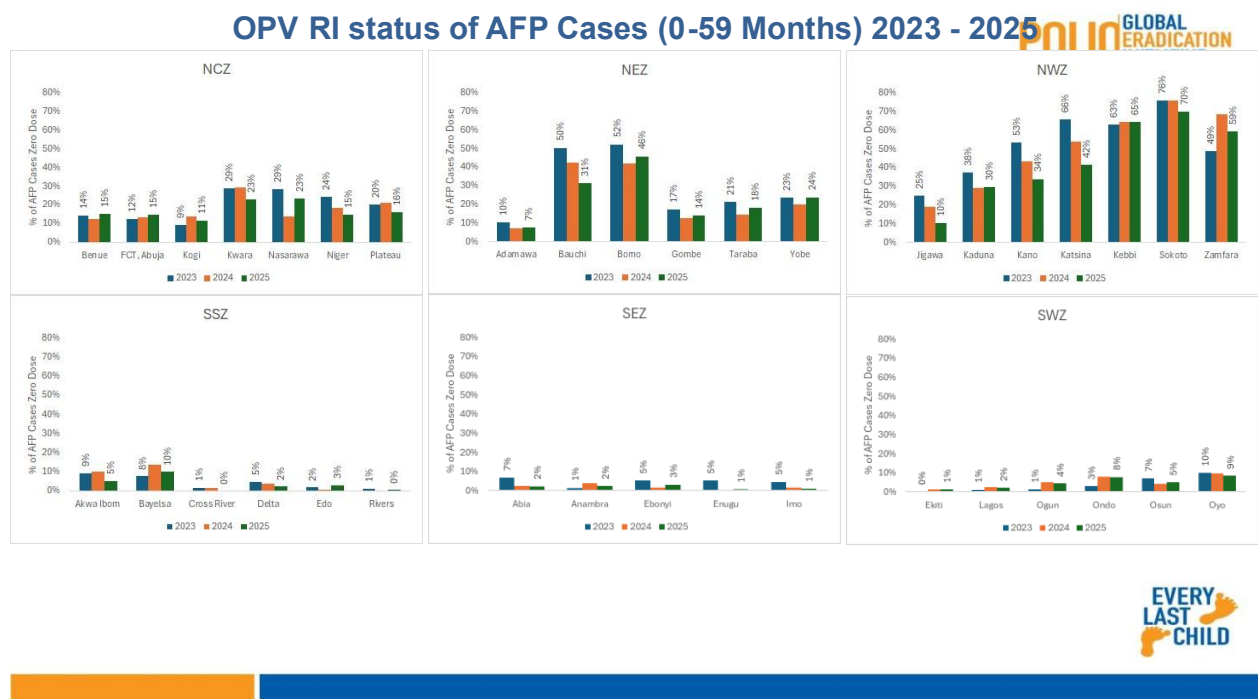
AFP surveillance, while designed primarily to detect poliovirus circulation, also offers critical insights into immunization system performance. Analysis of OPV RI status among AFP cases aged 0–59 months allows identification of geographic and programmatic gaps that may not be fully captured through administrative coverage data. This study examines zonal and state-level trends in OPV

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RI status among AFP cases in Nigeria from 2023 to 2025, providing an evidence base for targeted immunization strengthening strategies.

Figure Caption

Figure 1: OPV routine immunization status of AFP cases aged 0–59 months by state and geopolitical zone, Nigeria, 2023–2025. Bars represent the proportion of AFP cases classified as zero-dose for OPV RI.



METHODS

Study Design and Data Source

A retrospective descriptive analysis was conducted using national AFP surveillance data collected between January 2023 and December 2025. All confirmed AFP cases aged 0–59 months with documented OPV RI history were included.

Definition of Zero-Dose

Zero-dose was defined as **no documented receipt of OPV through routine immunization services**. OPV doses received through supplementary immunization activities were excluded from this classification.

Data Analysis

The proportion of zero-dose AFP cases was calculated by state and aggregated by geopolitical zone: North Central (NCZ), North East (NEZ), North West (NWZ), South South (SSZ), South East (SEZ), and South West (SWZ). Trends across years were compared descriptively.

RESULTS

Zonal Patterns of OPV RI Status

North West Zone

The North West zone recorded the highest burden of zero-dose AFP cases across all three years. In 2023, zero-dose proportions exceeded 60% in Katsina and Kebbi, and reached approximately 76% in Sokoto. Although some reductions were observed by 2025, states such as Zamfara and Sokoto continued to report zero-dose proportions approaching or exceeding 50%, indicating persistent RI system weaknesses.

North East Zone

Similarly, the North East zone demonstrated high zero-dose prevalence, particularly in Bauchi, Borno, and Yobe. While modest declines were observed between 2023 and 2025, zero-dose proportions remained above 20–40% in several states, sustaining the risk of poliovirus transmission.

North Central Zone

The North Central zone exhibited intermediate patterns. States such as Kwara and Nasarawa recorded zero-dose proportions approaching 30% in 2023, with partial improvements by 2025. However, persistent pockets of under-immunization remained.

Southern Zones

The South South, South East, and South West zones consistently recorded low zero-dose proportions, generally below 10% across all years. Minor fluctuations were observed, but overall RI performance remained relatively strong compared to northern zones.

DISCUSSION

This analysis highlights profound and persistent geographic inequities in OPV routine immunization coverage among AFP cases in Nigeria. The concentration of zero-dose AFP cases in the North West and North East zones reflects longstanding challenges, including insecurity, population displacement, health workforce shortages, and weak primary health care infrastructure.

The modest improvements observed between 2023 and 2025 suggest that ongoing RI strengthening and polio transition efforts are yielding incremental gains. However, the magnitude of zero-dose prevalence in several northern states indicates that current strategies are insufficient to rapidly close immunity gaps.

AFP-based RI analysis provides a powerful complement to administrative coverage estimates, offering a child-centered perspective that directly reflects service reach to the most vulnerable populations.

Programmatic Implications

- AFP surveillance data should be routinely used to identify zero-dose hotspots at state and LGA levels.
- High-burden states require integrated RI intensification strategies linked with polio assets.
- Community engagement and security-adapted service delivery models are essential in persistently affected areas.

LIMITATIONS

Immunization history among AFP cases may be affected by recall bias or incomplete documentation. Additionally, AFP cases may not be fully representative of the general population; however, they remain a critical sentinel group for identifying unreached children.

CONCLUSION

Between 2023 and 2025, Nigeria experienced modest improvements in OPV routine immunization status among AFP cases aged 0–59 months. Nevertheless, persistently high zero-dose prevalence in northern zones underscores the urgent need for targeted, equity-focused immunization interventions. Closing zero-dose gaps is essential for sustaining polio eradication and strengthening routine immunization systems nationwide.

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