Triangulating District Health Information System (DHIS2) with other data sources to Map Zero-dose Children in Nigeria

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BACKGROUND

In 2010, Nigeria adopted the use of web-based software District Health Information System, V.2 (DHIS2) as the platform for the National Health Management Information System. The platform supports real-time data reporting and promotes government ownership and accountability. This platform was instrumental in the mapping and identification of zero-dose children in wards and communities across the country. Recall 2021 WUENIC estimates Nigeria as the second highest with 2.2m ZD children with 30% of surviving infants being zero dose.
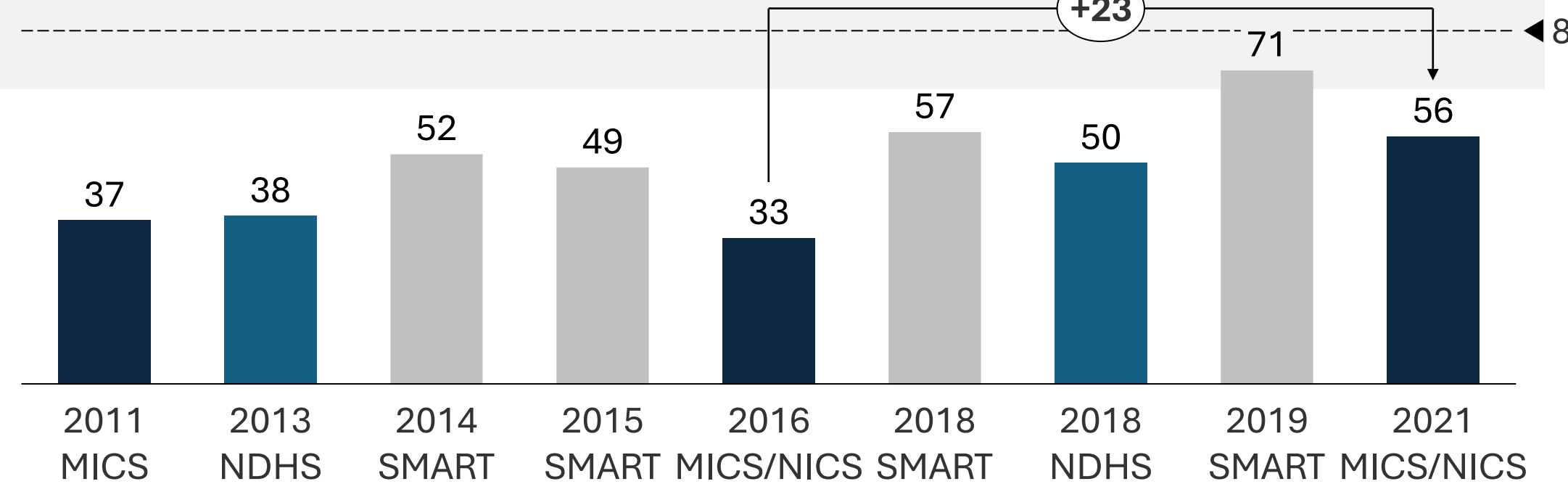

Yearly DPT3 Coverage of Nigeria compared to some African countries[1]
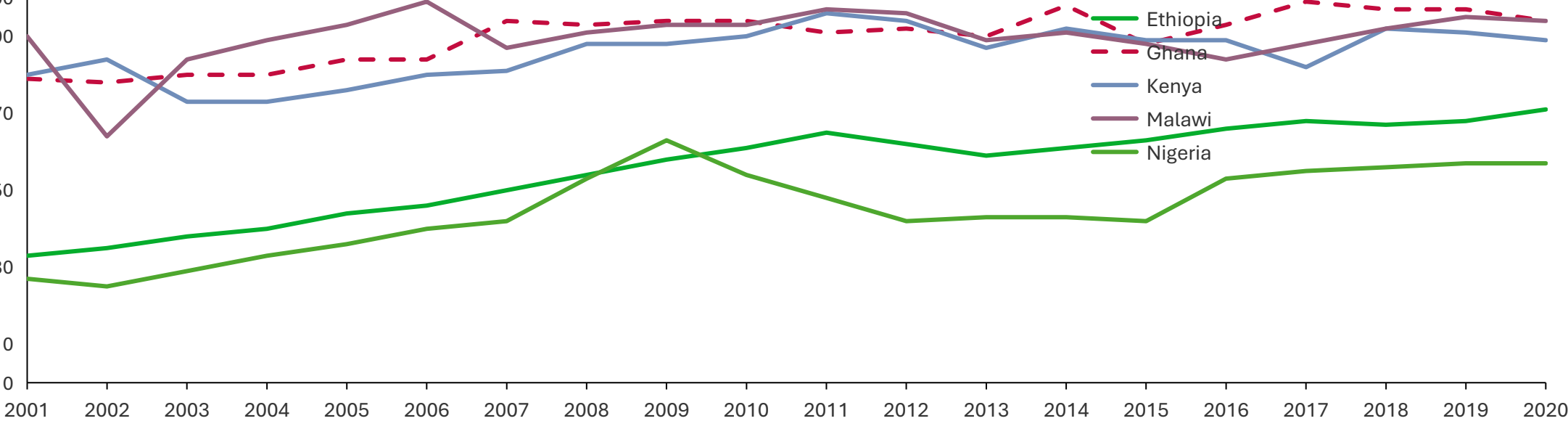
- Despite the progress and investments made over the years by the Government and partners, close to 40% of eligible children are still not fully vaccinated

- Significant decline in RI coverage due to the COVID-19 pandemic was observed

- The current fiscal space further limits the availability of resources for RI

2011 MICS	2013 NDHS	2014 SMART	2015 SMART	2016 MICS/NICS	2018 SMART	2018 NDHS	2019 SMART	2021 MICS/NICS
37	38	52	49	33	57	50	71	56

METHODS

- The country reviewed and triangulated numerous potential pathways as well as conducting sensitivity analysis from various sources including DHIS2, MICS/NICS 2021, cVDPV2 case report, Measles outbreak and Geospatial analysis matching them against target population and contextual peculiarities.

LGAs were prioritized based on the scores given to the below indicators and weights:

- Measles outbreak - 1
- cVPV2 Outbreak - 2
- cVPV2 Breakthrough – 1
- LQAS failure – 1
- DTP0 – 7
- DTP3 – 2
- MCV0 –3

Coverage scores are only given **to only LGAs above median (top 50% percentile)**

When multiple LGAs received the same score, they are further ranked by the number of unimmunized children.

RESULTS

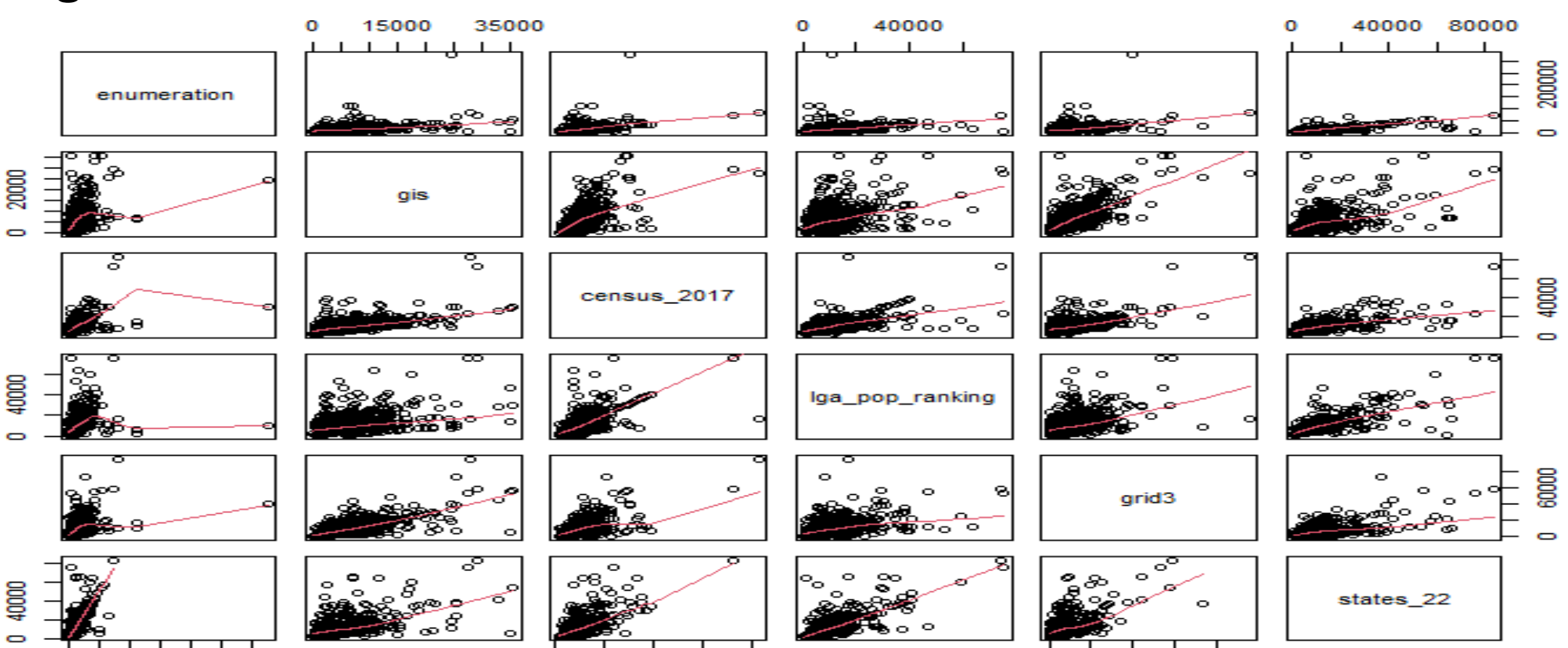**Figure 1. Number of under-1 children**

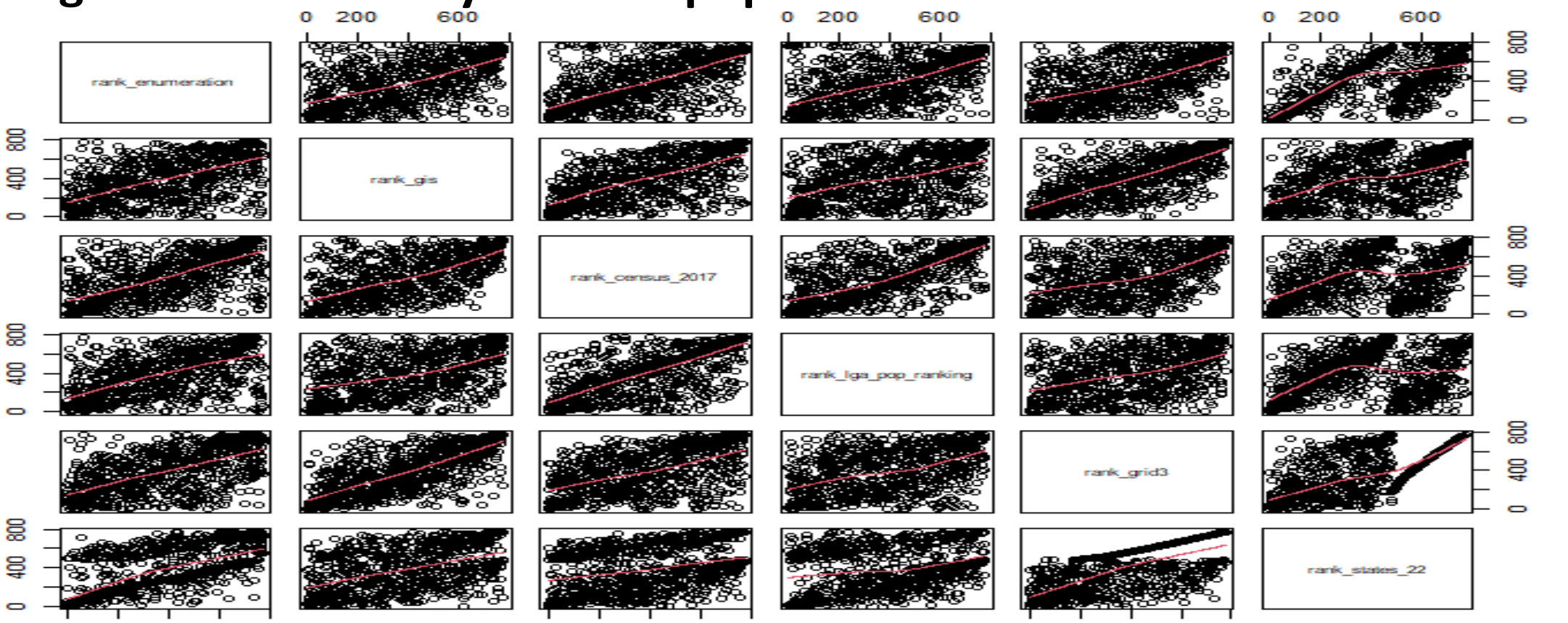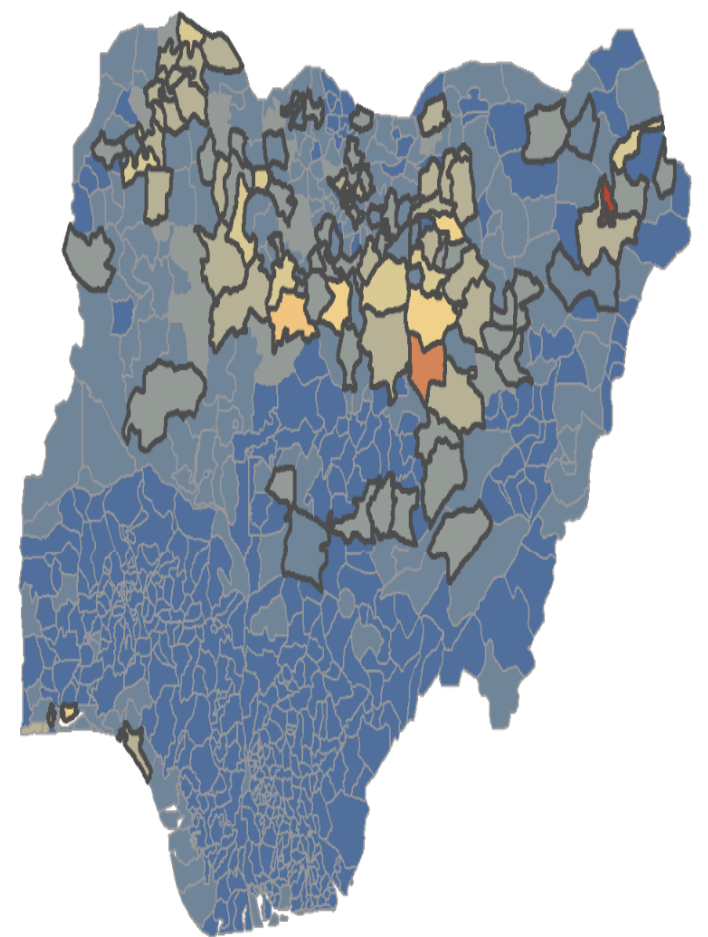**Figure 2. LGA rank by under-1 population size**

Fig 2: LGA Prioritization

Targeting 100 LGAs - Combined NPSIA (Top 50%)
Zero dose in 2021

Source: MICS/NICS 2021 & Combined NPSIA data.
Targeted districts highlighted in black.

Pathway details

In non-targeted areas, past trends are assumed to continue through 2025. In targeted LGAs, it is assumed that 70% will reduce zero-dose by 15% in 2023, 75% will reduce zero-dose by 15% in 2024, and 80% will reduce zero-dose by 15% in 2025.

Indicator	Values
% of zero dose targeted	40%
# LGAs targeted	100
Change in zero dose in targeted LGAs, 2018-2021	-18%

- National ZD would be reduced by 30% in this pathway.
- 18 states targeted (# districts targeted within each state):
  - Kano (15), Bauchi (13), Sokoto (13), Kaduna (10), Borno (8), Katsina (8), Jigawa (6), Zamfara (6), Gombe (4), Plateau (4), Kebbi (3), Lagos (2), Nasarawa (2), Yobe (2), Fct (1), Niger (1), Ondo (1), Taraba (1)

National and subnational health boundaries used to generate these maps are under a strict data sharing agreement with WHO/GPEI and may not be published or shared publicly in any form, and should only be shared internally and to Gavi partners on a strict need to know basis. Please note the national and subnational boundaries depicted in this map do not imply the expression of any opinion whatsoever on the part of Gavi and its alliance partners concerning the legal status of any country, territory, city, or area now of its authorities, or concerning the delimitation of frontiers or boundaries

Following prioritization, Nigeria discovered 100 LGAs across 18 States contributing the highest burden of zero dose namely; Bauchi, Borno, FCT, Gombe, Jigawa, Kaduna, Kano, Katsina, Kebbi, Lagos, NSR, Niger, Ondo, Plateau, Sokoto, Taraba, Yobe and Zamfara

Discussion

The determination of actual zero dose numbers was made possible via DHIS2. Nigeria adopted a practical approach of direct engagement with stakeholders across these LGAs. These engagements with the LGAs led to the development of LGA-specific Z-drop plans and the mapping of resources for implementation.

Additionally, The country is currently promoting a Zero-Dose Learning Agenda aimed at generating evidence on strategies that can be leveraged to successfully identify, enumerate and vaccinate zero-dose children and the missed eligible children in line with the country's IEV strategy.

Despite the successes, Zero-dose identification and implementation had some limitations e.g Denominator issues, inadequate funding etc

In a bid to address some of the identified challenges, the country has adopted the "**_Identify, Enumerate and Vaccinate (IEV) Strategy_**" which will involve H2H enumeration of eligible children and vaccinate them

CONCLUSION

This study highlights the pivotal role played by the District Health Information System, Version 2 (DHIS2), in Nigeria's comprehensive approach to addressing the challenge of zero-dose children. The subsequent deployment of targeted intervention strategies, informed by granular information gathered through DHIS2 has resulted in a significant increase in vaccination coverage among this vulnerable population

REFERENCES

- https://dhis2nigeria.org.ng/dhis/dhis-web-dashboard/#/
- https://ngdc.noaa.gov/eog/viirs/index.html
- www.worldpop.org .

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