



World Health
Organization

Trends in Rotavirus Antigen Positivity Before and After Vaccine Introduction in Awka, Nigeria

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OUTLINE



- Background
- Aim/Objectives
- Methods
- Results
- Key findings/Discussions
- Conclusion/Recommendations
- limitation
- References
- Acknowledgments



Background cont'd

- **Rotavirus** is the leading cause of severe diarrhea in children under five years of age worldwide.^{1,2,3} and is responsible for up to 38% of diarrhea-related hospitalizations in countries without the vaccine.⁴
- Globally, it causes over 453,000 deaths annually, with 232,000 in Africa.^{1,5}
- Nigeria has a high prevalence (56%) of rotavirus in under five children, with an estimated 31,000 deaths in 2013.⁶
- Thirty percent of rotavirus deaths in under five children globally are thought to occur in Nigeria, where the fatality rate is estimated to be 136 per 100,000.⁴

Background cont'd

- Nigeria introduced the rotavirus vaccine, on August 22, 2022 into its routine Immunization (RI) schedule via the National primary health care development agency(NPHCDA) and World Health Organization(WHO).^{4,6,7}
- Evaluating the effect of vaccine roll out is necessary to;
 - Demonstrate evidenced based effectiveness in real world setting such as Nigeria
 - Strengthen and support national immunization policy in Nigeria

Aim/objectives

Aim

- ❖ To evaluate rota virus detection trends following vaccine introduction among under five children in Awka, Anambra State. Nigeria.

Objectives

- ❖ To assess the effect of rotavirus vaccination on disease burden(hospitalization)
- ❖ Produce useful data to enhance and support vaccine policy

Design

- Study design ; A cross sectional study using routine Awka sub site of Enugu data surveillance base (2020-2024)

Enrollment

- 271 stool samples of children under five years of age with acute gastro enteritis
- Pre-vaccine era (Jan 2020 –Nov 2022) : n= 205
- Post vaccine era (December 2022- December 2024): n=66
- Samples where analyzed with Prospect™ (ELISA) kit

Calculations

- Bivariate analysis using Chi –square was conducted to asses the associations between vaccination status and rotavirus hospitalization(disease burden) p value < **0.05**

Abstract

- Abstract drafted and reviewed by authors

Results

Rotavirus positivity rate

Pre vaccine era - 71.2%(148/205)

Post vaccine era - 27.3%(18/66)

Unvaccinated children - 35.1%

Vaccinated children – 8.2%

Annual positivity rates

2020 - 62.0%

2021 – 88.2%

2022 – 71.0%

2023 - 25.0%

2024 – 29.0%

Rota vaccine coverage amongst enrolled children was

53.8%

Figure 1: Annual positivity rates in 2020-2024

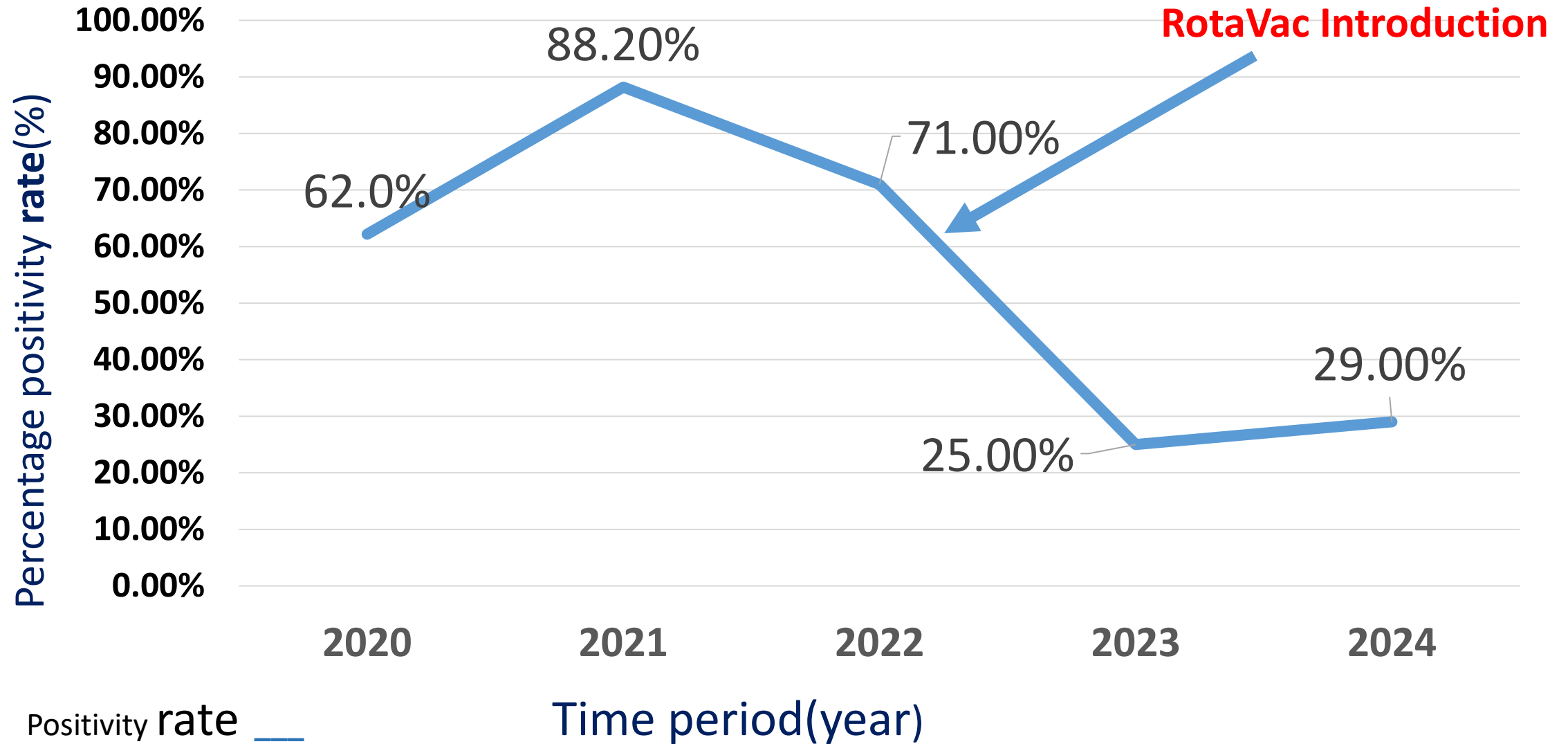


Figure 2: Comparison of Rv EIA positivity rate in the pre and post vaccine era

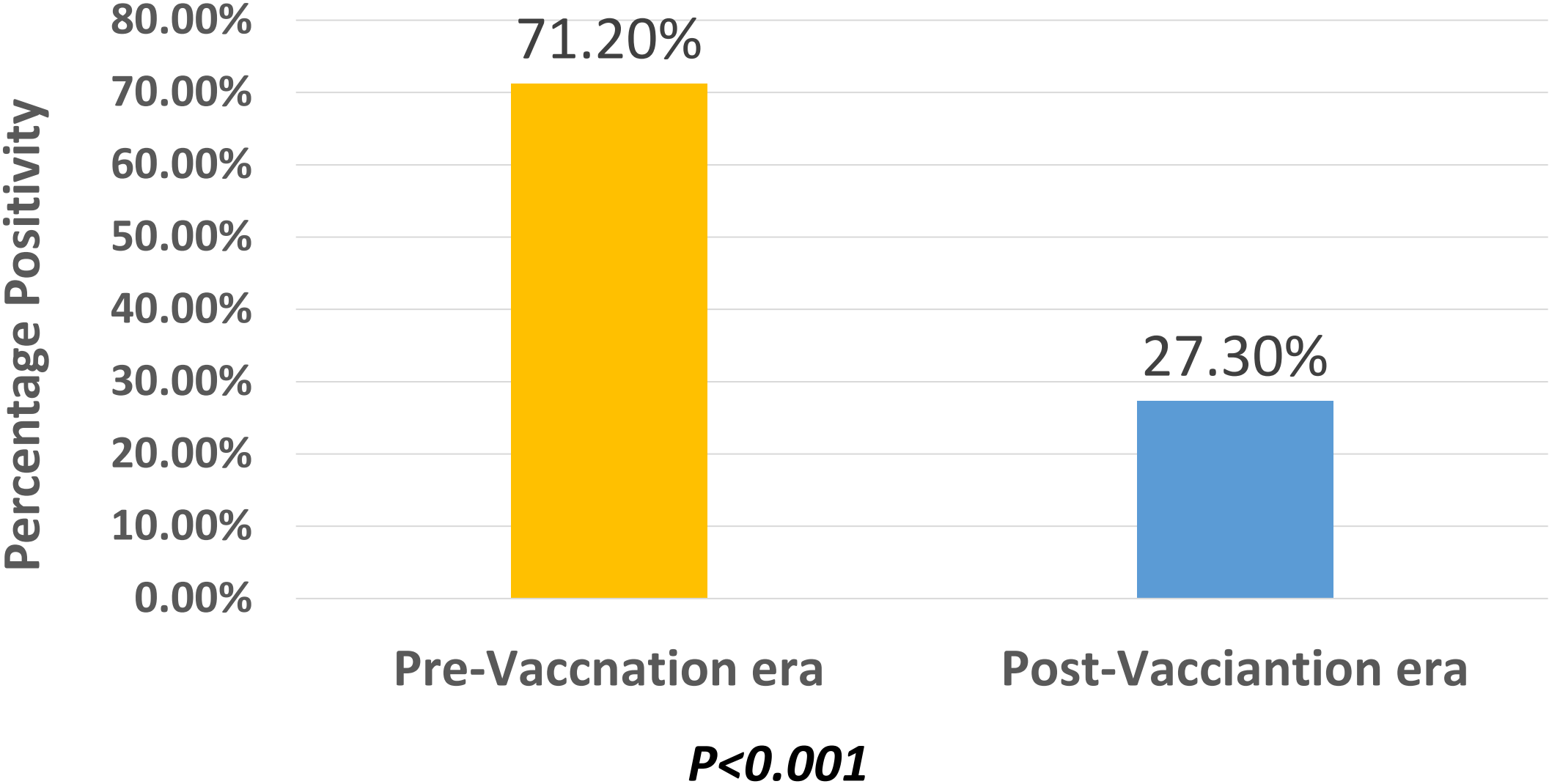
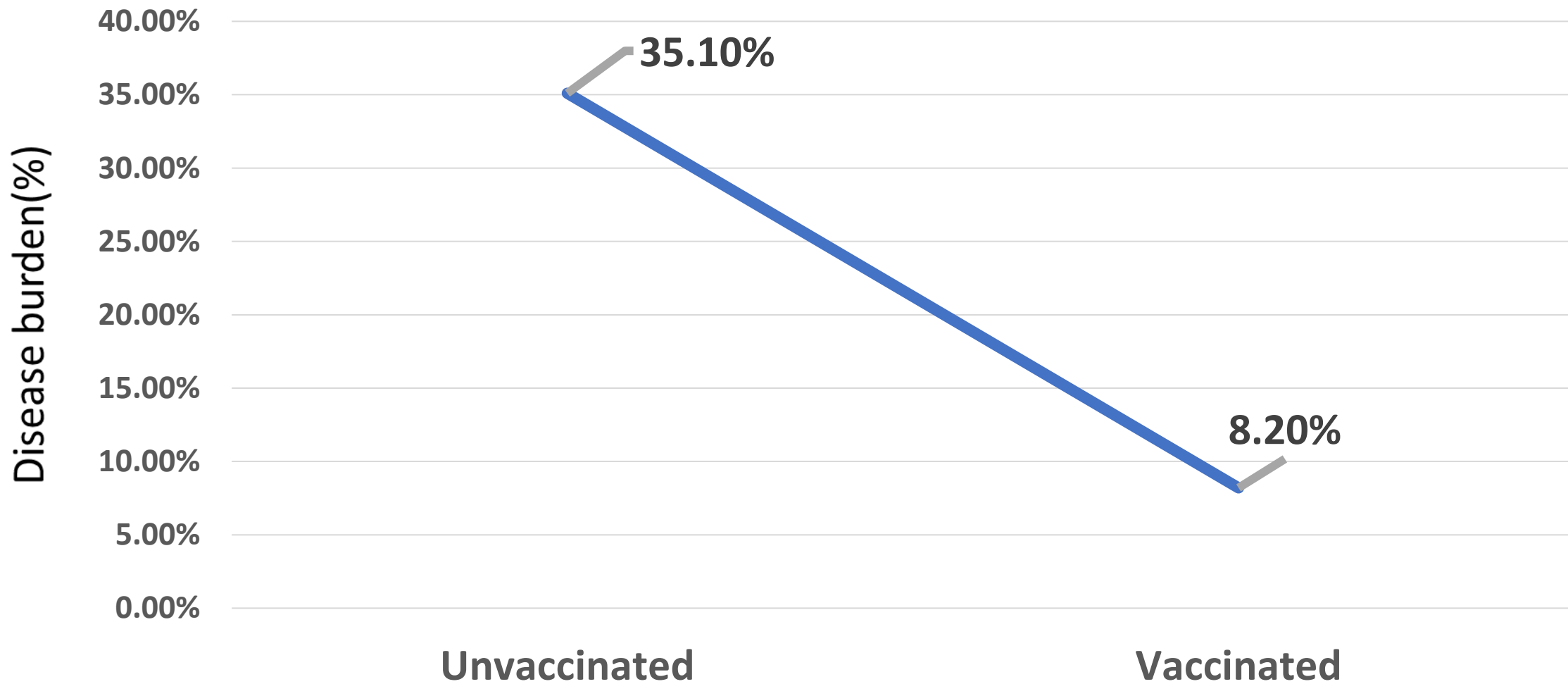


Figure 3: Influence of vaccination status on disease burden



Key findings /Discussion

- **Rotavirus positivity** significantly dropped from 71.2%(pre vaccination) to 27.3%(post vaccination) *[p<0.001]* following vaccine introduction and is in keeping with findings in the East and South Africa Countries where rotavirus annual positivity rates were found to decrease from 62% to 29% after vaccine introduction.⁸
- **Despite low vaccine coverage @ 53.8%** there was significant observed difference in positivity rate reflecting similar reports from other middle and low income countries.⁹

Key findings discussion cont'd

- **Reduction of disease burden and health cost;** Significant difference in positivity rates between vaccinated and unvaccinated children demonstrating the importance of rota vaccine in reducing disease burden and associated health cost particularly in low income countries.^{3,10}
- **Relief on the health care system;** Fewer hospitalization from rota virus diarrhea will lessen the burden on Nigeria health system.³

Limitation

- Study design ; Single site study, hence cannot be generalized to other regions of Nigeria

Conclusion & Recommendation

- **Effectiveness:** The introduction of Rotavac was associated with significant reduction in the burden of rotavirus-related AGE in Awka, Anambra state.
- **Challenge:** Low immunization coverage and vaccine uptake is still a great challenge

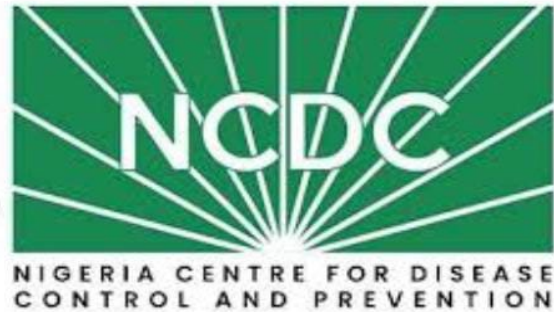
Recommendations:

- Effort should be put in place by policy makers and Nigeria health sector to ensure optimal vaccine coverage particularly in rural areas so as to save the lives of vulnerable young children
- Continue surveillance to track long-term impact

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