Incremental Costs and Impact of Weekend Vaccination Sessions: Lessons Learnt from Implementing the Zero-dose Reduction Operational Plan in Lagos state (Nigeria)

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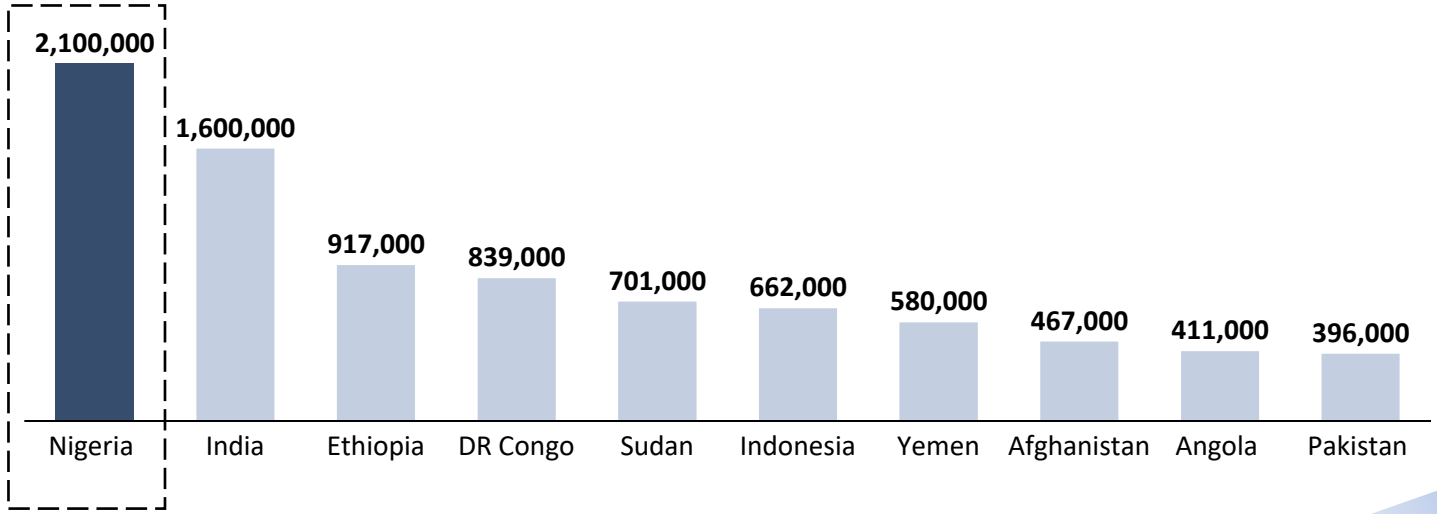
Outline

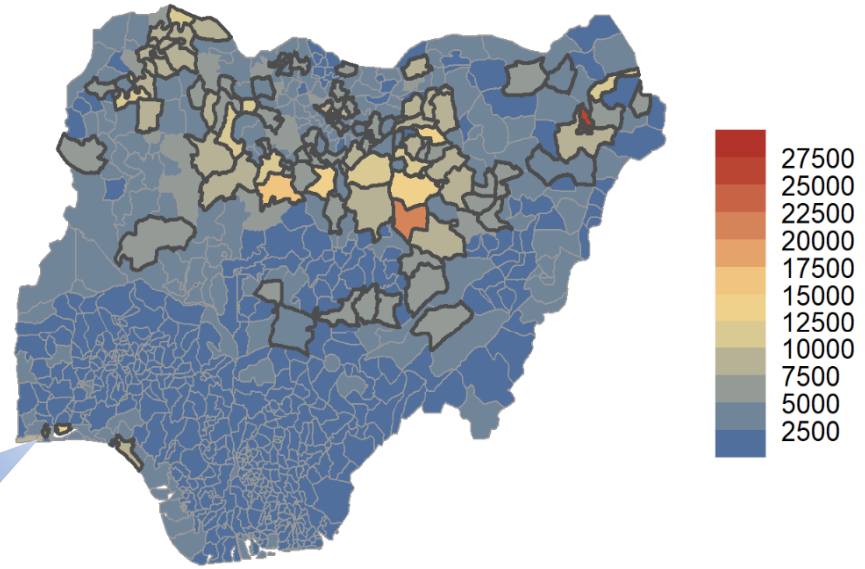
Background (1/3)

Despite progress made on RI, Nigeria has the highest number of zero-dose children with more than 2.1m unimmunized children

100/774 LGAs have the highest concentration of ZD children & are prioritized for ZD interventions

Zero-dose (ZD) children *are children who have not received the first dose of penta*





2 LGAs (Alimosho and Ikorodu) in Lagos are amongst the 100 zero-dose LGAs

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Sources: Zero-dose prioritization data, WHO & UNICEF Estimates of National Immunization Coverage (WUENIC Estimates), MICS/NICS 2021, Combined NPSIA DATA

Background (2/3)

Zero Dose Reduction Operational Plan (ZDROP)

One of the three interventions implemented along with gender mainstreaming and the zero-dose learning hub to reduce the burden of zero-dose in Nigeria.

Activities are implemented since August 2024 at multiple levels including the facility, ward and LGA levels across the spheres of **leadership and governance, service delivery, demand generation, supply chain, data management and M&E**

Funding for the implementation of ZDROP is provided by **Gavi** through the WHO to NPHCDA and state governments to support and strengthen immunization delivery.

	Total Population	Total U1 Population	Total ZD Population	# of RI HF
1 Alimosho	2,252,518	90,101	180,201	169
2 Ikorodu	944,258	57,770	70,000	60

Service delivery approaches

Fixed – weekday and weekend
Outreach – community and Market storms

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Source: NPoPc population projections, state records

Background (3/3)

Alimosho & Ikorodu are densely populated cosmopolitan LGAs, with increasing migrant population. 3 out of 5 women are working class and bear most childcare responsibilities.

"I went to a health facility for supervision and a mother came rushing into the health facility, begging me to ask the Nurse to attend to her baby so that she can rush to work"

A LGA Immunization Officer

Lagos State government introduced the **weekend vaccination** to reach these working-class women.

Weekend vaccination sessions are provided as fixed sessions in PHC facilities **on Saturdays only**. There are two categories of health facilities providing weekend vaccinations based on the number of operating hours

Type	Implementation Approach	Cost Elements*
Selected hours ***(17 facilities)***	Vaccination is provided **for 6 to 8 hours** during fixed sessions and requires ○ 1 – 2 vaccinators ○ 1 recorder ○ 1 community mobilizer	Stipend & meals for vaccinator Stipend for recorder Stipend for comm. mobilizer
24-hour providing services ***(56 facilities)***	Services are provided **throughout the day** during fixed sessions and requires ○ Changing staff rotations	None

*These sessions also incur running cost including facility operational cost, cost of vaccinators and demand generators, cost of vaccines, logistics cost, cost of syringes. These cost elements are not included.

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Methodology

Objectives

1. To estimate the quantified effectiveness of ZDROP in reaching zero dose and increasing access to immunization
2. To determine whether weekend vaccination are cost-effective in reaching more children
3. To gain insights into the experiences, best practices, and challenges associated with implementing extended immunization sessions

A mix-method approach was employed including

Desk review & Facility data collection

- **Administrative facility data** from July 2024 to February 2025 was collected from NHMIS immunization registers and tally sheets from 4 health facilities
- Cost data was collected from ZDROP budget costing and utilization data templates
- To compute the number of zero-dose children reached during the extended sessions. **Incremental cost per dose of vaccine delivered** was calculated using (adjusted and non-adjusted):-

$$\frac{\text{Additional cost incurred per extended session}}{\text{Average of the number of vaccines delivered per session}}$$

Stakeholder interviews

- Interviews were conducted with the following using a structured guide.
  - ✓ **Local Government Immunization Officers (LIO) (2)**
  - ✓ **Facility in-charges (2)**
  - ✓ **Immunization Providers across the two LGAs (4)**

✓ Thematic content analysis was used to synthesize the findings

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Results (1/4)

$154,738

Total cost of the ZDROP intervention in Lagos State

1,662

Total # of zero-dose children who received DPT1

$93.10

Incremental cost per zero-dose child reached.

$34.26

Incremental cost per dose delivered (adjusted for all antigens)

Comparison with other findings

- The incremental cost per zero-dose child lies within the range found in a study conducted in India (Clarke-Deelder E, et al (2024)), which ranged from **$22 to $193**
- Ozawa, et al (2018) found that intervention costs per dose for the 56 interventions ranged widely from **$0.01 to $38.16**

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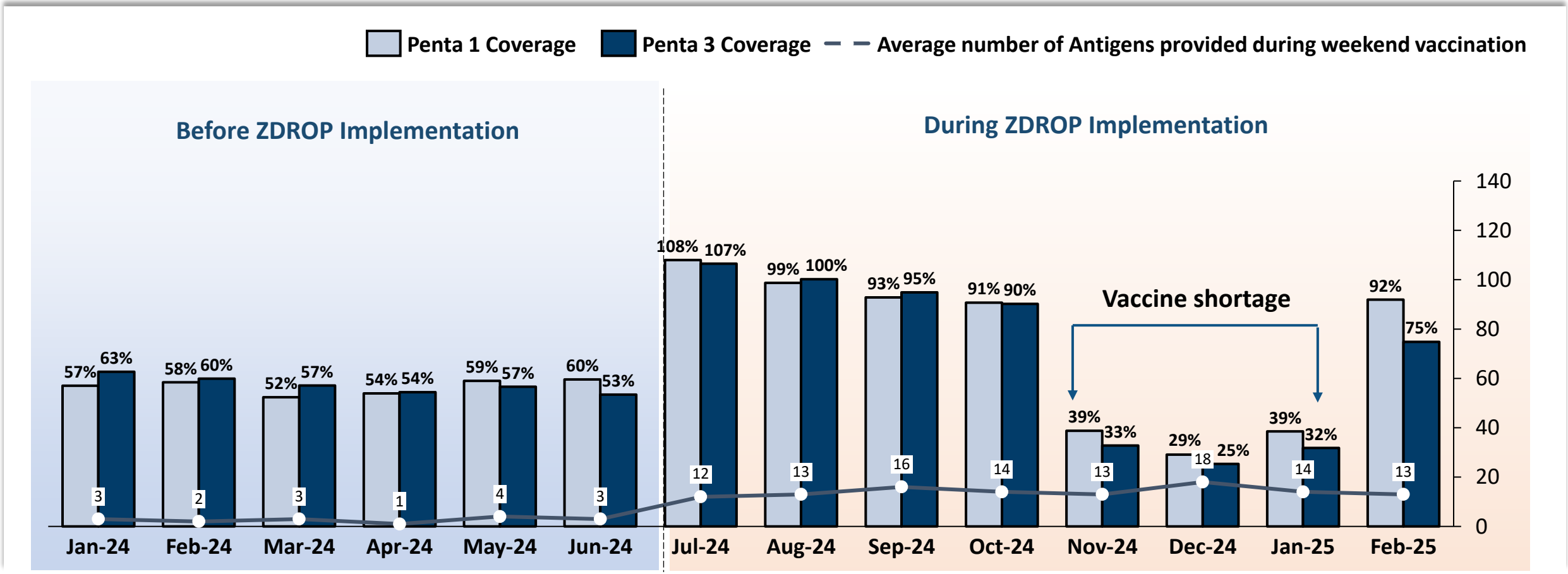
Ozawa S. Tatenda T. Yemeke, Kimberly M. Thompson, Systematic review of the incremental costs of interventions that increase immunization coverage, Vaccine, Volume 36, Issue 25, 2018, Pages 3641-3649; Clarke-Deelder E, Christian Suharlim, Susmita Chatterjee, Allison Portnoy, Logan Brenzel, Arindam Ray, Jessica Cohen, Nicolas A Menzies, Stephen C Resch, Health impact and cost-effectiveness of expanding routine immunization coverage in India through Intensified Mission Indradhanush, Health Policy and Planning, 2024; https://doi.org/10.1093/heapol/czae024

Results (2/4)

There was a significant increase in **penta 1 and penta 3 coverages** across the ZDROP implementing sites.



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Souce: Penta doses from DHIS 2 while weekend vaccination from facility registers

Results (3/4)

Facilities providing weekend sessions for 6 to 8 hours

Key findings

- **$1.36/dose** *(adjusted for all antigens)* was spent to conduct the extended session*

Other findings

- **$6/dose** (Clarke-Deelder, *et al.,* 2024)
- **$2.70/dose** (Uddin *et al.,* 2012)

Although, there are methodological differences in estimating cost per dose delivered, the incremental cost of conducting weekend vaccination was **seen to be lower** than other additional interventions conducted to reach zero dose children.

* Incremental cost of **$4.23** per zero dose child reached was obtained i.e. only including zero dose children reached with penta-1 only

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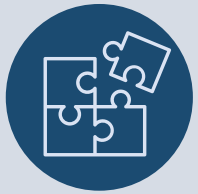
Sources: CHAI Team Analysis of cost per dose data; Clarke-Deelder E, Christian Suharlim, Susmita Chatterjee, Allison Portnoy, Logan Brenzel, Arindam Ray, Jessica Cohen, Nicolas A Menzies, Stephen C Resch, Health impact and cost-effectiveness of expanding routine immunization coverage in India through Intensified Mission Indradhanush, Health Policy and Planning, 2024; https://doi.org/10.1093/heapol/czae024. Chatterjee S, Das P, Nigam A. et al. 2018. Variation in cost and performance of routine immunisation service delivery in India. BMJ Global Health 3: e000794.doi: 10.1136/bmjgh-2018-000794..

Results (4/4)

Stakeholders shared that

Best Practices & Lessons learnt



Weekend vaccination is complimentary & equitable — 8/8

Ensuring equity for vaccination for children necessitates varied strategies, with weekend sessions particularly beneficial for reaching working-class women

Vaccines and supplies were accessible — 8/8

Provision of weekend vaccination was not impeded by inaccessibility to vaccines. There were not instances when vaccines couldn't be accessed

Wastage rate management led to reschedule — 3/8

Health care workers had to rescheduling of vaccination to workdays to avoid wastage of vaccines

Health talks was used in increasing awareness — 8/8

Caregivers receive information on the availability of weekend vaccination sessions during immunization health talk which was subsequently cascaded to other caregivers

Challenges

Human Resource Gaps — 8/8

Shortage of health care workers affected the availability of weekend sessions and led to increase workload amongst health care workers

Delayed funds release — 4/8

This affected the ability of facilities to engage community mobilizers and hence affected client turnout

Demand Generation was not sufficient — 4/8

There is need to engage additional community mobilizers to reach additional households with information on vaccination.

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Source: CHAI Team analysis of Stakeholder Interviews

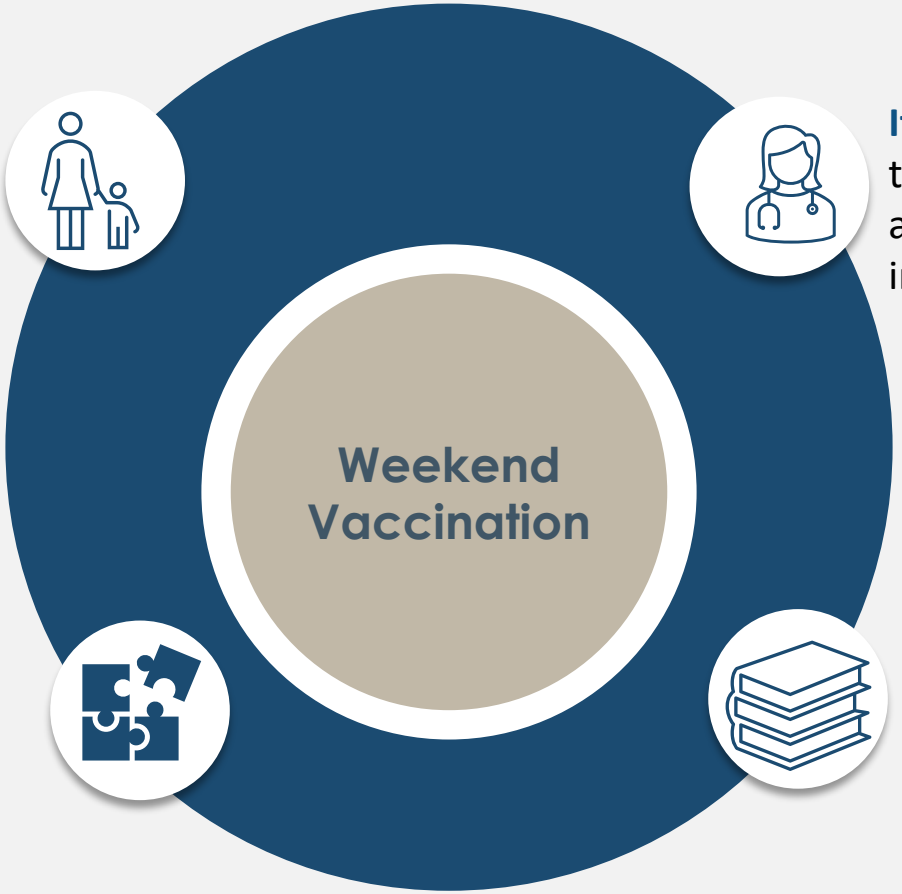
Limitations

1. **Reporting weekend vaccinations as weekday services** hinders data collection and prevents the generation of weighted vaccination estimates.

2. A lack of **robust, country-specific costing data** poses challenges for meaningful comparison and benchmarking

Conclusion

Weekend vaccinations are cost effective in reaching working class mothers and can be further optimized by implementing strategic demand generation efforts



It is imperative to address HR shortages to reduce burnout, improve HCW welfare and support facilities to provide immunization sessions effectively

Weekend vaccination complements other immunization service delivery approaches including fixed sessions, community outreach and market storms

Weekend vaccination should be integrated into immunization policies and plans, as part of gender and equity consideration to enhance immunization uptake

Call to Action

1 Development & IPs

- Support National and state governments to implement weekend sessions to reach working class women, as part of efforts to advance equity in vaccination

2 Health Managers and Implementers

- Integrate weekend sessions into the service delivery models, health development plans and data reporting tools
- Investment in HRH and innovative financing mechanisms

3 Policy Markers

- Create comprehensive guidance materials and normative documents to facilitate the efficient and effective implementation of weekend vaccination programs.

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