Comparing the cost of delivering yellow yellow fever vaccines with co-delivery of of yellow fever and meningitis A vaccines through campaigns in Nigeria

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1. Introduction and methods

Background

- Despite the frequent use of immunization campaigns in Nigeria, **little evidence exists on how much these campaigns cost**, and none currently on the cost of integrated campaigns
- As part of Nigeria's 10-year **yellow fever (YF) elimination plan**, immunization campaigns have been implemented in a phased manner across the country, aiming to vaccinate at least 80% of the target population in all states by 2026
- Between September 2019 and December 2020, Nigeria implemented phase 3 of the elimination strategy, and campaigns were conducted in four states

Introduction

- ThinkWell in partnership with the University of Nigeria Nsukka and Nnamdi Azikiwe University conducted a **campaign costing study of YF campaigns in three states**: Anambra, Katsina and Rivers
- In Anambra, a relatively high-performing state, YF vaccines were **co-delivered with Meningitis A (MenA)** as part of a catch-up campaign
- Both YF and MenA campaigns were supported by Gavi

Campaign overview

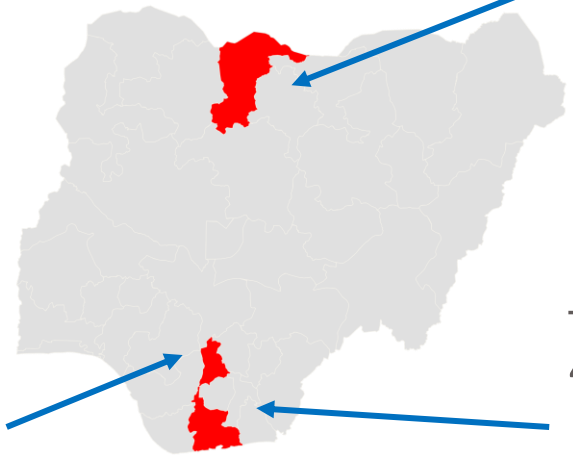
	ANAMBRA	KATSINA	RIVERS
Antigens & interventions	YF & MenA	YF	YF
Timing	October 2020	September 2019	March 2020
Doses delivered (administrative data)	YF: 6.1 million MenA: 1.2 million	6.7 million	6.3 million
Coverage (post campaign coverage survey)	YF: 76% MenA: 96%	83%	82%
Delivery strategies	Facility-based delivery and temporary fixed sites		
Target populations	YF: 9 months – 44 years, MenA: 1 – 6 years		

Study methods overview

Objective	To estimate the **economic** and **financial delivery cost** (operational cost) of the campaign
Perspective	Government entity responsible for the campaign's implementation at all administrative levels and implementing partners
Design	**Bottom-up** retrospective costing
Sampling strategy	Random sampling of Local Government Areas (LGAs) and wards within states using the Sample Design Optimizer
Time horizon	Costs incurred during planning, implementation and wrap-up (staff time from 30 days prior to campaign until 30 days after)
Main output	**Average cost per dose delivered** (weighted by volume delivered and inverse probability of sampling, USD 2020)

Study sample

- 78 facilities in 28 wards in 10 LGAs in 3 states
- State and federal level government
- 10 partners working at state and national level, e.g. UNICEF and WHO



Katsina

2 LGAs

7 wards

47 facilities

Anambra

4 LGAs

8 wards

17 facilities

Rivers

4 LGAs

13 wards

14 facilities

2. Findings

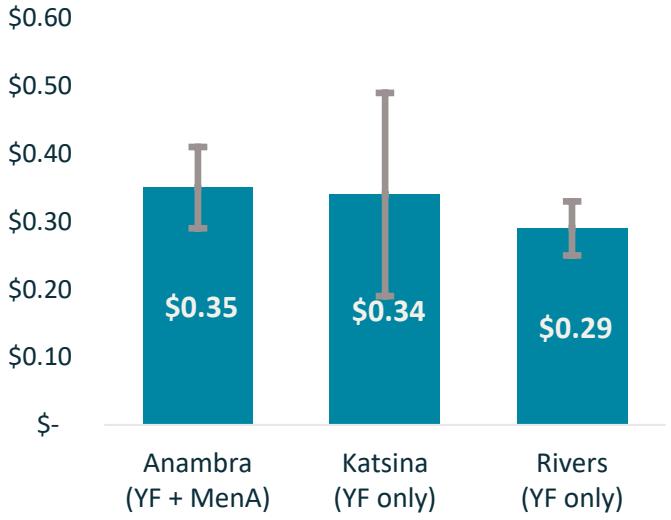
The financial cost per dose ranged from $0.29 to $0.35 per dose delivered, similar cost drivers

Per diems, transport and fuel costs and vaccine injection and safety supplies were the main cost drivers in all three states though the share of these cost items differed across states

(Other category consists of cold chain repairs and energy costs, stationery and other supplies)

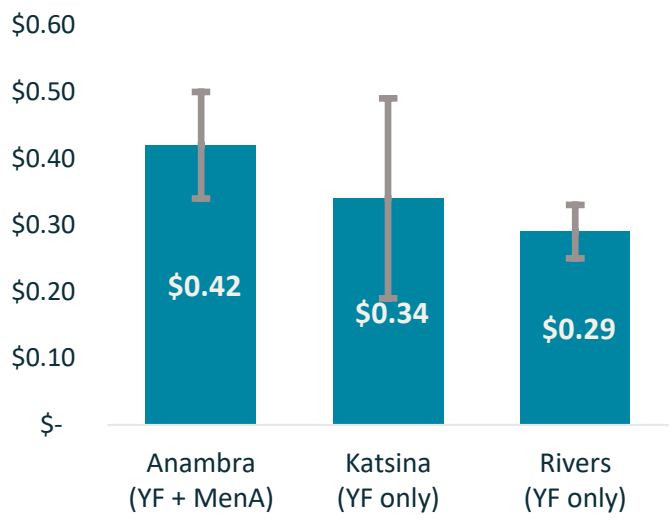
Financial cost efficiencies not found to be achieved through co-delivery, cost differences were likely influenced by other factors

Financial cost per dose delivered (all vaccines) in sampled LGAs



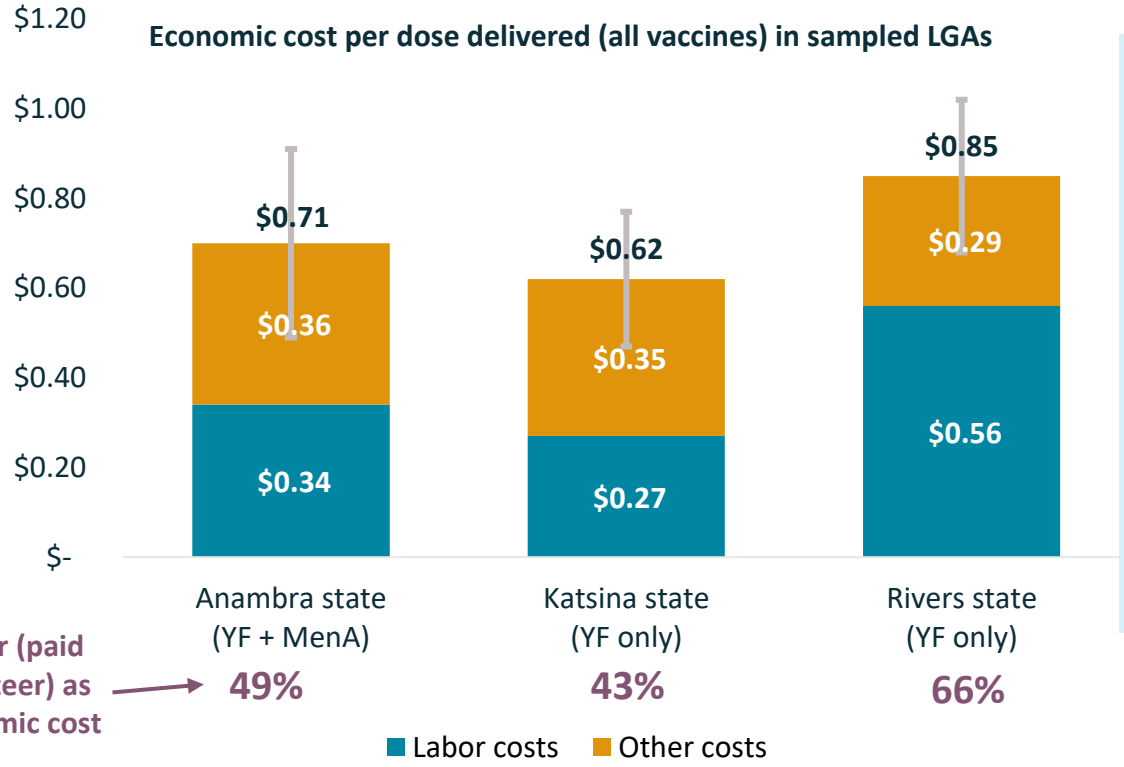
The financial cost per dose delivered was similar in the co-delivery state Anambra, compared with Katsina and Rivers

Financial cost per YF dose delivered in sampled LGAs



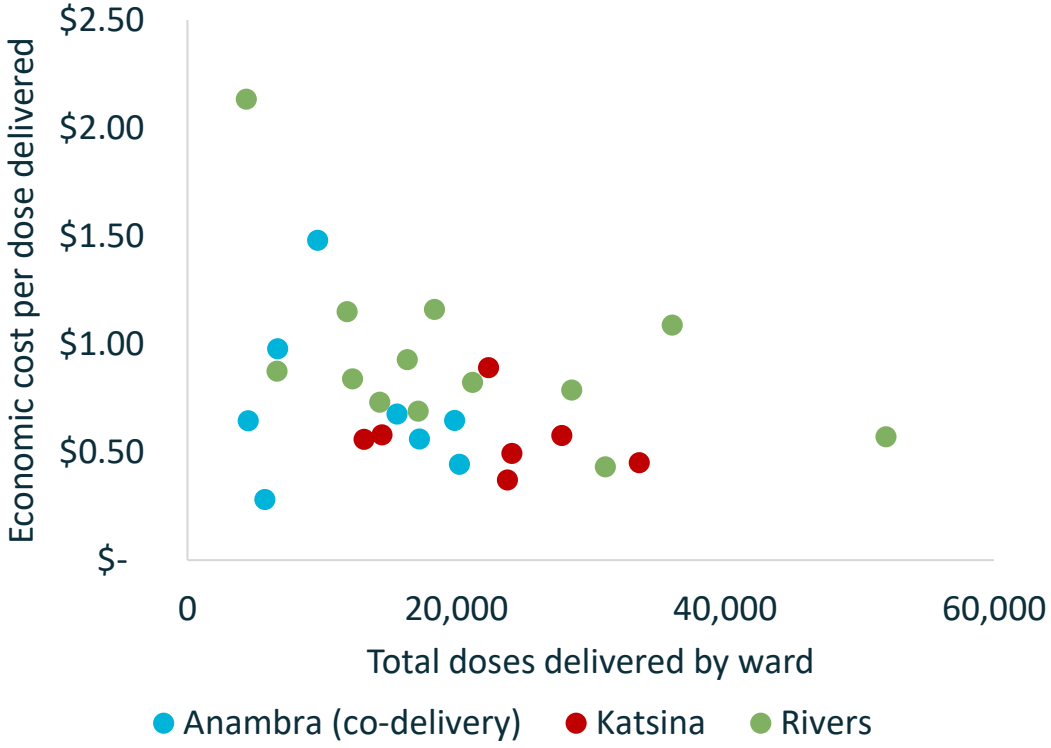
When using a common denominator across all states, on average, delivery costs were higher in the co-delivery state

Paid and volunteer labor accounted for 43%-66% of the economic cost per dose



- Labor costs were a greater proportion of economic costs in Anambra, the co-delivery state, when compared to Katsina
- However, they were even greater in Rivers, driven by more staff and lower # doses delivered per staff
- This suggests that **other differences across states likely had greater influence on costs**

The economic unit cost tended to decrease with increasing delivery volume

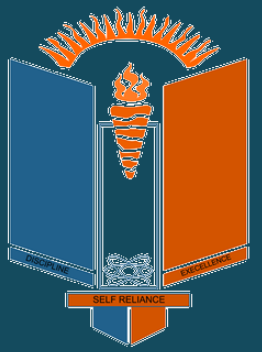


- The cost per dose tended to be **lower in wards that delivered more doses**
- The median number of doses delivered per ward was lowest in the co-delivery state
- **Delivery volume may have had a greater effect on the financial cost per dose than co-delivery**

Conclusions

- This study provided important new evidence on the cost of delivering vaccines through single antigen and integrated campaigns in Nigeria, which can help inform planning and budgeting for future campaigns
- The high opportunity costs, particularly in Rivers state, highlight the reliance and burden on existing health workers to deliver campaigns
- The findings of this study did not show clear financial or economic efficiencies from integration, but more evidence is needed on how integration impacts costs

Thank you!



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