

# Effect of Vaccine Direct Delivery (VDD) on vaccine stockouts and vaccination cases

Case study from Bauchi State, Nigeria

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## INTRO

- 38 percent of sub-Saharan countries experience national-level vaccine stockouts
- Vaccine stockouts are one of the main barriers to vaccination
- But there is almost no study evaluating ways to reduce stockouts
- This study evaluates the effect of Vaccine Direct Delivery (VDD) intervention on vaccine stockouts

## METHODS

### Vaccine Direct Delivery (VDD)

- Third party logistics (3PL) providers provides logistic support to health facilities
- Objective of VDD: ensuring stock availability of vaccines in every equipped health facility

### Evaluation of VDD effect

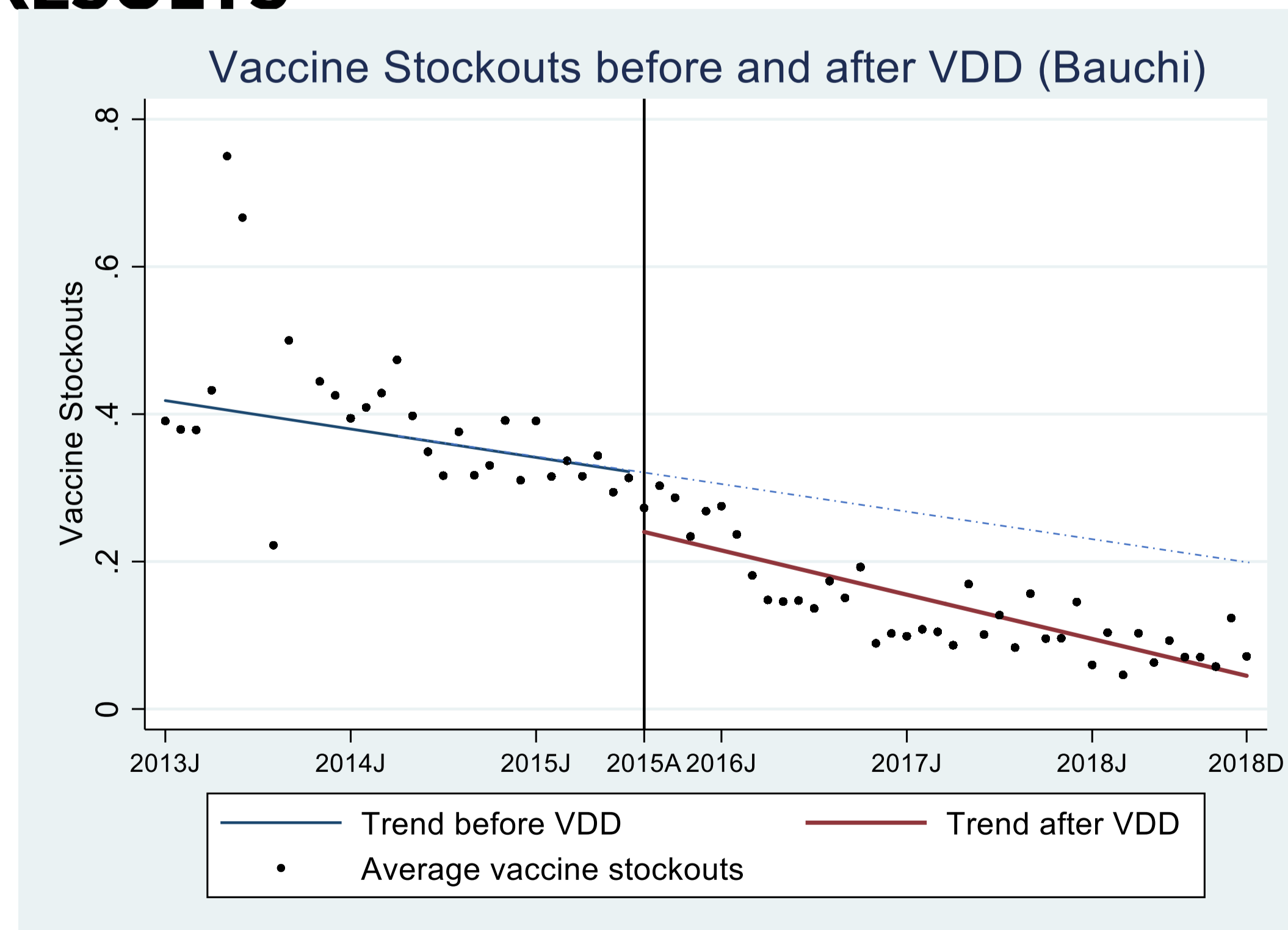
- 175 Health Facilities in Bauchi State
- Data: Health-facility level data collected through the District Health Information Software 2 (DHIS2)
- Analysis: interrupted time-series analysis

$$y_{it} = \alpha + \beta_1 Time_{it} + \beta_2 After_{it} + \beta_3 Time * After_{it} + v_i + \varepsilon_{it}$$

where  $y_{it}$  = vaccine stockouts;  $Time_{it}$  = Over time from month 0;

$After_{it}$  = After VDD

## RESULTS



- Vaccine stockouts decreases over time
- Vaccine stockouts decreases MORE after VDD



# Vaccine Direct Delivery (VDD) is a successful intervention to reduce vaccine stockouts



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## More RESULTS

### Vaccine vs. Other products

Bauchi state (VDD)	Stockouts	
	Vaccine (1)	TB (2)
Time	-0.001 (0.002)	-0.003 (0.002)
Intervention period (After)	-0.090*** (0.034)	0.032 (0.034)
Time after interruption (Time_After)	-0.004* (0.002)	0.004* (0.002)
Constant	0.417*** (0.032)	0.463*** (0.040)
N	5964	5964
r2	0.085	0.003
Time+Time after interruption (p=value)	0.000	0.212

### Bauchi State (VDD) vs. Adamawa State (no VDD)

Adamawa state (No VDD)	Stockouts	
	Vaccine (1)	TB (2)
Time	0.000 (0.003)	-0.001 (0.003)
Intervention period (After)	-0.000 (0.033)	-0.055 (0.037)
Time after interruption (Time_After)	-0.005 (0.003)	-0.000 (0.004)
Constant	0.200*** (0.056)	0.594*** (0.073)
N	3936	3936
r2	0.038	0.009
Time+Time after interruption (p=value)	0.000	0.574

### VDD increases vaccination cases?

Bauchi state (VDD)	Number of vaccines		
	BCG (1)	OPV (2)	Pentavalent (3)
Time	0.484*** (0.155)	2.795*** (0.458)	2.746*** (0.409)
Intervention period (After)	3.393 (2.995)	2.593 (5.538)	6.187 (3.855)
Time after interruption (Time_After)	-0.773*** (0.189)	-4.011*** (0.488)	-3.711*** (0.434)
Constant	18.457*** (4.514)	52.751*** (10.700)	20.658** (10.051)
N	6558	6558	6558
r2	0.002	0.069	0.083
Time+Time after interruption (p=value)	0.000	0.000	0.000