



# OPV campaigns – their role in reaching MDG4: Bandim and Navrongo

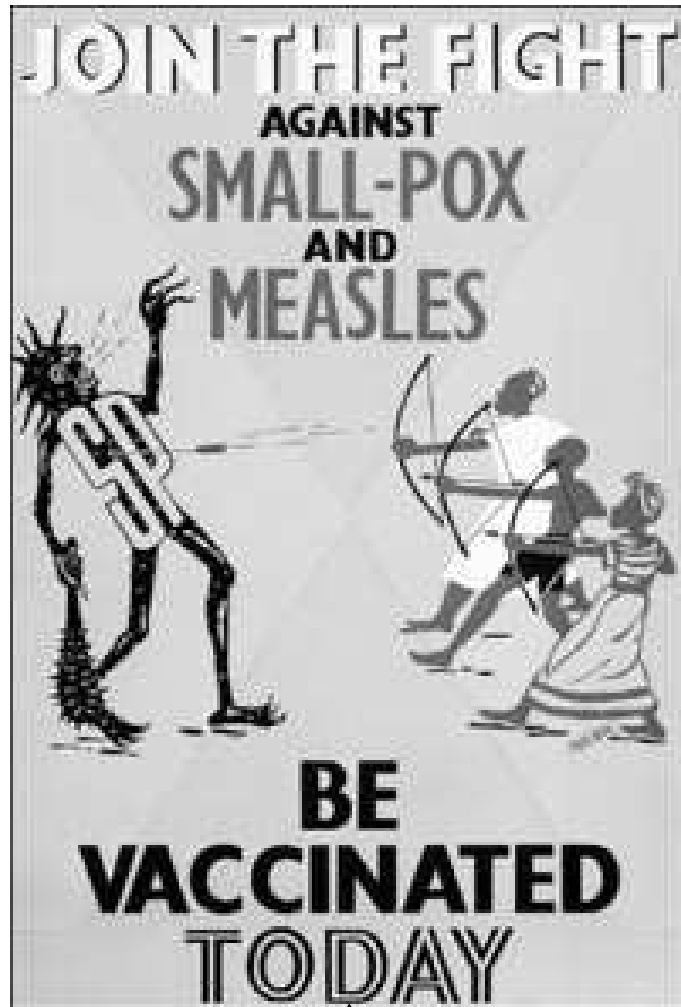
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DEVELOPMENT COOPERATION

# Single-disease-eradication campaigns



**Smallpox eradicated 1977**  
**Smallpox vaccination stopped 1980**

**Eradication planned within the next 10-20 years for Polio and Measles**

**Oral polio vaccine (OPV) to be stopped in 2020**

**The effect of these campaigns have not been evaluated**

**From smallpox eradication campaigns in West Africa in the 1960s**



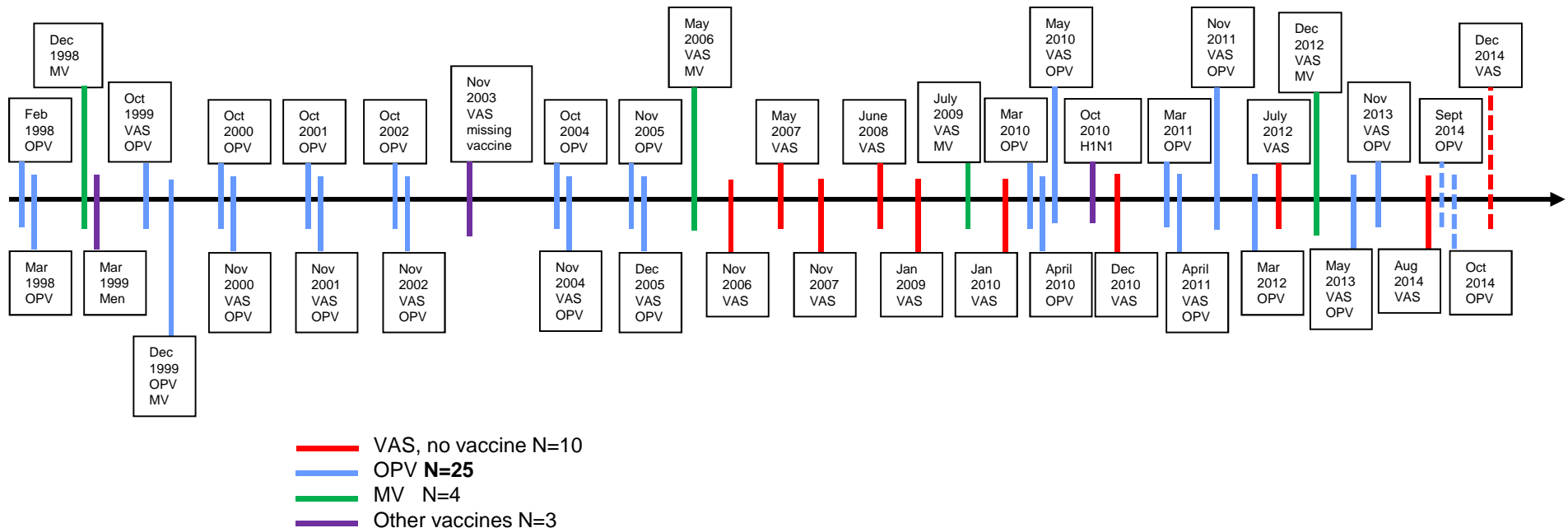
# Trial of BCG+OPV at birth vs BCG-only for infant mortality

(N=7000; No polio in Bissau)

Group	Mortality reduction for OPV0+BCG vs BCG-alone
All children	<b>32% (0-57%)</b>
Enrolled day 0-2	<b>42% (10-62%)</b>

# Campaigns not evaluated

## 17 years of campaigns in Guinea-Bissau



**Polio and measles are not major killer diseases now so no effect on child survival expected.**



**Polio campaigns during the last 15-20 years: No study**

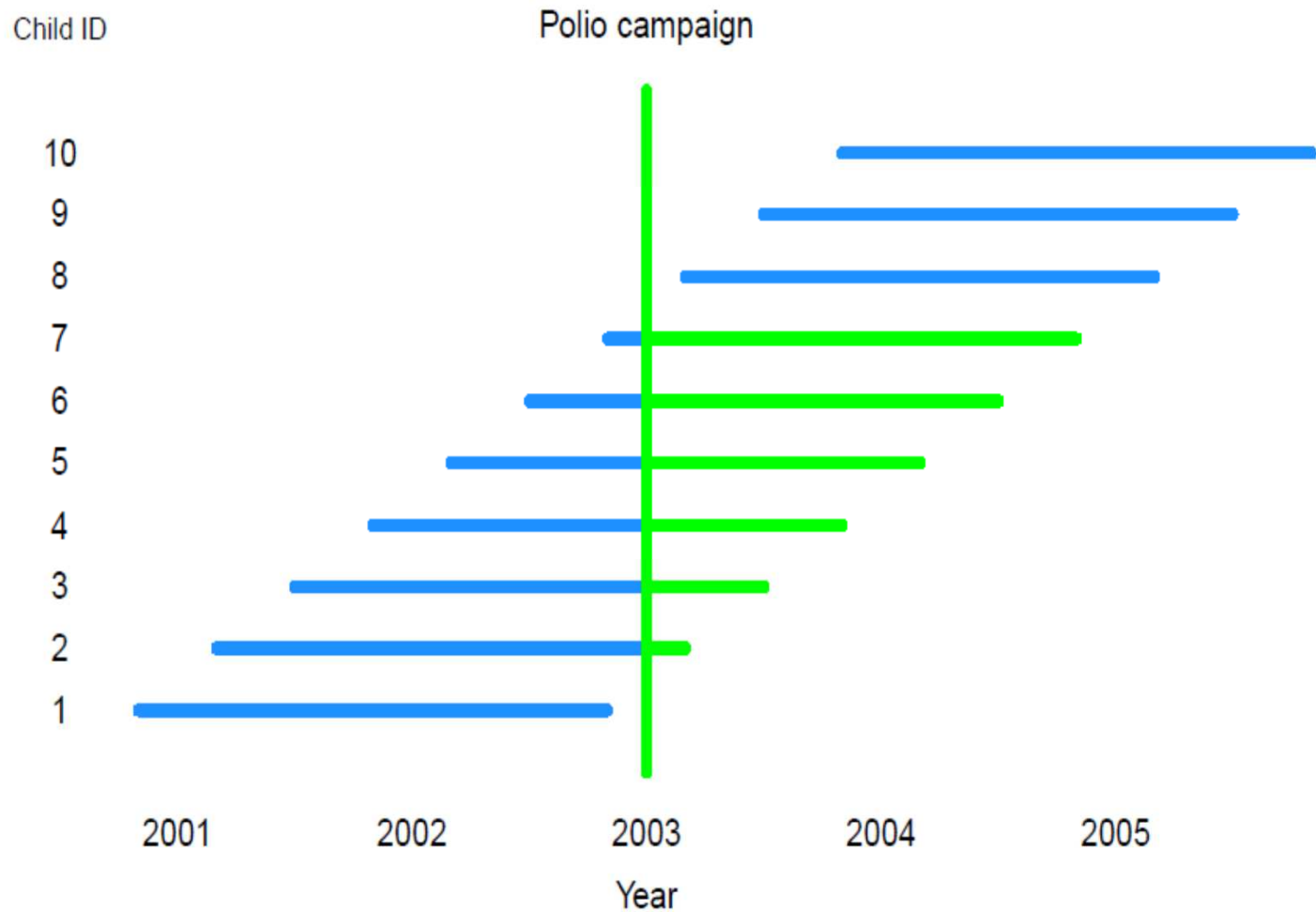
**First OPV campaign in Bissau 1998  
- Mortality March-Dec 1998**

<b>OPV campaign in 1998 – age groups</b>	<b>Mortality for 1-2 doses of OPV</b>	<b>Mortality for No OPV</b>	<b>Reduction in mortality</b>
<b>0-4 years</b>	<b>3.7%</b>	<b>5.8%</b>	<b>33% (10-50%)</b>



**2002 to 2014 Bandim has conducted 7 randomised trials with mortality as main outcome testing different schedules for vaccines and vitamin A supplementation**

## Assessing mortality from vaccination campaigns



**We assessed the effect of campaigns within these 7 randomised trials:**  
– **blue** time before campaign; **green** time after campaigns





**2002-2014: Bandim has conducted 7 randomised trials**

**Results: OPV-campaigns reduced mortality by 19% (5-30%) – Each additional dose reduced mortality by 13% (4-21%)**



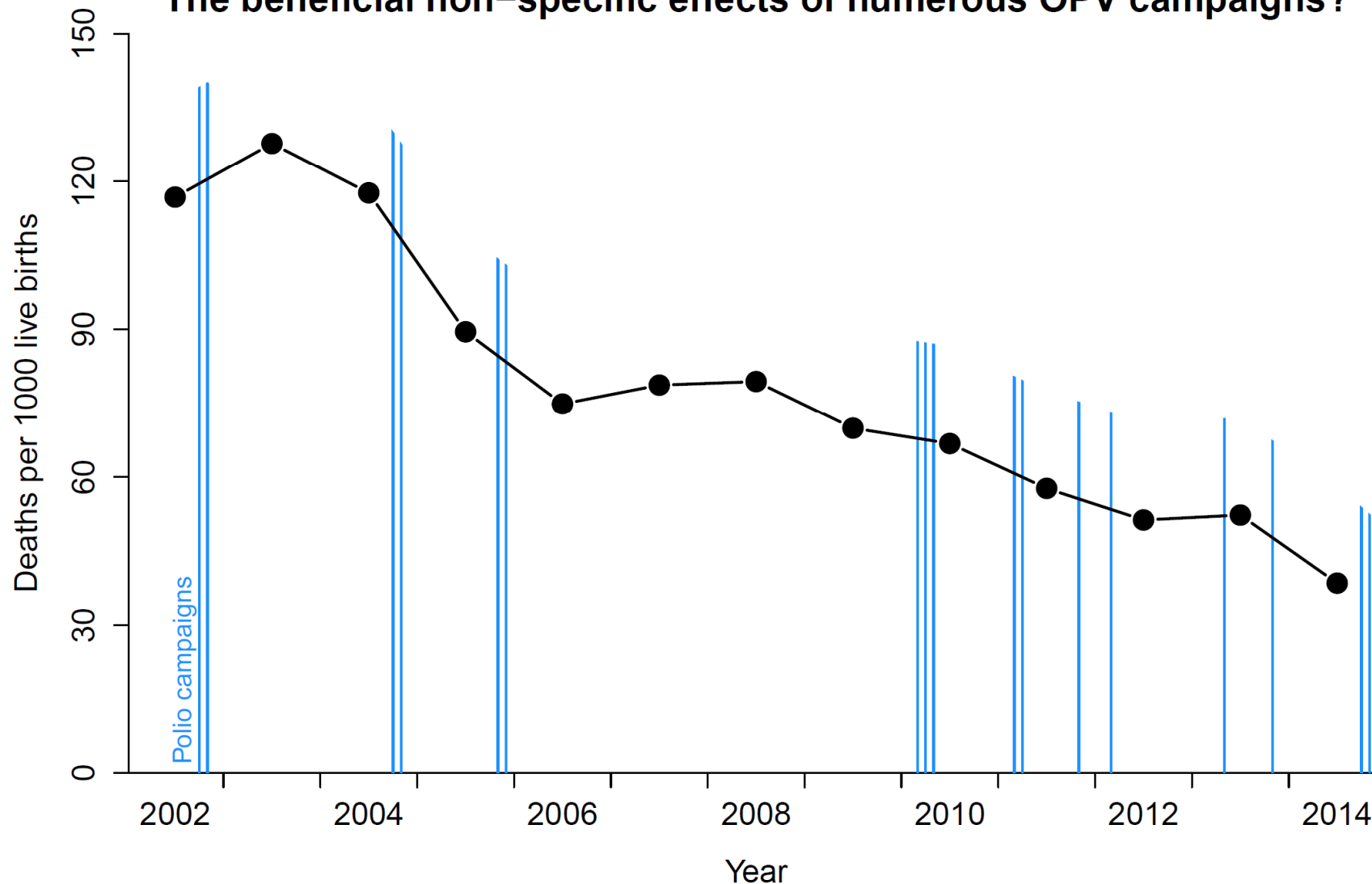
**Simulation studies with random selection of dates of campaigns: Unlikely to be chance, season or time trend which explains effect**



## *All children in Bandim 2002-2014*

### Under-3-mortality in Guinea-Bissau in 2002-2014

The beneficial non-specific effects of numerous OPV campaigns?



**OPV-campaigns: 25% (15-33%) reduction in mortality. No effect of Vitamin A**

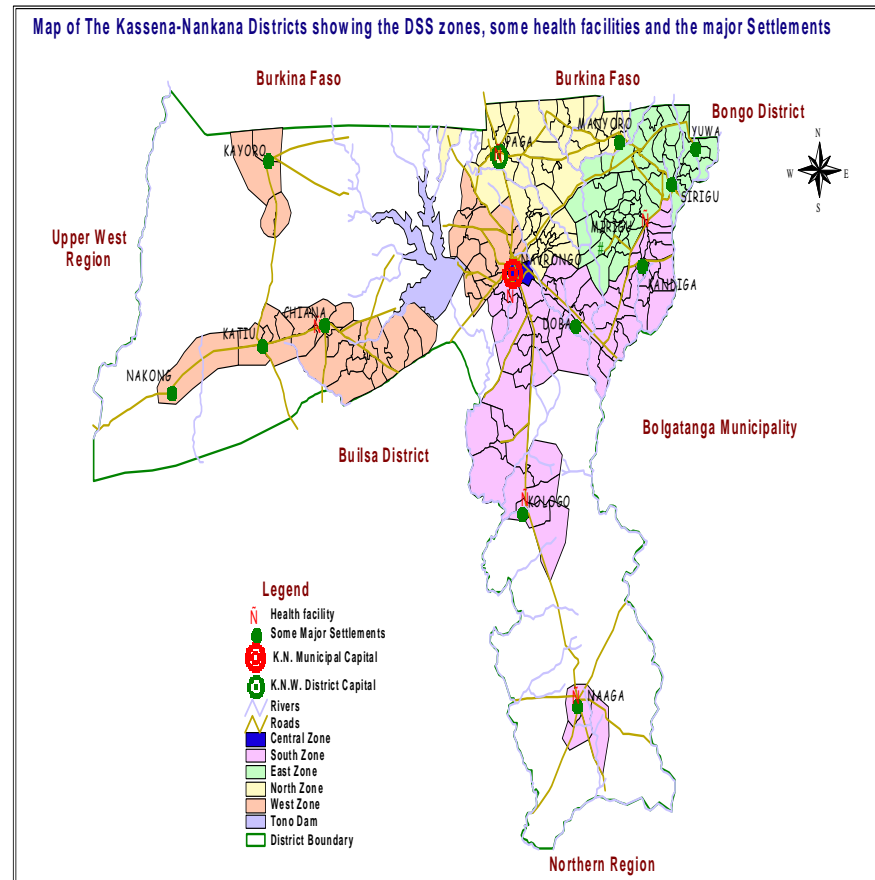


**Approaching polio eradication =>  
The world is switching from OPV  
to Inactivated polio vaccine (IPV)**

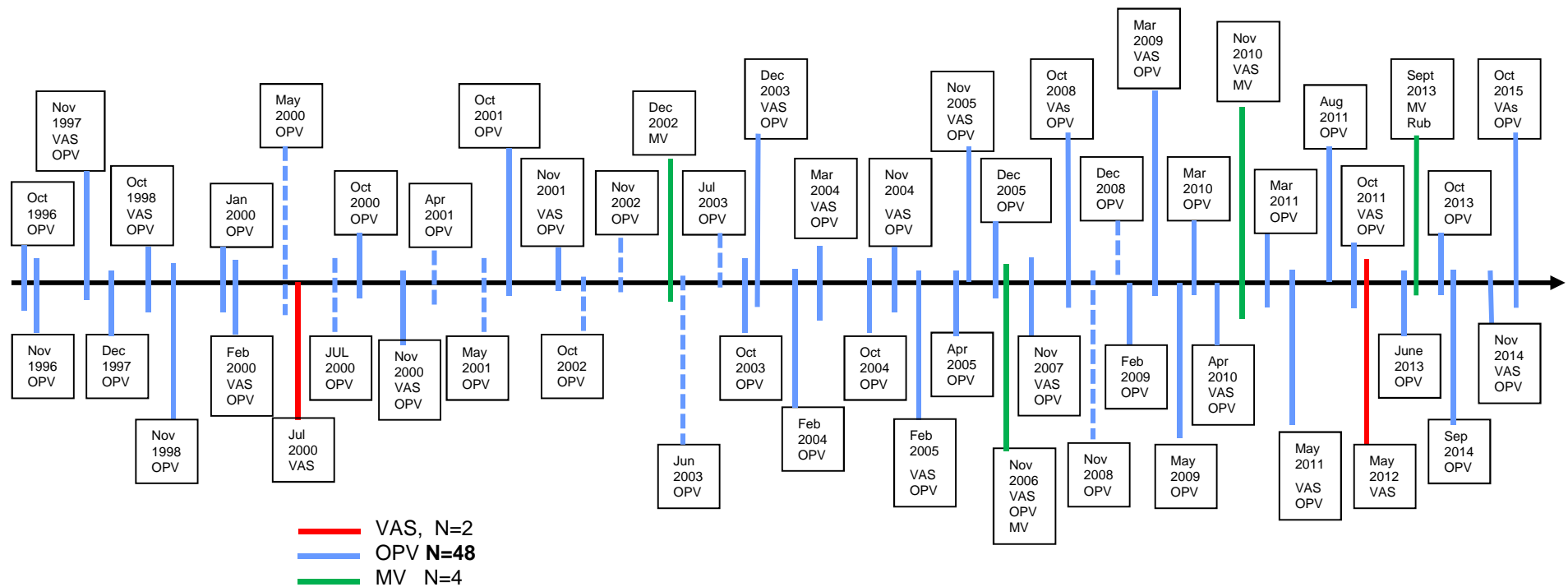
**IPV vaccinations and survival have  
not been examined  
IPV used as comparator vaccine to  
children aged 4-6 months in  
randomised studies in Bissau in  
the 1980-90s**

<b>Mortality before receiving measles vaccine</b>	<b>Mortality rate for girls</b>	<b>Mortality rate for boys</b>	<b>Increase in female-male mortality</b>
<b>Randomised to IPV</b>	<b>8.3%</b>	<b>5.4%</b>	<b>52% (2-128%)</b>

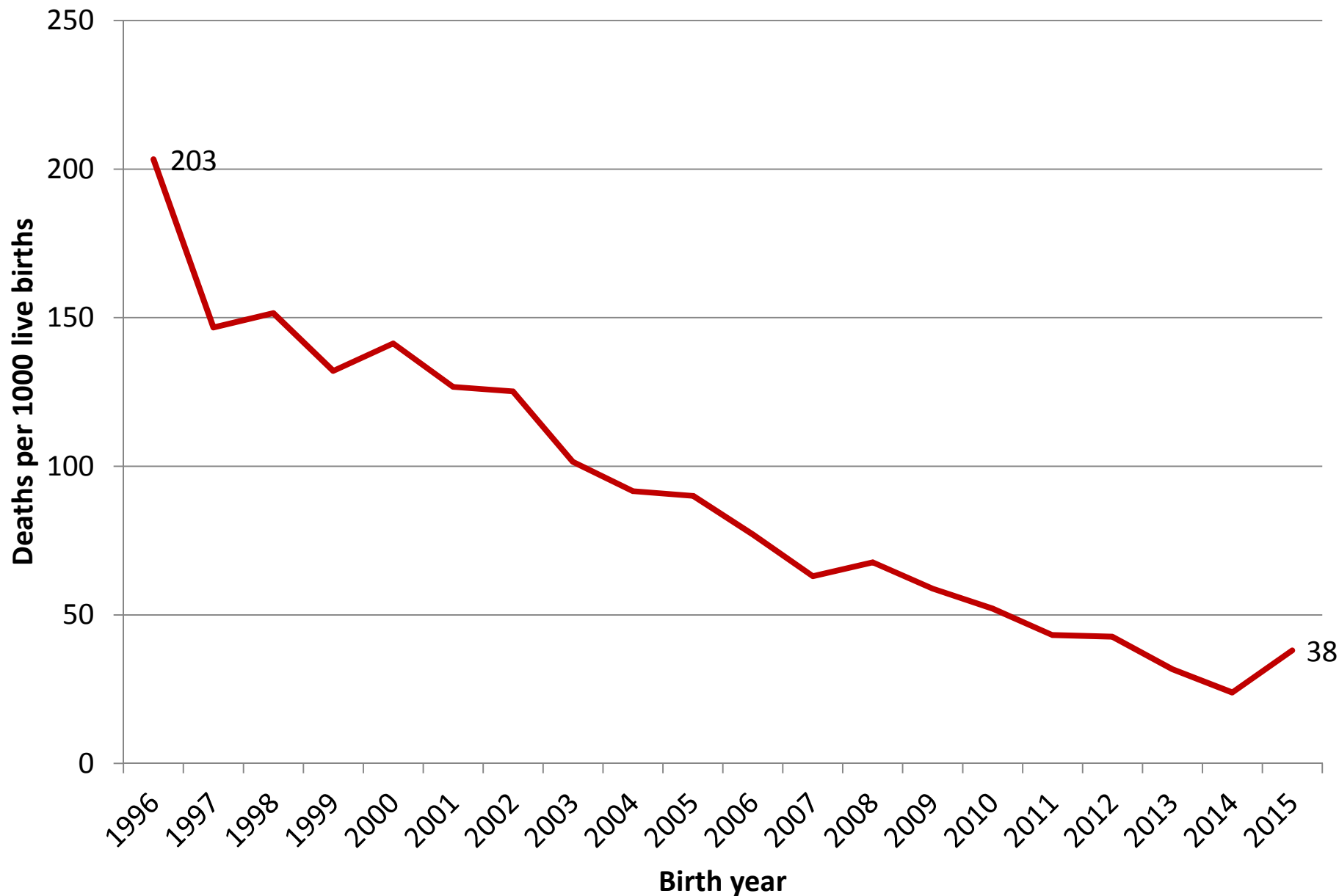
# OPV and Measles Campaigns in Navrongo, Ghana



# Campaigns in Navrongo: 1996-2012



# *Mortality day 1 to 3-years in Navrongo 1996-2015*







# The effect of campaigns: OPV and Vitamin A

## In Bandim and Navrongo

Studies	Period Age of children	OPV: reduction in mortality	Vitamin A: increase in mortality
Bandim	2002-2014 0-3 years	25% (15-33%)	42% (24-63%)
Navrongo	1996-2015 0-3 years	12% (4-19%)	1 campaign: no effect
Combined Bandim and Navrongo		18% (4-30%) reduction	



## Conclusions

OPV has side effects in rare cases but OPV has also much larger beneficial effect on mortality than previously assumed:

- OPV at birth
- OPV Campaigns



## Removing OPV:

- No campaigns to reduce mortality
- Replacing OPV with IPV could have negative effect

**We need to monitor the withdrawal of OPV**