



# Effects and cost-effectiveness of Measles vaccination campaigns

## Evidence from Bandim Health Project

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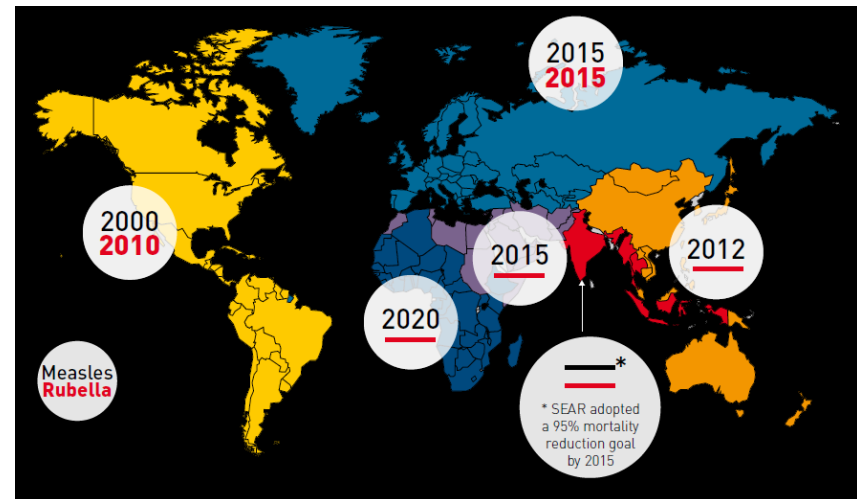


MINISTRY OF FOREIGN AFFAIRS OF DENMARK  
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# Measles vaccination campaigns



## Targets for measles elimination



Disease eradication - reaching all

→ Evaluation: Coverage

# Measles vaccination campaigns

- Measles vaccination campaigns in LMIC (>1 billion doses of MV)

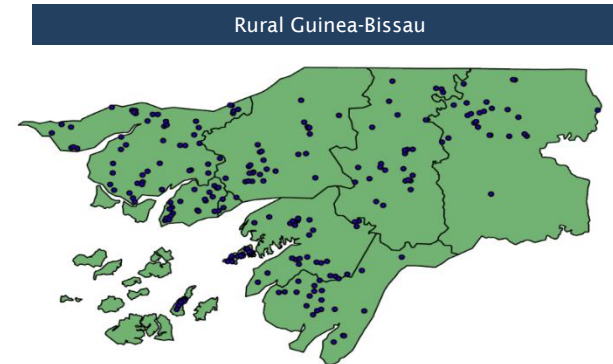
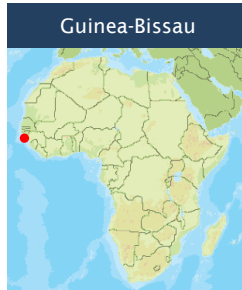
- Guinea-Bissau: measles campaigns every 3 years since 2006



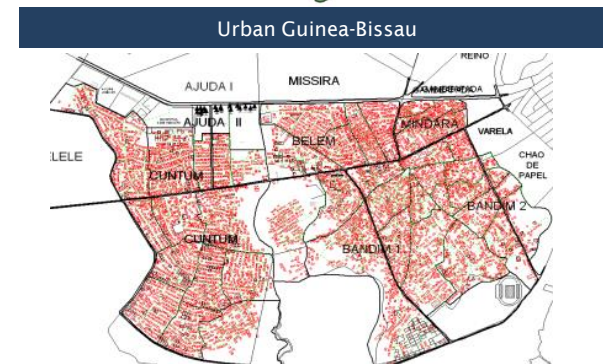
- First studies of the effect of MV campaigns
  - 2006 campaign in rural Guinea-Bissau
  - 2012 campaign in Bissau city (urban)(Best data available)

# Bandim Health Project

A platform for testing real-life effects of health interventions

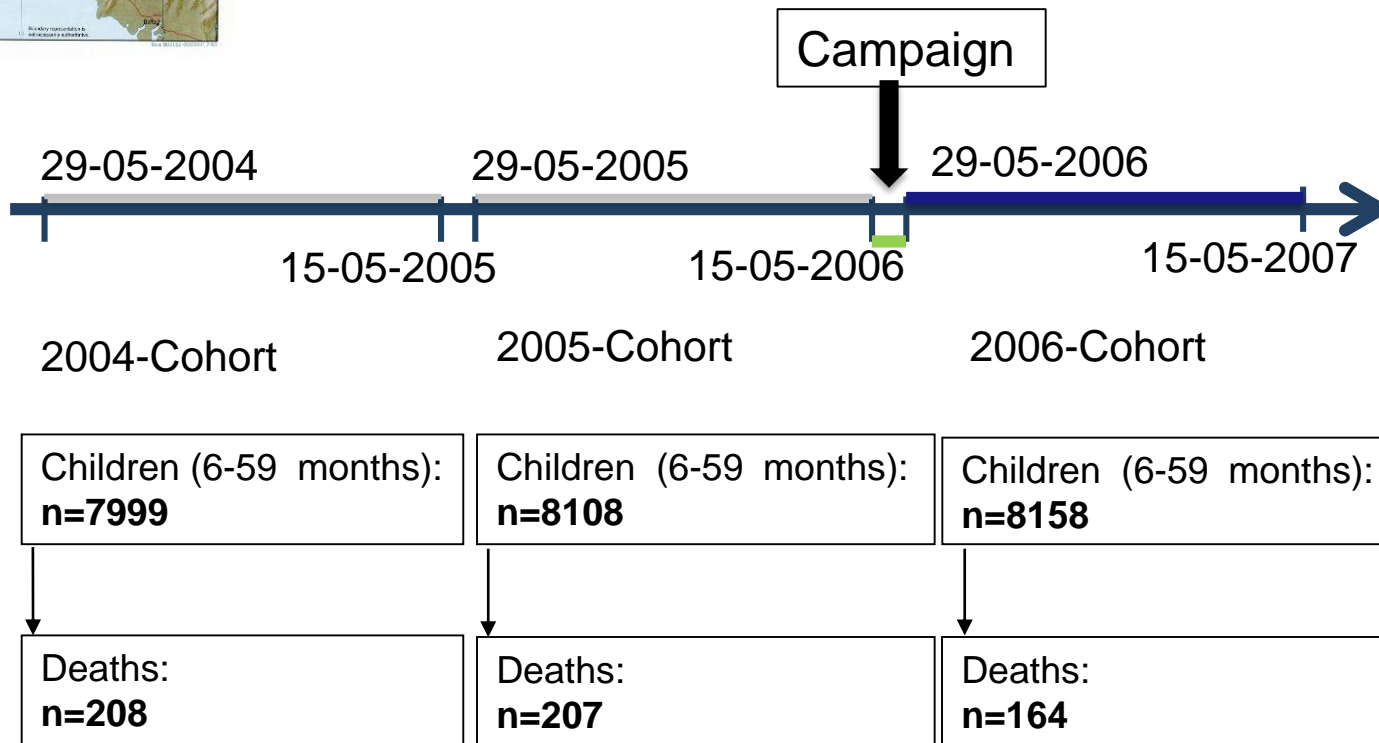
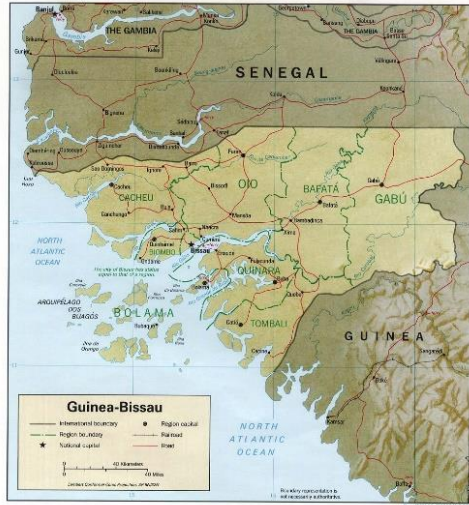


2006

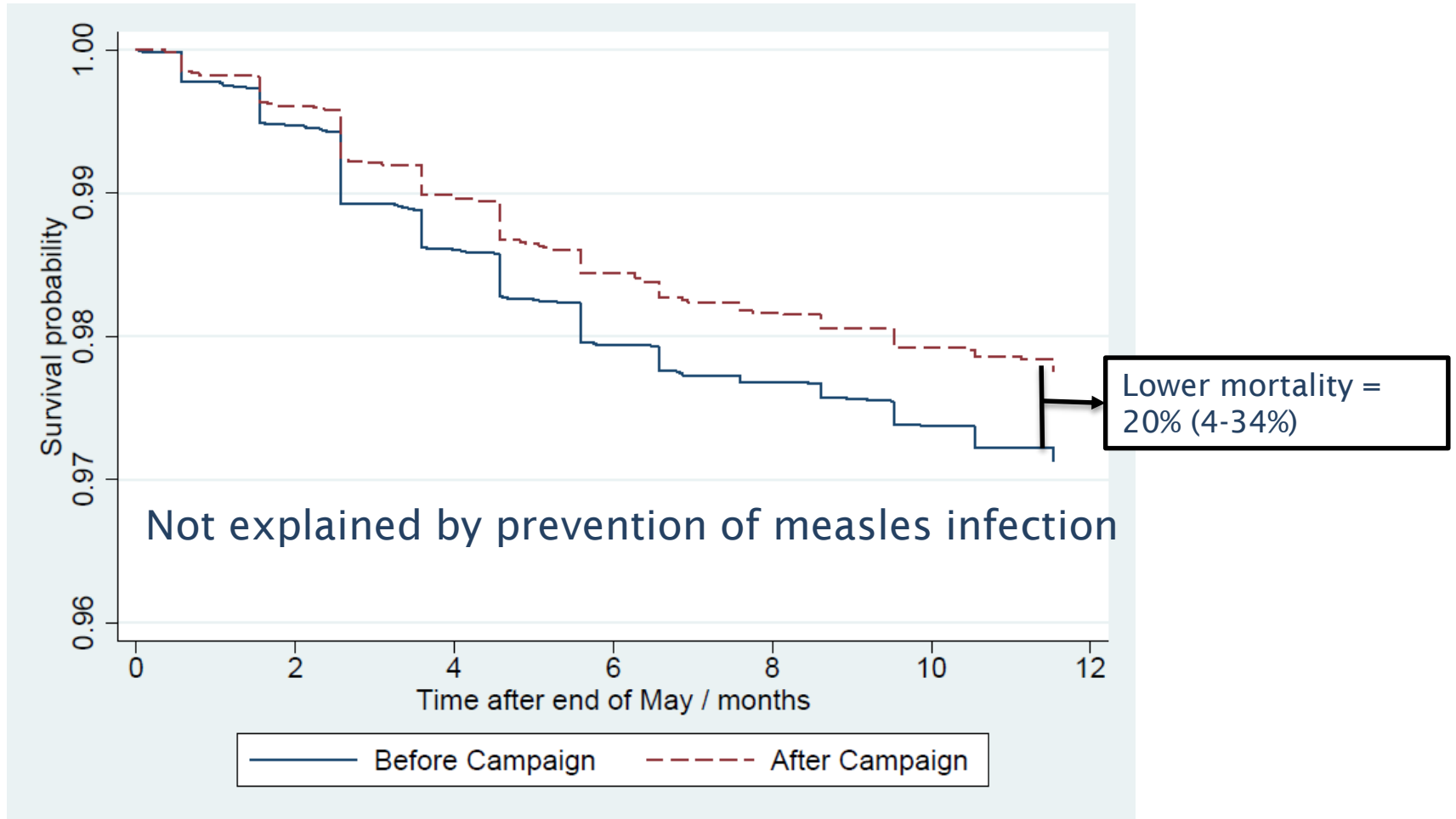


2012

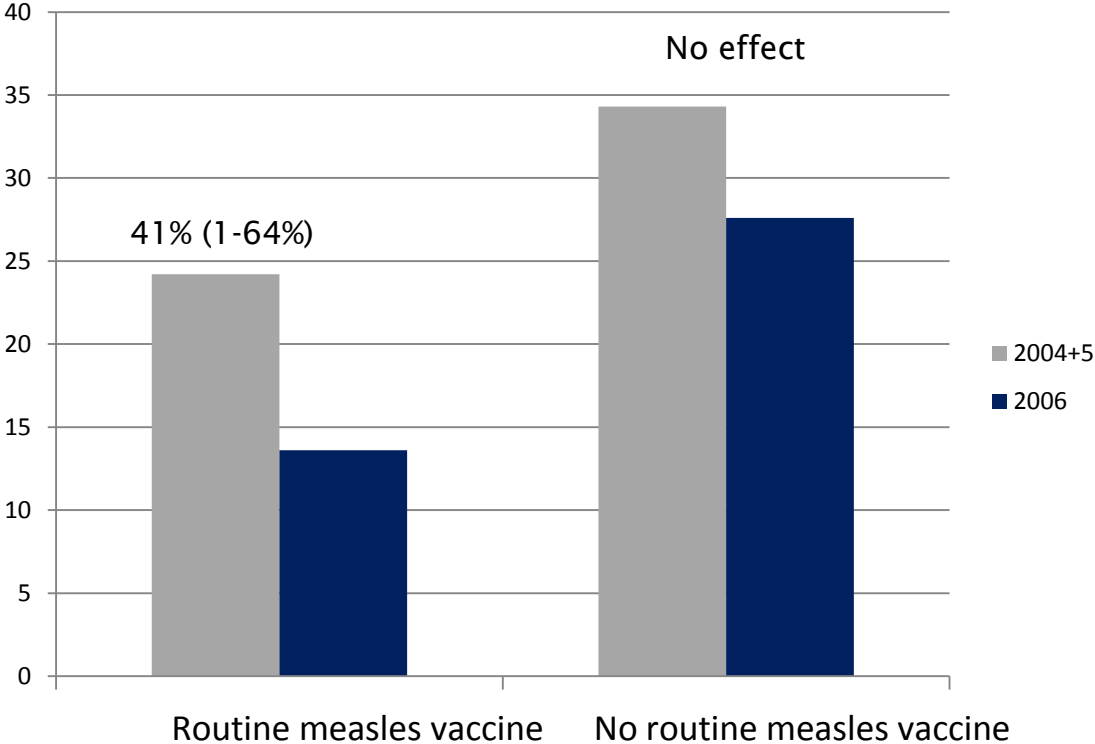
# Measles vaccine (MV) campaign 2006 - Rural



# Survival during follow-up



# Mortality by routine measles vaccination status





# Measles vaccination campaign 2012 - Urban

Campaign  
Dec. 2012

End of follow-up  
Dec. 2013



Participants: information during campaign or after campaign

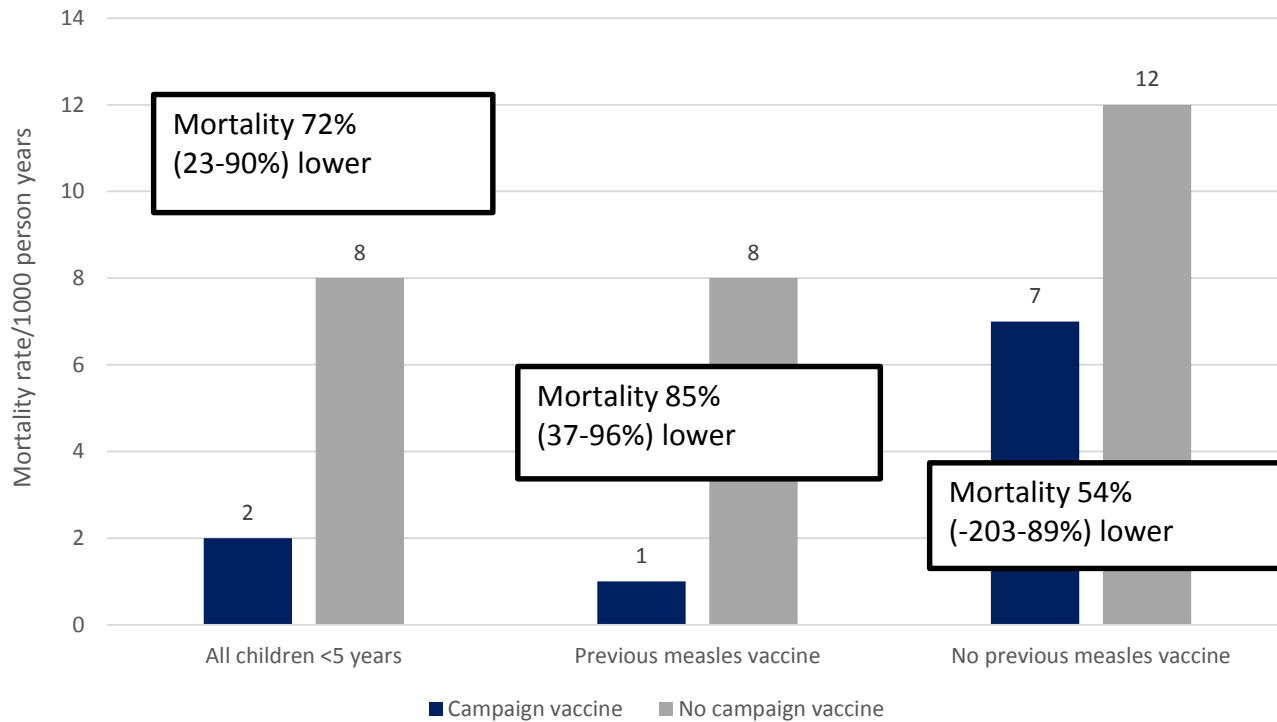
Non-Participants: information after campaign

No information

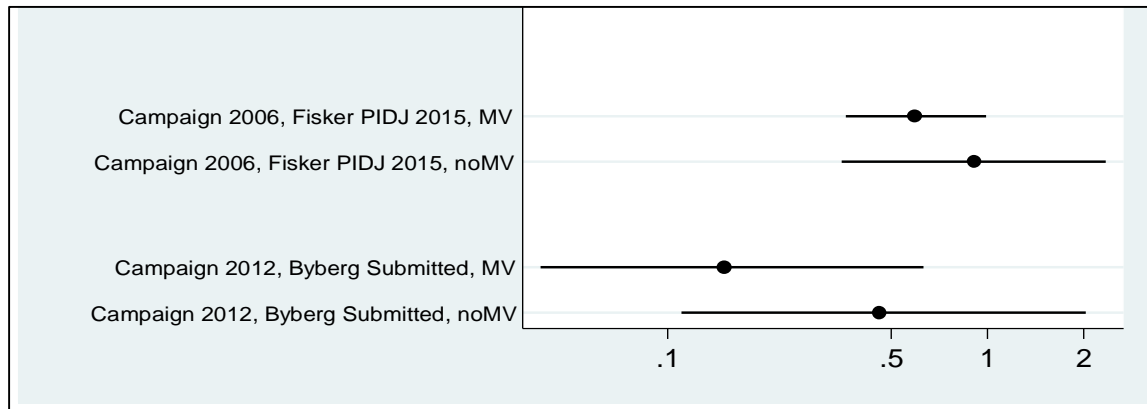




# Mortality during follow-up



# Boosting with measles vaccine

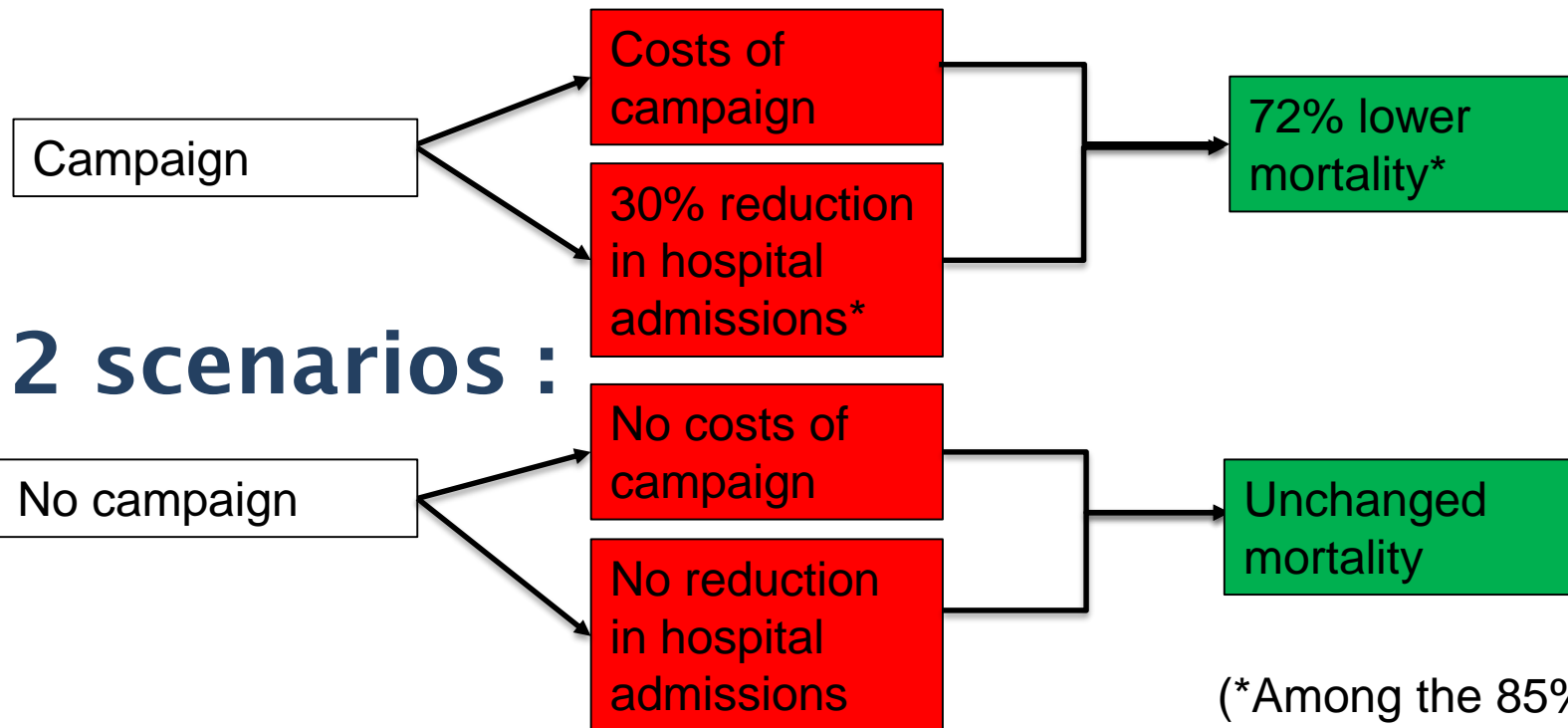


- Lower mortality after Measles vaccination campaigns
- Especially among previously vaccinated although one dose of measles vaccine is considered full protective against measles infection
- Preliminary analyses of data from 1996-2015 from Navrongo also indicate beneficial effects of measles vaccination campaigns – 26% (11-38%) lower mortality after four campaigns.

# Cost-effectiveness (CE) of measles campaigns

All children 9-59 months of age in Guinea-Bissau in 2012 (n=247,786)

Societal perspective



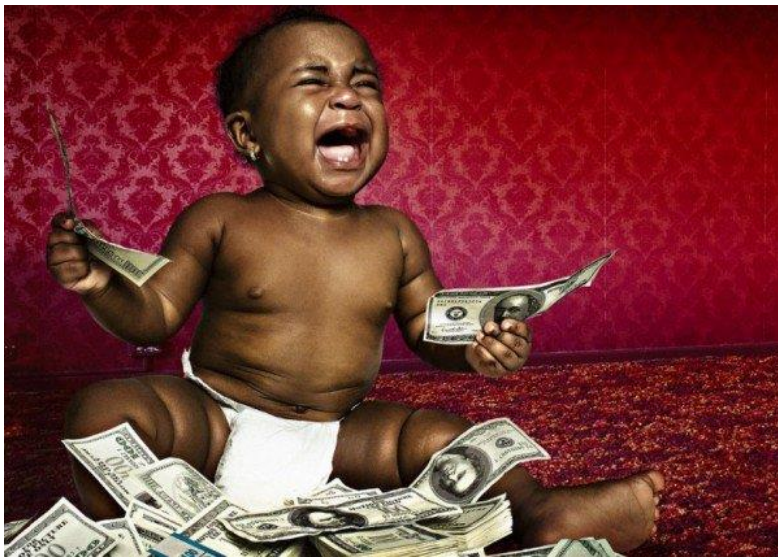
# Results

- Total costs of 2012 campaign: **USD 272,441**

Effect estimate	Deaths averted	Life Years gained	CE-ratio (Life years gained)	CE-ratio (deaths averted)
72% mortality reduction (2012 campaign)	7,279	192,141	USD 1.33/Life year gained	USD 35.2/Death averted



In comparison, introducing HPV costed USD 20-470/Life year saved in Kenya, Uganda, Mozambique and Tanzania (Campos et al, Int J Cancer, 2012)



# Conclusions and recommendations

## Conclusions;

- Beneficial to receive more than one dose of measles vaccine
- May have contributed importantly to lowering overall child mortality
- Campaigns are highly cost-effective

## Recommendations;

- Continue campaigns
- Evaluate the overall effects of campaigns
- Take NSE into account when conducting cost-effectiveness analyses of vaccines





# Costs

## Health system related costs

- Operational costs (WHO)
- Measles vaccine, syringes and boxes  
(Measles&Rubella initiative)
- Health worker salary (micro-costing study)
- Hospital admissions averted

## Household related costs

  2.8 USD per hospital bed day averted





# Hospital admissions

- Maternally reported hospital admission rates from the trimonthly HDSS visits (2011-2012)
- Median duration of admission
- USD 15 pr. hospital bed day (micro-costing study)
- Assumption: 30% lower hospital admission among participants (Martins, JID, 2014)

