

# OPTIMUNISE PROJECT: Lessons learnt from West Africa

# Questions

- How different vaccines affect child survival
- How vaccines may interact with other vaccines
- How effects of vaccines may differ for girls and boys

# Reaching MDGs (MDG 4)

- Mortality declined in all 3 sites
- Navrongo and Bandim reached MDG 4
- Navrongo – 78% reduction in under 5 mortality from 1996 – 2015 (235/1000 to 51.6/1000)
- Bandim
  - – Urban area – 71% reduction from 1990 – 2014 (227/1000 to 65/1000)
  - – Rural area – 68% reduction from 1995 – 2014 (241/1000 to 76/1000)
- Nouna – 54% reduction from 1990 – 2015 (XX/1000 to XX/1000)

# Non-Specific Effects of Vaccines

- Vaccines confer specific protection against disease through adaptive immune memory
- Vaccines also modulate the immune response to unrelated pathogens i.e. vaccines have NSEs
- Live vaccines (BCG, Measles, OPV) have beneficial NSEs

# Studies on BCG

- Age of BGC vaccination very important
- Earlier BCG given, greater the reduction in mortality. Applies even in LBW babies
- BCG has important NSE on neonatal mortality
- To improve on mortality, wastage policy should not be applied to BCG vaccines
- BCG scar associated with lower mortality

# Role of Measles Vaccine in reaching MDG 4

- Being fully immunized associated with 22% lower mortality (analysis from 6 sites)
- Measles campaigns lower mortality
- Effect much more in those previously vaccinated with MV
- Beneficial to receive more than one dose of MV
- Measles campaigns highly cost effective
- Out of sequence vaccination with MV and DPT containing vaccine increases mortality

# OPV Campaigns

- OPV campaigns also reduce mortality

# Early Measles Vaccine Trial

- Children are susceptible to measles infection at 4-6 months
- A 2 dose MV strategy with the 1<sup>st</sup> dose from 4 months of age is protective
- No difference in mortality between children receiving MV at 4 + and 9 months or at 9 months only



# Sex Differential Effects of Vaccines

- NSEs often have sex differential
- Increase in F to M mortality when Penta vaccines are given
- ?OPV + Penta2 have protective effect for males
- Vit A supplementation in neonate causes higher mortality in females
- Vit A in DPT window causes significantly higher mortality in girls compared to boys
- Non live vaccines (DPT, IPV, HBV, Measles, Penta) have adverse effect for girls (higher female mortality)
- Sequence of vaccination important