



Vitamin A Supplementation

Contradicting single effect interventions

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Vitamin A supplementation

WHO's vitamin A policy – implemented for more than 20 years – after studies showed 23-30% reduction in overall mortality

Suggested vitamin A supplementation scheme for infants children 6–59 months of age

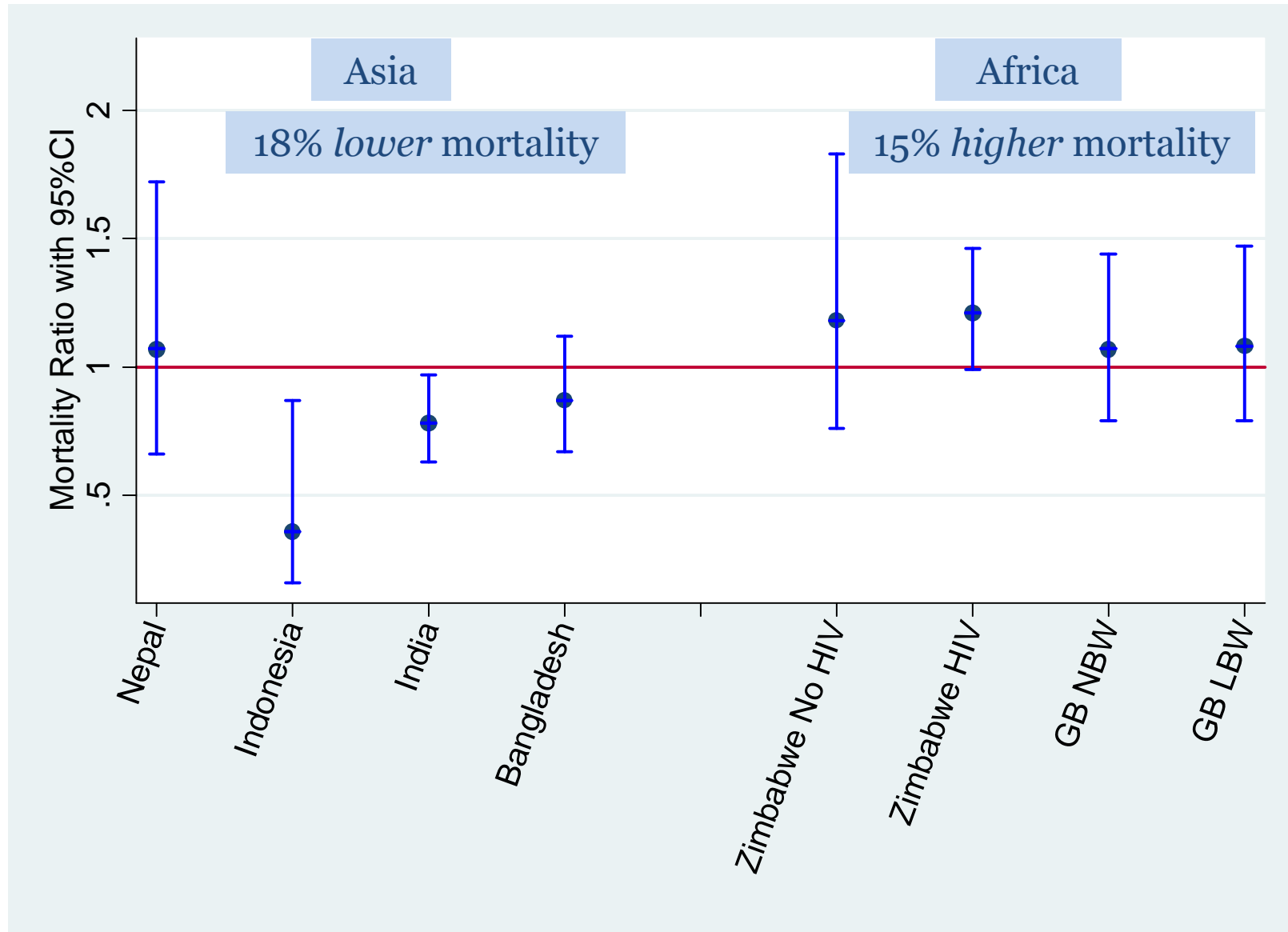
Target group	Infants 6–11 months of age (including HIV+)	Children 12–59 months of age (including HIV+)
Dose	100 000 IU (30 mg RE) vitamin A	200 000 IU (60 mg RE) vitamin A
Frequency	Once	Every 4–6 months
Route of administration	Oral liquid, oil-based preparation of retinyl palmitate or retinyl acetate ^a	
Settings	Populations where the prevalence of night blindness is 1% or higher in children 24–59 months of age or where the prevalence of vitamin A deficiency (serum retinol 0.70 $\mu\text{mol/l}$ or lower) is 20% or higher in infants and children 6–59 months of age	



Neonatal vitamin A supplementation

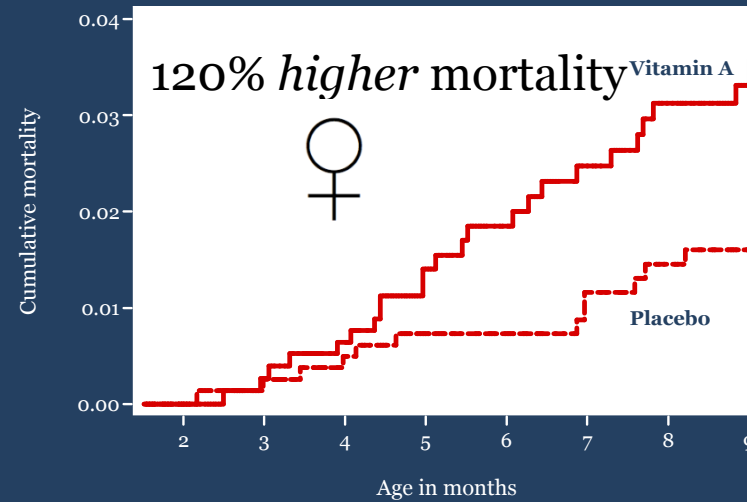
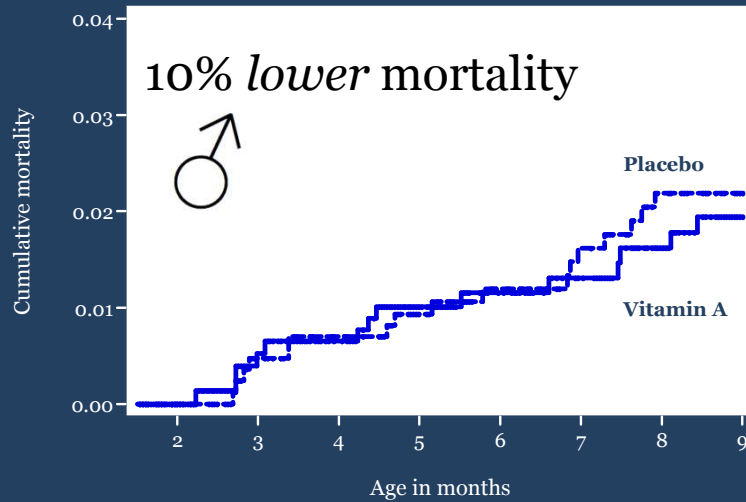


2008: Status neonatal vitamin A supplementation

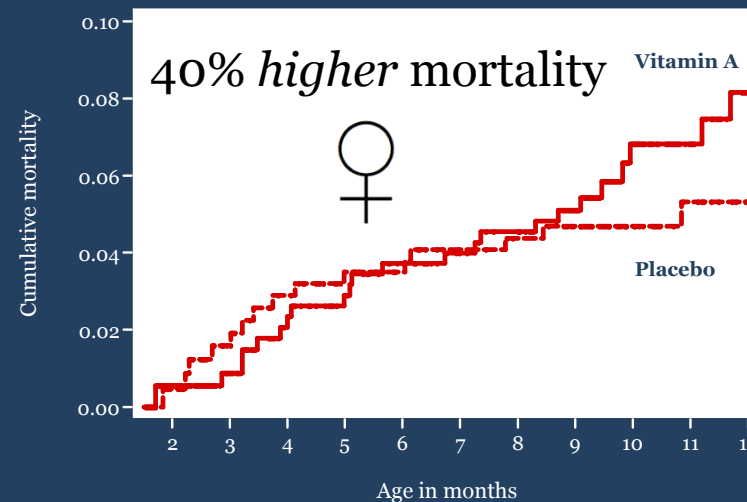
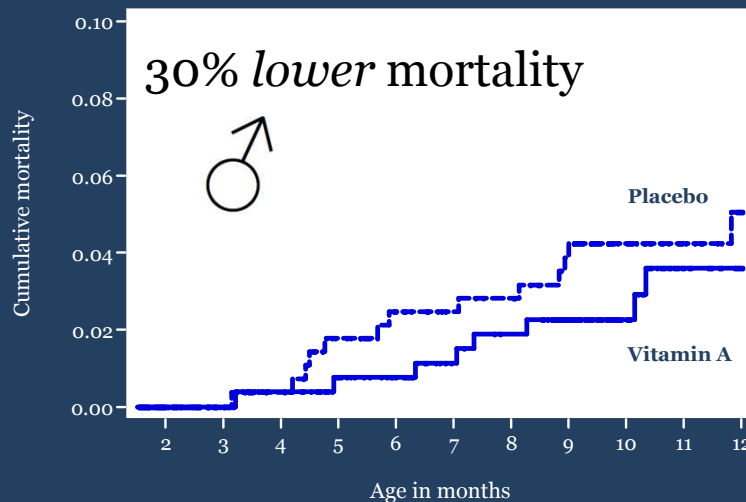


Guinea-Bissau: Neonatal vitamin A in the DTP window

Vita I: Normal-birth-weight

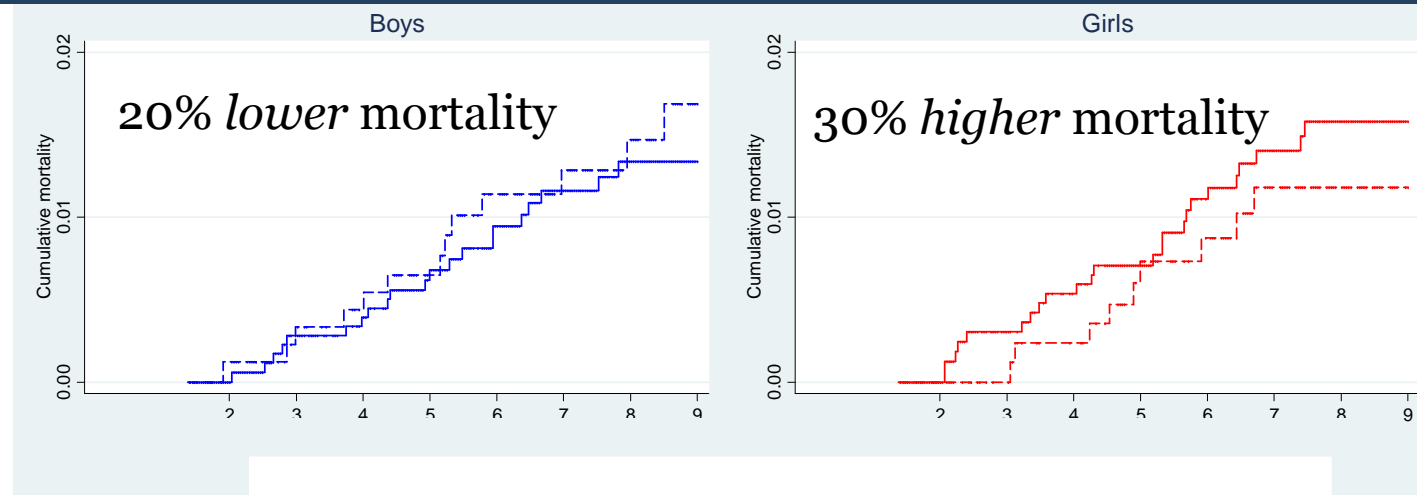


Vita II: Low-birth-weight

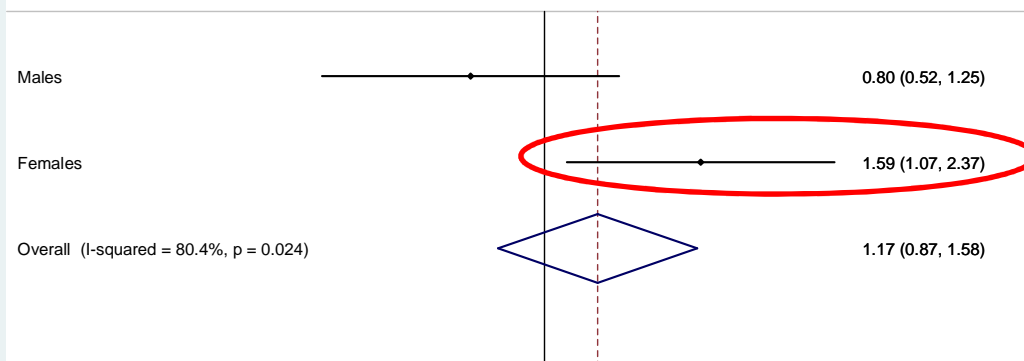


Guinea-Bissau: Neonatal vitamin A in the DTP window

Vita III: Normal-birth-weight




Combined analysis of 3 studies from Guinea-Bissau



Girls: **59% (7-137%)** higher mortality,

The effect in girls very different from the effect in boys (**p=0.02**)

The title is presented in white, uppercase, sans-serif font against a dark blue background. To the left of the text is a vertical yellow bar with a subtle, abstract pattern of overlapping circles and gradients.

WHO TECHNICAL CONSULTATION ON NEONATAL VITAMIN A SUPPLEMENTATION RESEARCH PRIORITIES

GENEVA, SWITZERLAND, 4-5 DECEMBER 2008

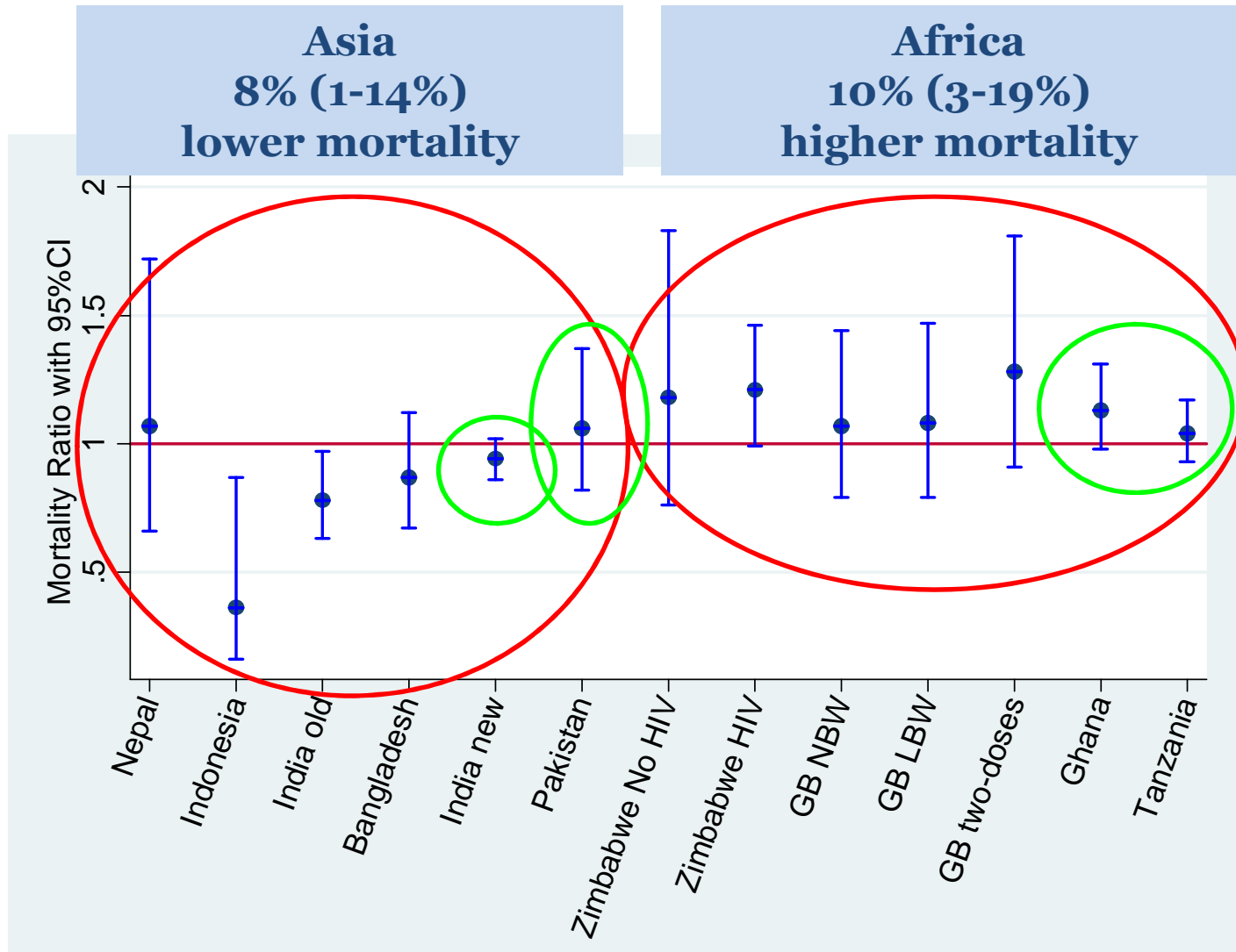
Three new neonatal vitamin A trials initiated by the WHO and funded by BMGF: India, Ghana, Tanzania including >100,000

Hypothesis: 15% mortality reduction within each trial

2015: Status neonatal vitamin A supplementation

Results of new metaanalysis

Combined estimate: No effect (1% increase in mortality)



Vitamin A supplementation to children > 6 months

WHO's vitamin A policy – implemented for more than 20 years – after studies showed 23-30% reduction in all cause mortality

Suggested vitamin A supplementation scheme for infants children 6–59 months of age

Target group	Infants 6–11 months of age (including HIV+)	Children 12–59 months of age (including HIV+)
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Evaluated in single-intervention studies – prior to the implementation of the vaccination program

I.e. interactions with vaccines were not investigated

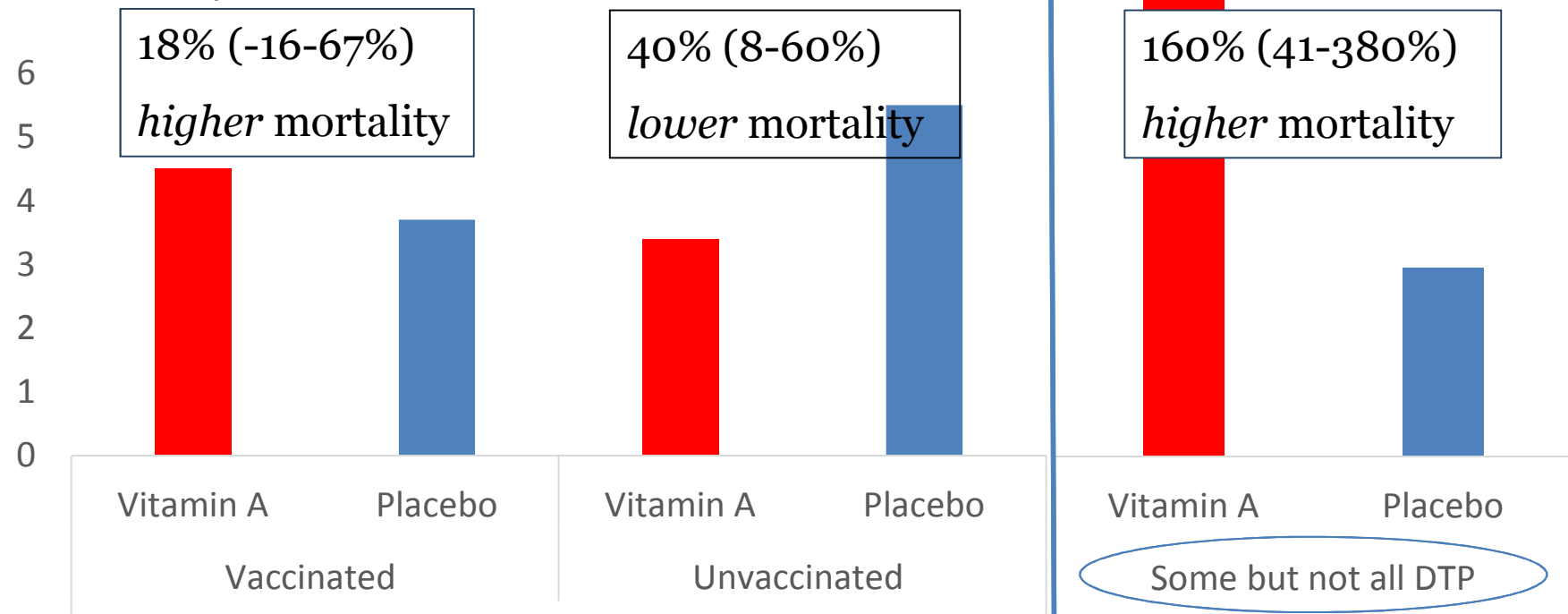


Vitamin A and vaccines

- We have proposed that vitamin A interacts with vaccines, amplifying the non-specific effects of vaccines (Benn et al, Int J Epidemiol 2003)
- Supported by a number of observations, among others a reanalysis of one of the old vitamin A trials from Navrongo, Ghana (Benn et al, Am J Clin Nutr 2009)

Ghana VAST conducted in 1989-91; 19% (2-32%) reduction in mortality

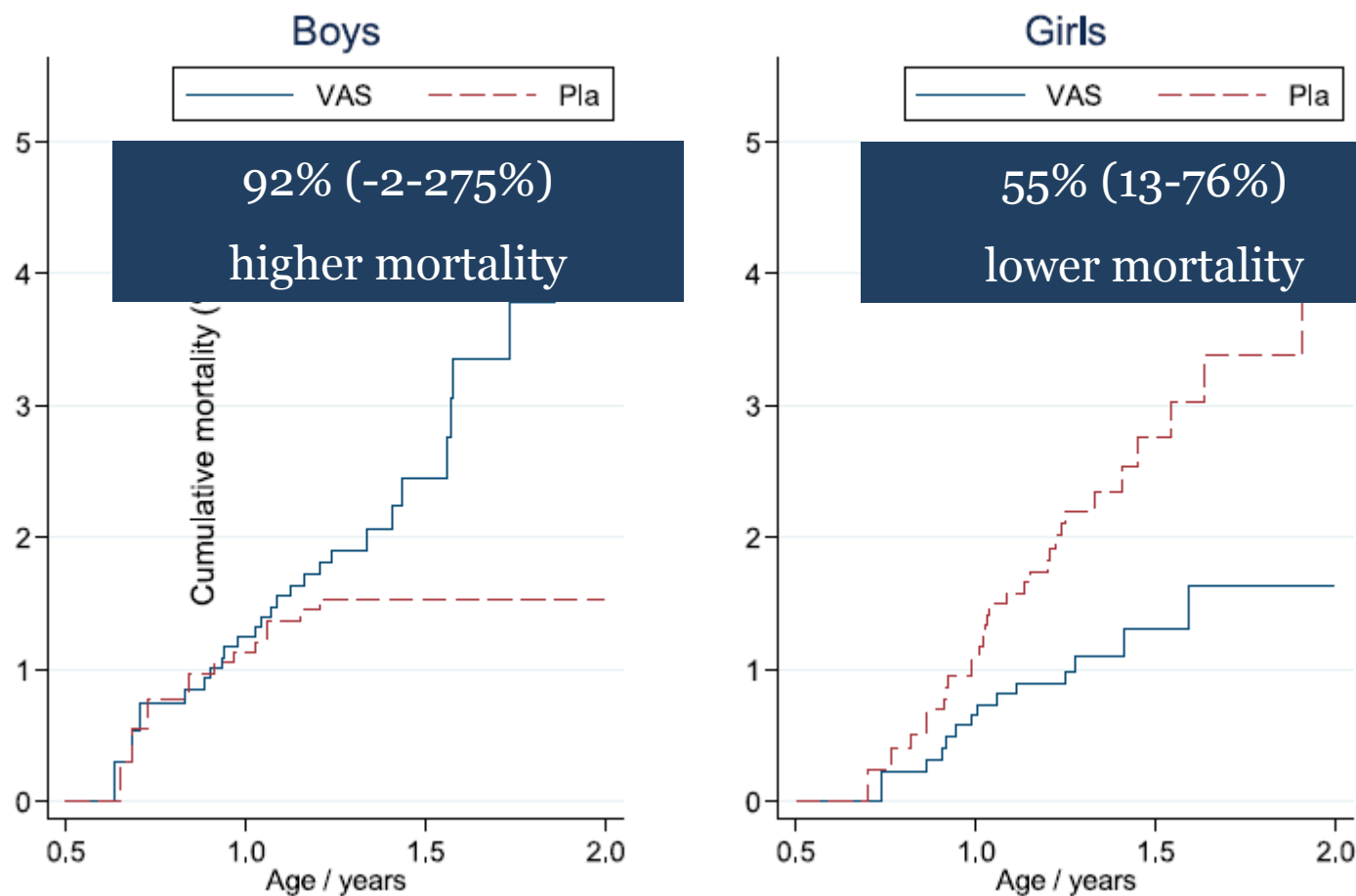
Female mortality (%)



Interpretation: Negative interaction btw VAS and subsequent DTP in girls

Randomized trial testing the effect of vitamin A to children > 6 months
Enrolling 7587 children in urban and rural Guinea-Bissau between 2007-2010

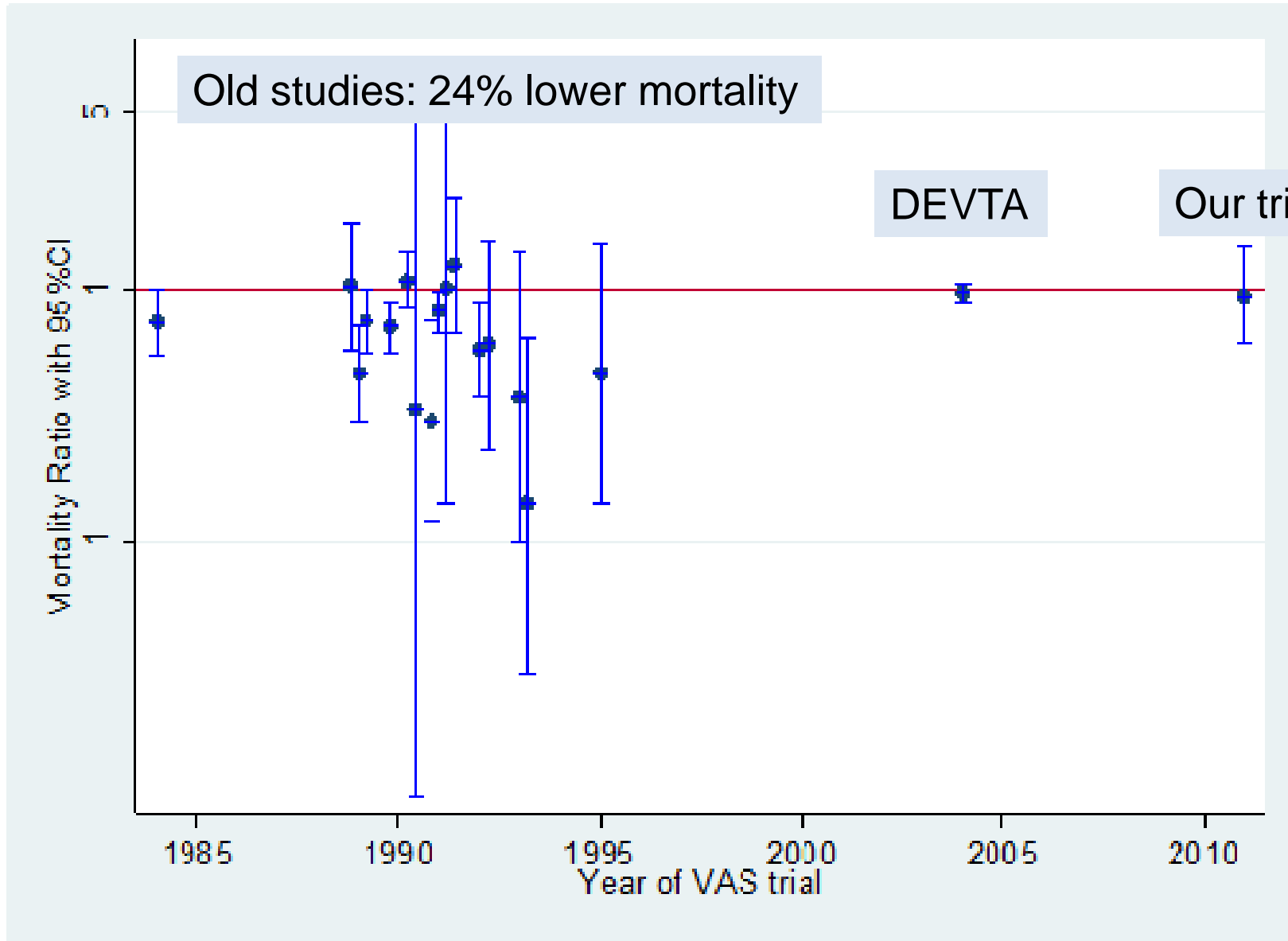
Overall effect: 9% (-41-41%) lower mortality



P for same effect in boys and girls=0.003

Ane Fisker, Pediatrics 2014

Overview – vitamin A supplementation to children >6 months





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	

Preliminary unpublished data

CONCLUSION

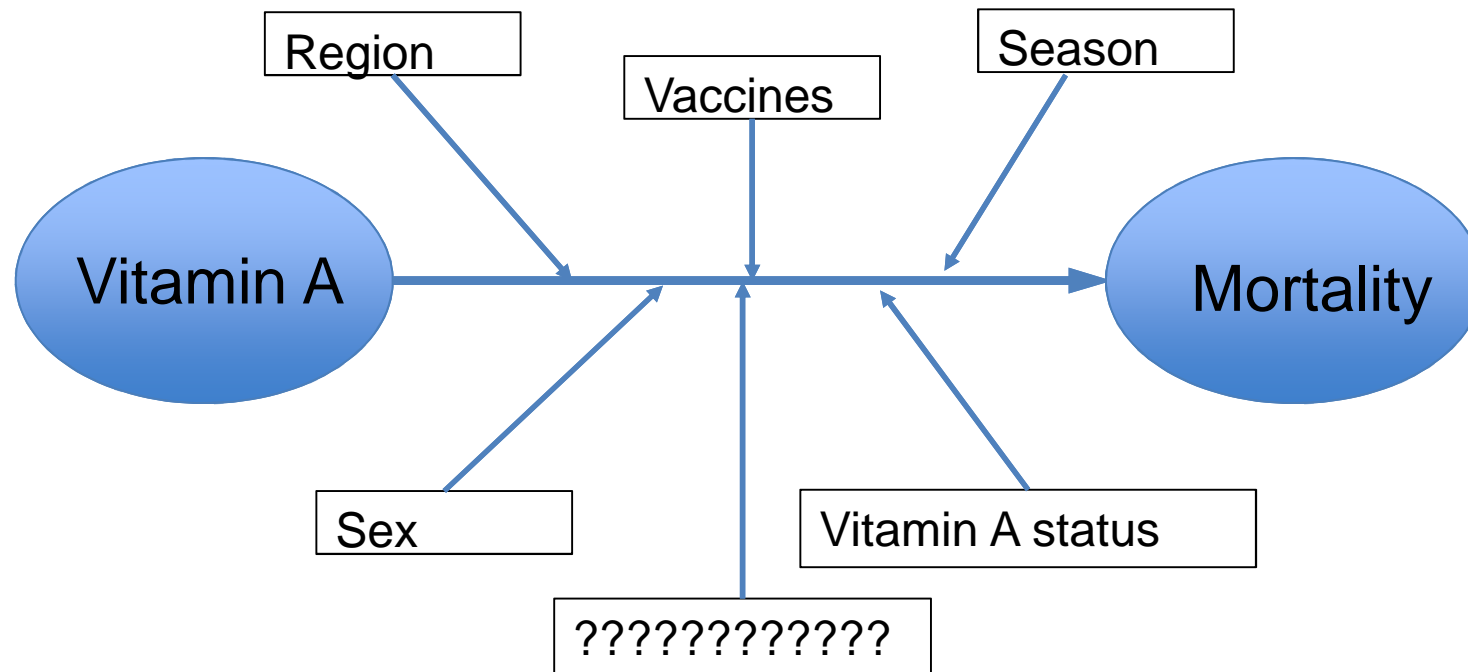
No such thing as a single effect of vitamin A supplementation

It is all about context:

Vitamin A in Asia...

Vitamin A with DTP vaccine...

Vitamin A to girls...



IGNORE OR EXPLORE?



Research Center for Vitamins and Vaccines

