Equity & medical impoverishment into cost-effectiveness: Extended Cost-Effectiveness Analysis (ECEA)

Presenter:
Stéphane Verguet
Department of Global Health
University of Washington
Email: verguet@uw.edu

CFAR
FRED HUTCHINSON CANCER RESEARCH CENTER
SEATTLE BIOMED
SEATTLE CHILDREN'S
CENTER FOR AIDS RESEARCH
UNIVERSITY OF WASHINGTON

Overview

- Background

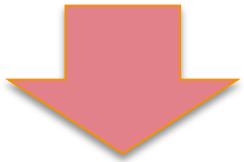
  A new perspective on economic evaluation

- ECEA example

  Public finance of rotavirus vaccination

Background

- Traditional economic evaluation focus
  Cost-effectiveness of technical interventions
  (e.g. antiretroviral therapy for HIV/AIDS)

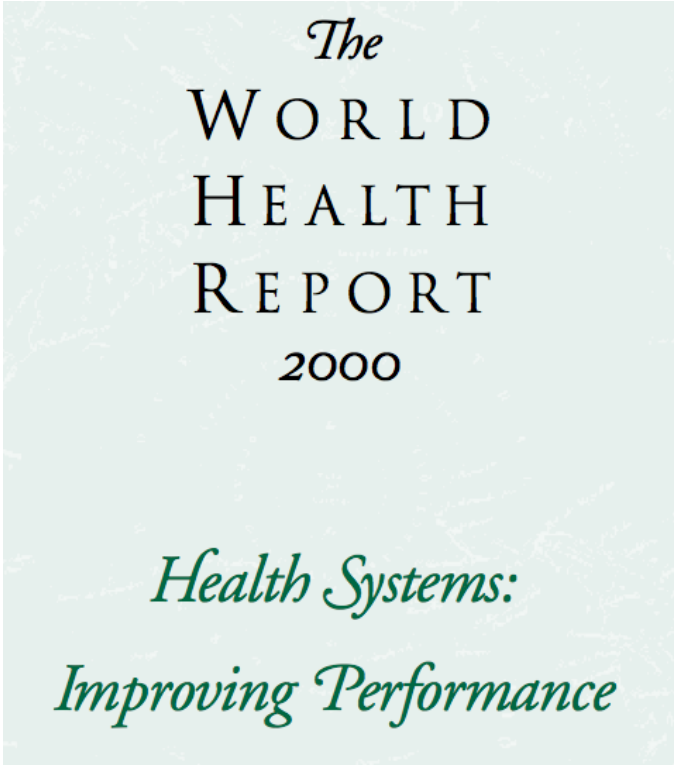


- Decision-making & priority setting focus
  Resources allocated across different options
  1) Health service delivery platforms
  2) Health policy levers
  (e.g. public finance, taxation, CCTs)

  Take consideration of several criteria:
  → burden, costs, equity, medical impoverishment

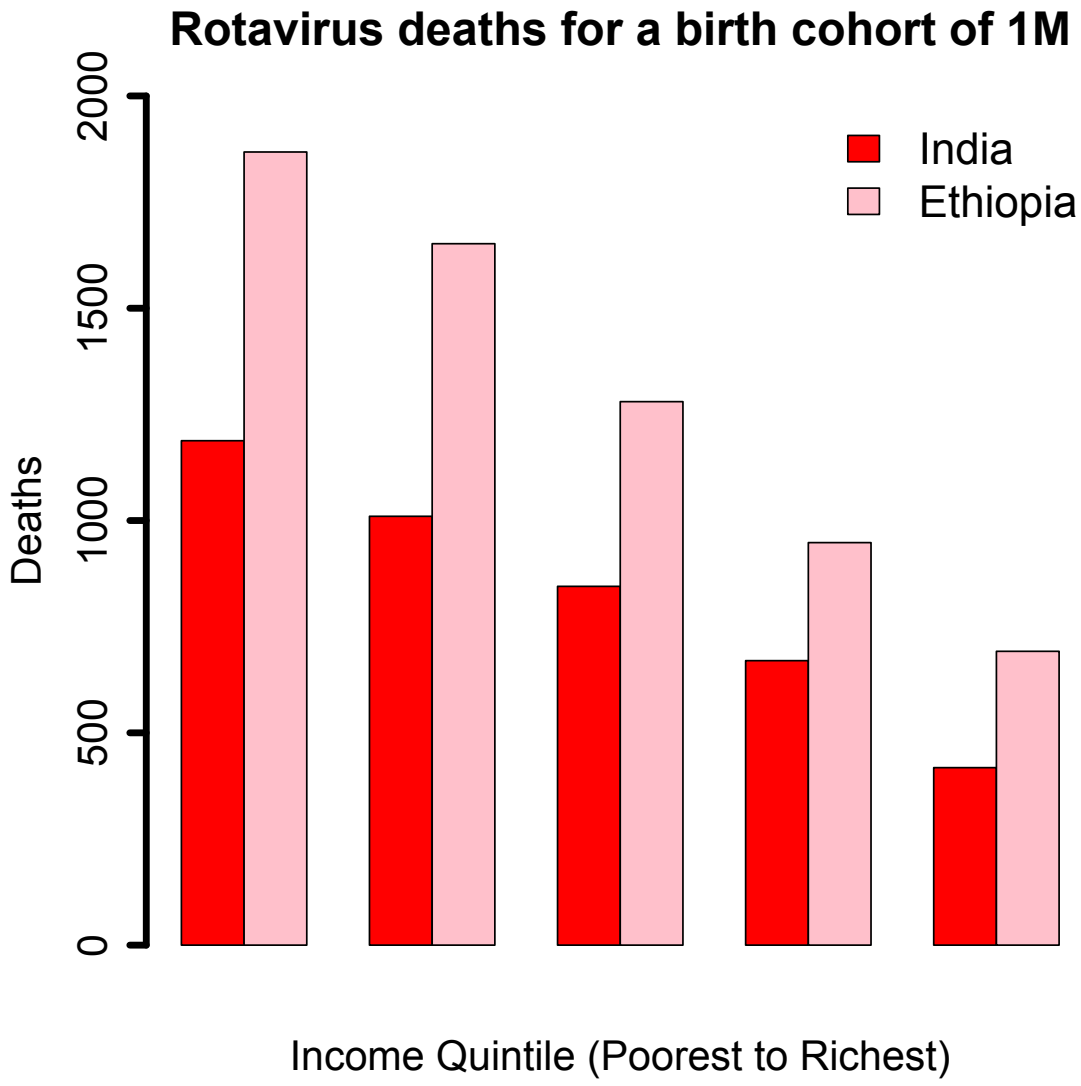
Health system objectives

- Improving health and the distribution of health in the population
- Prevention of medical impoverishment
- Fairness in the financial contribution toward health



Murray & Frenk (2000); World Health Report 2000

Distribution of health & equity

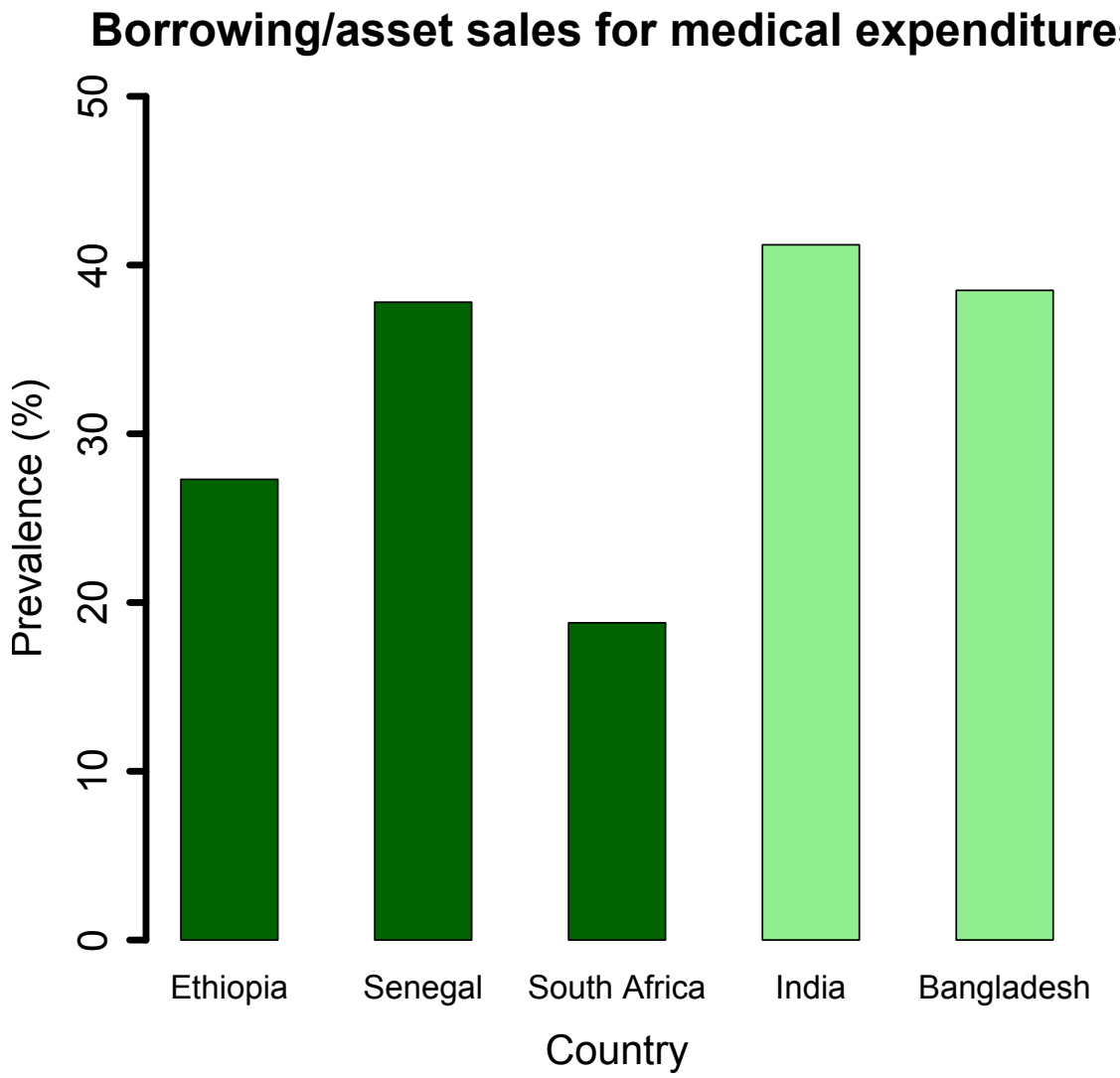


Per capita numbers adapted from:

Tate et al. (2012)

Rheingans et al. (2012)

Medical impoverishment: e.g. borrowing



Adapted from:
Kruk et al. (2009)

Consequences of publicly financed interventions

- Health gains

  Burden of disease averted (e.g. deaths averted)

- Financial consequences for households

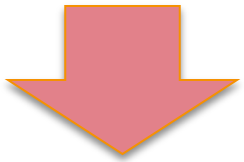
  Public finance "crowds out" treatment which is privately financed (= cost savings for households)

- Financial protection benefits for households

  Public finance provides "insurance" from catastrophic expenditures

Economic evaluation of policy levers

Cost-Effectiveness Analysis (CEA)



Extended Cost-Effectiveness Analysis (ECEA)

(1) Distributional consequences across wealth strata of populations
(2) Financial risk protection benefits for households

ECEA Methods

- Applied to the *Disease Control Priorities* assessments

DCP3 | Disease Control Priorities

economic evaluation for health

www.dcp-3.org
info@dcp-3.org

- ECEA Methods Paper – DCP3 Working Paper No.1
  "Universal Public Finance of Tuberculosis Treatment in India: An Extended Cost-Effectiveness Analysis" by Verguet S, Laxminarayan R & Jamison DT

Case study

Vaccine 31 (2013) 4902–4910

Contents lists available at ScienceDirect

Vaccine

journal homepage: www.elsevier.com/locate/vaccine

Public finance of rotavirus vaccination in India and Ethiopia: An extended cost-effectiveness analysis

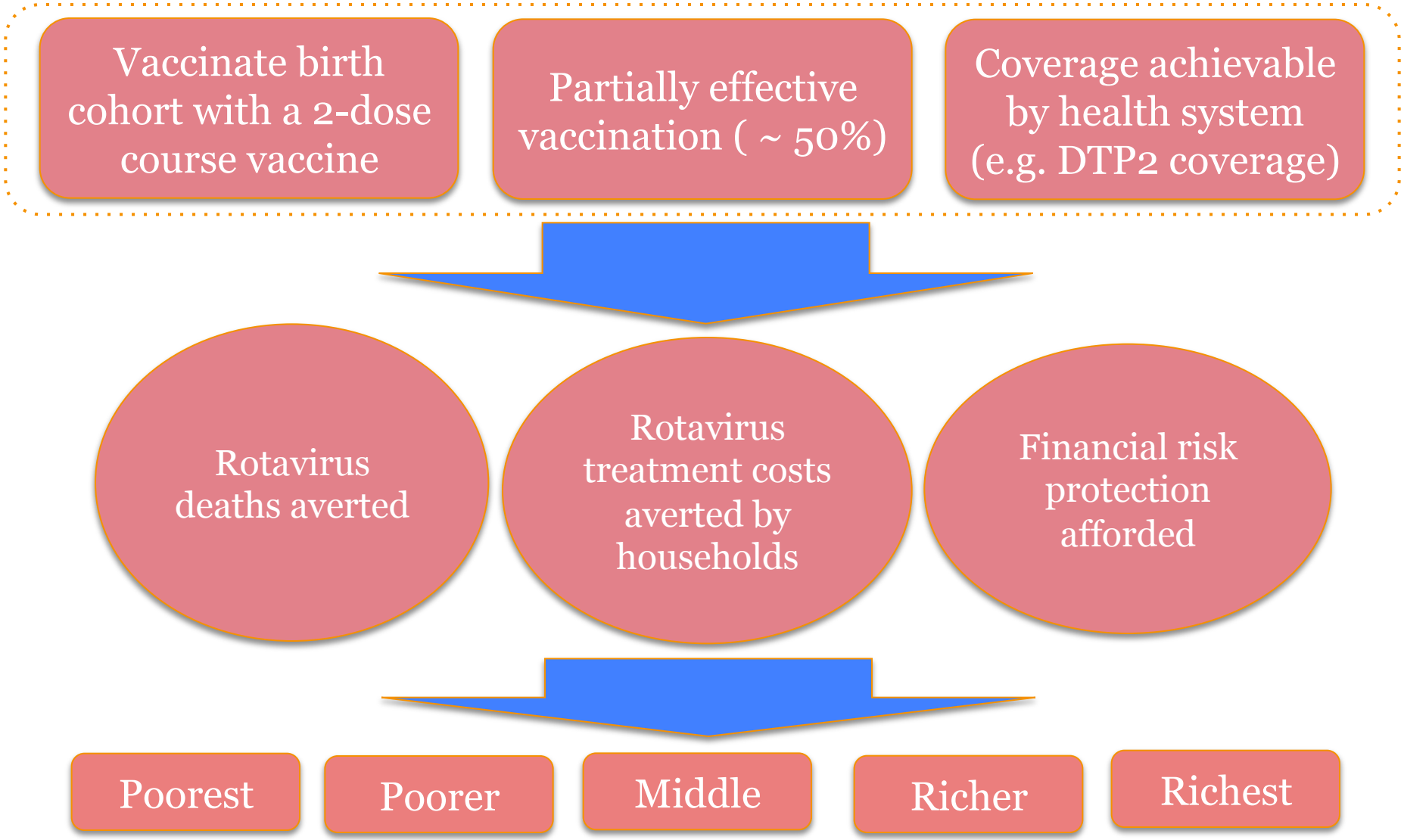
Stéphane Verguet [a,*], Shane Murphy [a], Benjamin Anderson [b], Kjell Arne Johansson [c], Roger Glass [d], Richard Rheingans [b,e,f]

[a] Department of Global Health, University of Washington, Seattle, WA, United States
[b] Department of Environmental & Global Health, University of Florida, Gainesville, FL, United States
[c] Research Group in Global Health: Ethics, Economics and Culture, Department of Public Health & Centre for International Health, University of Bergen, Bergen, Norway
[d] Fogarty International Center, National Institutes of Health, Bethesda, MD, United States
[e] Center for African Studies, University of Florida, Gainesville, FL, United States
[f] Emerging Pathogens Institute, University of Florida, Gainesville, FL, United States

Rotavirus burden of disease

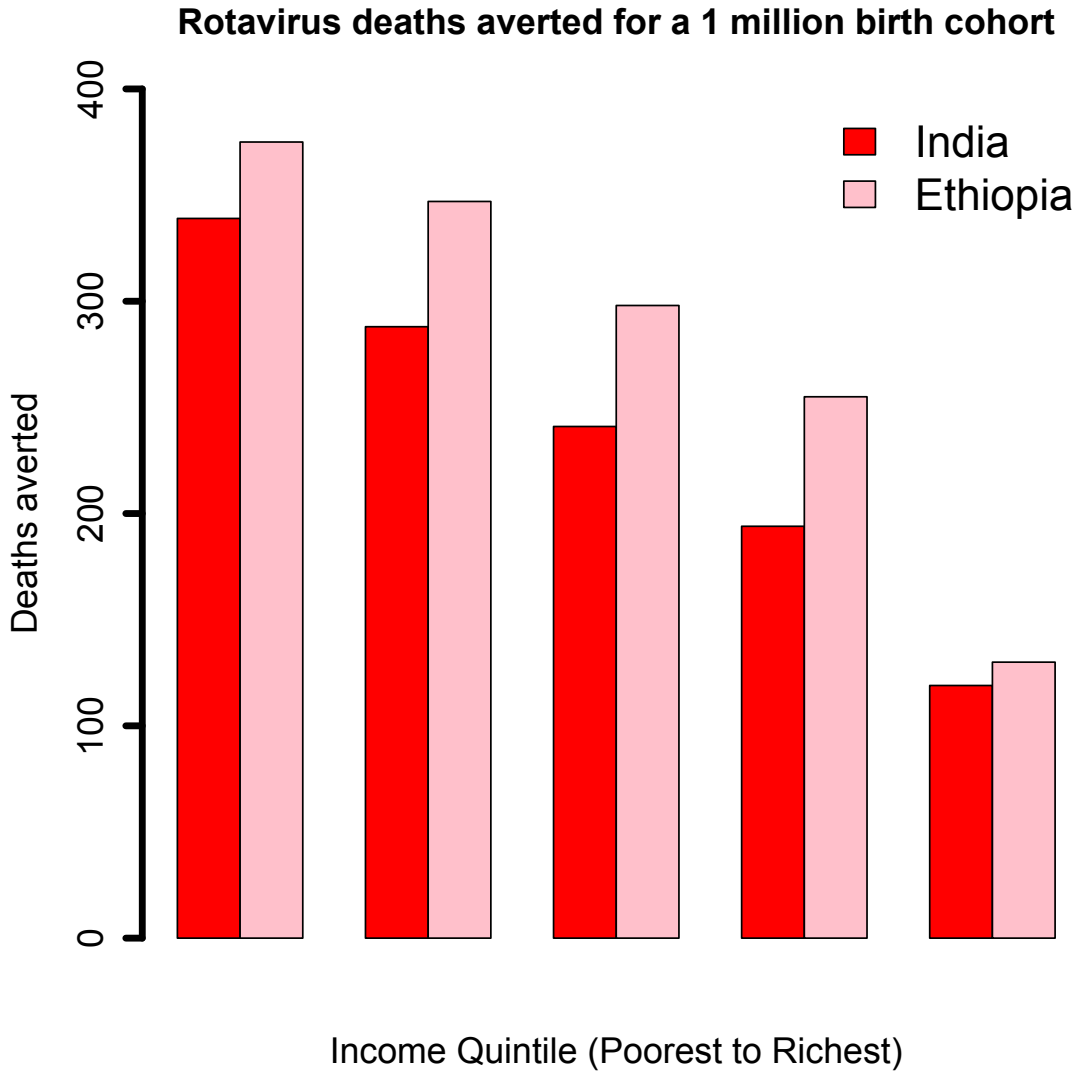
- 5 countries account for > 50% of all rotavirus deaths (300,000 deaths): (Tate et al. 2012; Liu et al. 2012)
  - D.R. of the Congo
  - Ethiopia (5% of global rotavirus deaths)
  - India (30% of global rotavirus deaths)
  - Nigeria
  - Pakistan

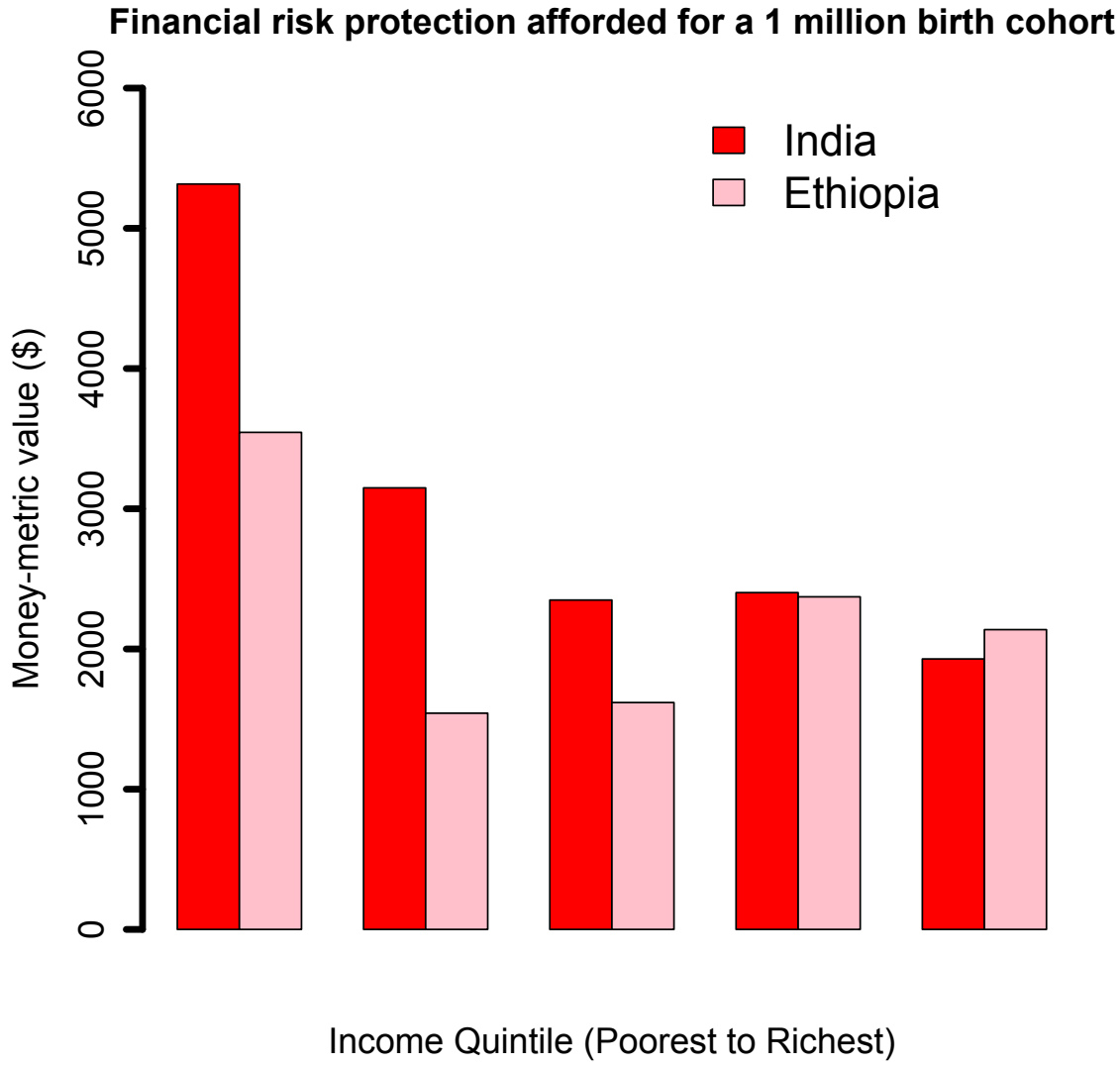
Public finance program for rotavirus vaccination

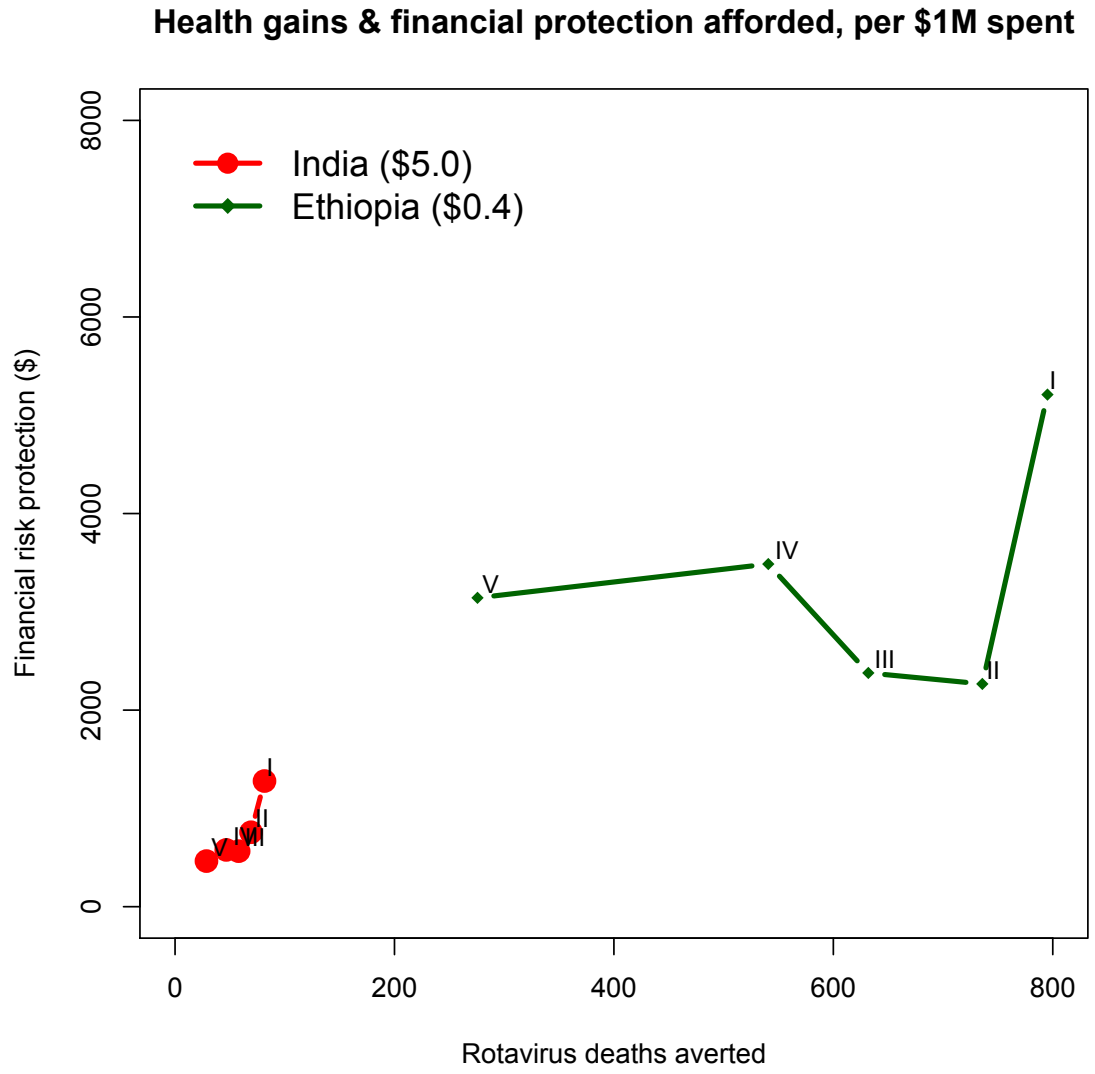


Financial risk protection benefits

- **Different measures of medical impoverishment:**
  - Threshold-based approach (Xu et al. 2003; Wagstaff, 2010)
  - Forced asset sales & forced borrowing (Kruk et al. 2009)
  - Number of cases of poverty averted: estimate number of individuals crossing poverty line because of medical expenses
  - **Money-metric value of insurance provided**
    (McClellan and Skinner 2006; Finkelstein and McKnight 2008; Verguet, Laxminarayan and Jamison, 2012)


Rotavirus deaths averted for a 1 million birth cohort
Deaths averted
0
100
200
300
400
India
Ethiopia
Income Quintile (Poorest to Richest)

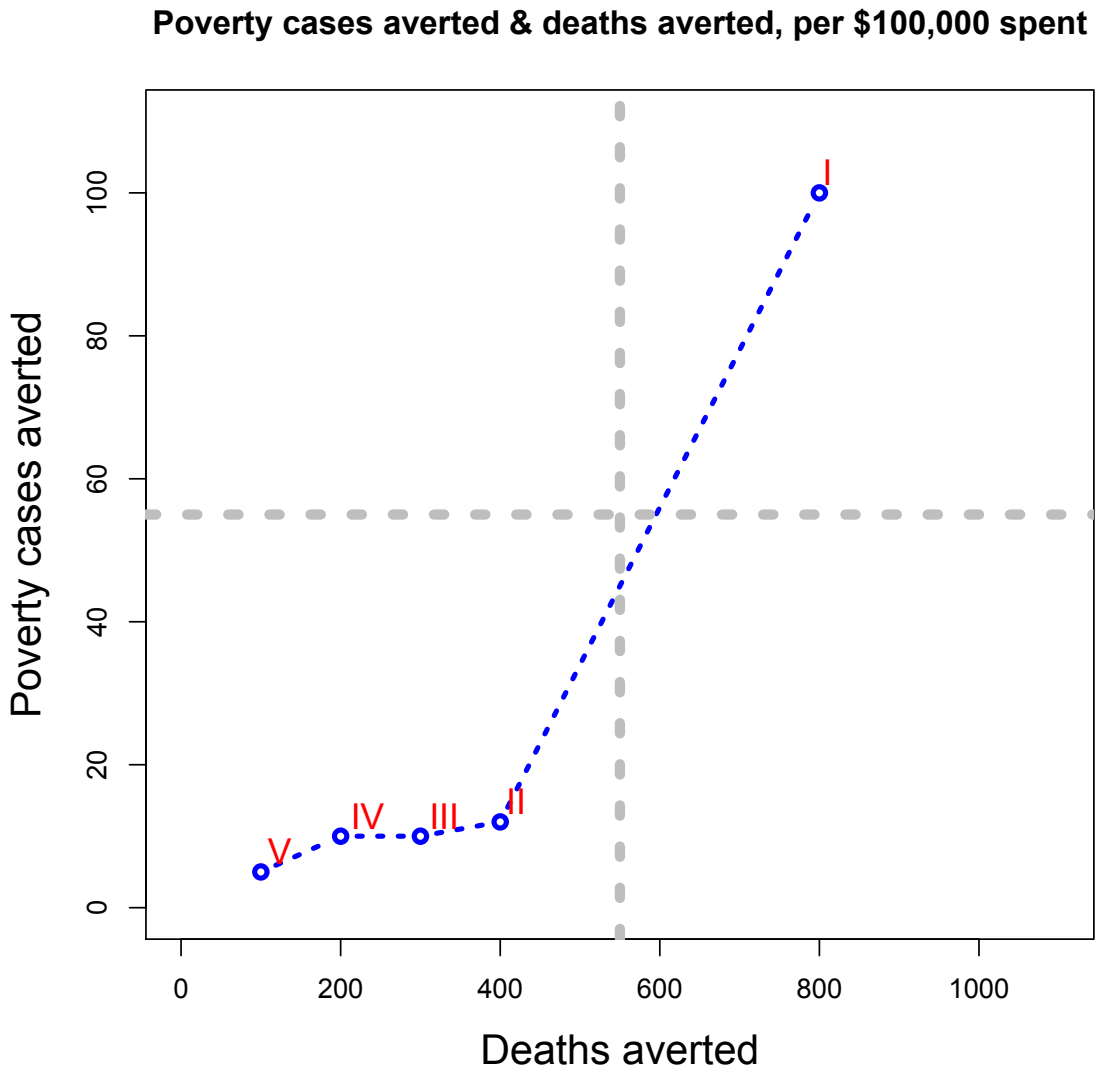

Financial risk protection afforded for a 1 million birth cohort
India
Ethiopia
Money-metric value ($)
0
1000
2000
3000
4000
5000
6000
Income Quintile (Poorest to Richest)



I: Poorest
II: Poorer
III: Middle
IV: Richer
V: Richest

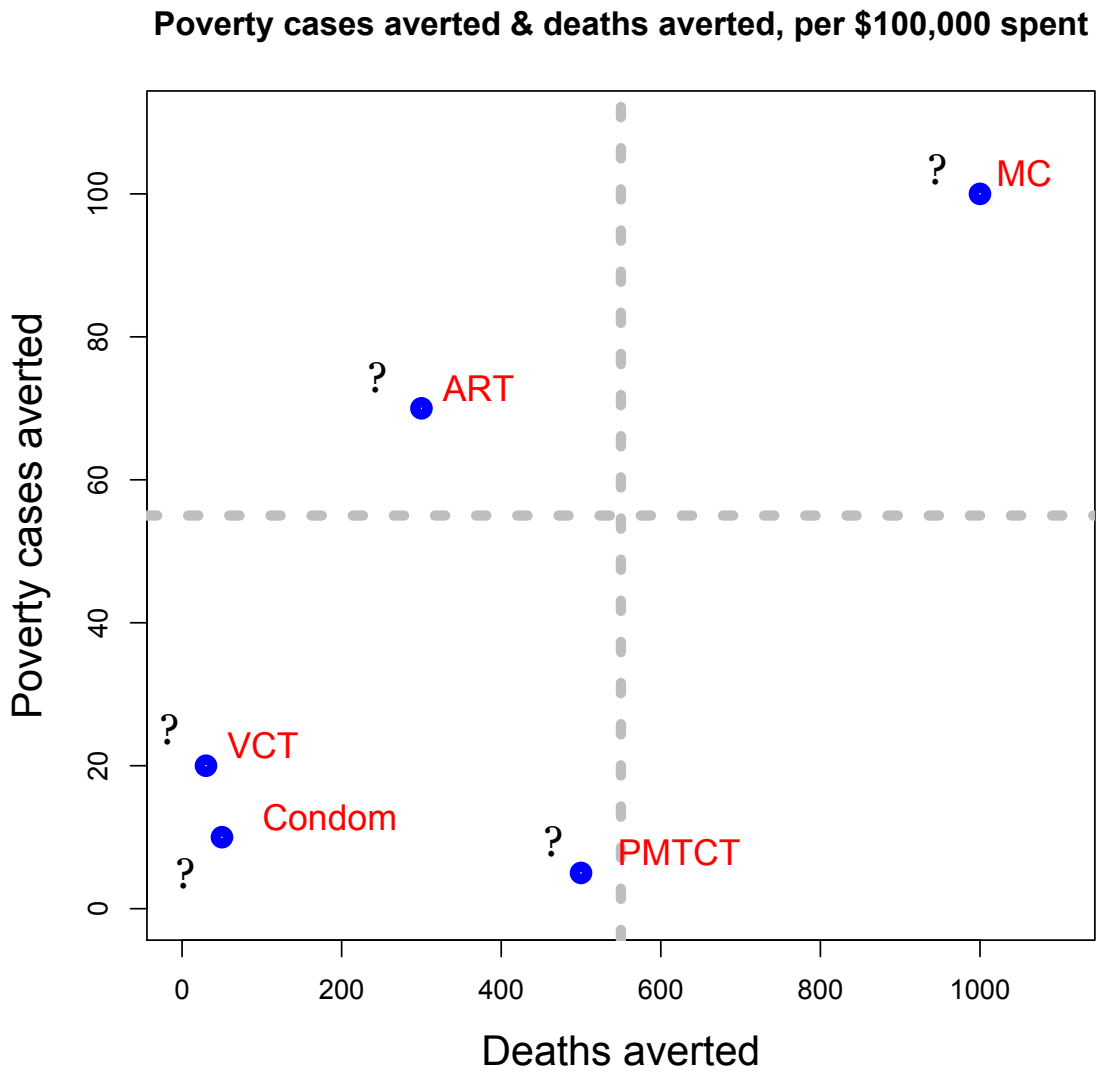
Conclusions

How does each HIV intervention map itself?

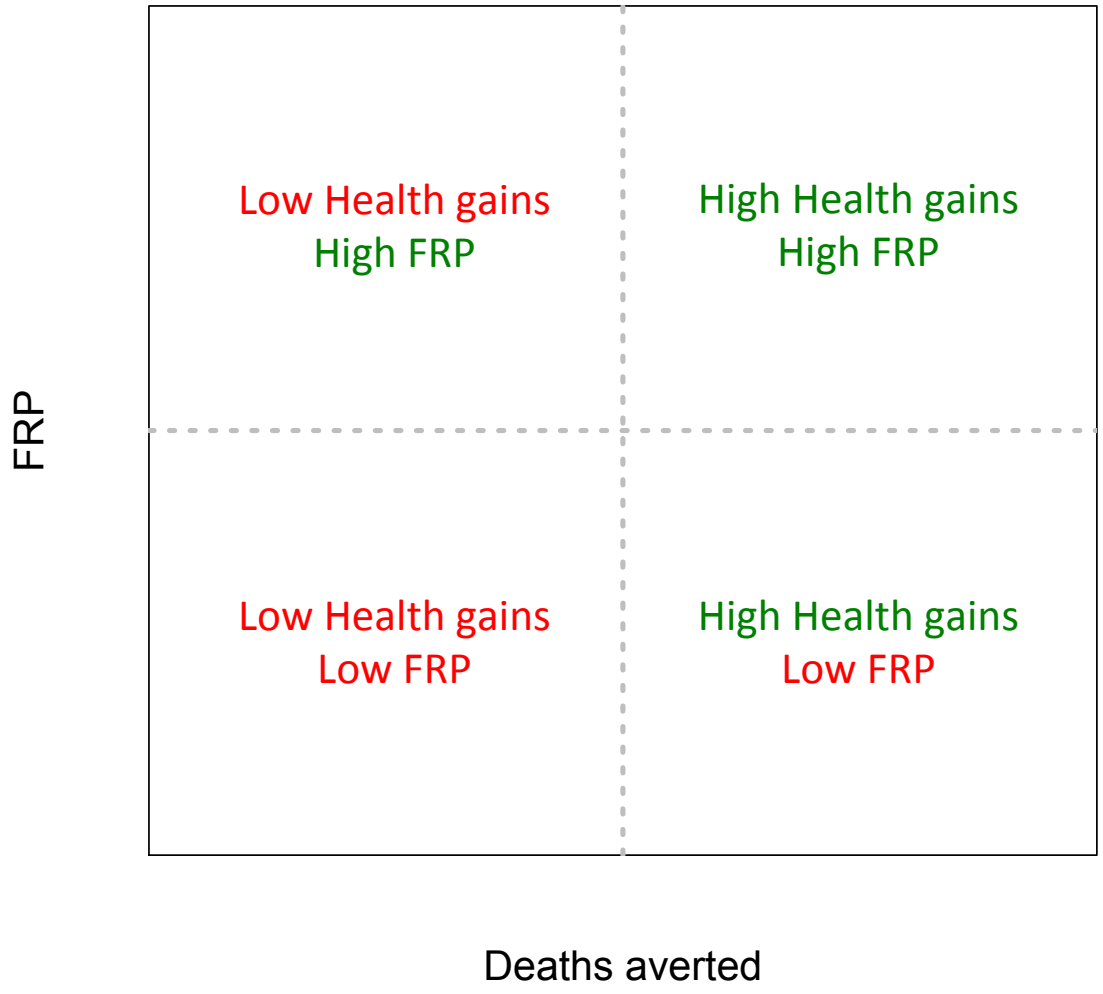


I: Poorest
II: Poorer
III: Middle
IV: Richer
V: Richest

How do HIV interventions map themselves?



Design of a basic HIV package



Acknowledgements

BILL & MELINDA GATES foundation

- Dean Jamison
- Rachel Nugent
- Carol Levin
- Zach Olson

Email: verguet@uw.edu