

Economic evaluation of OCV use: ongoing IVI studies

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Contents

- Evaluation of the impact and cost-effectiveness of ending cholera road map (preliminary results)
- Field based economic evaluation of OCV use in Malawi & Mozambique
- Excel based tools for OCV delivery costing and cholera treatment costing



Evaluation of the impact and cost-effectiveness of ending cholera road map

Objectives

- Economic evaluation of OCV use under GFTCC's roadmap for reducing cholera by 90% by 2030

Vaccination strategies

- Two doses, 14 days apart; 75% coverage
- Periodic preventive campaigns every 3 years, depending on roadmap (47 countries)
 - Crisis countries – Yemen, Iraq, Afghanistan, Somalia, South Sudan – vaccination every three years until 2030
 - Other countries (Asia, Africa) – two rounds of vaccination
- Age group: >1yrs; at risk population (proportion of population without adequate water and sanitation)
- No supply constraints vs. supply constraints



Assumptions

Vaccine effectiveness

- Three scenarios' 62%, 76%, 85% (Gavi VIS)

Cholera incidence & case fatality

- Variable based on Lessler J et al. 2018, if unavailable Ali et al 2015

Cost per dose & delivery

- Vaccine price: \$1.42 UNICEF/GAVI quotes
- Delivery costs: \$1.10 (Morgan et.al, under review)

Impact estimates

- Static model (no herd effects-conservative), transmission model (awaited)

Effectiveness measures

- Cases Averted (Incidence x At Risk Population)
- Deaths Averted (Cases averted x case fatality rate)
- Disability Life Years Averted = YLL (years of life lost) + YLD (years lived with disability)



Cost of Illness Assumptions

- Mogasale V et al 2019 (Asia); Moon et al (Africa, unpublished)
 - Public health system cost (from studies)
 - Out of pocket costs (from studies)
 - Productivity loss due to illness (GDP per capita per day * days of illness for sick person and caretaker)
 - Unit cost per country per case

Cost-Effectiveness Analysis

- Societal perspective, in comparison with no vaccination

Net Costs

Disability Adjusted Life Years Averted



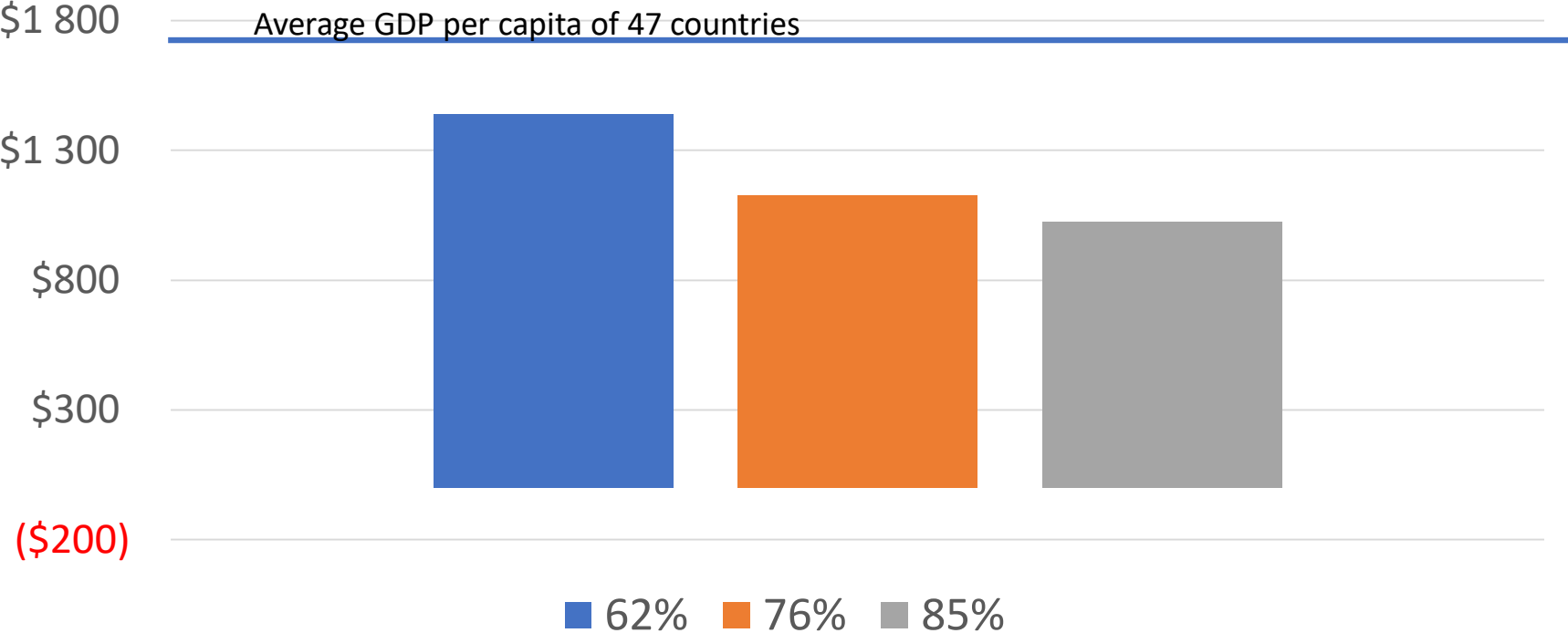
Effectiveness of Vaccination

No supply constraints

Vaccine Efficacy	# of persons vaccinated (billions)	Cases Averted (millions)	Deaths Averted (000s)	DALYs averted (millions)
62%	3.1	10.5	355	11.5
76%	3.1	12.9	435	14.2
85%	3.1	14.4	487	15.8



Cost per DALY averted



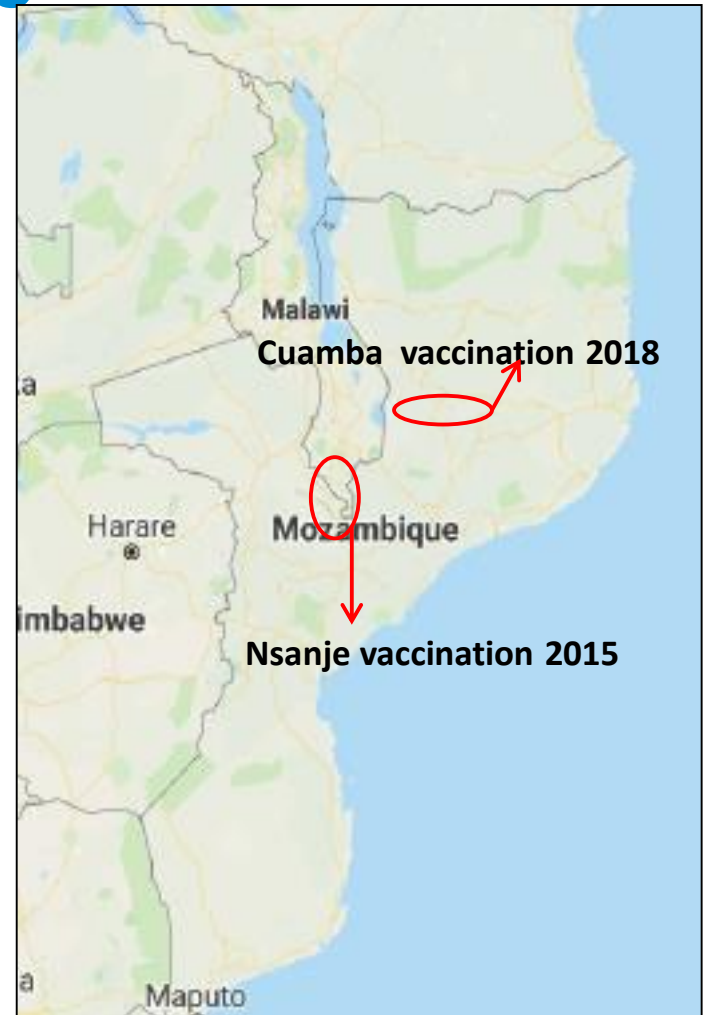
Summary

- Work in progress, preliminary results for inputs
- Analysis will be finalized after inputs from technical advisory committee.
- Supply constraints analysis and transmission model-based results awaited
- Conservative estimate
- Limitations: Looks at only OCV component of cholera elimination plan, several assumptions used in the absence of data



Other Health economic studies

- Cholera Surveillance In Malawi (CSIMA)
- Mozambique Cholera Prevention and Surveillance (MOCA)
- Health economic tools for evaluation of OCV use



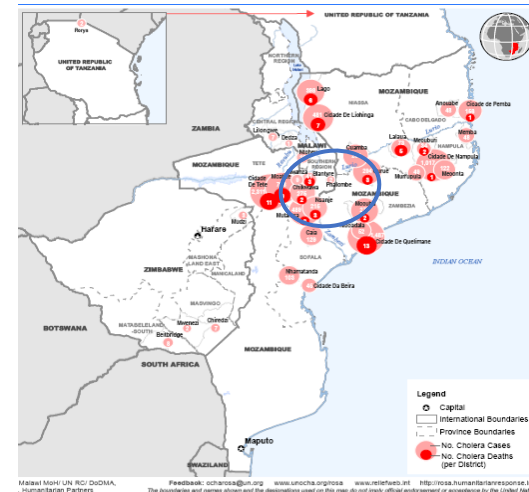
Field evaluation of OCV use

Malawi-Nsanje

- 2 dose OCV targeted to 160,482 in March-April 2015
- Prospective passive diarrrhea surveillance from April 2016 (22 HF in Nsanje 18 in Chikwawa)
- Post vaccination evaluation studies

Mozambique-Cuamba

- 2 dose OCV targeted to 196,652 in Aug-Sep 2018
- Prospective passive diarrrhea surveillance from Oct 2018 (6 health facilities)
- Post vaccination evaluation studies

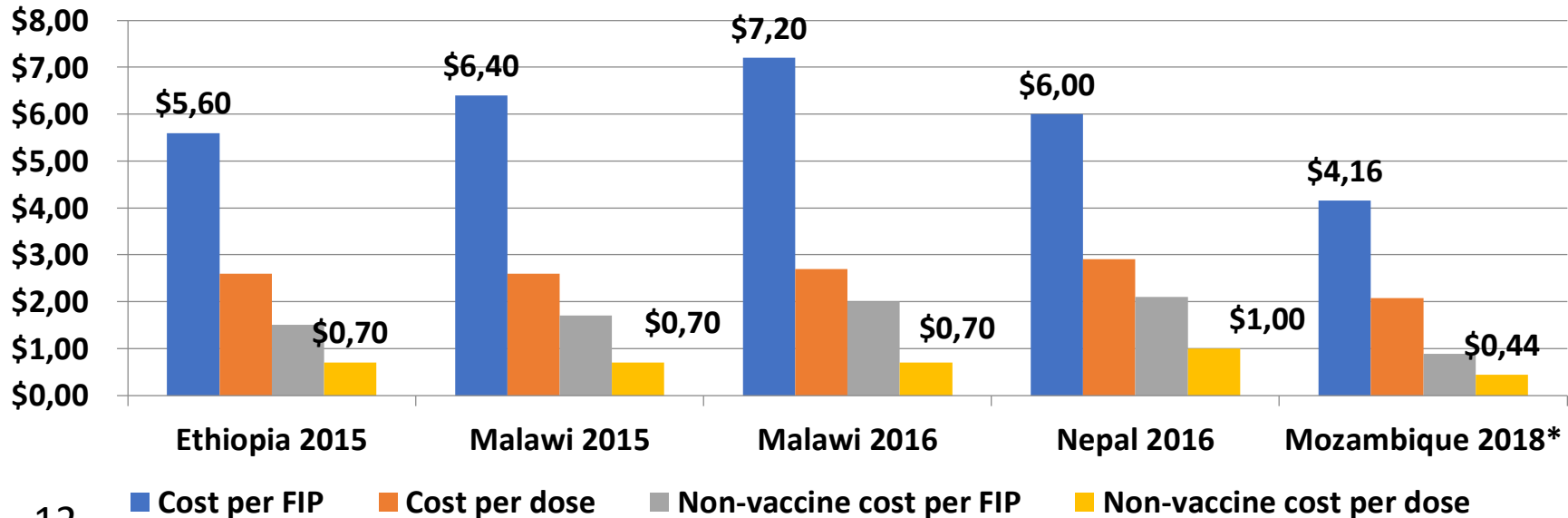
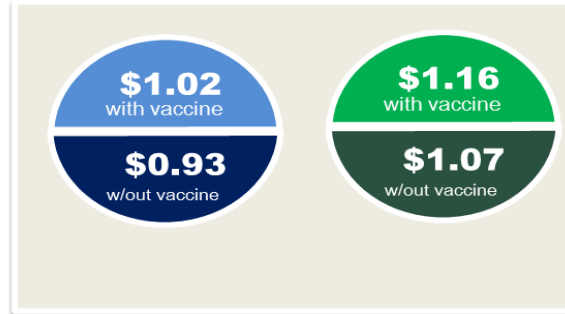


Three economic evaluation components

- Estimation of vaccine delivery cost
- Estimation of cost of illness (COI) related to cholera at study site
- Cost-effectiveness analysis of oral cholera vaccination campaign conducted



OCV delivery cost estimation: CholTool



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