

Session 1

The public health value of vaccines: socio-economic aspects

The public health value and broader economic impact of vaccines

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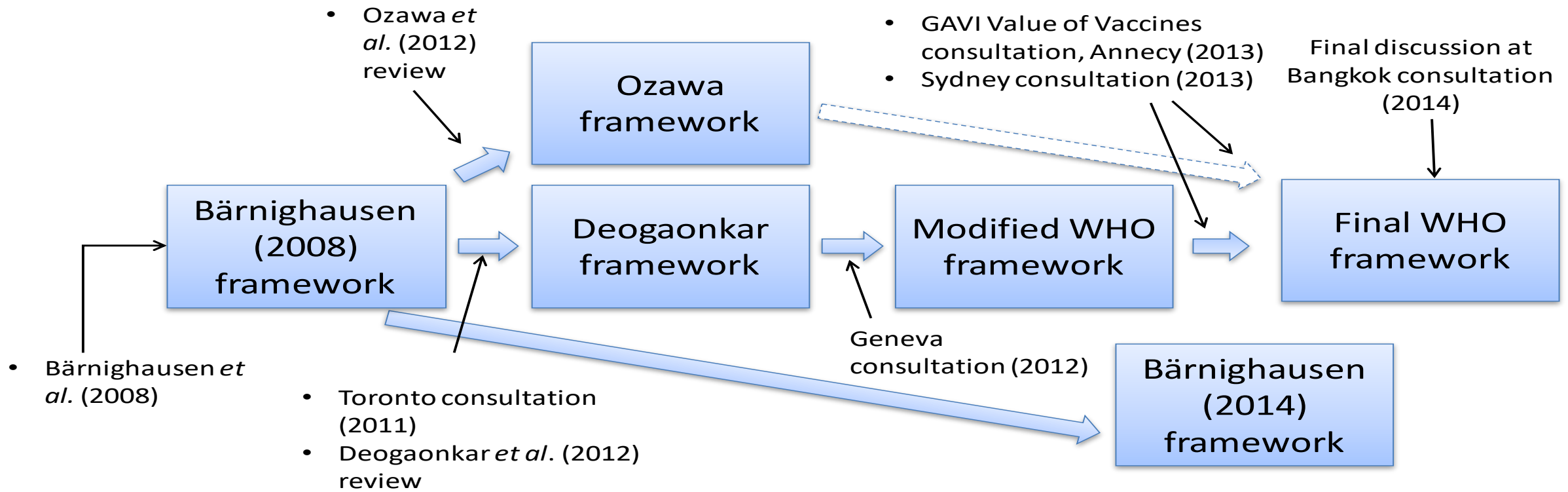
Broader Economic Impact of Vaccines (BEIV)

- Traditional CEAs (eg cost per QALY/DALY) are well-established tools for decision making in many countries.
- Issue #1 (raised by external stakeholders like NGOs): the scope of traditional CEAs is too narrow. What about:
 - Labor productivity
 - Cognitive development
 - Educational attainment
 - Savings
 - Direct foreign investment
 - Fertility
 - Population health
- Issue #2 (raised by Ministers of Finance, Planning etc): the outcomes of traditional CEAs are not useful for decision making and financial planning. What about:
 - Public sector budget impact
 - Return on investment
 - Impact on GDP and tax revenues

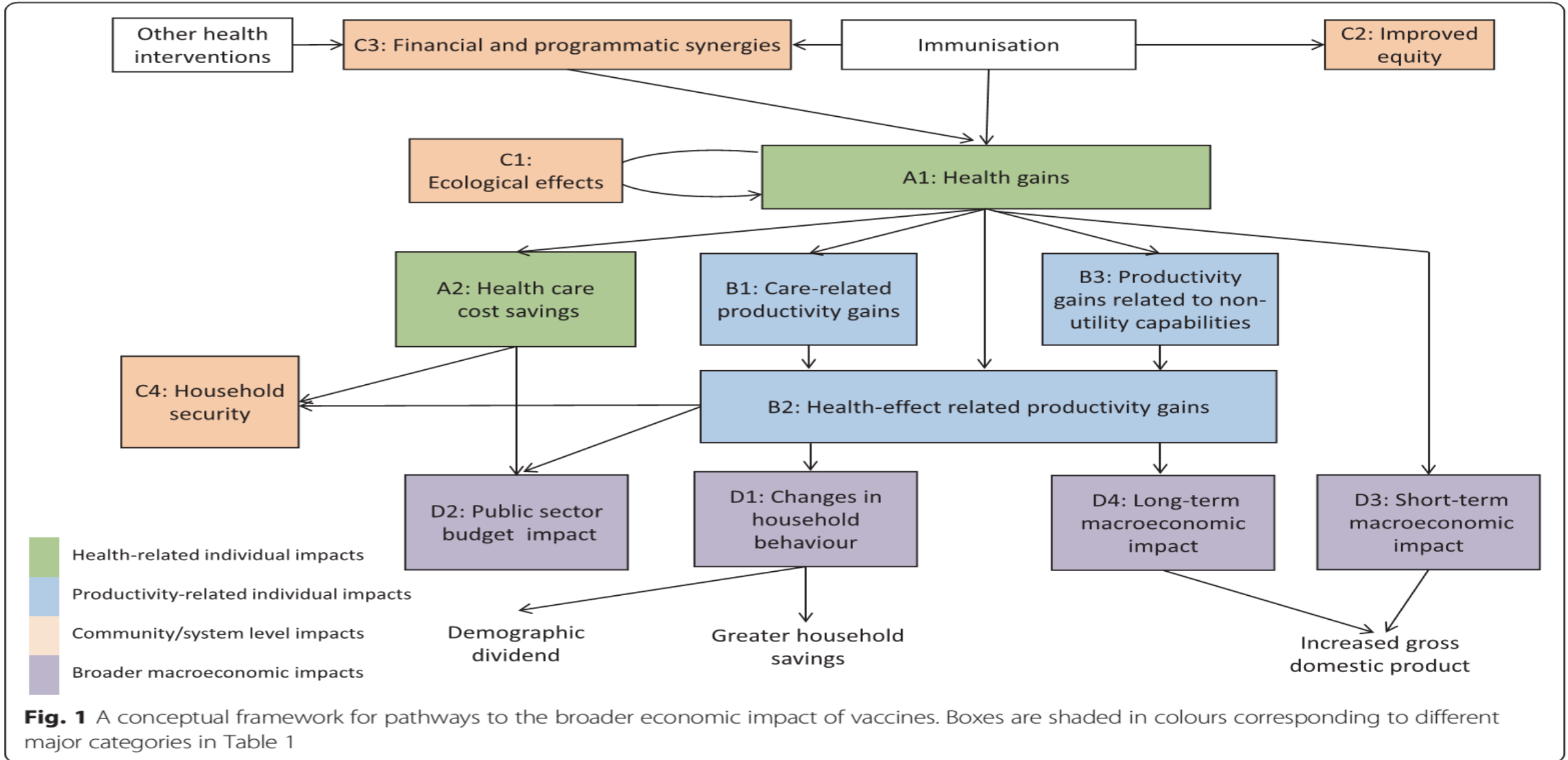
Bärnighausen's "narrow" vs "broad" impacts

Perspective		Benefit categories	Definition	Hib-specific examples
Broad	Narrow	Health gains	Reduction in mortality through vaccination ⁺	Hundreds of thousands of children die each year from Hib disease [22].
		Health-care cost savings	Savings of medical expenditures because vaccination prevents illness episodes	Hib diseases lead to substantial health-care costs [23-25].
		Care-related productivity gains	Savings of parents' productive time because vaccination avoids the need for taking care of a sick child	Parental care of children suffering from Hib disease can contribute substantially to the overall cost of the disease [26].
		Outcome-related productivity gains	Increased productivity because vaccination improves cognition and physical strength, as well as school enrollment, attendance and attainment	Hib meningitis is relatively common and "leaves 15 to 35% of survivors with permanent disabilities such as mental retardation or deafness", which can severely reduce cognition [27].
		Behavior-related productivity gains	Benefits accruing because vaccination improves child health and survival and thereby changes household choices, such as fertility and consumption choices	Hundreds of thousands of children die each year from Hib disease [28].
		Community externalities	Benefits accruing because vaccination improves outcomes among unvaccinated community members	Hib infections are treated with antibiotics, leading to the development of resistance [29]. Hib-infected individuals transmit Hib to other community members [30].

Development of WHO framework



WHO BEIV framework



Strength of the BEIV evidence in LMICs

Table 2 Grading of experimental, observational, and modelling studies according to the quality of evidence they provide to support causal associations between immunisation and its proposed benefits

Quality of evidence	Experimental studies	Observational studies	Modelling studies or conjecture
High	Randomised trials	Double-upgraded analytical observational studies	
Moderate	Downgraded randomized trials	Upgraded analytical observational studies	
Low	Double-downgraded randomized trials	Analytical observational studies	
Very low	Triple-downgraded randomized trials	Case series and case reports	Modelling studies or conjecture

- **Indisputable evidence** that vaccines bring ‘narrow’ benefits related to health outcomes, health care cost savings, and protection against productivity losses (directly individual and at the community level via herd protection)
- **Some limited experimental or at least observational evidence** that vaccines bring wider benefits at the household level in the form of improved non-utility capabilities and equity in the distribution of health gains
- **Only modelling evidence** to support extrapolating these benefits to meso-level household economic behaviour (in terms of demand for vaccines, consumption, savings, and investment), as well as macro-level economic indicators (such as national income, growth, and foreign investment)

Applying the BEIV framework in practice

Table 2 Appropriate analysis to use and outcomes to include in economic evaluations of vaccines based on the budget holder and its priorities. “Welfare” refers to all utility that individuals derive from consumption, including utility from improved health

Budget	Maximand	Analysis	Broader economic outcomes included?
Health care	Health	→ Cost-utility (health care perspective) or budget optimisation	No
Health care	Welfare	→ Cost-utility (societal perspective) or cost-consequences	Yes (depending on decision maker)
Government	Welfare	→ Benefit-cost	Yes (depending on decision maker)
External donor	Health	→ Cost-utility (health care perspective) or budget optimisation	No
External donor	Health + externalities benefitting the global community	→ Depends on decision maker	Yes (depending on decision maker)

Scope of evaluation must be based on budget holder and its priorities

Inclusion of broader benefits in economic evaluations must apply equally to all health interventions

Stakeholders' prioritization - methods

Four –step process

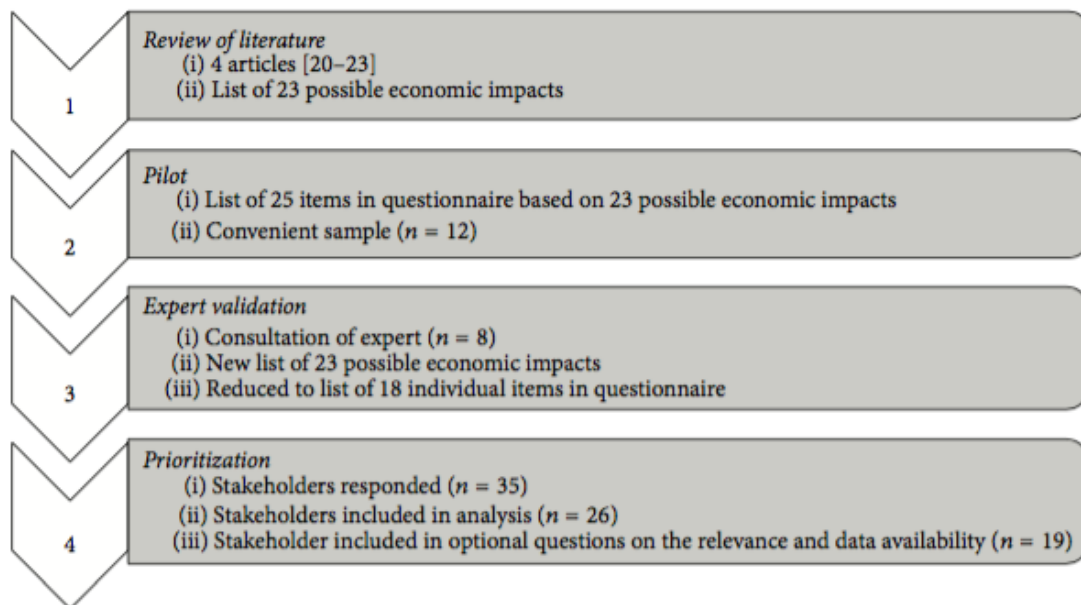


FIGURE 1: Steps in the identification and prioritization of the economic impacts.

List of economic impacts

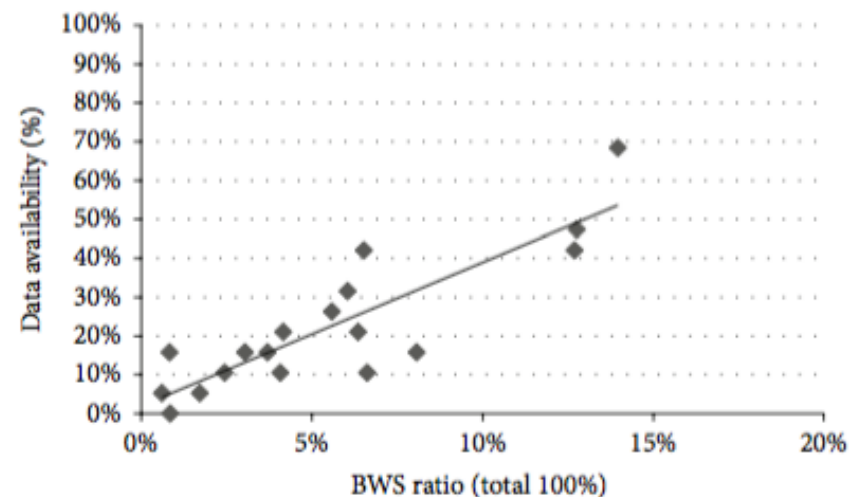
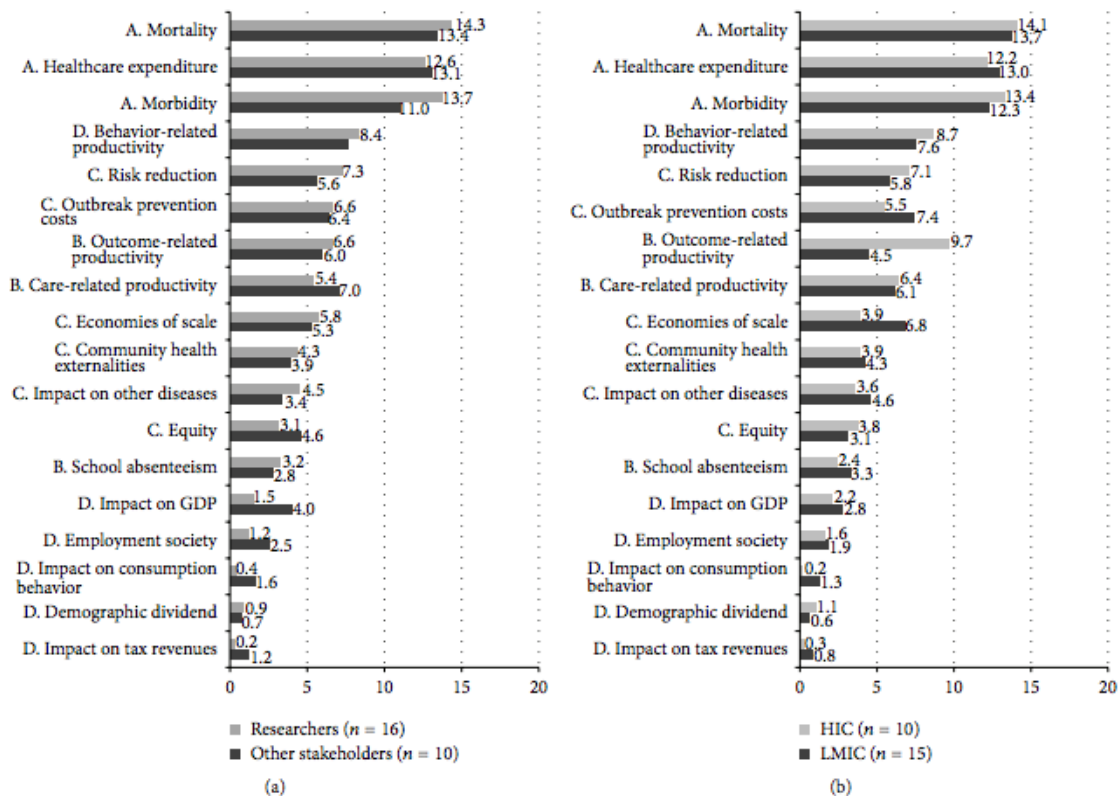
TABLE 2: Lists of all economic impacts of vaccines.

Impacts	Individual item
	<i>(A) Health related benefits to vaccinated individuals</i>
(1) Mortality	Health benefits achieved by reducing number of deaths.
(2) Morbidity	Health benefits achieved by reducing morbidity and improving quality of life.
(3) Healthcare expenditure	Reduction in medical expenditures for healthcare system.
	<i>(B) Short-term and long-term productivity gains</i>
(4) School absenteeism	Reduction in amount of schooldays missed due to illness.
(5) Care-related productivity	Increased individual productivity due to reduction in lost working days.
(6) Outcome-related productivity	Increased individual lifetime productivity and participation due to improved health.
	<i>(C) Community or health systems externalities</i>
(7) Impact on other diseases	Impact on incidence numbers of closely related diseases not vaccinated for.
(8) Community health externalities	Externalities among the unvaccinated community members.
(9) Outbreak prevention costs	Impact on disease outbreak investigations and prevention.
(10) Equity	Impact on equity issues in the society.
(11) Risk reduction	Impact on welfare of households due to reduced uncertainty in future outcomes and health expenditures.
(12) Economies of scale	Impact on per dose price of vaccine due to changes in demand.
	<i>(D) Broader economic indicators</i>
(13) Behaviour-related productivity	Economic benefits for families as a result of improved child health and survival.
(14) Demographic dividend	Economic effects of changes in demographic composition of society.
(15) Employment in society	Impact on overall employment in society.
(16) Impact on consumption behaviour	Impact on the consumption of the general population.
(17) Impact on gross domestic product (GDP)	Impact on gross domestic product in general.
(18) Impact on tax revenue	Impact on tax revenues.

Stakeholder's prioritization - Results

Domain A “health related benefits of vaccinated individuals” is more important

Relevance and data availability are correlated

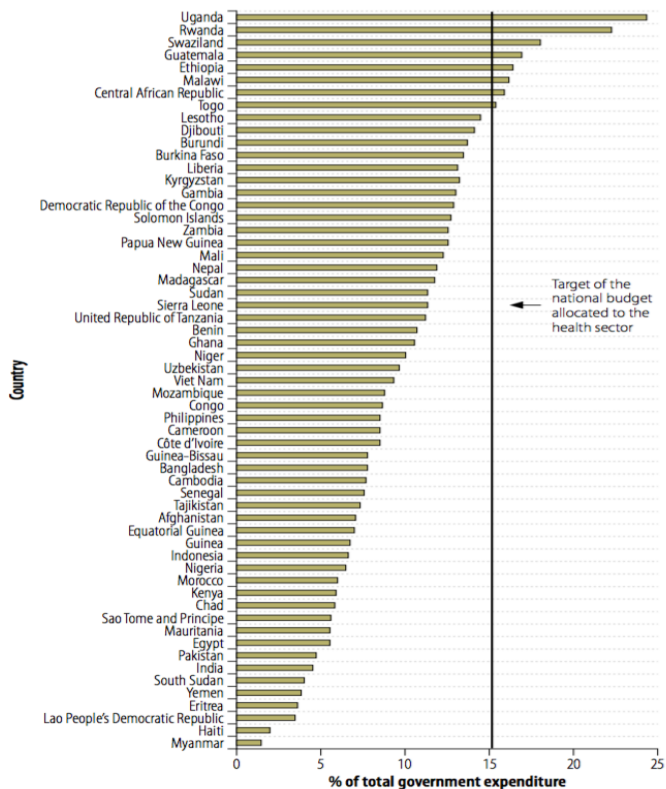


POSSIBLE INTERPRETATION
BEIV evidence not very helpful
Respondents are not aware of BEIV

FIGURE 3: (a) Results of BWS measured on a sum scale of 100% researchers versus other stakeholders. (b) Results of BWS measured on a sum scale of 100% LMIC versus HIC.

Ten attributes for an Effective Health Ministry Investment Plan to Ministry of Finance

Fig. 1. Public health expenditure as a percentage of total government expenditure in countries eligible for financing from the global financing facility for women and children's health, 2013



1. Demonstrates how health programmes contribute to broader national development objectives

....

5. Shows how health expenditure is cost-effective and even cost-saving to government, development partners and households

....

9. Presents a strong evidence base for health policy and programming decision-making

10. Avoids earmarking of funds to the health sector, but shows how investment in the health sector complements investments in other sectors such as education

Addis Declaration on Immunization 2016



AFR RFP on Business case

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Informations générales

Type d'avis	Demande de proposition
Niveau d'inscription	None
Titre	Business Case for Immunization in the African Continent
Organisme des Nations Unies	Organisation mondiale de la Santé
Référence	FRH/IVDP/AFRO/026/2016
Date de publication	18-oct.-2016
Date d'échéance	18-nov.-2016 17:00
Fuseau horaire	(GMT 1.00) Brussels, Copenhagen, Madrid, Paris

Description

To develop a WHO business case for the African Continent. This immunization business case should aim to ensure sufficient commitment of resources for WHO to continue to support Member States on the African continent fully achieve all 10 of the Addis Declaration on Immunization (ADI) commitments as the Global Polio Eradication Initiative ramps-down and closes and GAVI support phases out over the coming years as countries on the African continent transition out of GAVI support

Aide

Concluding remarks

- Traditional methods for economic evaluations of vaccines are too narrow and not always easy to communicate to Ministries of Finance
- WHO BEIV overlaps other theoretical frameworks
- Inclusion of broader benefits in economic evaluations must be based on budget holder/its priorities and apply equally across health interventions (avoid “cherry picking” for vaccines)
- BEIV evidence is scarce – more country studies are needed especially in LMICs
- Better education and communication to stakeholders on existing evidence of BEIV to support vaccine introduction decisions

Key references

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THANK YOU FOR YOUR ATTENTION

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