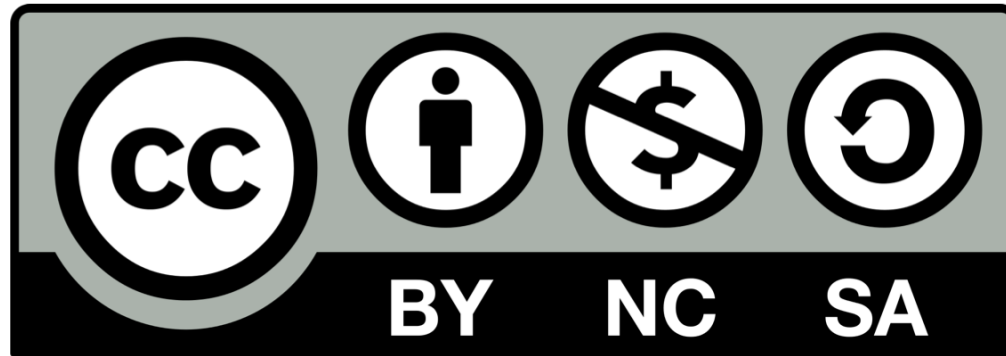


Economic Evaluation

Defining the Scope of a Cost-effectiveness Analysis I



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Overview

- Defining the scope of an economic evaluation
- What is your target audience, target population
- Comparing vaccine programs to standard of care

Objectives

- To define the scope of an economic evaluation
- To understand how to frame comparators for your audience based on a target population
- What are the alternatives to a vaccine program?

Defining the Scope of an Economic Evaluation for a Vaccine Program

At the beginning, the scope of the Vaccine program evaluation needs to be clearly defined – who is impacted by the vaccine availability?

The scope of the Vaccine program evaluation would directly determine which costs and health benefits are considered relevant and therefore should be included in the analysis. This would in turn affect the final results with respect to vaccine value

The key factors to consider in setting the scope for the Vaccine program evaluation include:

- The target audience, key stakeholders in Vaccine program investment
- The target infectious disease patient population – who is at risk?
- The perspective of the analysis with respect to Vaccine program value
- The Vaccine intervention being evaluated
- The alternative vaccines or standards of care
- The analytical time horizon of vaccine or disease impact in short-/long-term

Target Audience

Key Stakeholders to Vaccine Program

The stakeholders determine what Vaccine program costs and benefits are considered.

- Examples of vaccine program stakeholders:
 - International financing agencies (World Bank, IMF)
 - Aid agencies (USAid)
 - International development agencies (GAVI)
 - Non-governmental organisations (NGOs)
 - Private healthcare providers
 - Government health ministries
 - Patient advocacy groups
 - Sponsors of vaccine programs and research (Gates Foundation)

Study Question and Objective

- These elements must be well-defined and outlined in a form that is answerable and relevant to the target audience
- Comparators: What are the alternatives to the vaccine program being considered?
 - Vaccine vs. Vaccine
 - Vaccine vs. do-nothing
 - Vaccine vs. standard of care
 - Vaccine vs. [public health intervention]
 - Vaccine vs. prevention
- What do you hypothesize?
 - Cost-effective?
 - Cost-neutral?

Study Question and Objective

- Examples of Questions that can be answered with some common vaccine program economic evaluations
 - For which new vaccine(s) should the GAVI alliance open a window of funding?
 - Should a new vaccine be introduced, e.g. Human papilloma virus or rotavirus vaccines?
 - Which strategy should be used to increase vaccination coverage, e.g. Fixed sites, mobile teams or health campaigns?
- Can you think of how questions like these could be framed for an economic evaluation?

Target Population

To Whom Do the Results of the Vaccine Program Affect

- This is the population for which the Vaccine intervention or standard of care is intended
- The target population has implications for the magnitude of costs, benefits and budget impact
- For example:
 - Vaccinating only children against malaria could limit herd immunity (hence, result in less overall health benefits) since unvaccinated adults will continue to serve as reservoirs for the transmission of malaria parasites
 - Vaccinating adults as well as children is likely to result in higher herd immunity (and hence, higher overall health benefits) but is likely to result in higher costs

Example Target Populations

- Could vary by age, gender, ethnicity, socio-economic group, geographical areas or high-risk groups to certain infectious diseases
- If we have limited resources, who should we target for vaccination?

Age

Neonates
Infants
Children
Adolescents
Young people
Older people

Gender

Male
Females

High-risk groups

Pregnant women
Women of childbearing age
Men who have sex with men
Commercial sex workers
Drug users

Comparators

- Comparators are alternative Vaccine interventions, standards of care, etc against which the costs and effects of the new intervention are compared
- Comparators should accurately reflect the study question
- Decisions about which new vaccine programs or which new health care services to provide are often made in the context of what is currently provided to treat the infectious disease (e.g. standard of care)

Comparators

- The most relevant comparator for a new vaccine is the current form of treatment for an infectious disease where the vaccine does not exist.
- Current standards could either be
 - Standards of care for different patient groups with the infection
 - Doing nothing to treat the condition if treatment technologies do not exist, or are not financially viable to provide in low-income areas
- Other comparators include:
 - Best available alternatives, e.g. as represented by clinical guidelines or low-cost alternative
 - Alternative levels of scope and intensity for the new intervention
 - Other interventions competing for resources from same national budget
 - Vaccine vs. Education
 - Vaccine vs. Infrastructure
 - Vaccine vs. Transportation
 - Vaccine for disease A vs. Vaccine for disease B

Example Comparators

- Cost and benefits of new hepatitis b virus (HBV) vaccine can be compared against:

Do-Nothing

- Not vaccinating against HBV **and not** treating cases
- Not vaccinating against HBV but treating cases

Alternative levels or scope for the new intervention

- Universal childhood HBV vaccination with a birth dose with/without treating remaining cases
- Vaccinating only health workers against HBV with or without treating remaining cases

Non-HBV options competing for same resources

- Introducing another vaccine, e.g. Rotavirus
- Extending coverage of an existing vaccine programme

Examples Describing the New Intervention and Comparators

Questions to answer	New intervention/strategy: Childhood vaccination against HBV <u>with</u> a birth dose	Comparator: Childhood vaccination against HBV <u>without</u> a birth dose
Who?	Community health workers & Nurses	Nurses
To whom?	New-borns and Infants	Infants
Where ?	At place of birth (health facility/home) and vaccination sites	Vaccination sites
How often?	Once within 48hours of birth and three subsequent times	Three times

Describing Interventions

- Information provided on the vaccine strategy:
 - delivery of three doses of the RTS,S vaccine to infants (delivered by who?)
 - infants were to be vaccinated through the existing Expanded Programme on Immunization (EPI)
 - Receive their last dose at age one (at what frequency, where and by who?)
- From this information, can you surmise who, does what, to whom, where and how often?
- Probably not...without looking at the clinical trial report

Describing interventions

- Information provided on the LLITN strategy:
- One LLITN delivered for every two children
(delivered by who?)
- Existing channels (antenatal clinics and at birth) for immunization used for delivery of LLITN
- From this information, can you surmise who, does what, to whom, where and how often?
- Probably not...

Describing the New Intervention and Comparators

Questions to answer	New intervention/strategy: Childhood vaccination against Malaria	Comparator: Long- Lasting Insecticide Treated Nets
Who?	???	???
To whom?	Infants	Infants
Where ?	??? Not explicit (probably at health facilities or vaccination sites)	??? Not explicit (probably at health facilities)
How often?	Three times (but frequency unknown)	Once

