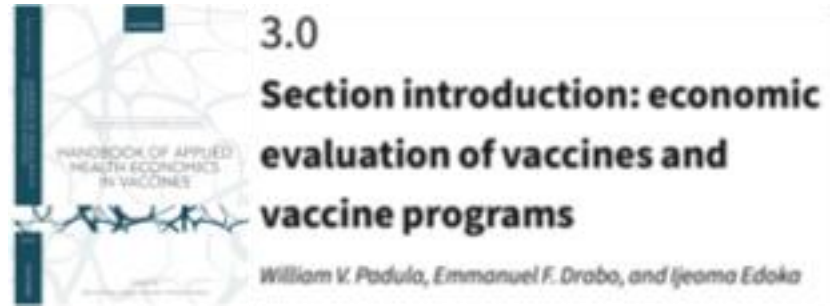


Organized Session
**Applying Health Economics Principles to
Vaccine Programs**

iHEA 2023
Cape Town



TVEE
TEACHING VACCINE
ECONOMICS EVERYWHERE



Economic Evaluation of Vaccines and Vaccine Programs

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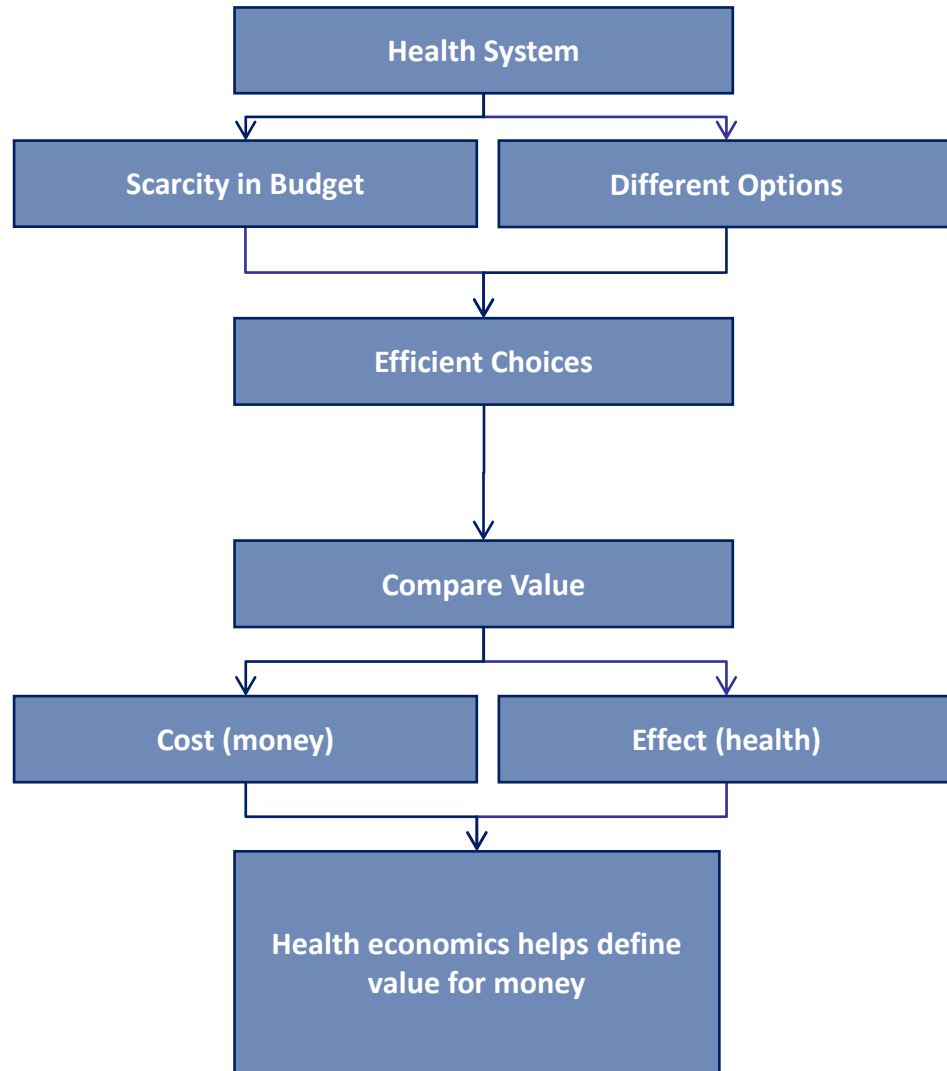
University of the Witwatersrand

Johannesburg, South Africa

Economics and New Vaccine Introductions

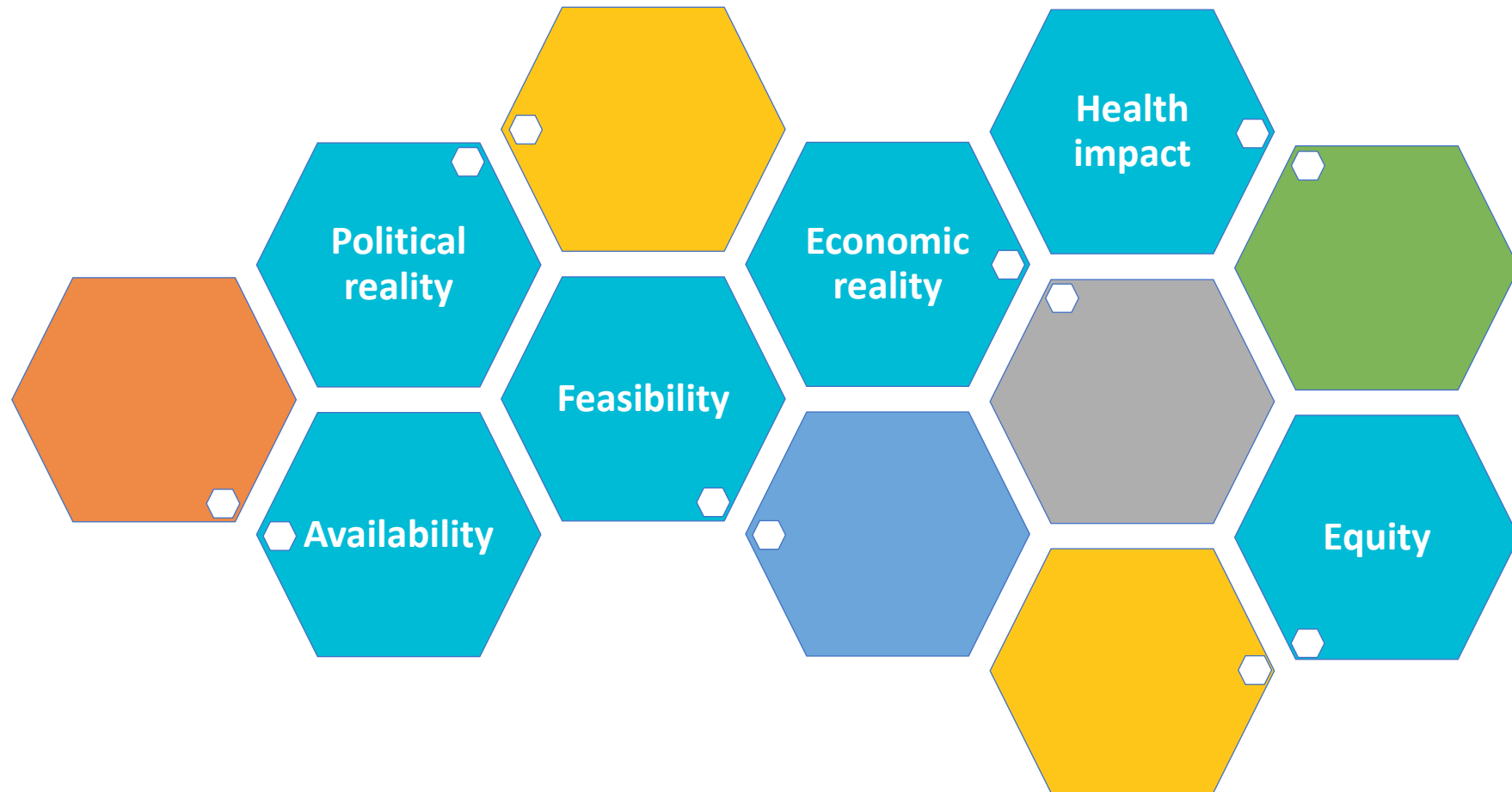
- Economics plays important role in policy decisions to provide vaccines in the EPI
- Program managers want to know what investments would be needed for introducing a vaccine as against the benefits to be had.

Introduction



- Health systems are confronted with *scarce/limited resources*
- But potentially unlimited **options** for managing infectious diseases (prevention vs treatment)
- So **choices** have to be made between options because of limited resources
- How to choose efficiently ?
- Can be done by comparing the COSTS and CONSEQUENCES of competing alternatives
- Health Economics is therefore a **tool for decision makers** to make their selection explicit and consistent

Choice of Whether to Invest In Vaccines is a Complex Dynamic

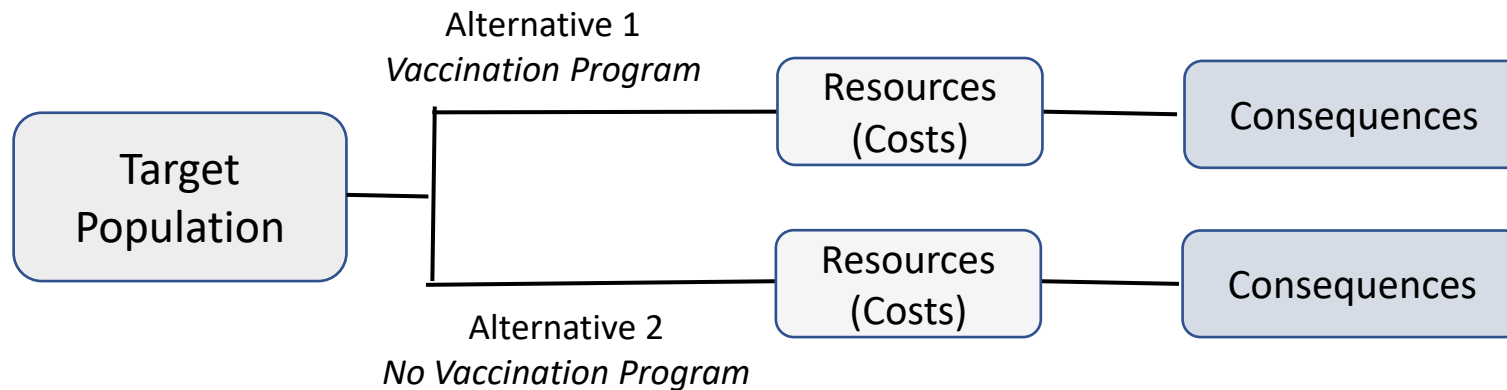


Common Economic Tools

- **Economic Evaluation:** Assesses whether an intervention represents good “value for money” relative to an alternative
- **Budget impact:** Assesses change in flow of funds due to the substitution of the alternative (current) intervention with a new interventions

Economic evaluation is a *comparative analysis*

Economic evaluation is the comparative analysis of **costs and consequences** of alternative courses of action in order to *assist* in policy decisions (Drummond *et al*, 1997).



Resources are scarce – choices must be made!

Potential costs to consider in an Economic Evaluation

Category	Cost	Definition
Direct	<u>Medical costs:</u> • Vaccine cost • Physician consultation fee • Medications & Diagnostic tests etc.	Refers to all costs incurred as a direct consequence of medical resource utilisation
Direct	<u>Non-medical costs:</u> • Transportation • Food • Accommodation	Refers to all others costs incurred as a direct consequence of accessing the intervention or treating an illness.
Broad	<u>Indirect costs:</u> • Time loss from work • Informal caregiving	Quantifiable costs incurred as a consequence of the illness or the intervention
Broad	<u>Intangible cost:</u> • Pain • suffering	Unquantifiable costs incurred as a consequence of the illness or the intervention

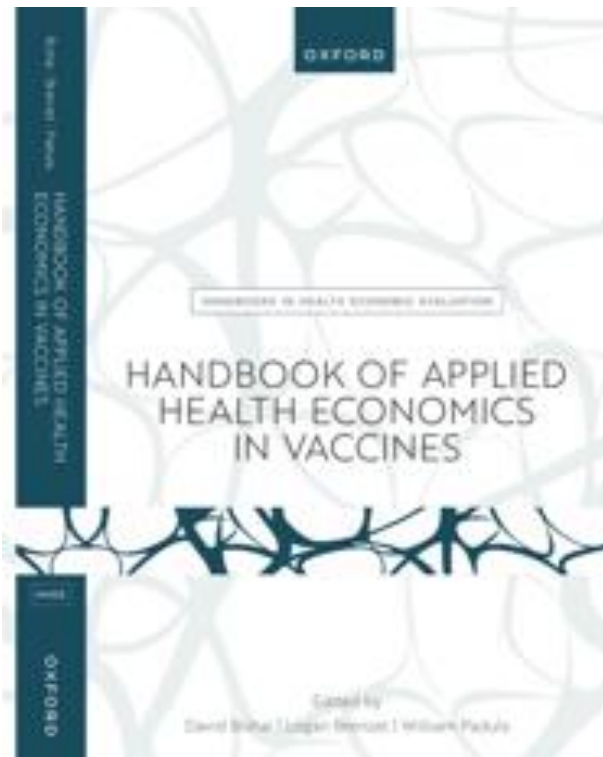
Potential Benefits to Consider in an Economic Evaluation

Category	Benefit	Definition
Direct	Health gains	Reduction in mortality/morbidity
Direct	Health care cost savings	Averted medical expenditures (outpatient visits, hospitalizations, diagnostics and treatments, transport to the facility)
Indirect	Care related productivity gains	Savings of parents' productive time and lost wages
Broader	Outcome-related productivity gains	Improves cognition and physical development, as well as school enrollment, attendance and educational attainment
Broader	Behavior-related productivity gains	Improves child health and survival and thereby changes household choices, such as fertility and consumption choices
Broader	Community externalities	Improves health among unvaccinated community members, general economic improvement

Types of Economic Evaluation

Type of analysis	Costs		Outcomes		Comparison of interventions
	Inclusion	Valuation	Inclusion	Valuation	
Partial economic evaluation					
Cost of illness analysis (COI)	Yes	Monetary units	No	–	None (disease-level analysis)
Budget impact analysis (BIA)	Yes	Monetary units	Yes	None or maximize various	Yes
Return on investment (ROI) analysis	Yes	Monetary units	Yes	Monetary units	Yes, ROI
Cost comparison analysis	Yes	Monetary units	No	–	Yes
Full economic evaluation					
Cost-minimization analysis (CMA)	Yes	Monetary units	Yes	None (assume unchanged)	Yes
Cost–consequence analysis (CCA)	Yes	Monetary units	Yes	Natural units	Yes
Cost-effectiveness analysis (CEA)	Yes	Monetary units	Yes	Natural units	Yes, ICER or NMB
Cost–utility analysis (CUA)	Yes	Monetary units	Yes	Utilities: QALY, DALY, healthy year equivalent	Yes, ICER or NMB
Cost–benefit analysis (CBA)	Yes	Monetary units	Yes	Monetary units	Yes, cost–benefit ratio or net benefit

The Handbook of Applied Health Economics in Vaccines



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