

# Economic Evaluation for Vaccination Programs: Exploring Multiple Methods

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## Different Economic Evaluation Methods for Different Decision Contexts

Decision Maker	Decision Context	Economic Analysis Method
Minister of health or private healthcare insurer	Allocating healthcare budget among different healthcare interventions	Cost utility analysis – cost/QALY gained or cost/DALY gained compared with threshold value
Individual or agency with focus on specific disease(s)	Allocating fixed budget among different prevention and treatment interventions to reduce mortality or morbidity from specific disease(s)	Constrained optimization – identify the mix of all possible interventions that results in maximum reduction in mortality or morbidity subject to budget and feasibility constraints
Minister of finance	Distributing government revenues among different infrastructure health and non-health-related interventions	Fiscal modeling – estimate the internal rate of return in revenue from investment in a health or non-health intervention



**HARVARD T.H. CHAN**  
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## RECOMMENDATIONS AND REIMBURSEMENTS: IDENTIFYING AND ACCOUNTING FOR THE FULL SOCIAL BENEFITS OF VACCINATION

David E. Bloom

ISPOR 2018

Workshop: “Economic Evaluation for Vaccination Programs:  
Exploring Multiple Methods”

Baltimore, Maryland

21 May 2018



Recommendations and Reimbursements

21 May 2018



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## Outline

- Point 1: Socially optimal decisions regarding vaccine recommendations and reimbursements require assessment from a societal perspective
- Point 2: We have a variety of tools to operationalize this perspective

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# Benefits of vaccination

Benefit categories
Health care cost savings
Health gains

## Benefits of vaccination: Narrow and broad

Perspective	Benefit categories
Narrow	Health care cost savings
	Health gains
Broad	Outcome-related productivity gains
	Care-related productivity gains
	Behavior-related output gains
	Health-based community externalities
	Co-morbidities
	Nosocomial infections
	Risk reduction gains
	Social equity

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# Accumulating evidence: Example of AMR reduction

VACCINES AND  
ALTERNATIVE APPROACHES:  
REDUCING OUR DEPENDENCE  
ON ANTIMICROBIALS

THE REVIEW ON  
ANTIMICROBIAL RESISTANCE  
CHAIRIED BY JIM O'NEILL

13 October 2016

“There has been international recognition of the importance of vaccines...to combat antimicrobial resistance...” (p. 3)

“The experience of the pneumococcal vaccine...demonstrates the tremendous potential that vaccines...have in reducing...resistance as a whole.” (p. 15)

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## PCV13 among Danish adults aged 50+: The value of paid and unpaid work

PIN48

### Calculating the Indirect Costs of Adult Pneumococcal Disease and the Rate of Return to the 13-Valent Pneumococcal Conjugate Vaccine (PCV13) in Older Adults, With an Application to Denmark

Sevilla JP,<sup>1</sup> Stawasz A,<sup>1</sup> Burnes D,<sup>1</sup> Poulsen PB,<sup>3</sup> Sato R,<sup>3</sup> Bloom DE<sup>1</sup>

<sup>1</sup>Data for Decisions, LLC, Waltham, MA, USA; <sup>2</sup>Pfizer Denmark, Ballerup, Denmark; <sup>3</sup>Pfizer Inc., Collegeville, PA, USA



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## Toward socially optimal decisions: Gathering and processing the inputs

- Impact inventory and deliberative processes/MCDA
- Societal cost-effectiveness analysis
- Benefit-cost analysis (and life-cycle model/social welfare function)

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## Disclosure:

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- WHO
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- Merck
- Pfizer
- Sanofi Pasteur