HTAi HEALTH TECHNOLOGY ASSESSMENT iNTERNATIONAL

iDSI Better decisions. Better health.

Methods of Health Technology Assessment :
Understanding Budget Impact and Cost-Effectiveness Analysis – What are they and how do we interpret the results?

Alex Winch - Imperial College London
Rebecca Addo - University of Technology Sydney

Setting Health Priorities 2018

Presentation overview

1. Recap on Health Technology and HTA
2. Why the need for a reference case?
3. Types of Analysis in the 5 steps of HTA
4. Cost-Effectiveness Analysis
5. Budget Impact Analysis
6. The Bookshelf Analogy

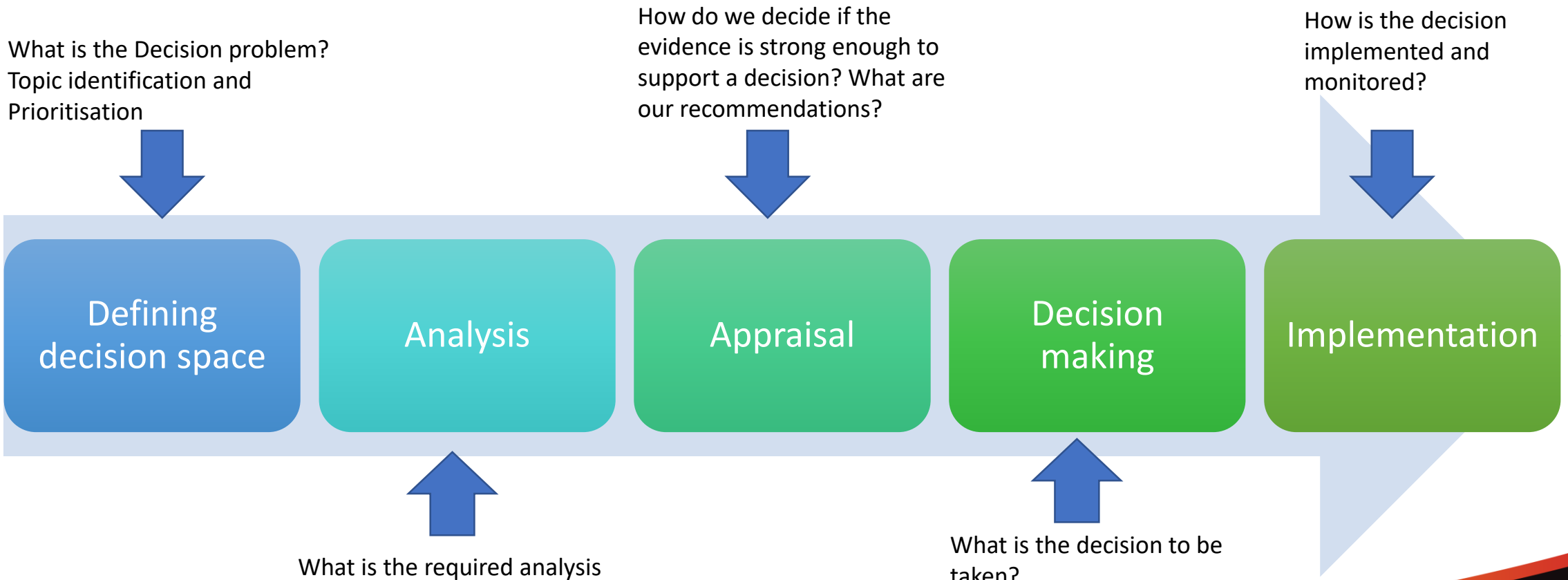
What is a health technology?

*A health technology is **any intervention** that may be used to **promote health, to prevent, diagnose or treat acute or chronic disease**, or for rehabilitation and palliative care.*
(Definition adopted at IDSI HTA meeting March 2015, Johannesburg, SA)

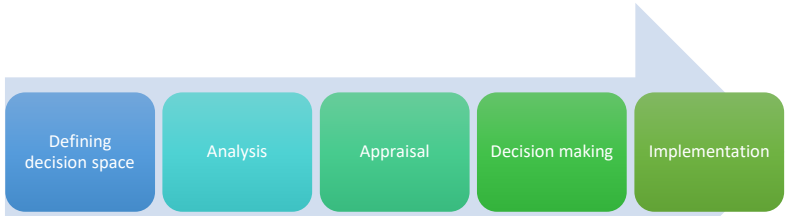
What is Health Technology Assessment?

*HTA is the **systematic evaluation** of properties, effects and/or impacts of **health technologies and interventions**. It covers both the direct, intended consequences of technologies and interventions and their indirect, unintended consequences*
(WHO)

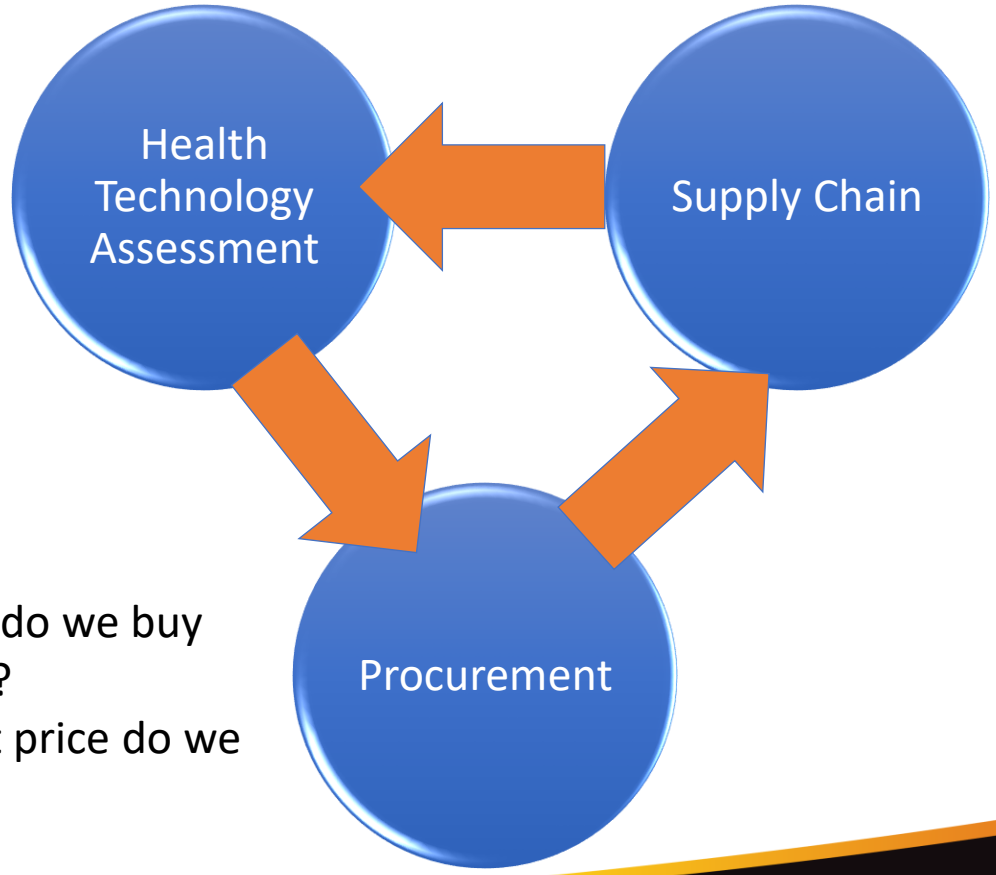
5 Step-HTA process



HTA process should be integrated into broader health system



- What should we buy?
- Is this good value for money?
- At what price should we pay?

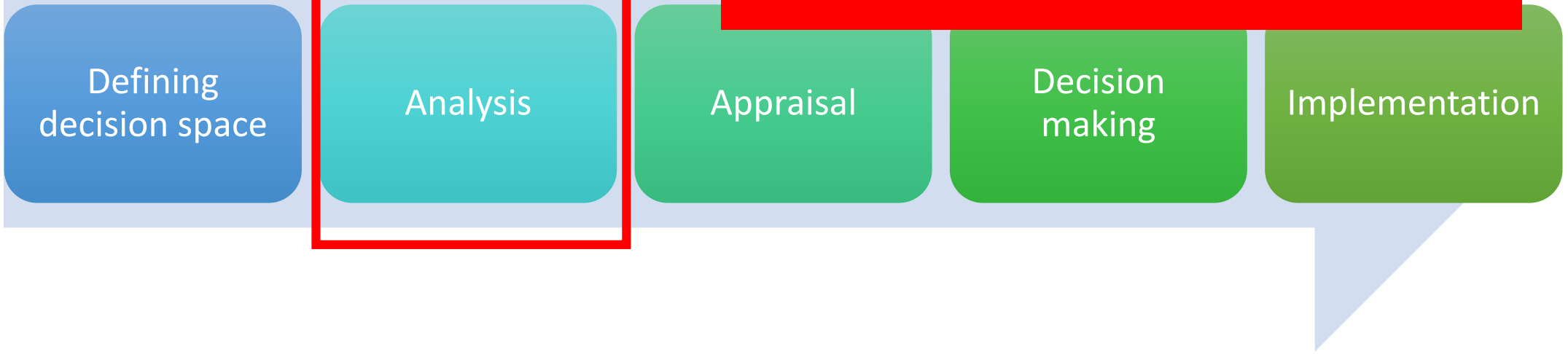


- Who do we buy from?
- What price do we pay?

- How do we ensure on time in full delivery
- How do we ensure procured commodities get to the patients who need them?

Why The Need for the Reference Case

METHODOLOGICAL UNCERTAINTY IN ANALYSIS



HEALTH ECONOMICS
Health Econ. **25**(Suppl. 1): 124–139 (2016)
Published online in Wiley Online Library (wileyonlinelibrary.com). DOI: 10.1002/hec.3303

DYNAMIC TRANSMISSION ECONOMIC EVALUATION OF INFECTIOUS DISEASE INTERVENTIONS IN LOW- AND MIDDLE-INCOME COUNTRIES: A SYSTEMATIC LITERATURE REVIEW

TOM L. DRAKE[a,b,*], ANGELA DEVINE[a,b], SHUNMAY YEUNG[c], NICHOLAS P. J. DAY[a,b], LISA J. WHITE[a,b] and YOEL LUBELL[a,b]

[a]*University of Oxford, Oxford, UK*
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[c]*London School of Hygiene and Tropical Medicine, London, UK*

Fifty-seven studies were eligible for inclusion in the all-disease review. The most common subject disease was HIV/AIDS, followed by malaria. ***A diverse range of modelling methods, outcome metrics and sensitivity analyses were used, indicating little standardisation.*** Seventeen studies were included in the mosquito-borne disease review.

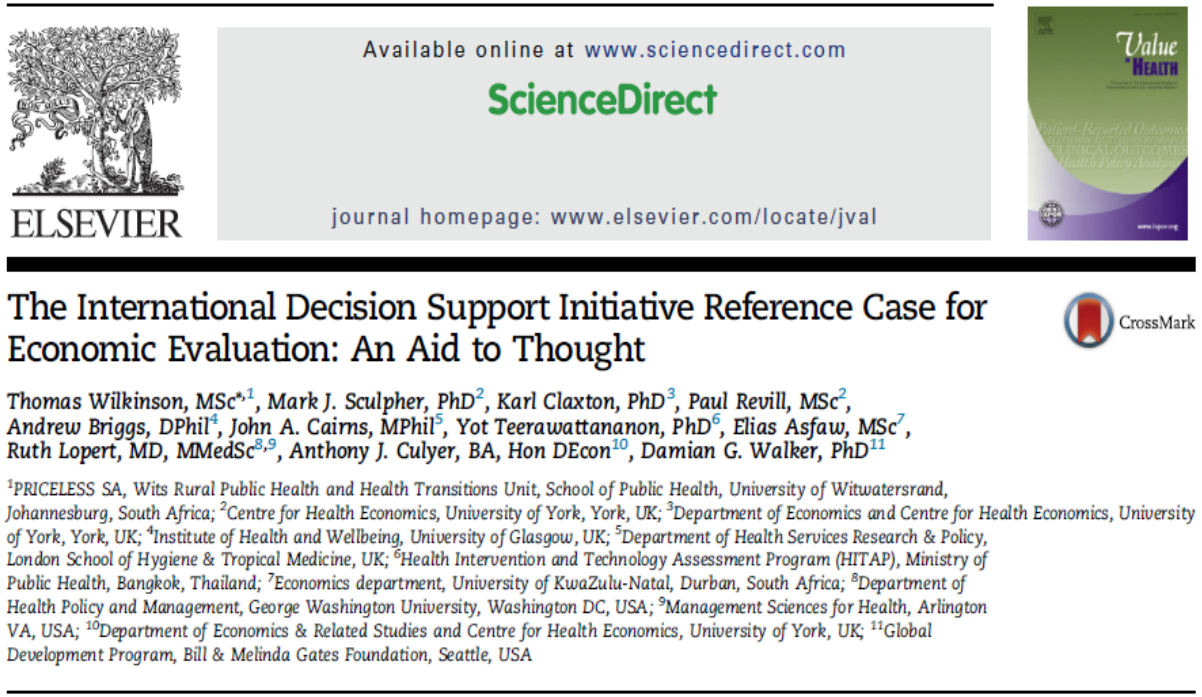
With notable exceptions, ***most studies did not employ economic evaluation methods beyond calculating a cost-effectiveness ratio or net benefit. Many did not adhere to health care economic evaluations reporting guidelines,*** *particularly with respect to full model reporting and uncertainty analysis.*

Standardised approaches to Economic Evaluation

- Need to reduce methodological uncertainty in health
- A way of ‘standardising’ so that the analytical approaches and presentation of results are more consistent

Reference Cases:

- Improve quality of the evidence available
- Enable the results of multiple assessments to be more easily understood and compared
- Describe expectations based on best practice on purely technical issues (such as the preferred approach to assessing uncertainty)….
- but can also incorporate issues that are essentially value judgements (such as equity positions), and that are likely to be ***more context specific***
- Facilitate a consistent approach but should not exclude ‘non-RC’ analyses, especially if ‘strict adherence’ is not possible



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Available online at www.sciencedirect.com

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journal homepage: www.elsevier.com/locate/jval

The International Decision Support Initiative Reference Case for Economic Evaluation: An Aid to Thought

Thomas Wilkinson, MSc*[,1], Mark J. Sculpher, PhD[2], Karl Claxton, PhD[3], Paul Revill, MSc[2], Andrew Briggs, DPhil[4], John A. Cairns, MPhil[5], Yot Teerawattananon, PhD[6], Elias Asfaw, MSc[7], Ruth Lopert, MD, MMedSc[8,9], Anthony J. Culyer, BA, Hon DEcon[10], Damian G. Walker, PhD[11]

[1]PRICELESS SA, Wits Rural Public Health and Health Transitions Unit, School of Public Health, University of Witwatersrand, Johannesburg, South Africa; [2]Centre for Health Economics, University of York, York, UK; [3]Department of Economics and Centre for Health Economics, University of York, York, UK; [4]Institute of Health and Wellbeing, University of Glasgow, UK; [5]Department of Health Services Research & Policy, London School of Hygiene & Tropical Medicine, UK; [6]Health Intervention and Technology Assessment Program (HITAP), Ministry of Public Health, Bangkok, Thailand; [7]Economics department, University of KwaZulu-Natal, Durban, South Africa; [8]Department of Health Policy and Management, George Washington University, Washington DC, USA; [9]Management Sciences for Health, Arlington VA, USA; [10]Department of Economics & Related Studies and Centre for Health Economics, University of York, UK; [11]Global Development Program, Bill & Melinda Gates Foundation, Seattle, USA

	Statement of principle
1	An economic evaluation should be **communicated clearly and transparently** to allow the decision maker(s) to **interpret** the methods and results
2	The **comparators** against which costs and effects are measured should accurately **reflect the decision problem**.
3	An economic evaluation should **consider all available evidence relevant** to the decision problem.
4	The **measure of health outcome** should be **appropriate to the decision problem**, should capture **positive and negative effects on length of life and quality of life**, and should be **generalizable** across disease states.
5	All **differences** between the intervention and the comparator in **expected resource use and costs** of delivery to the target population(s) should be incorporated into the evaluation.
6	The **time horizon** used in an economic evaluation should be of sufficient length to capture all costs and effects **relevant to the decision problem**; an appropriate **discount rate** should be used to **discount cost and effects to present values**

	Statement of principle
7	**Non-health effects** and **costs associated with gaining or providing access to health interventions that don't accrue to the health budget** should be identified where **relevant to the decision problem**. All costs and effects should be **disaggregated**, either by sector of the economy or to whom they accrue..
8	The **cost and effects of the intervention on sub-populations** within the decision problem should be **explored** and the **implications** appropriately **characterized**.
9	The **uncertainty** associated with an economic evaluation should be appropriately **characterised.**
10	The **impact** of implementing the intervention on the **health budget and on other constraints** should be **identified clearly and separately**.
11	An economic evaluation should explore the **equity implications** of implementing the intervention.

Transparency

Comparator

Equity

Impact on constraints

Measure of health outcome

An aid to decision making

Uncertainty

Evidence

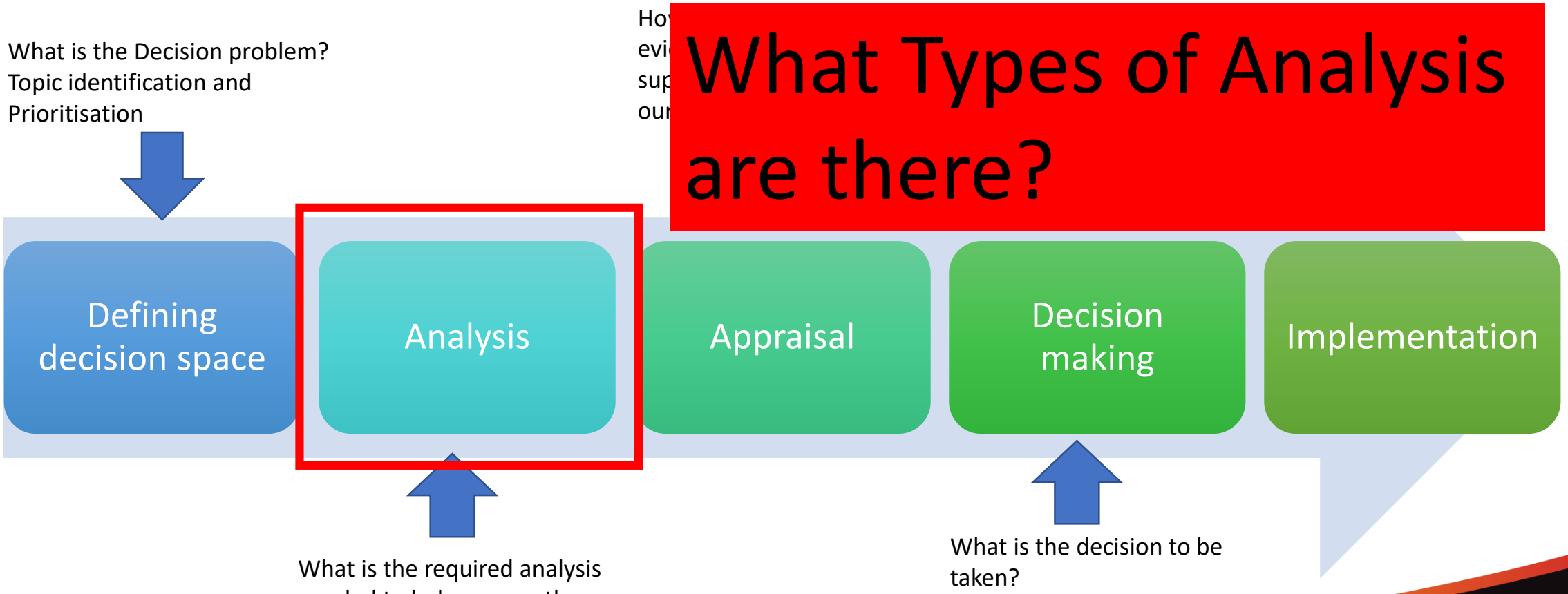
Heterogeneity

Costs

Time horizon and discount rate

Perspective

5 Step-HTA process: Types of Economic Analysis



What type of analyses can inform a HTA?

Type of analysis	Where it is used
Cost-of-illness analysis	A determination of the **economic impact of an illness** or condition (typically on a given population, region, or country) e.g., of smoking, arthritis, or diabetes, including associated treatment costs
Cost-Effectiveness Analysis	A **comparison of costs in monetary units with outcomes in quantitative non-monetary units such as Quality Adjusted Life Years (QALYs) or averted Disability Adjusted Life Years (DALYs),** reduced mortality or morbidity. This is often termed "cost-utility analysis" (CUA) and you should give thought to whether your preferred outcome measure should be some indicator of health gain or loss or some indicator of the utility of such gains or losses. An advantage of the health gain/loss approach is that it is more readily understandable by clinicians and the public and easier to validate.
Budget Impact Analysis	Can be conducted in addition to a CEA **to determine the impact of implementing or adopting a particular technology** or technology-related policy **on a designated budget**, e.g., for a drug formulary or health plan.
Cost-Consequence analysis	A form of cost-effectiveness analysis that presents **costs and outcomes in discrete categories**, without aggregating or weighting them
Cost-Minimisation analysis	A form of analysis that **assumes that the effects of two interventions are the same, but the costs differ**. The analysis **compares costs to identify the least costly**
Cost-Benefit analysis	compares costs and benefits, both of which are **quantified in common monetary units**

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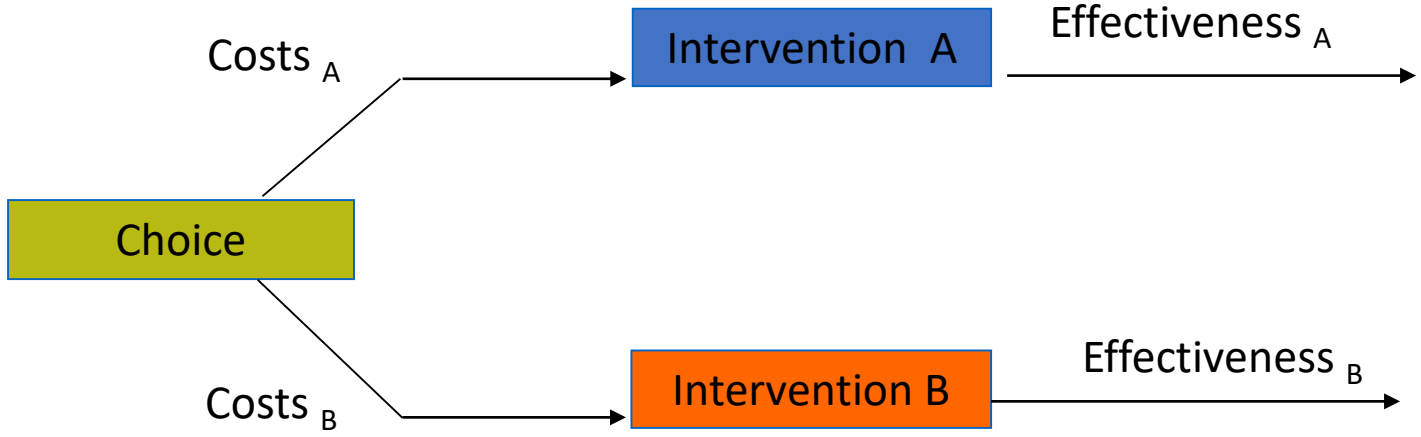
Cost Effectiveness Analysis (CEA)

A comparative analysis of the costs and effects of two or more interventions to choose the one that maximises health outcomes



CEA: Steps in conducting CEA

- Define alternatives under evaluation
- Define perspective of analysis
- Define time frame (horizon) for the evaluation
- Identify, measure and value costs
- Identify, measure and value of effectiveness
- Combine costs and effectiveness
- Assess robustness of results (sensitivity analysis)
- Interpret

CEA steps: Defining the intervention

- Components of the program
- Frequency of the intervention
- Specific technologies used
- Method of delivery
- “Bundling” of services
- “Starting point” for intervention
- Target population

CEA steps: Choice of comparator

- Identifying incremental costs and incremental effects
- Comparator will depend on the policy context
- May need a range of comparators
- “Do nothing” / No treatment
- Status quo (may involve a range of programs): choose one of these or what happens now?
- Current best practice
- 2+ alternatives against same base case
- What do we know about current practice?
- Comparing programs of varying intensity/duration

CEA steps: Perspective of analysis

- Perspective adopted for the analysis influences the costs we include
  - Societal – all costs and benefits, irrespective of to whom they are accrued, are included
    - Includes patients, carers, Government etc
  - Government
    - Can include impact on other departments. e.g. impact of ADHD drug on department of justice and education
  - Health care system – National, Regional, District or all three.
    - Can also be the health care institution or provider
- Implications for how costs and consequences defined and measured.
- May need to present results from different perspectives

CEA steps: Time Horizon

- Most health care interventions have future costs and consequences
- Impacts in future less certain but still relevant
- Relates to perspective/decision context and to choice of outcome measure
- Trying to capture all **relevant** future costs and consequences
- Discounting of future costs and consequences

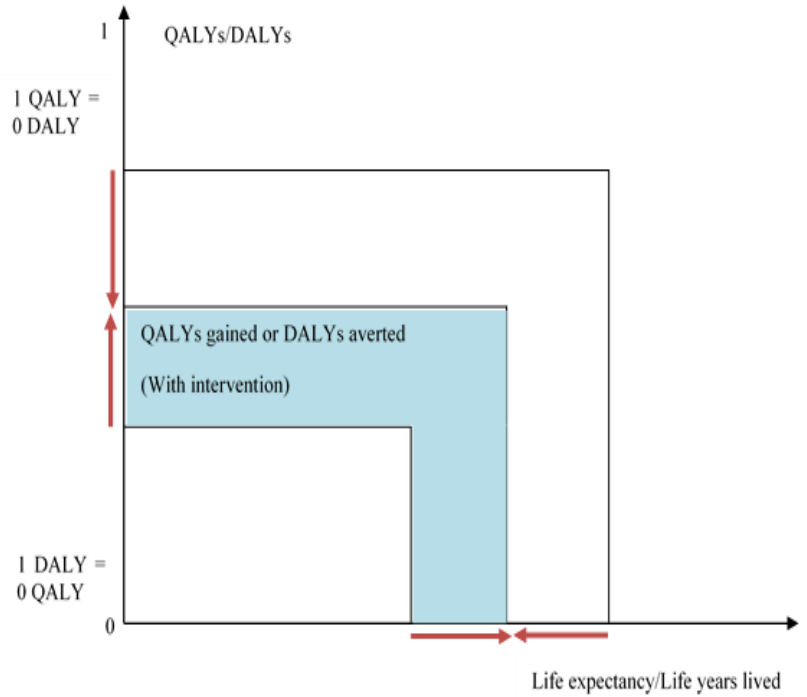
CEA steps: Measurement of costs

- Identification and estimation of resource use
  - Ghana standard treatment guidelines
  - Expert opinion
- Apportion costs to resource use
- Costs may include
  - Cost of implementing program/intervention
  - Cost to the patient and family
  - Costs to the society (Other sectors other than health)
- Sources of cost data
  - Secondary source
    - NHIS medicines list, NHIS hospital tariffs,
    - Review of folders
  - Primary data collection
  - Clinical trials, programs

CEA steps: Measurement of effectiveness

- Natural units
  - Malaria cases averted, life years gained, hospital days averted, deaths averted
  - A limitation of this measure is comparing interventions with different outcome measures
- A single measure of health outcome (an extended version of CEA: a Cost utility analysis)
  - Disability adjusted life years (DALYs)
  - Quality adjusted life years (QALYs)
  - A common health outcome measure enables decision maker to compare an array of health technologies/interventions

- Differences between DALYs and QALYs



CEA steps: Combine costs and effectiveness

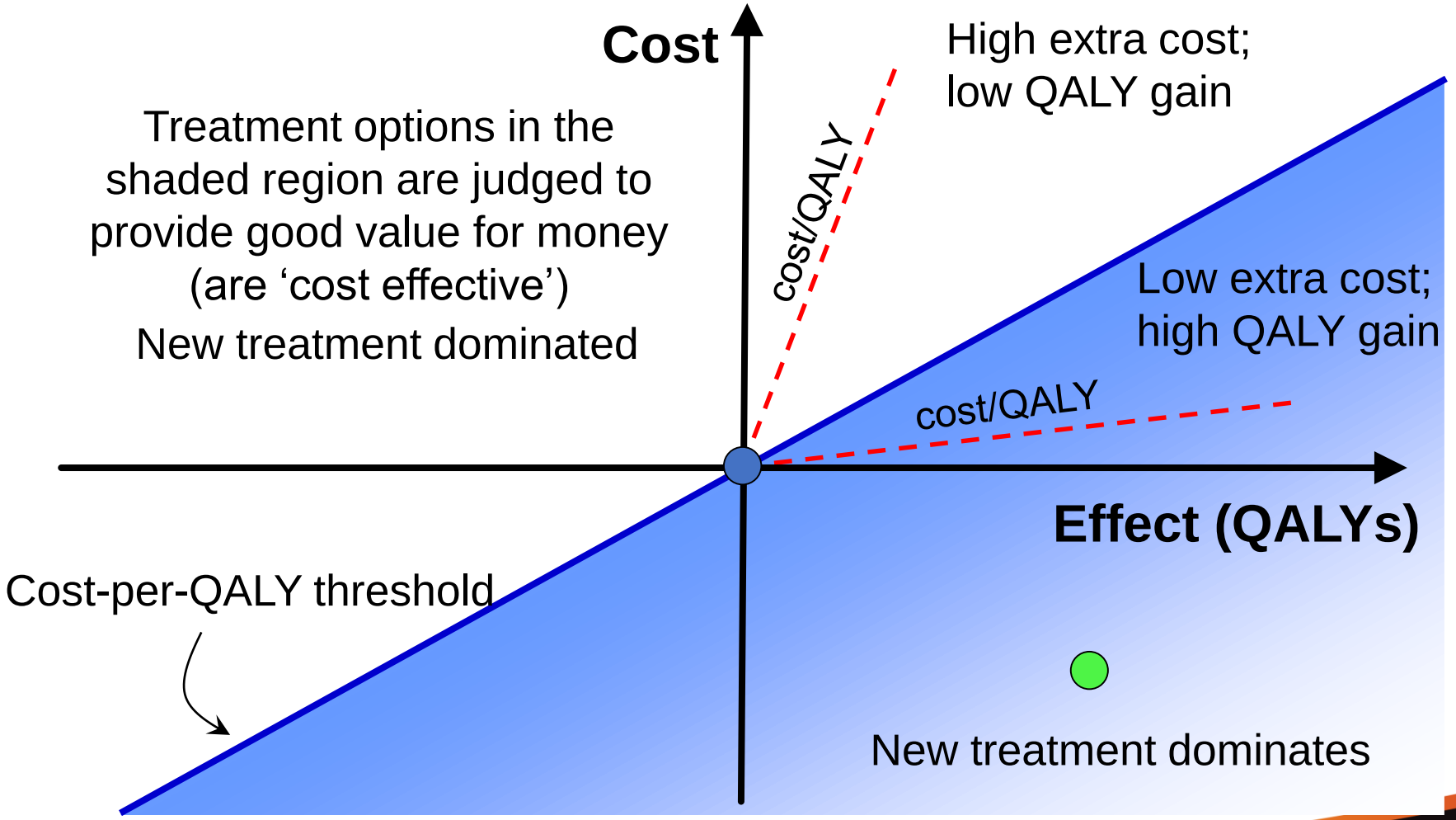
Incremental Cost-Effectiveness Ratio (ICER)

- This is defined as **"The extra cost of the additional service divided by the extra outcome of effectiveness"**

$$ICER = \frac{Cost_{New} - Cost_{Comparator}}{Effectiveness_{New} - Effectiveness_{Comparator}}$$

- How much are we, as a society, paying for each unit of outcome (death averted, sight regained etc)?
- The fundamental question is this: **"Does the difference in outcome between the approaches justify the difference in costs?"**

How do we use the ICER to assess value for money?



CEA steps: Sensitivity analysis

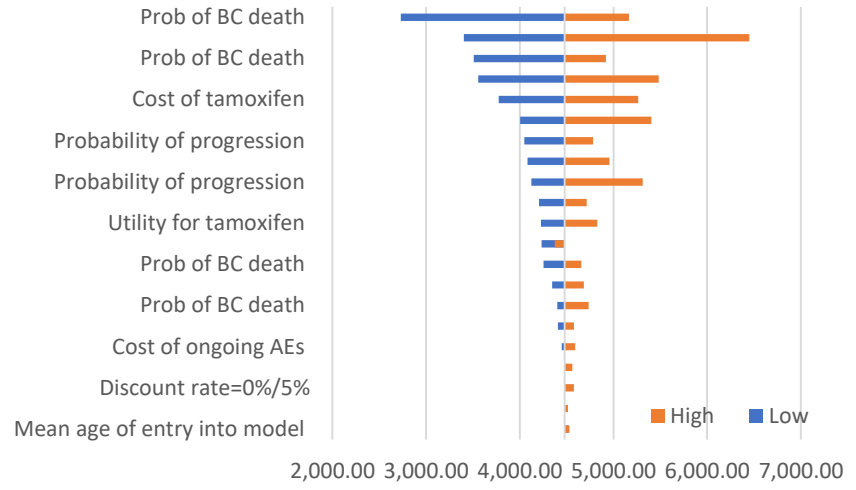
- An analysis used to explore the nature of uncertainties of inputs used for the CEA to establish their impact on the base ICER

- Source of uncertainties: costs, effectiveness, structure of model

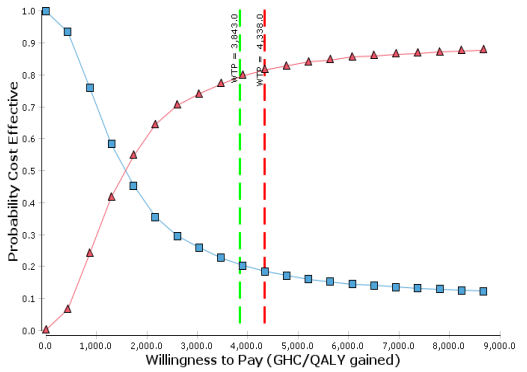
Types of sensitivity analysis

Types	Characteristics
Univariate sensitivity analysis	One input parameter is varied at a time
Multivariate sensitivity analysis	More than one input parameter is varied at a time
Probabilistic sensitivity analysis	Simultaneously vary all uncertain parameters for a specified range; distribution
Threshold analysis	Considers the value a parameter must take to achieve a target results
Scenario analysis	Assess the impact of a particular scenario on the ICER

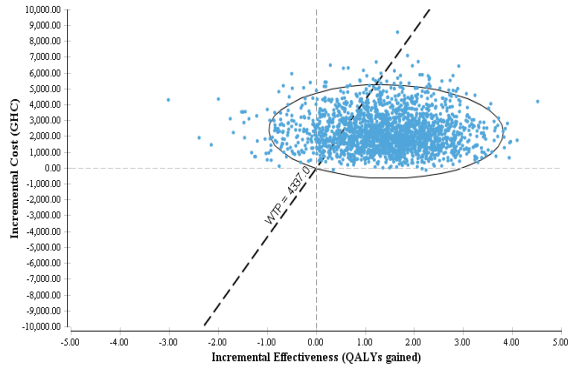
Presentation of sensitivity analysis



Tornado diagram for univariate sensitivity analysis



Cost effectiveness acceptability curve (PSA)



Scatter plot (PSA)

A number of CEA studies from Ghana

Tropical Medicine and International Health doi:10.1111/j.1365-3156.2012.03018.x
VOLUME 17 NO 8 PP 951–957 AUGUST 2012

Is home management of fevers a cost-effective way of reducing under-five mortality in Africa? The case of a rural Ghanaian District

Justice Nonvignon[1], Margaret A. Chinbuah[2], Margaret Gyapong[3], Mercy Abbey[2], Elizabeth Awini[3], John O. Gyapong[1] and Moses Aikins[1]

1 *School of Public Health, College of Health Sciences, University of Ghana, Legon, Accra, Ghana*
2 *Research and Development Division, Ghana Health Service, Accra, Ghana*
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Am. J. Trop. Med. Hyg., 89(4), 2013, pp. 724–736
doi:10.4269/ajtmh.13-0033

Cost-Effectiveness Analysis of Introducing RDTs for Malaria Diagnosis as Compared to Microscopy and Presumptive Diagnosis in Central and Peripheral Public Health Facilities in Ghana

Evelyn K. Ansah, Michael Epokor, Christopher J. M. Whitty, Shunmay Yeung, and Kristian Schultz Hansen*
Dangme West District Health Directorate, Ghana Health Service, Dodowa, Ghana; Department of Clinical Research, London School of Hygiene and Tropical Medicine, London, United Kingdom; Department of Global Health and Development, London School of Hygiene and Tropical Medicine, London, United Kingdom

OPEN ACCESS Freely available online PLoS one

Cost Effectiveness of Seasonal Intermittent Preventive Treatment Using Amodiaquine & Artesunate or Sulphadoxine-Pyrimethamine in Ghanaian Children

Lesong Conteh[1,2]*, Edith Patouillard[1], Margaret Kweku[1,3], Rosa Legood[1], Brian Greenwood[1], Daniel Chandramohan[1]

1 London School of Hygiene and Tropical Medicine, London, United Kingdom, **2** Imperial College London, London, United Kingdom, **3** Ghana Health Service, University of Ghana, Legon, Accra, Ghana

Volume 11 • Number 5 • 2008
VALUE IN HEALTH

Cost-Effectiveness of HIV Screening of Blood Donations in Accra (Ghana)

Marinus van Hulst, MSc, PharmD,[1,2] Kwamena W. C. Sagoe, MSc,[3] Jacobien E. Vermande, MSc,[1] Ido P. van der Schaaf, MSc,[1,4] Willem P.A. van der Tuuk Adriani, MSc, PharmD,[5] Kwasi Torpey, MD, MPH,[6] Justina Ansah, MD,[7] Julius A. A. Mingle, DipBactPhD,[3] Cees Th. Smit Sibinga, MD, PhD, FRCP Edin, FRCPath,[5] Maarten J. Postma, PhD[1]

VanDeusen *et al. BMC Infectious Diseases* (2015) 15:130
DOI 10.1186/s12879-015-0859-2

BMC Infectious Diseases

RESEARCH ARTICLE Open Access

Cost effectiveness of option B plus for prevention of mother-to-child transmission of HIV in resource-limited countries: evidence from Kumasi, Ghana

Adam VanDeusen[1], Elijah Paintsil[2*], Thomas Agyarko-Poku[3] and Elisa F Long[4]

Nonvignon *et al. Malar J (2016) 15:367*
DOI 10.1186/s12936-016-1418-z

Malaria Journal

RESEARCH Open Access

Cost-effectiveness of seasonal malaria chemoprevention in upper west region of Ghana

Justice Nonvignon[1], Genevieve Cecilia Aryeetey[1], Shamwill Issah[2], Patrick Ansah[3], Keziah L. Malm[4], Winfred Ofosu[5], Titus Tagoe[5], Samuel Agyei Agyemang[1] and Moses Aikins[1*]

A case of CEA studies from Ghana

Am. J. Trop. Med. Hyg., 89(4), 2013, pp. 724–736
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Cost-Effectiveness Analysis of Introducing RDTs for Malaria Diagnosis as Compared to Microscopy and Presumptive Diagnosis in Central and Peripheral Public Health Facilities in Ghana

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Abstract. Cost-effectiveness information on where malaria rapid diagnostic tests (RDTs) should be introduced is limited. We developed incremental cost-effectiveness analyses with data from rural health facilities in Ghana with and without microscopy. In the latter, where diagnosis had been presumptive, the introduction of RDTs increased the proportion of patients who were correctly treated in relation to treatment with antimalarials, from 42% to 65% at an incremental societal cost of Ghana cedis (GHS)12.2 (US$8.3) per additional correctly treated patients. In the "microscopy setting" there was no advantage to replacing microscopy by RDT as the cost and proportion of correctly treated patients were similar. Results were sensitive to a decrease in the cost of RDTs, which cost GHS1.72 (US$1.17) per test at the time of the study and to improvements in adherence to negative tests that was just above 50% for both RDTs and microscopy.

Characteristics	Inputs used for analysis
Intervention	Rapid diagnostic test (RDT)
Comparators	Microscopy diagnosis Presumptive diagnosis
Type of evaluation	Cost effectiveness analysis
Perspective of analysis	Health system and societal
Time horizon	1 year
Method of analysis	Decision tree model
Outcome (effectiveness measure)	Correctly treated fever
Costs	Direct and indirect costs
Discount rate	5%
Sensitivity analysis	Univariate and multivariate

A case of CEA studies from Ghana

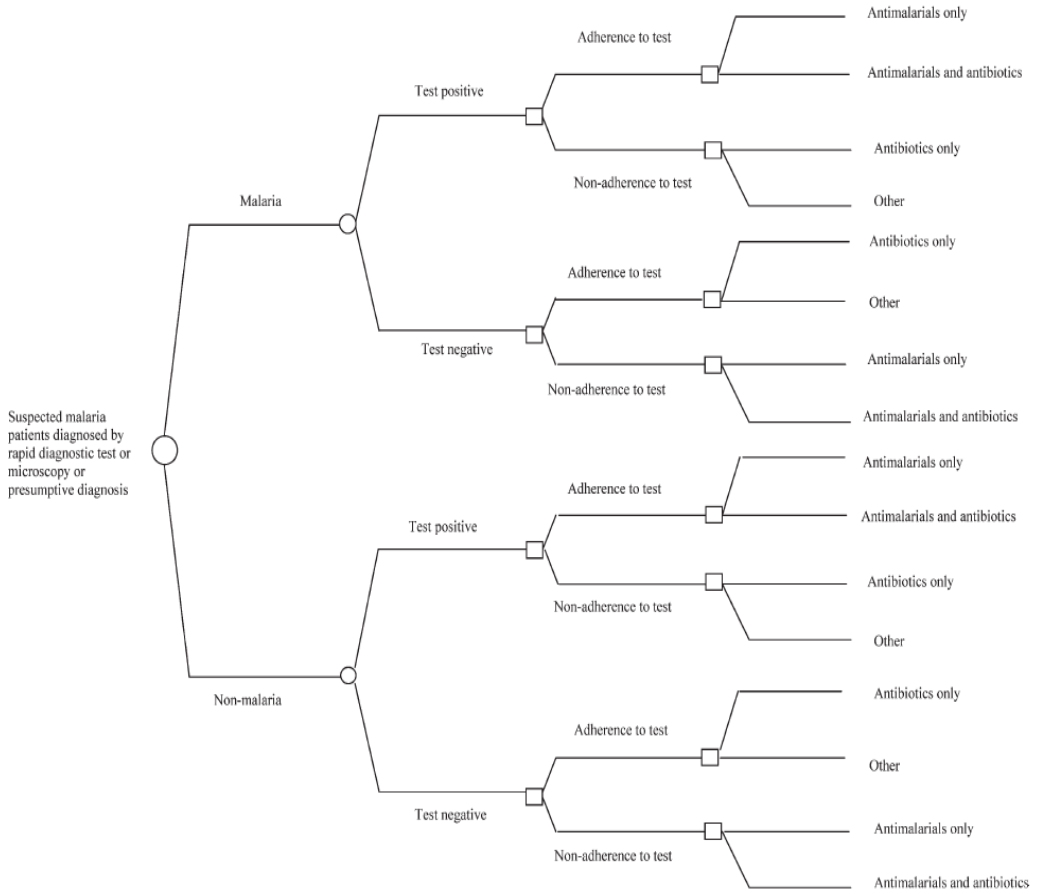

FIGURE 1. Decision tree.

Analytical approach

Outcomes and costs	Microscopy setting		Presumptive diagnosis setting	
	RDT arm	Microscopic arm	RDT arm	Presumptive diagnosis arm
Treatment for Suspected malaria patients (N=1,000 per treatment arm)				
Antimalarials, no antibiotics	508	527	550	696
Antimalarials and antibiotics	116	116	150	231
Antibiotics, no antimalarials	168	159	158	38
Other	207	198	141	35
Outcome				
Correctly treated patients (CTP)	601 (60%)	569 (57%)	651 (65%)	420 (42%)
Costs				
Costs to the health sector (GHS)				
Diagnostics	2,824	2,028	3,919	0
Drugs	2,743	3,433	2,891	3,131
Salaries, supplies, buildings	9,849	9,743	10,451	10,564
Total cost to the health sector (TCHS)	**15,416 (69%)**	**15,204 (69%)**	**17,260 (71%)**	**13,695 (64%)**
Cost to the patient				
Out-of-pocket (travel, drugs)	973	986	901	896
Opportunity cost (travel, waiting)	1,619	1,603	1,556	1,572
Opportunity cost (work time lost)	4,257	4,303	4,466	5,209
Total cost to the patient	**6,849 (31%)**	**6,892 (31%)**	**6,924 (29%)**	**7,677 (36%)**
Societal cost				
Total societal cost (TCHS + TPC)	**22,265**	**22,096**	**24,184**	**21,373**
Incremental analysis				
Incremental outcome (CTP)	**32**		**231**	
Incremental cost, health sector	**212**		**3,565**	
Incremental cost, societal	**170**		**2,812**	
ICER, health sector	**6.7**		**15.4**	
ICER, societal	**5.3**		**12.2**	

Budget Impact Analysis (BIA)

What is it?

- Understand the fiscal impact and diffusion of introducing a new health intervention, or expanding access to an existing, health intervention

- BUT – It will not give you an idea about value for money

Budget Impact Analysis (BIA)

- Variety of users of budget impact analyses in health, primarily those who manage and plan health care budgets
  - Administrators of national or regional health care programs
  - Private health insurance plans
  - Health care delivery organisations
  - Employers who pay directly for health care

Budget Impact Analysis: How is it different to Cost-Effectiveness Analysis?

	BUDGET IMPACT ANALYSIS	COST EFFECTIVENESS ANALYSIS
Objective	Impact on resources consumed	Determine an interventions net health return on investment
Outcomes	Net resource consumption	Net Health Benefit/ Net resource consumption
Perspective	Payer	Health System or Societal, or payer
Time Horizon	Over a Budget Cycle(Normally 1-5 Years)	Longer Term(For all relevant benefits and costs to be realised)
Unit of Measurement	Absolute Costs and Savings	Incremental Cost Effectiveness Ratio (ICER)
Interpretation	Lower costs = Greater Affordability	A smaller ICER indicates a lower incremental cost per health gain (greater cost-effectiveness)
Threshold	No Standard Approach to determine affordability	New Intervention is cost-effective if it falls below a CE Threshold determined by Willingness to Pay
Measures What?	Financial Costs	Financial and ***Opportunity Costs***

Is it important to do both?: ‘Cost Effective’ and Unaffordable

A pill too hard to swallow: how the NHS is limiting access to high priced drugs

BMJ 2016 ; 354 doi: https://doi.org/10.1136/bmj.i4117 (Published 27 July 2016)
Cite this as: *BMJ* 2016;354:i4117

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Jonathan Gornall, freelance journalist [1],Amanda Hoey, consultant,Piotr Ozieranski, lecturer [3]

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A joint investigation by The BMJ and Cambridge and Bath universities uncovers how NHS England tried to limit access to expensive new drugs for hepatitis C. **Jonathan Gornall**, **Amanda Hoey**, and **Piotr Ozieranski** report

When cost-effective interventions are unaffordable: Integrating cost-effectiveness and budget impact in priority setting for global health programs

Alyssa Bilinski, Peter Neumann, Joshua Cohen, Teja Thorat, Katherine McDaniel, Joshua A. Salomon

Published: October 2, 2017 • https://doi.org/10.1371/journal.pmed.1002397

Editorials

Cost effective but unaffordable: an emerging challenge for health systems

BMJ 2017 ; 356 doi: https://doi.org/10.1136/bmj.j1402 (Published 22 March 2017)
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Patients suffer when NHS buys expensive new drugs, says report

The NHS price threshold for drugs that give a year of good-quality life should be lowered to stop local budgets missing out, argue experts at the University of York

▲ Karl Claxton says the patients who lose out are invisible and have no say in the argument over how limited NHS resources are spent. Photograph: eye35/Alamy

The NHS is doing more harm than good by approving expensive drugs for a limited number of conditions such as advanced cancer, which use up funds that would benefit other parts of the health service, according to an analysis by a leading group of health economists.

Is it important to do both?: ‘Cost Effective’ and Unaffordable

World Health Organization

“In low and middle income countries, the World Health Organization (WHO) has recommended thresholds of **1 to 3 times gross domestic product** (GDP) per capita – seemingly on the basis of recommendations from the “Commission on Macroeconomics and Health” report from 2001.”(1)

NICE
National Institute for Health and Care Excellence

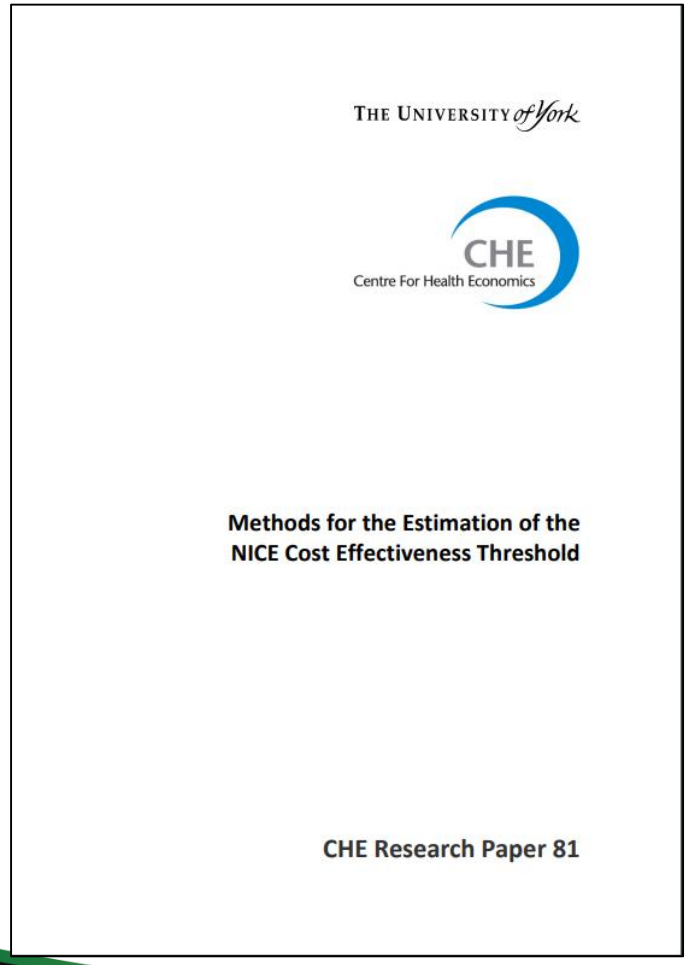
“For instance, values of **GB£20-30,000** and **US$50,000** per QALY have commonly been applied in the United Kingdom and United States, respectively; without clear rational but with some sense they reflect the consumption value of health.”(1)

“To say that an alternative is cost-effective but not affordable must mean that the (implicit or explicit) “threshold” used to judge cost-effectiveness **does not reflect the opportunity costs** incurred given the scale of the impact on health expenditure” (Lomas et al 2018)

New Intervention is cost-effective if it falls below a CE Threshold determined by Willingness to Pay

1) Cost-Effectiveness Thresholds iDSI working group final report

Is it important to do both?: ‘Cost Effective’ and Unaffordable



Currently NICE uses a threshold range of **£20,000 to £30,000** QALY gained, and this has remained the case in NICE's methods guidance since 2004.

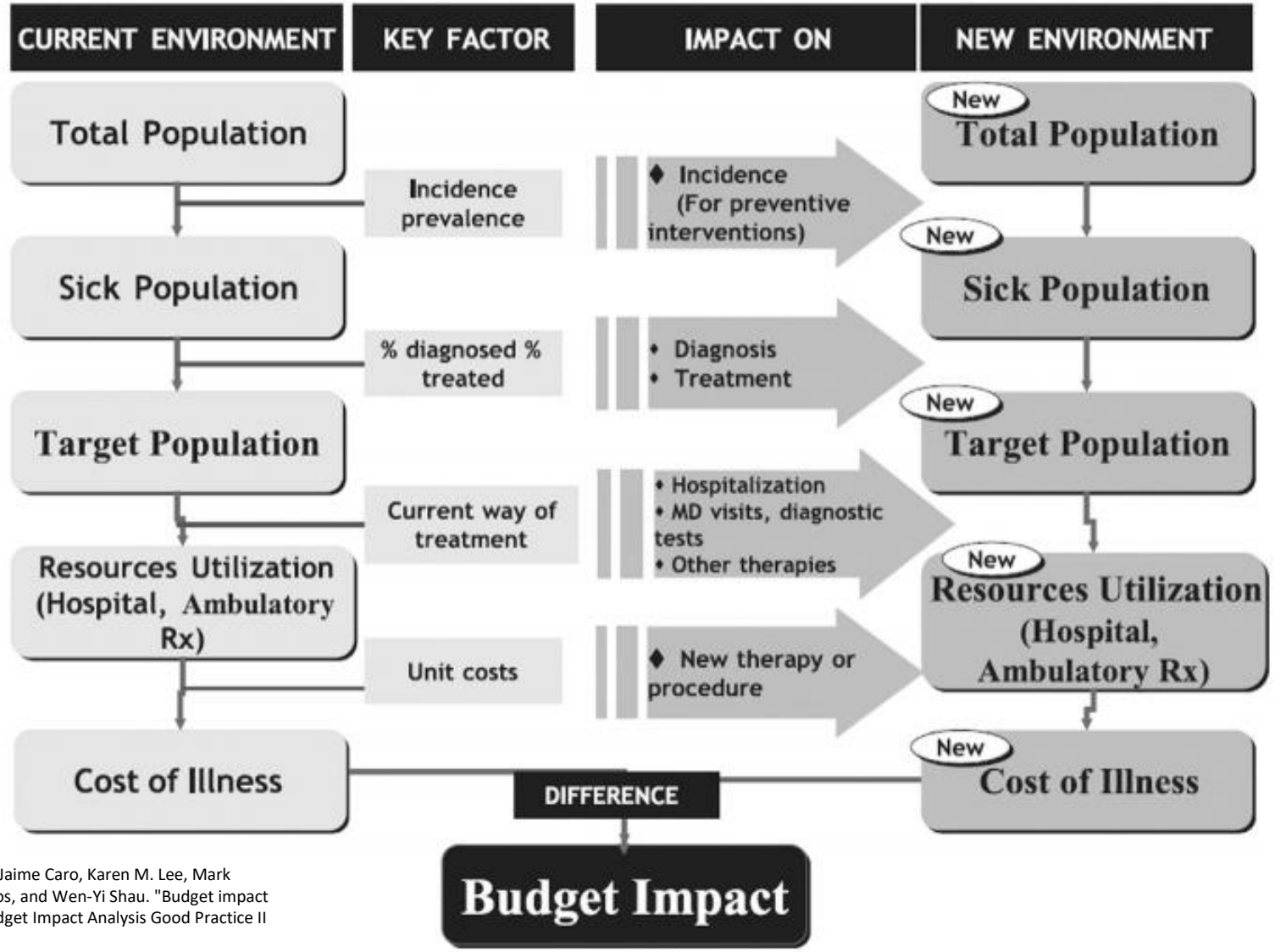
The most relevant threshold is estimated using the latest available data (2008 expenditure, 2008-10 mortality). The central or 'best' threshold is estimated to be **£12,936 per QALY.**

Is it important to do?:

YES

Until a meaningful discussion can be had on a properly calibrated cost-effectiveness threshold which accurately reflects Willingness to Pay

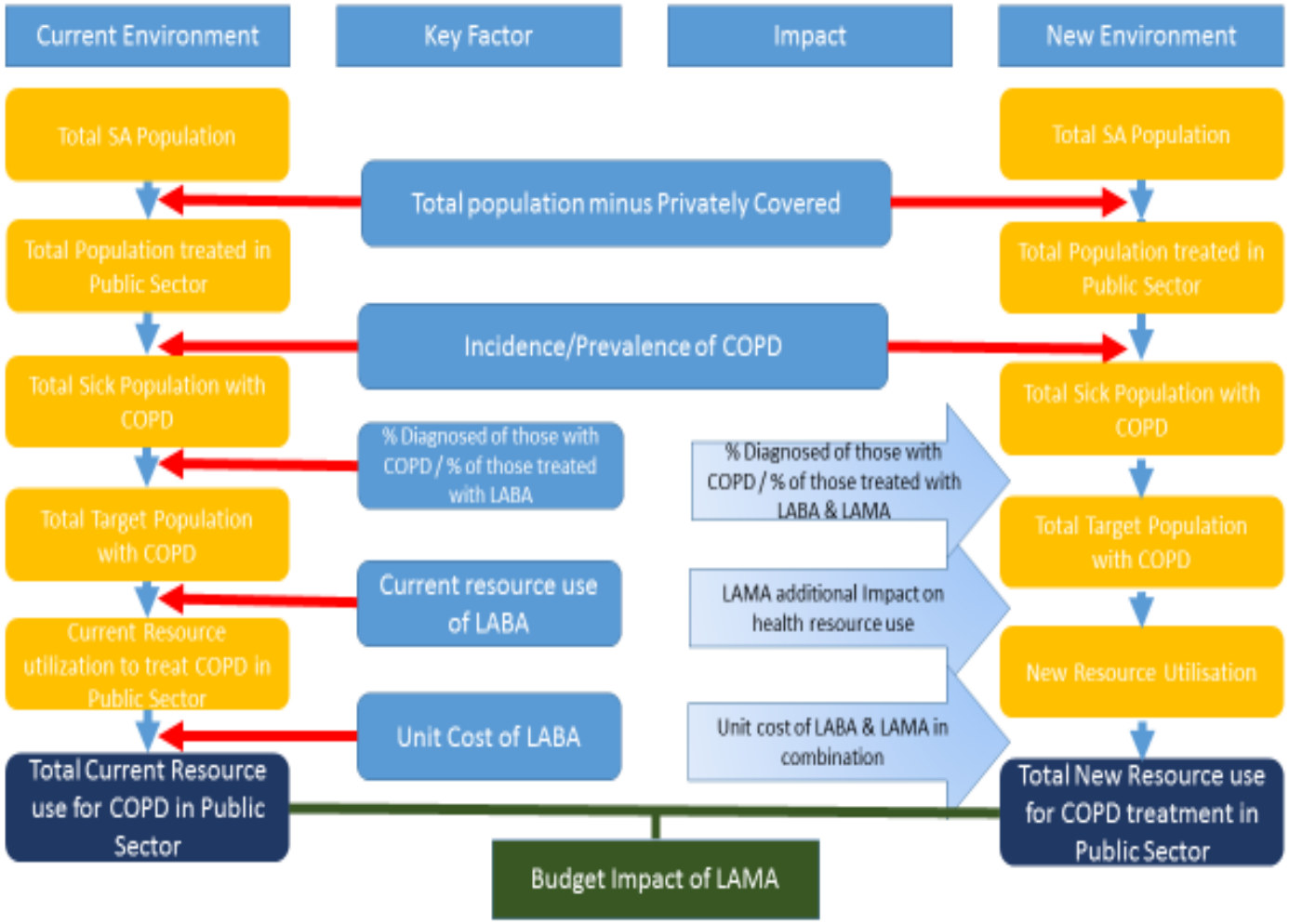
Conducting a BIA: Key Considerations



Sullivan, Sean D., Josephine A. Mauskopf, Federico Augustovski, J. Jaime Caro, Karen M. Lee, Mark Minchin, Ewa Orlewska, Pete Penna, Jose-Manuel Rodriguez Barrios, and Wen-Yi Shau. "Budget impact analysis—principles of good practice: report of the ISPOR 2012 Budget Impact Analysis Good Practice II Task Force." *Value in health* 17, no. 1 (2014): 5-14.

Conducting a BIA: An Example from South Africa

- Chronic Obstructive Pulmonary Disorder (COPD) affects a large number of people in the South African public sector.
- LAMAs such as tiotropium and glycopyrronium are the most widely recommended and used treatments for COPD worldwide (GOLD 2016) in addition to inhaled corticosteroids and long-acting beta agonists (LABAs).
- The Disease is managed through the use of Long acting muscarinic antagonists (LAMAs).
- Worldwide LAMAs have been shown to improve lung function, quality of life, reduce exacerbations as well as hospitalisation and duration of hospital stay.
- In 2017, the South African Govt. wanted to know the budget impact of introducing LAMAs for patients alongside the existing Long-acting Beta-agonists (LABA) in the public sector and as a replacement for LABAs
- Methodology follows ISPOR guidelines for conducting a BIA



Cost Effectiveness Analysis

- Quantify the health trade off with other health system objectives
- Consider allocative efficiency, which underpins sustainable UHC
- Reveals technical inefficiency
- All patients, conditions, are equal
- Quantify the opportunity cost per $ spent
- Answers the question: should we do it

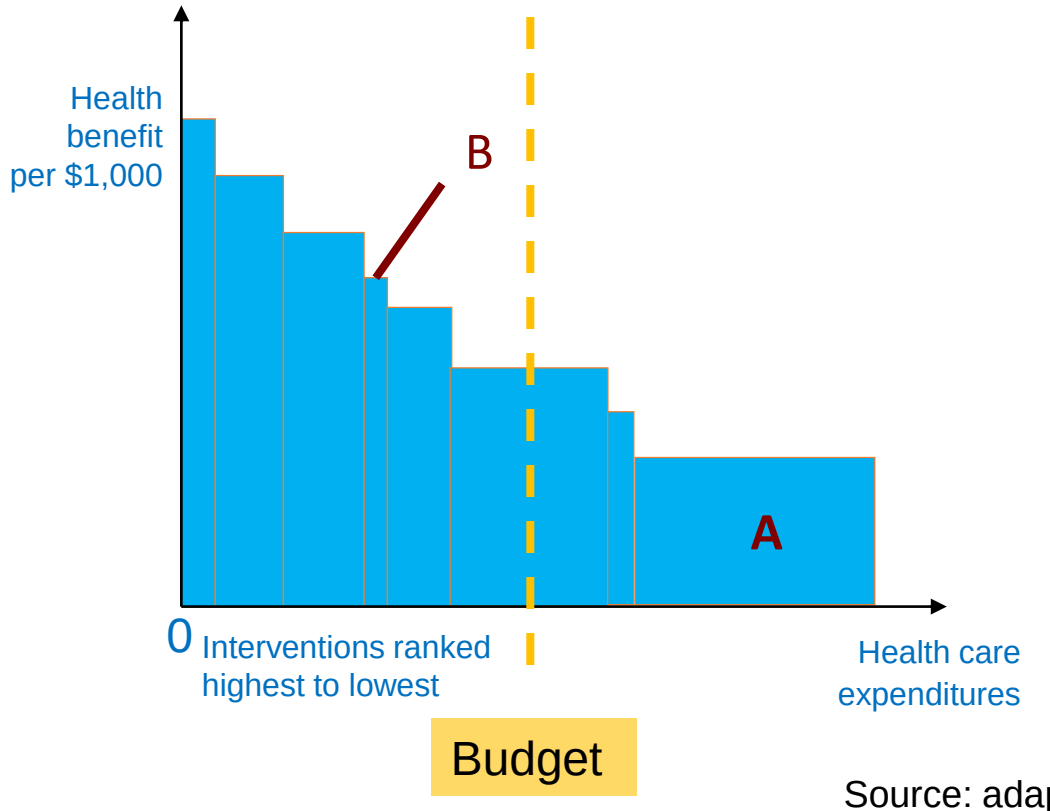
Budget Impact Analysis

- Quantify the financial trade off with other health system and wider policy objectives
- Does not consider efficiency
- Does not consider effectiveness
- Discriminates on size of the population
- Facilitates program budgeting, strategic purchasing
- Pragmatic, easily understandable
- Answers the question: can we do it

Combining CEA with BIA allows us to quantify the opportunity cost in of the decision terms of total health

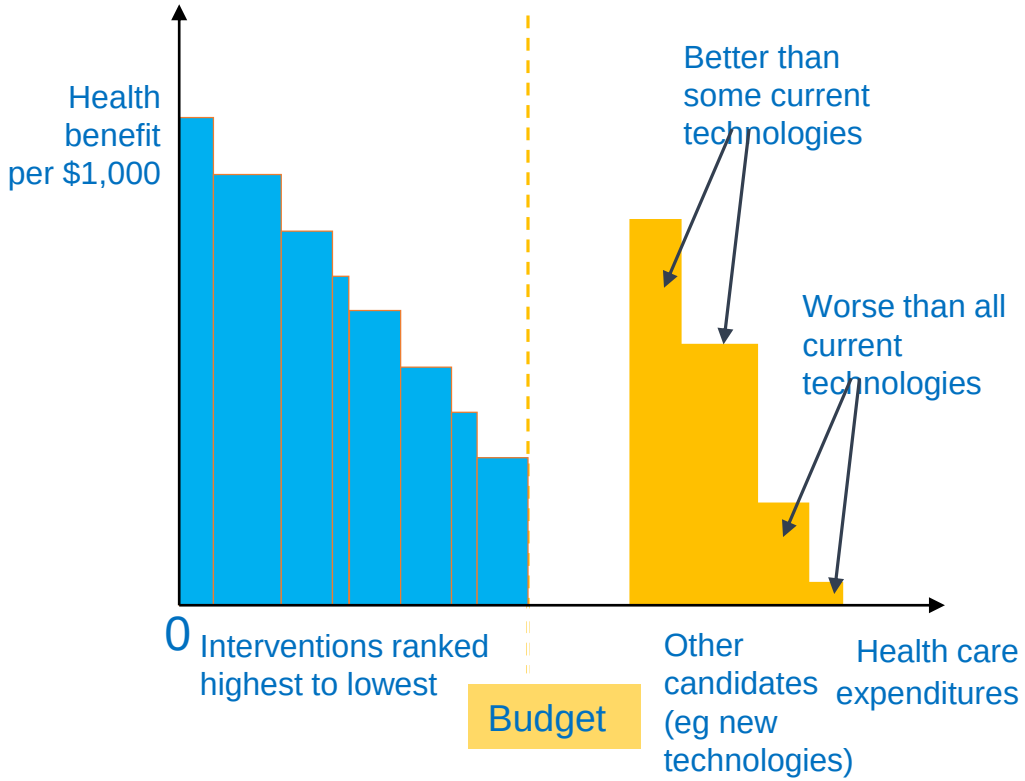
Introducing the bookshelf metaphor

Height of bars is “cost effectiveness”, width of bars is budget impact



Source: adapted from Culyer (2016)

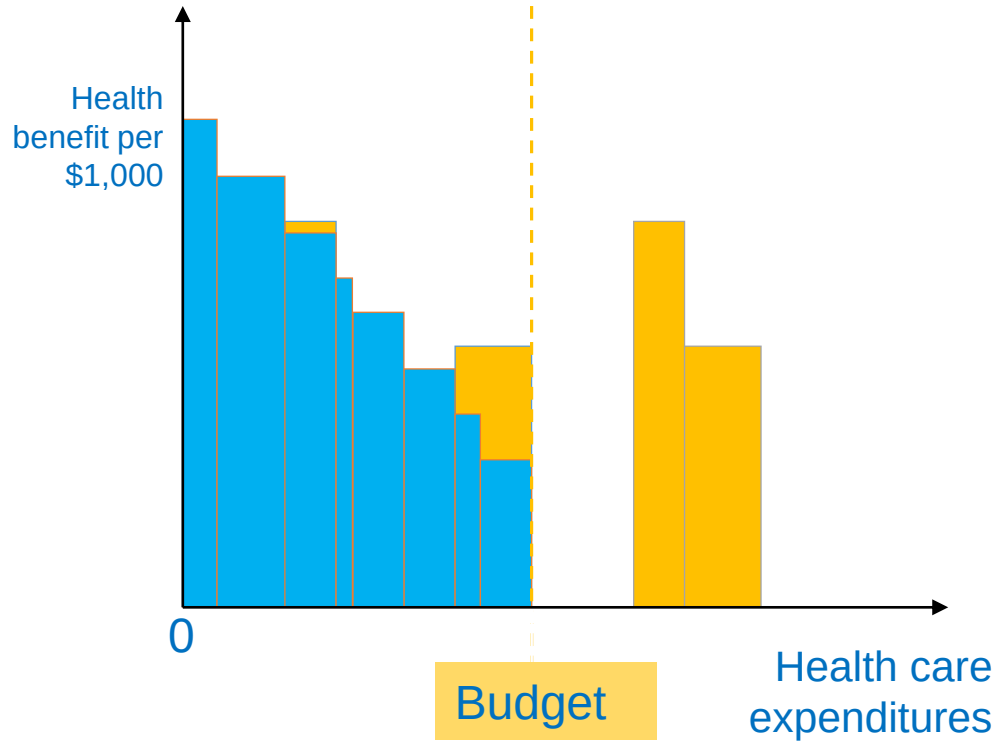
Budget impact and cost effectiveness: determining interventions that are in… and out



Reproduced from Culyer, AJ (thanks to Chris McCabe and Richard Edlin for some animation of Culyer et al. (2007))

Source: adapted from Culyer (2016)

Budget impact and cost effectiveness: determining interventions that are in… and out



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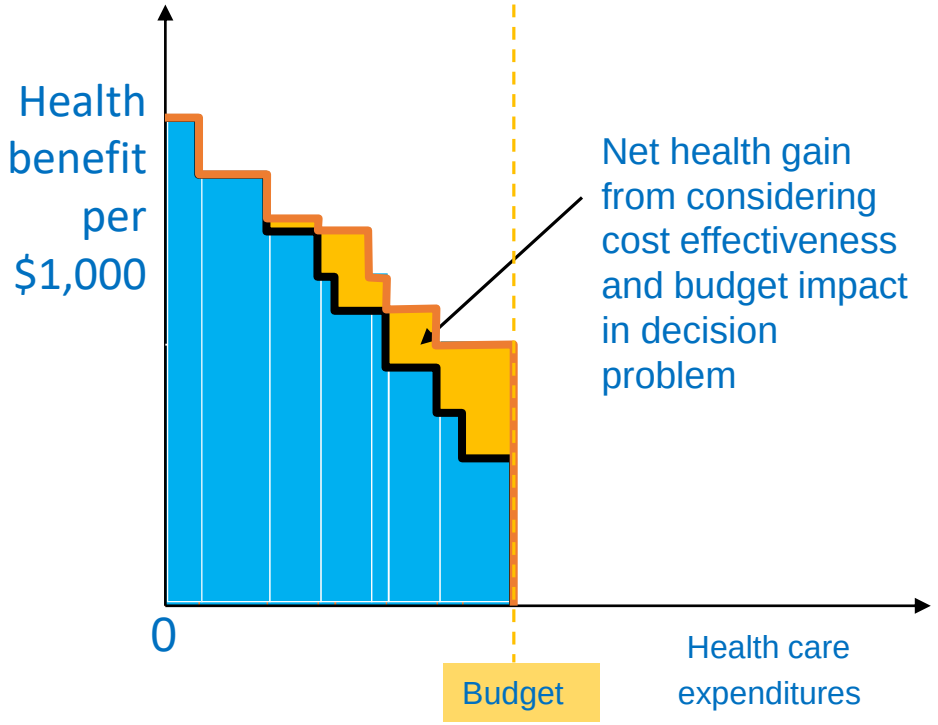
Budget impact and cost effectiveness: determining interventions that are in… and out



If an intervention is “cost effective but not affordable”, then the threshold used to determine “cost effectiveness” is too high or the ICER has been calculated incorrectly

Source: adapted from Culyer (2016)

HTAi HEALTH TECHNOLOGY ASSESSMENT iNTERNATIONAL

iDSI Better decisions. Better health.

THANKS

Any Questions?

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Setting Health Priorities 2018