Australian Clinical Trials Alliance

Value of Information Analysis

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The presenter has advised that the following presentation is subject to no conflicts of interest and has nothing to disclose.

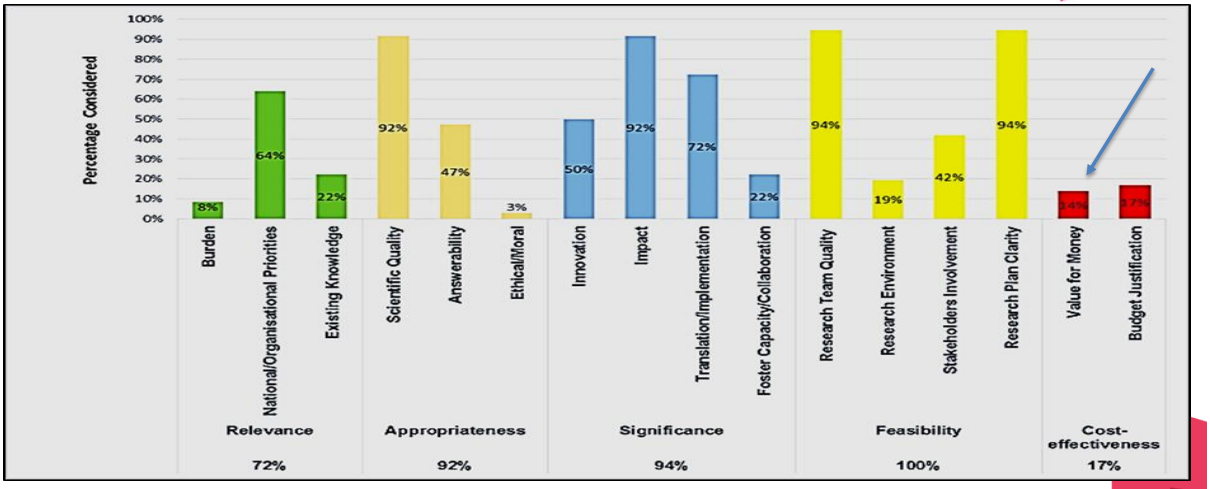
WHY Value for Money?

ACTA gratefully acknowledges operational funding from the Australian Government's Medical Research Future Fund

Why value for money of clinical trials?

- Health research is important to generate knowledge, inform decision making and improve health.
- Research budgets are usually insufficient to fund all worthy research projects.
- Decisions must be made about the best way to prioritise and select research proposals competing for funding.

Merit-based assessment of research proposals for funding



- Health-related grant schemes listed on the Australian Competitive Grants Register 2017.

Tuffaha et al. BMJ Open. 2019

Value for money

- Explicit comparison of expected research benefits and costs.
- Opportunity cost: Resources may be better deployed on other studies or activities.
- Assessment of benefits and costs is the standard in guiding funding decisions of other healthcare investments in Australia. Research funding should be subjected to the same scrutiny.
- Fundamental to achieve efficient utilisation of research budgets and maximise returns on research investments.

Value of Information Analysis

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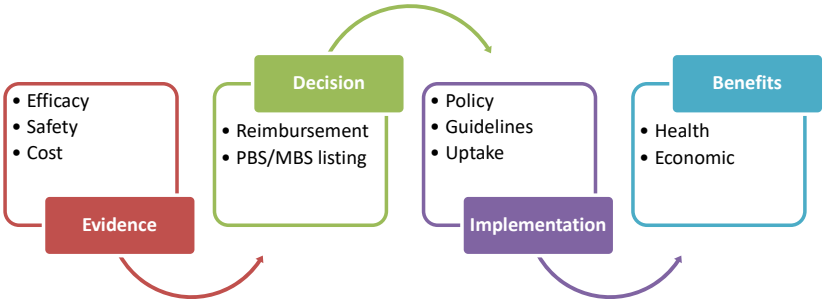
Value of Information analysis

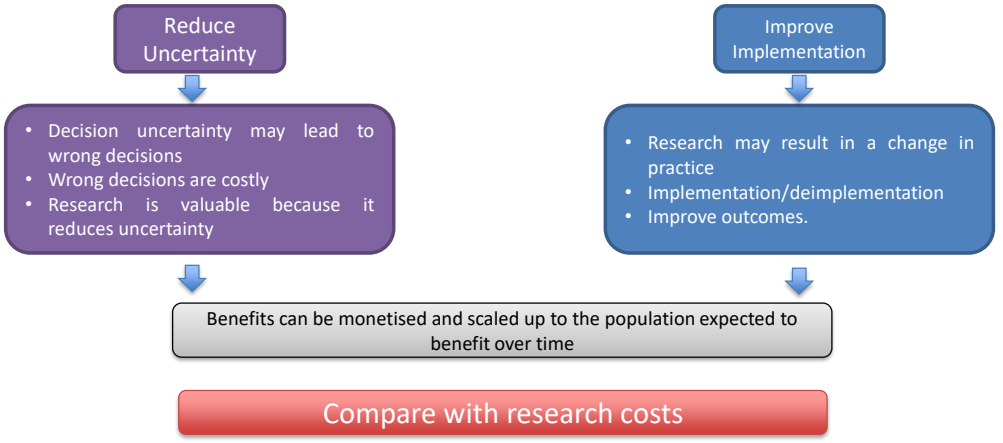
- Value of Information (VOI) analysis prospectively estimates the expected value of clinical trials and cohort studies.
- A Bayesian approach that is deeply rooted in decision theory.
- Research is valuable because it reduces decision uncertainty and improves implementation (change in policy and practice).

Value of Information analysis

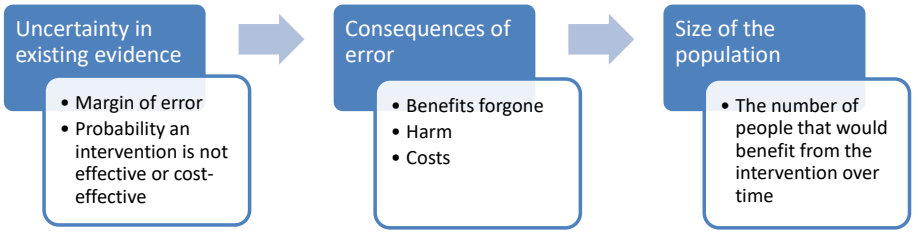


The value of a new research is the difference in benefits of two states:
1) a factual state in which research takes place; and
2) a counterfactual state in which research is not conducted

Value of Information analysis



Value of Information analysis



Applications of Value of Information Analysis

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UK

ORIGINAL ARTICLE

Assessing the Expected Value of Research Studies in Reducing Uncertainty and Improving Implementation Dynamics

Sabine E. Grimm, PhD, Simon Dixon, PhD, John W. Stevens, PhD

RESEARCH METHODS & REPORTING

How to estimate the health benefits of additional research and changing clinical practice

Karl Claxton,[1,2] Susan Griffin,[1] Hendrik Koffijberg,[3,4] Claire McKenna[1]

USA

pcori

The Use of Value of Information Analysis for Research Prioritization

Effective Health Care Program

Systematizing the Use of Value of Information Analysis in Prioritizing Systematic Reviews

ORIGINAL ARTICLE

Development and Evaluation of an Approach to Using Value of Information Analyses for Real-Time Prioritization Decisions Within SWOG, a Large Cancer Clinical Trials Cooperative Group

Caroline S. Bennette, MPH, PhD, David L. Veenstra, PharmD, PhD, Anirban Basu, MS, PhD, Laurence H. Baker, DO, Scott D. Ramsey, MD, PhD, Josh J. Carlson, MPH, PhD

Cancer Medicine

Open Access

ORIGINAL RESEARCH | Open Access

Integrating value of research into NCI Clinical Trials Cooperative Group research review and prioritization: A pilot study

Josh J. Carlson, David D. Kim, Gregory F. Guzauskas, Caroline S. Bennette, David L. Veenstra, Anirban Basu, Nathaniel Hendrix, Dawn L. Hershman, Laurence Baker, Scott D. Ramsey

First published: 20 July 2018 | https://doi.org/10.1002/cam4.1657

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LEADING ARTICLE

The Value of Value of Information

Best Informing Research Design and Prioritization Using Current Methods

Simon Eckermann,[1] Jon Karnon[2] and Andrew R. Willan[3]

1 Centre for Health Services Development, University of Wollongong, Wollongong, New South Wales, Australia
2 Adelaide University, Adelaide, South Australia, Australia
3 SickKids Research Institute and University of Toronto, Toronto, Ontario, Canada

Appl Health Econ Health Policy
DOI 10.1007/s40258-015-0152-y

ORIGINAL RESEARCH ARTICLE

Cost-Effectiveness and Value of Information Analysis of Nutritional Support for Preventing Pressure Ulcers in High-risk Patients: Implement Now, Research Later

Haitham W. Tuffaha · Shelley Roberts · Wendy Chaboyer · Louisa G. Gordon · Paul A. Scuffham

Medical Decision Making Policy & Practice

Value of Information Analysis Informing Adoption and Research Decisions in a Portfolio of Health Care Interventions

Haitham W. Tuffaha, PhD, Louisa G. Gordon, PhD, and Paul A. Scuffham, PhD

Value of Information analysis applications

Australian Clinical Trials Alliance

- **Decision making:** Is existing evidence sufficient to inform decision making or is additional research worthwhile?
- **Efficient trial design:** What is the most economical trial design to maximize return-on-investment?
- **Research prioritization:** What priority should this research study take among other competing proposals?

Simultaneously informs research and reimbursement decisions

- Is the evidence sufficient to inform decision making?
- Bridges the gap between decision maker's needs and research planning/funding.
- Improve access to new technologies

Is additional research worthwhile?	Is the intervention cost-effective based on existing evidence?	
	Yes	No
Yes	Implement and ask for additional research	Delay implementation and ask for additional research
No	Implement based on existing evidence	Reject based on existing evidence

Claxton 2012

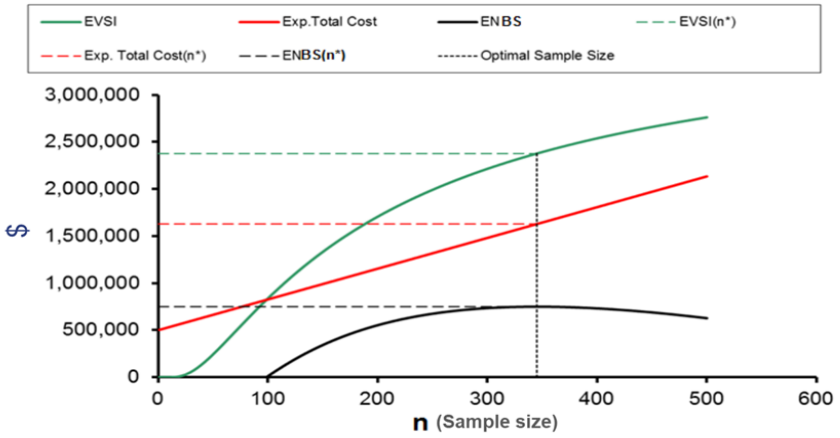
CADTH Evidence Driven.

Guidelines for the Economic Evaluation of Health Technologies: Canada — 4th Edition

> ***"To enable the development of additional research to inform future decisions, decision-makers increasingly consider reimbursement options that combine some degree of adoption of a technology into the health system.*** *There are a wide range of nomenclatures for such schemes, including* ***coverage with evidence development, risk-sharing, and access with evidence development****. An important differentiation in this area is between those* ***schemes that make the technology available to all patients (irrespective of engagement with the research process), and those that make the technology available only to patients contributing data to the research."***

> ***"The expected value of perfect parameter information*** *should be provided for all parameters identified as being critical to the decision in order to support the decision-maker's consideration of the contribution of each parameter or, where appropriate, groups of parameters (e.g., when parameters are correlated) to the total decision uncertainty."*
>
> ***"The population expected value of perfect parameter information*** *should also be provided, reflecting both the likely size of the population and the lifetime of the intervention "*
>
> ***"Value-of-sample information and net-benefit-of-sampling*** *analyses will support decision-makers' assessments of the return on investment of further research when specific parameters or groups of parameters are identified as being responsible for a substantial portion of the total decision uncertainty."*

Efficient trial design



Willan A, 2012

Research Prioritisation

Intervention	Existing Evidence	% cost-effective	Expected Value of new RCT	Total cost	ROI
Clinically-indicated Catheter replacement	RCT, n=3000	100%	-	-	-
Tissue adhesive	Pilot study n=90	35%	$573,324	$250,000	130%
NPWT in Caesarean Section	2 RCTs n=172	65%	$2,100,000	$900,000	135%
Nutritional support in wound injury	Metanalysis n=1,231	87%	$970,000	$870,000	12%

NHMRC NCREN interventions, Tuffaha et al 2016

Value of Information Analysis Informing Adoption and Research Decisions in a Portfolio of Health Care Interventions

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The Way Forward

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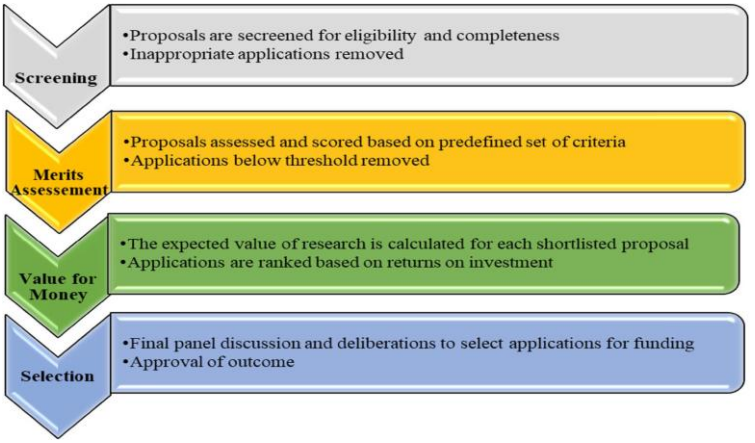
The way forward...

- Promote the approach
- Training and capacity building
- Simplify methods and develop practical tools (e.g. programmable tool)
- Integrate into existing research prioritisation and funding processes

Integrating value for money into research funding processes



Tuffaha et al. AHEHP.2019

Applied Health Economics and Health Policy
https://doi.org/10.1007/s40258-019-00495-2

PRACTICAL APPLICATION

A Framework to Prioritise Health Research Proposals for Funding: Integrating Value for Money

Haitham W. Tuffaha[1,2] · Joanne Aitken[1,3] · Suzanne Chambers[1,3,4] · Paul A. Scuffham[1,2]

Conclusions

ACTA gratefully acknowledges operational funding from the Australian Government's Medical Research Future Fund

- Value of information analysis is an objective and rigorous approach to prospectively assess value for money of clinical trials.
- Helps funding organisation allocate research budgets efficiently to maximise return on research investment.
- Bridges the gap between decision making needs and research commissioning.
- There is a need to facilitate its integration into research funding processes.

Thank You