

METRICS FOR RESEARCH* TRANSLATION

*Public health research

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Theme: Realizing the Full Cycle of Research and Development: From Bench to the Community

OUTLINE

1. Selected definitions
2. Research translation: the pathway to impact
3. Planning for research translation
4. Setting up research translation
5. Monitoring and evaluation
6. Measuring research translation and impact
7. Logical framework approach
8. Recommendations to facilitate the use of evidence in public health policy making
9. Science, politics and policy-making



<https://boldomatic.com/view/post/5YcURg>

LOST IN TRANSLATION: RESEARCH-PRACTICE/POLICY GAP

- General perception 1: Research is a crucial investment to foster innovation, knowledge advancement and social and economic development
- General perception 2: Failure to translate research into useful and usable services in practice and policy (*Grimshaw et al, 2012*)
- Slow and haphazard process? Ave. time of 17 yrs to move 14% of research into clinical practice (*Morris et al, 2011*)
- In the US & Netherlands: ~30-45% of patients are not receiving (nursing) care according to scientific evidence; 20-25% of the care provided is not needed or may be potentially harmful (*Bahadori et al, 2016*)



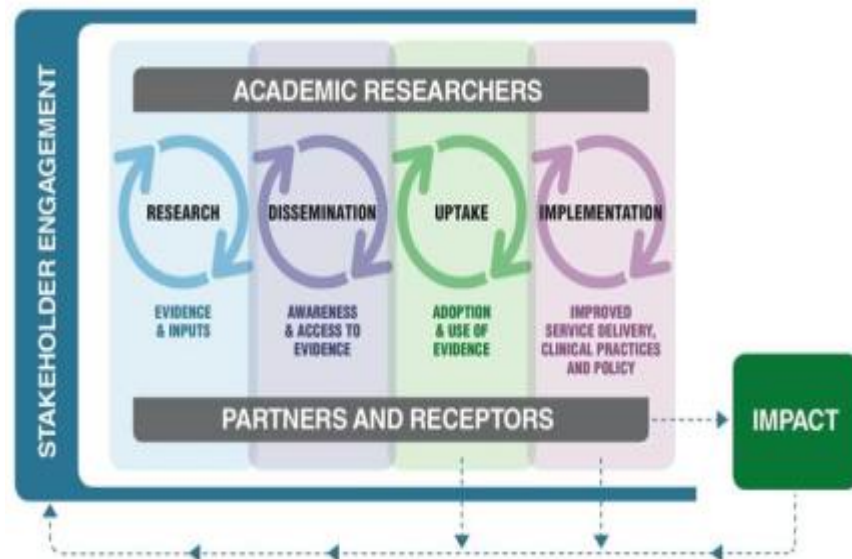
<http://www.researchtoaction.org/2009/09/my-policy-maker-doesnt-understand-me/>

STARTING POINT: SELECTED DEFINITIONS

Public health	The science and art of preventing disease, prolonging life, and promoting health through organized efforts of society (Acheson report, 1998)
Public health sciences	Effective public health actions are based on scientifically derived information about factors influencing health and disease and about effective interventions to change behaviour at the level of the individual, the family, the community or wider society. The public health sciences are essential to further our understanding of the relative importance of environmental, lifestyle and genetic causes of disease, to identify strategies to improve the wellbeing of the population and to evaluate their impact (Frankel report, 2004)
Research translation	The process whereby knowledge is passed anywhere along the translational pathway, i.e., research findings are translated into practice, policy or further research (Davidson, 2011)
Translational research	<ul style="list-style-type: none"> • Any type of research that leads to knowledge translation • Comprehensive applied research that strives to translate the available knowledge and make it useful (Narayan et al, 2000), into practice and/or policy, e.g., research that addresses particular gaps in translation (Davidson, 2011)

RESEARCH TRANSLATION: WHO DEFINITION

- A.k.a. knowledge translation, knowledge transfer and exchange, research utilisation
- **WHO definition: A dynamic and iterative process for the synthesis, dissemination, exchange, and ethically sound application of knowledge by relevant stakeholders to improve health, provide more effective health services and products, and strengthen the health care system (adapted from the Canadian Institutes of Health Research)**
- Not to be confused with: dissemination, communication, commercialisation, technology transfer or continuing medical education
- **A social, non-linear process, that has foundations in relationships (collaboration and partnerships)**



Phipps et al. 2011

Straus et al, 2009;

[5] http://www.paho.org/hq/index.php?option=com_content&view=article&id=9682%3A2014-knowledge-translation-for-health-decision-making&catid=6990%3Aart&Itemid=41010

WHY RESEARCH TRANSLATION?

- To understand the value of investments and to increase accountability
- With growing demands/competition on limited health care resources and a general culture of accountability, greater emphasis is being placed on generating knowledge that can have practical impact on the health system (*Lomas, 1997*)
- **Evidence from research can enhance health policy process and development by:**
 - **Identifying new issues for the policy agenda**
 - **Informing decisions about policy content and direction**
 - **Evaluating the impact of policy (Campbell et al, 2009)**
- Better use of research evidence in development policy making can save lives through more effective policies that respond to scientific and technological advances, use resources more efficiently and better meet the peoples' needs (*WHO, 2004*)

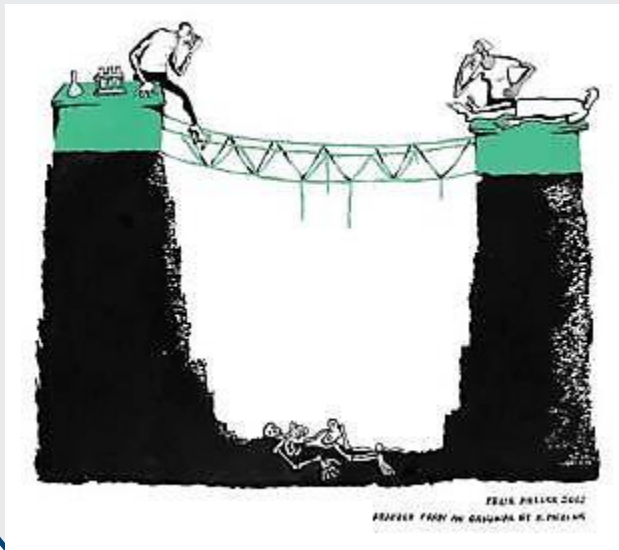


<https://www.espatial.com/articles/mapping-software-for-healthcare-professionals>

RESEARCH TRANSLATION: THE PATHWAY TO IMPACT

A process of moving knowledge into action (*Mitton et al, 2007*)

- through information and evidence exchange
- between knowledge producers and knowledge users



A system of processes to create and measure impact through:

- creation of relevant questions
- developing relationships with a variety of multi/transdisciplinary and non-academic partners (government, industry, etc)
- innovative dissemination methods
- contextual relevance of knowledge
- sustainable implementation



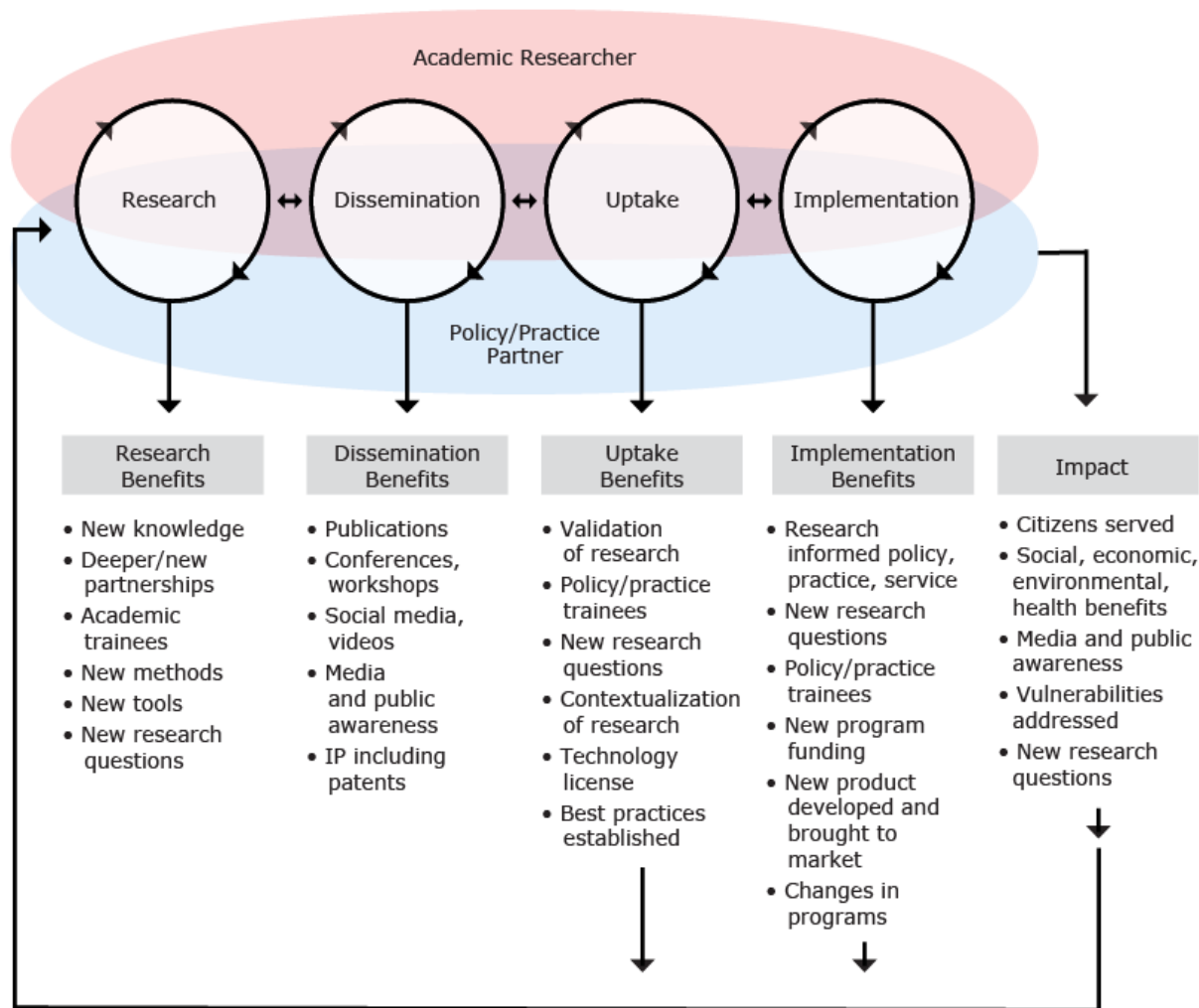
Challenges to Researchers

- Adapting the research cycle to fit real-world timelines
- Establishing 'quality' relationships with decision-makers (building trust)
- **Lack of engagement/involvement with policymakers during the evidence generation process**
- Justifying activities that fit poorly with traditional academic performance expectations (researcher incentive system)
- Lack of time and resources

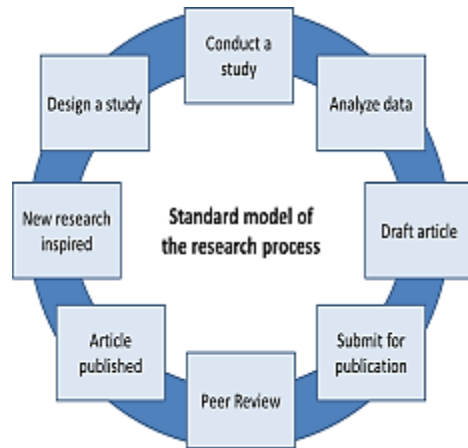
Challenges to Decision-Makers

- Perceived lack of knowledge of the research process
- Traditional academic format of communication
- Research that is not relevant to practice-based issues
- Lack of timely results
- Lack of time and resources
- **Capacity constraints to access, synthesize, adapt and utilize available research evidence**
- Need to be able to: identify situations where research can help; articulate research questions for topics of policy-relevant research; and access/assess research findings and incorporate them into decision making

- Systematic and transparent access to, and appraisal of, evidence as an input into policy making (*Lewis et al, 2005*)
- Shift away from opinion-based policies and practices to a more **rigorous, rational approach** that gathers, critically appraises, and uses high-quality research evidence to inform health policy-making, professional practice, and systems operations



PLANNING FOR RESEARCH TRANSLATION: WHEN DOES IT START?



Academic productivity: bibliometric/quantitative indices such as h index, e index, impact factor, Eigenfactor score

Planning for research translation must be embedded into the research planning process:

- Detailed planning on the research translation strategy from the start of the research process (integrated vs end-of-project)
- Translation should be considered an integral part of the research process
- **Envision how the new evidence will be implemented into the end-users' processes**
 - What are the outputs/outcomes from your research?
 - What new knowledge will you create?
 - How will your research impact on future research, practice and policy?

SETTING UP RESEARCH TRANSLATION: SOME ELEMENTS

1. **About your research:** aims/objectives, research design, key outcomes
2. **Stakeholder identification and roles**
3. **Stakeholder mapping and engagement**
4. Setting up **advisory and steering groups** (stakeholders for expert/technical oversight)
5. Identify needs for **capacity building** (e.g., communications)
6. Anticipate possible **barriers and facilitators** of the research translation process
7. Create **opportunities** and support **activities** that will lead to impact (joint researcher/decision maker workshops, inclusion of decision makers in the research process, collaborative definition of research questions, etc)
8. **Monitor and evaluate** for success

Translation toolkit/s: https://www.mcri.edu.au/sites/default/files/media/documents/translation_toolkit.docx;
<https://www.idrc.ca/en/book/knowledge-translation-toolkit-bridging-know-do-gap-resource-researchers>

SETTING UP RESEARCH TRANSLATION: SOME ELEMENTS

1. **About your research:** aims/objectives, research design, key outcomes
 - **Choice of research topic:** usually of academic interest; only loosely driven by the information needs of patients or decision-makers
 - Evidence produced tends to have little **relevance or practical value** for policymaking
 - Pivotal role of **research synthesis** (science is cumulative!)
 - **Controversial, conflicting evidence** and subjectivity in analysis of the research evidence; confusion and contentious debate can undermine confidence in the scientific process
 - Of greater concern is when the evidence base is deliberately **manipulated and misused** with the intention of promoting certain vested interests



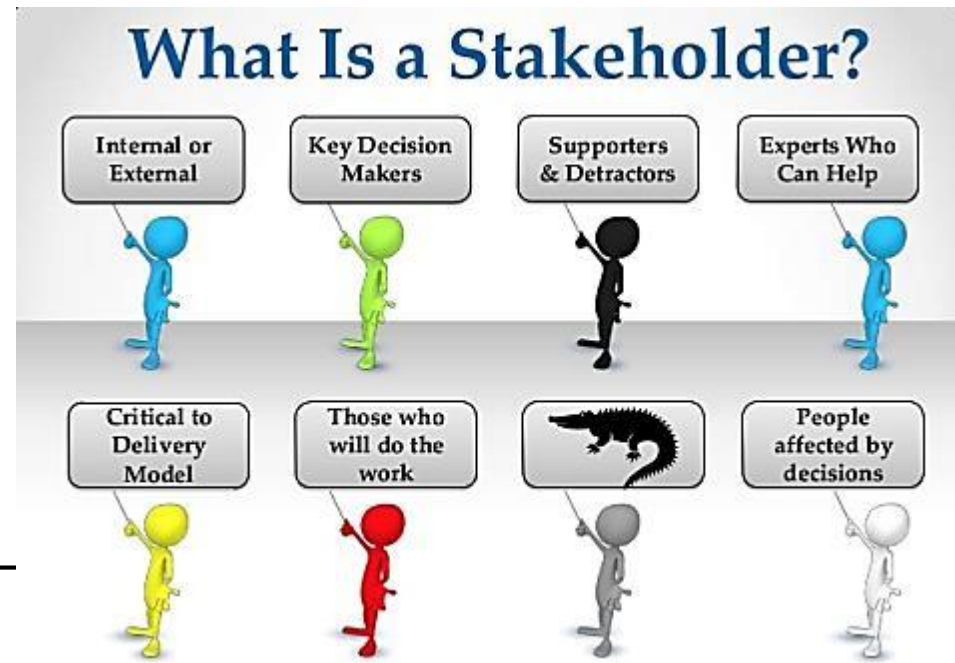
<https://www.slideshare.net/EvidenceNetwork/evidence-network-ca-workshop-on-writing-opeds>

SETTING UP RESEARCH TRANSLATION: SOME ELEMENTS

2. Stakeholder identification and roles

- Key people, groups, organisations that may impact the success of your project at all stages (initiation, implementation and translation)
- Assess how stakeholders may contribute to the project (prioritisation)

<https://www.slideshare.net/bilnoski/concinnity-strategic-plan-presentation2013>

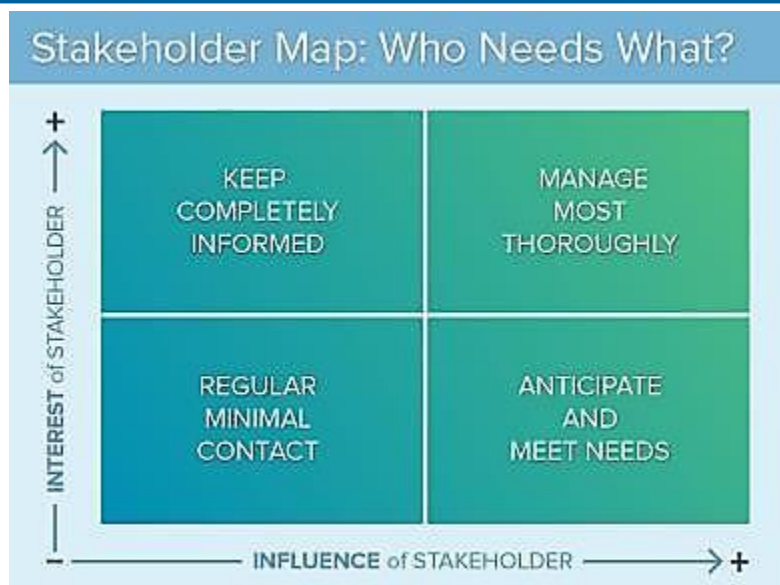


SETTING UP RESEARCH TRANSLATION: SOME ELEMENTS

3. Stakeholder mapping and engagement

- Early engagement with the right partners (stakeholders) to facilitate the research process as well as end-user buy-in (research uptake)
- Potential level of engagement (information giving, information gathering, consultation/feedback, participation, collaboration, etc)
- Methods of engagement (website, publications, one-on-one communication, education modules, public meetings, communities, advisory group, etc)

<https://www.smartsheet.com/what-stakeholder-analysis-and-mapping-and-how-do-you-do-it-effectively>;



High power	Satisfy Opinion formers/Policy makers. Keep them satisfied with what is happening and review your analysis of their position regularly.	Actively Engage* Key stakeholders who should be fully engaged through full communication and consultation.
Low power	Monitor This group may be ignored if time and resources are stretched.	Inform Recipients of research such as Patients often fall into this category. It may be helpful to take steps to increase their influence by organising them into groups or taking active consultative work.
	Low impact/stake holding	High impact/stake holding

SETTING UP RESEARCH TRANSLATION: SOME ELEMENTS

4. Setting up advisory and steering groups (stakeholders for expert/technical oversight)
5. Identify needs for capacity building (e.g., communications)
6. Anticipate possible barriers and facilitators of the research translation process
7. Create opportunities and support activities that will lead to impact (joint researcher/decision maker workshops, inclusion of decision makers in the research process, collaborative definition of research questions, etc)
8. Monitor and evaluate for success



<http://independentaudit.com/risk-governance-dashboard/>

MONITORING AND EVALUATION

EVALUATION

- A systematic and objective examination concerning the relevance, effectiveness, efficiency and impact of activities as related to the specified objectives
- To provide recommendations and lessons for improved implementation of activities
- Verifies that research funding is being well managed and transparently spent (value for money)

MONITORING

- A process for the continuous assessment that aims to provide all stakeholders with detailed information on the progress (or delay) of the activities
- To determine if the outputs, planned deliverables and schedules have been reached and/or to correct deficiencies at an early stage

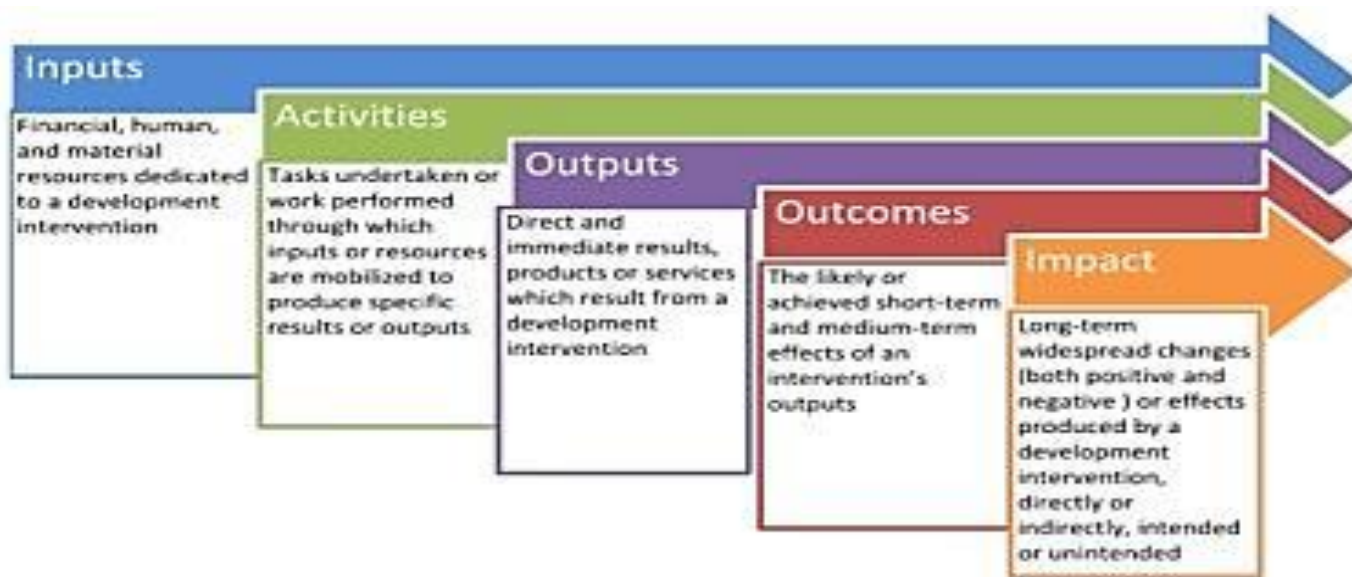
Conceptual Frameworks	DESCRIPTION
1. Payback	Organizes together in a sequential and systematic way the different aspects on the impact of research projects from disseminations to potential benefits for health care
2. Research Impact	Evaluates the influence of research results and of the potential concurrent/competing factors (cultural context, policy content, decision process) in policy making
3. Research utilization ladder	Evaluates ways in which research progresses towards its application by practitioners and policy makers
4. Lavis decision-making impact model	Evaluates the impact on decision making of any individual or organisation, considering the target audience of research and the resources available for the assessment
5. Weiss logic model	Analyses the ratio between input (resources), process (activity) and results of the research (products)
6. HTA organization assessment framework	Effectiveness is measured by the ability to impact on decision-making
7. Societal impact framework	Research is considered as the valuation of the communication of research groups with relevant surroundings (industry, general public, scientific community, public and policy institutions)
8. Balanced scorecard	Measures performance and drives organisational strategy by incorporating organisational aspects together with financial performance
9. Research assessment exercise	To produce quality profiles for each submission of research activity made by UK institutions
9. Cost-benefit analysis	Research impact evaluated in monetary terms

MEASURING RESEARCH TRANSLATION & IMPACT*

1. Balanced scorecard
2. Canadian Academy of Health Sciences Impact Framework
3. Canadian Institutes of Health Research Impact Framework
4. Comprehensive Research Metrics Logic Model
5. Decision Making Impact Model
6. Economic Impact Assessment
7. Excellence in Research for Australia
8. Health Services Research Impact Framework
9. Hunter Medical Research Institute Framework to Assess the Impact from Translational Health Research
10. Institute for Translational Health Sciences Kellogg Logic Model – World Health Organization Health Services Assessment Model
11. Matrix Scoring System
12. Measurement of Research Impact and Achievement
13. Payback Model of Health Research Benefits
14. Process Marker Model
15. RE-AIM Model
16. Research Engagement for Australia
17. Research Excellence Framework
18. Research Impact Framework
19. Research Performance Evaluation Framework
20. Research Utilization Ladder
21. Societal Impact Framework
22. Telethon Kids Institute Research Impact Framework
23. Translational Research Organizations Performance Model
24. Weiss Logic Model

[18] *Deeming et al, 2017; Greenhalgh, 2016; Hanney et al, 2017

LOGICAL FRAMEWORK APPROACH



<http://www.thp.org/our-work/measuring-our-work/measurable-progress-indicators/>

- A process that helps improve performance and achieve results
- The goal is to improve the management of outputs, outcomes and impact

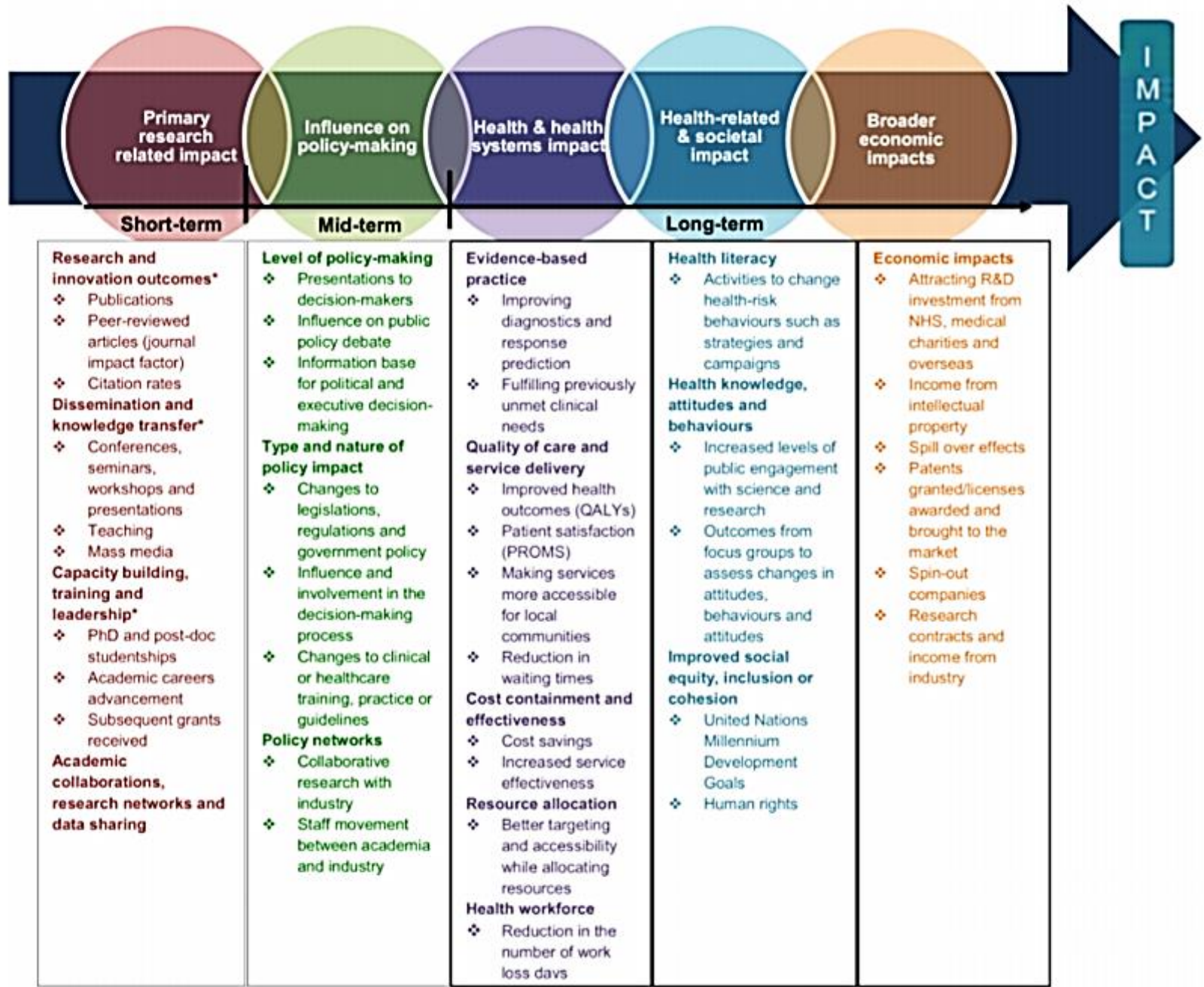
VERTICAL LOGIC (1)

	NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<p>THEN →</p> <p>← IF</p> <p>THEN →</p> <p>← IF</p> <p>THEN →</p> <p>← IF</p>	<p>OVERALL GOAL</p> <p>The broader development impact to which the project contributes -- at a national and sectoral level.</p>	<p>Measures of the extent to which a contribution to the goal has been made. Used during evaluation.</p>	<p>Sources of information and methods used to collect and report it</p>	
	<p>PURPOSE</p> <p>The development outcome expected at the end of the project. All components will contribute to this.</p>	<p>Conditions at the end of the project indicating that the Purpose has been achieved. Used for project completion and evaluation</p>	<p>Sources of information and methods used to collect and report it</p>	<p>Assumptions concerning the purpose/goal linkage</p>
	<p>RESULTS / OUTPUTS</p> <p>The direct measurable results (goods and services) of the project which are largely under project management's control</p>	<p>Measures of the quantity and quality of outputs and the timing of their delivery. Used during monitoring and review.</p>	<p>Sources of information and methods used to collect and report it</p>	<p>Assumptions concerning the output/component objective linkage</p>
	<p>ACTIVITIES / INPUTS</p> <p>The tasks carried out to implement the project and deliver the identified outputs. Implementation/work programme targets. Used during monitoring.</p>	<p>RESOURCES NEEDED FOR IMPLEMENTATION</p> <p>At the input/activity level, the resources required have to be stated. The planner has to have an overview of the proposed expenditure for each of the project components including the expected income generated (i.e. from levies, local taxes, etc.).</p>		<p>Assumptions concerning the activity/output linkage</p>

VERTICAL LOGIC (2)

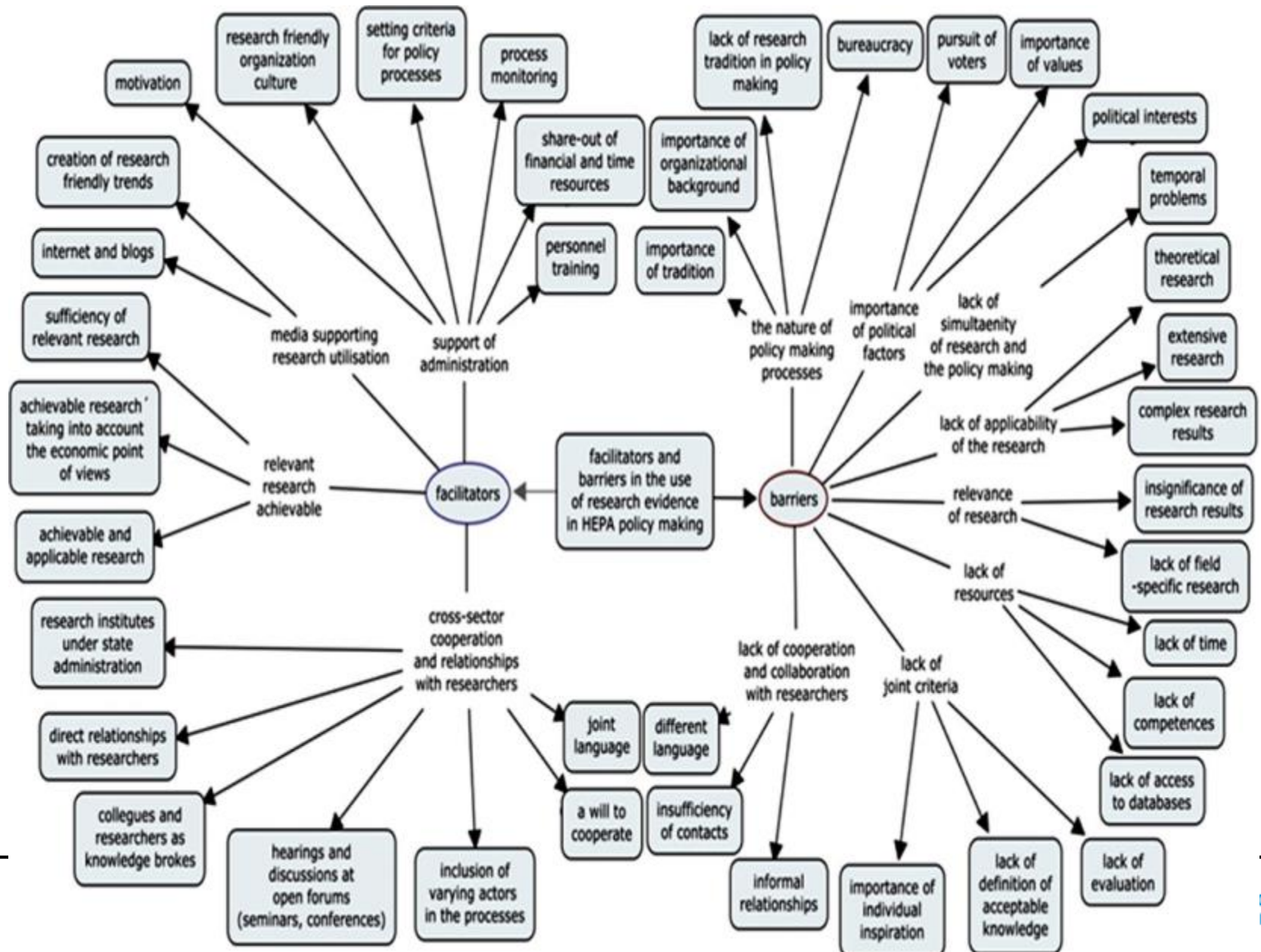
PATHWAYS TO RESEARCH IMPACT

Cruz Rivera et al, 2017



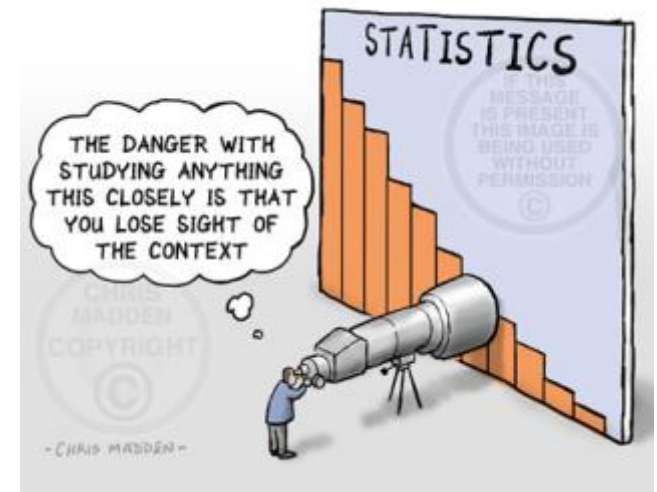
FACILITATORS AND BARRIERS FOR THE USE OF EVIDENCE IN POLICY MAKING

Van de Goor, et al, 2017



RECOMMENDATIONS TO FACILITATE USE OF EVIDENCE IN PUBLIC HEALTH POLICY MAKING

- The role of managers, relationships and networks in which researchers and decision makers act as well as improved skills of policy makers can make a clear difference in the extent of research translation and uptake
- Researchers and policy makers should be more aware of how media impact research utilization by influencing politicians and how to make better use of its impact
- **Contextual relevance is a main aspect of how the applicability of the evidence is valued**



RECOMMENDATIONS TO FACILITATE USE OF EVIDENCE IN PUBLIC HEALTH POLICY MAKING

- More timely interaction, collaboration and promoting trust-based interactions across the interface between policymakers and researchers; joint language, more mutual understanding of each other's norms, values and everyday life realities
- Need to strengthen institutions and mechanisms that can more systematically promote interactions between researchers, policy makers and other stakeholders

Without context, a piece of information is just a dot. It floats in your brain with a lot of other dots and doesn't mean a damn thing. Knowledge is information-in-context ... connecting the dots.
- Michael Ventura

FUNDING/DONOR INSTITUTIONS CAN PLAY A MAJOR ROLE IN RESEARCH TRANSLATION

- By requiring that detailed research translation plans be incorporated into research grants
- By funding capacity building for research translation (e.g. innovative fellowships that involve placements in academia and health service delivery; funding translational research)
- By allocating resources for specific activities relevant to research translation rather than as an ‘add-on’

SCIENCE, POLITICS AND POLICY-MAKING*

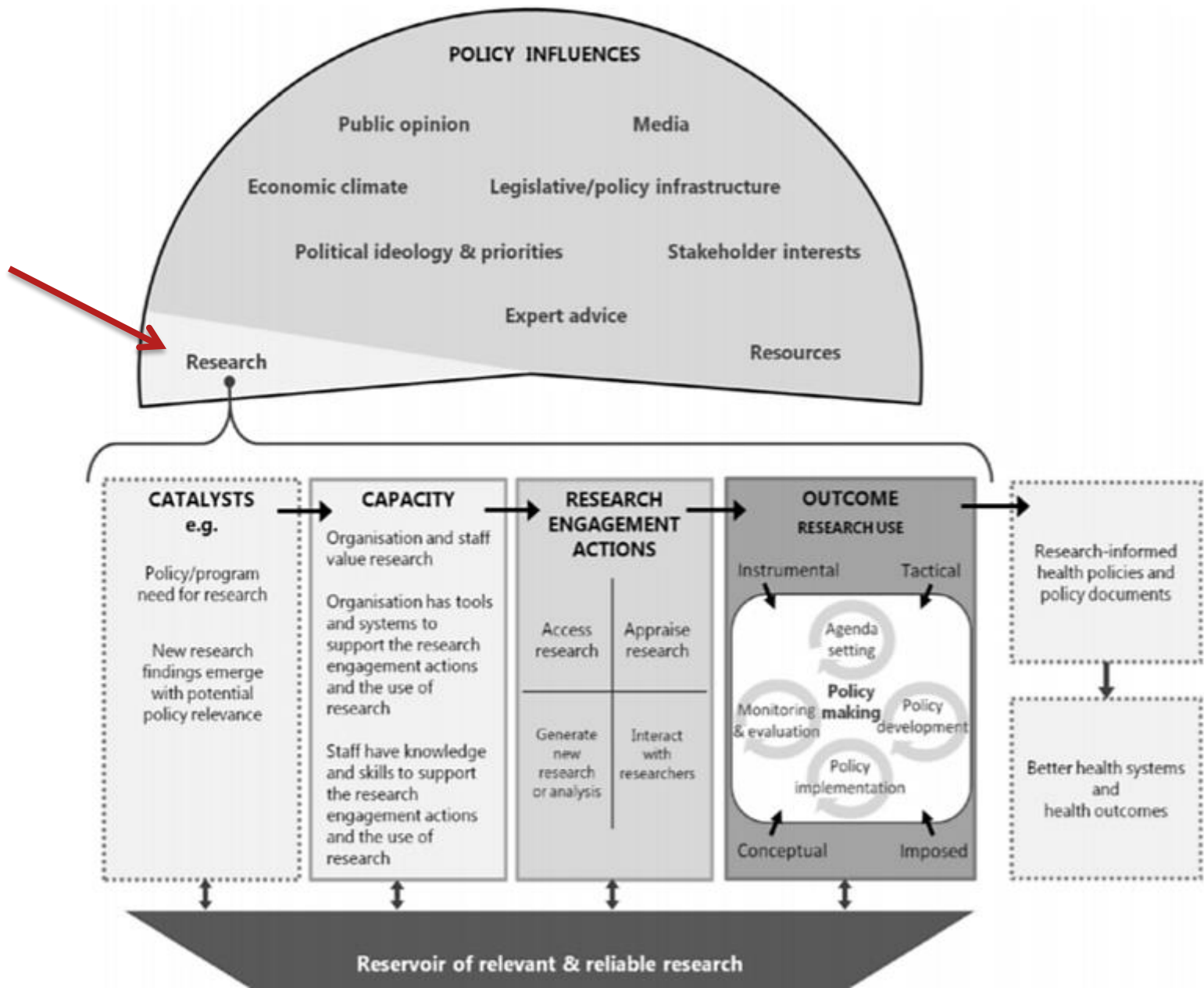
- **Science is only part of the policy-making process;** policy-making does not work like the scientific method
- Governments will need to consider public opinion, electoral contests, fiscal priorities, etc (complex ecosystem of advice)
- **Politicians want certainty and solutions, while scientists often deal with probabilities**
- Scientists must develop a **'political antenna'** and learn how best to communicate the science – learn how to frame the evidence to fit policy agendas

“But even in the most enlightened democracies, scientists should not kid themselves in thinking they can win the day with mere evidence.

We scientists know that science advice is laudable, and it should be based on evidence, but science policy makers often do not share that view. They live in a world of opinion and ideology.”

Rush Holt, former US senator and physicist; currently CEO of the American Association for the Advancement of Science (AAAS)

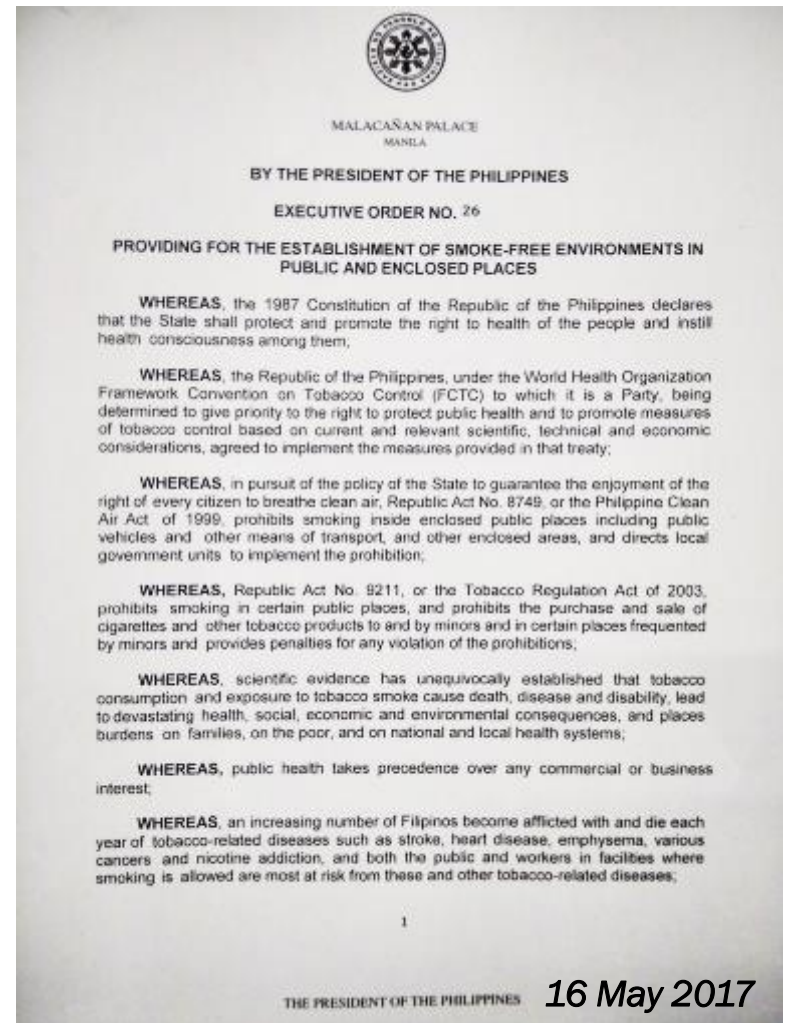
*King, 2016



TOBACCO CONTROL: HOW EVIDENCE SLOWLY TRANSLATES INTO POLICY

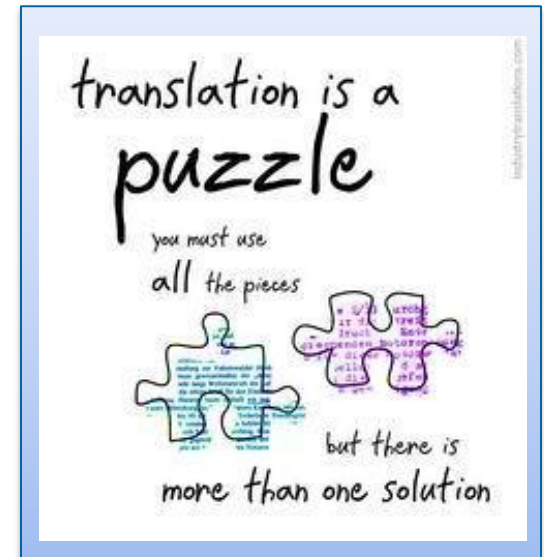
- Before the 50s – Smoking was so central to society
- 1950s - Initial studies published showing that smoking causes cancer
- A decade later – Acceptance by the medical profession
- Several decades later – Acceptance by politicians
- Increasing tax on cigarettes, banning smoking in public places, use of plain packages
- Cause of delay: public health advocates had to build alliances, challenge vested interests and encourage social change

King, 2016



PUTTING SCIENCE IN CONTEXT

- Science involves understanding its context in society and its limitations
- Many questions that affect our lives require scientific information to answer, and many have inspired important research
- But none of these questions can be answered by science alone
- Scientific questions involve the society in which we live, our economy, our laws and our moral principles
- **The influential paradigm of translational research provides a useful starting point for considering the translation of public health research**



SUMMARY

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<https://www.sodapdf.com/blog/how-to-prepare-professional-powerpoint-presentation/>

<https://www.google.ch/url?sa=i&rct=j&q=&esrc=s&source=images&cd=&ved=0ahUKEwiGqNzV3oPWAhWDVRQKHSDGAAsQjxwIAw&url=http%3A%2F%2Ftalmey.sd38.bc.ca%2Fparents%2Fpac%2F2017%2F03%2F30%2Fhave-any-questions&psig=AFQjCNF2wYMrhDMOEeoRkHvUXE8pKmVPPA&ust=1504346688522723>