debate

Rethinking knowledge translation for public health policy

Patrick Fafard, patrick.fafard@globalstrategylab.org
University of Ottawa, Canada

Steven J Hoffman, steven.hoffman@globalstrategylab.org
York University, Canada

There is continuing interest in using the best available research evidence to inform public health policy. However, all too often efforts to do so rely on mechanistic and unrealistic views of the process by which public policy is made. As a result, traditional dyadic knowledge translation (KT) approaches may not be particularly effective when applied to public policy decision making. However, using examples drawn from public health policy, it is clear that work in political science on multiplicity, hierarchy and networks can offer some insight into what effective KT might look like for informing public policy. To be effective, KT approaches must be more appropriately tailored depending on the audience size, audience breadth, the policy context, and the dominant policy instrument.

key words knowledge translation • evidence-based policy • policy instruments • public health

key messages
- KT approaches are rarely designed for diffused decision-making, institutional hierarchies, and policy networks.
- Effective KT for policy should be tailored to the make-up and breadth of the audience.
- Effective KT should also reflect policy contexts and policy instruments.
- Governments, universities and funders should aspire to institutionalize KT within policy-making processes.

Introduction

A perennial challenge for the research community is how to encourage evidence-informed public policymaking. More specifically, there is an ongoing interest in how to implement knowledge translation (KT) approaches that are effective for disseminating the best-available research evidence so that it can inform better public policies. Within the health sector, much success has been achieved and celebrated in developing a science of KT to inform health professionals' clinical practices (Straus et al, 2011), design healthcare programmes (Lavis, 2006), and implement health

promotion campaigns (Dobbins et al, 2009). But the same kind of success has not yet been achieved for informing the development of public health policy – with much of the current research built around a truncated understanding of both politics and public policy and the relationship between the two (Fafard, 2008). This is especially important for public health as intentional efforts to improve public health depend primarily on public policy – and the likely success of these efforts is enhanced if they are informed by the best-available research evidence (Hoffman et al, 2009). For the purposes of this paper, we define effective KT for policy quite simply as an effort to increase the chances that those who have the power to make binding decisions about public health policy have the opportunity to consider all of the relevant evidence. This working definition of KT for public health policy includes the full range of KT-related activities by researchers, intermediary organisations, and the actual users of policy-relevant public health research inside and outside government. In other words, our working definition follows the prevailing practice in the KT literature of including research use. Analytically, however, research use is to some extent a distinct set of activities with a unique set of challenges (cf Parkhurst, 2016, 39–104). While there is a distinct (and growing) body of research on research use within governments (Landry et al, 2003; Cherney et al, 2015; Howlett, 2015; Lavis, 2017), for the purposes of this paper we retain the conventional approach precisely because what follows is directly relevant to the full range of KT activities, including efforts to promote research use both inside and outside government.

In order to ensure effective application of research evidence in public health policymaking, current KT approaches are going to have to be rethought. Conventional general models of KT (for example, Straus et al, 2011) are not particularly helpful for informing public policy and need to be supplemented by recent research that focuses on KT for policy and the associated challenges (for example, Parkhurst, 2016; Cairney, 2016). In this latter tradition, policymaking is inherently a political process and KT for policy embraces 'politics' as an essential requirement (Murphy and Fafard, 2012). To put it another way, politics is much more than an undesirable and largely unexamined independent variable invoked to explain the gap between what governments do and what the research evidence says government should do (Hoffman and Frenk, 2012). This realisation means that future KT approaches in public health policy must better account for the complex political realities of policymaking. Specifically, they must account for the importance of diffused decision making, institutional hierarchies and policy networks, and the multiple inputs and types of evidence that go into policymaking.

To make these arguments, the first section of this article unpacks the concept of the much discussed, but rarely defined notion, of a 'policymaker', and emphasises the diverse nature of people with a role in policymaking and the implications for the theory and practice of KT. The second section highlights the diversity of policy instruments available to policymakers and argues that effective KT for policy must be tailored to reflect whether the government response is to regulate, communicate, tax, spend, or some combination of these and other policy instruments. Finally, the third section draws on political science research on policy advisory systems to emphasise that conventional and future KT approaches need to take into account the complex ecosystem of policy advice that supports (and in some cases confuses) the policymaking process. We conclude with some key recommendations, including

a call for more tailored KT approaches that address these challenges and can better facilitate evidence-informed public policymaking.

Understanding who policymakers are

Effective KT for the design of public health policy requires a sophisticated understanding of who policymakers are and how public policies get made. Yet the dominant tendency in much of the existing research on KT for public health policy is to leave the concepts of policymaker and decision making largely undefined. As Kathryn Oliver and colleagues observe in a recent literature review, 'Few studies provide clear definitions of policy, evidence or policymaker (Oliver et al, 2014, 1). This is perhaps not surprising given the origins of contemporary health-related KT in work on clinical medicine. In this case, the objective is to find the most effective ways of communicating the best-available research evidence to individual clinicians, with a view to encouraging them to make discrete clinical decisions that are consistent with this evidence (but see Greenhalgh et al, 2014). In this context, it may make sense to simply assume an individual decision maker making discrete decisions – and as such, implement dyadic KT approaches that target individuals (Hoffman et al, 2016). Yet in the making of much public health policy, these assumptions do not hold. Policymaking is very much a team sport, but one where the team is large and not particularly coherent and integrated. Policy-related decision-making authority is diffused and involves complex and variable institutional hierarchies and policy networks. While there is some recognition of this in some KT research for health systems (see for example, Grimshaw et al, 2012), much of this is focused on the meso-level of policy in, for example, hospitals or other non-governmental situations, and very little draws on the extensive body of political science and public administration theory and empirical research on the making of public policy. In this tradition the focus is on the policymaking process, with a view to systematically describing it and, in a few cases, creating formal models with testable hypotheses (for example, work on the Advocacy Coalition Framework, see Weible and Jenkins-Smith, 2016). For our purposes, we want to emphasise that KT for policy must address the fact that in making decisions about public policy, authority is diffused, there are powerful hierarchies, and outcomes are shaped by powerful but variable networks.

Diffused decision making

Decisions about policy almost always are the result of a diffused process involving dozens – if not hundreds – of people, and most policies come to life as a result of many decisions. Yet in the KT literature, as Justin Parkhurst observes, 'the vast majority of work attempting to promote evidence use through knowledge transfer mechanisms has considered strategies targeting individuals', either as producers or users of knowledge or as intermediaries (Parkhurst, 2016, 31). Therefore, successful KT is likely going to require more than engagement with a single person or even a small group of influential individuals. Rather, evidence-informed public policy development is more likely if many people come to understand and appreciate the available research evidence. However, we cannot lose sight of the simple but powerful reality that the same research evidence will be used and interpreted in unique ways by different policy players. In fact, research evidence, and the manipulation thereof, itself

becomes a tool for advancing strategic objectives (Parkhurst, 2016). As a result, many of the existing KT approaches that have their origins in clinical medicine may not be all that effective for policy, insofar as they were designed to put research evidence in the hands of relatively small numbers of people with a shared commitment to practice their craft in an evidence-informed manner.

Institutional hierarchies

There are important and understandable hierarchies within and between government departments and agencies. Within a department of health, 'operational' units, like public health or community care, often compete with central 'policy' units that typically enjoy greater access to senior officials, central agencies and the minister and ministerial advisors. Of course, within a given health department or portfolio of health departments and agencies there are also hierarchies, at the top of which usually sits the minister and her/his advisors. For these people at or near the very top, policymaking is not always a process of bounded rationality and decisions are based less on the best available research evidence and more on some combination of an attempt to discern and advance the public good, what 'feels right' and, of course, partisan considerations (Parkhurst, 2016, 136ff; French, 2014). Detailed work on how politicians actually think about policy suggests that it is far less rational than some might expect or hope. Politicians – and, indeed, citizens and public servants – are influenced by anecdote, personal stories, emotion and, of course, lobbying, and they make decisions based on various cognitive shortcuts, heuristics, principles, values and 'gut instinct' (Cairney, 2016).

There are also hierarchies between departments and agencies, typically dominated by departments of finance and policy units providing advice to the president or prime minister. While such central agencies may engage in their own form of evidence-informed policymaking, the range of evidence they are likely to consider will often be more extensive and/or quite different from that privileged by a department of health or a public health agency (Fafard, 2012). In other words, policymaking is partly about gathering evidence on very different kinds of questions. This is particularly true in public health, where a policy choice often seeks to accomplish multiple objectives and, as a result, should ideally be informed by different (yet unfortunately often conflicting) bodies of research evidence. Specifically, while there might be research evidence that a given policy would be effective for improving population health, the final decision will also depend on research evidence (and other considerations) on, for example, whether the proposed policy will change the budget situation, impact economic growth, affect citizens' autonomy, and/or diminish the government's ability to pursue other priorities. Central agencies do not merely define policy choices as 'healthy' or 'unhealthy'; rather, they weigh research evidence that answers different questions and integrate it all with many other considerations and competing priorities.

As a result, policy-related KT that is limited to relatively specialised policy analysts and their immediate superiors is likely to enjoy less success – unless the policy or programme issue is very narrow or it is a situation of crisis decision making. Yet few policy decisions are actually like this. As a result, specialised analysts sitting at or near the bottom of the public service hierarchy will probably only have knowledge of part of a policy file and limited decisional authority. Similarly, when making public health policy, KT approaches that are too narrowly focused on the department of

health or, even more so, public health professionals within these departments, may prove to have limited effect. Many public health issues cross departmental and sectoral boundaries and depend on action (or at least agreement) by decision makers who are not explicitly tasked with promoting public health. For example, if trying to address the over-consumption of sugar-sweetened beverages, successful KT approaches will be those that are inclusive and expansive involving officials from across government, including health but also agriculture, finance, science and social development. It is also reasonable to expect that policymaking will appear to be somewhat 'irrational' and that decisions are made on the basis of things other than the best-available research evidence (Parkhurst, 2016, 135–6). In a democracy we usually ask politicians to be accountable to citizens for more than their mere ability to critically appraise the research literature and make automated decisions on that basis.

Policy networks

Public policy is the result of the deliberations and machinations of policy networks made up of people both inside and outside of government (O'Toole Jr, 1997; Bernier and Clavier, 2011). In Rod Rhodes's account, the most influential policy networks are dominated by insider groups, 'acceptable to government, responsible in their expectations, and willing to work with and through government…. They don't lobby. They have lunch' (Rhodes, 2006). Such policy networks are relatively closed, dominated by government insiders, and in competition with other overlapping policy networks (Klijn and Koppenjan, 2012; Börzel, 1998). An example of a relatively-closed, tightly-knit policy network might be the global policy network built around efforts to stop the spread of tuberculosis (Quissell and Walt, 2016), or the one that has developed to encourage action on newborn survival (Shiffman, 2016). An example of a much more open, contested policy network might be the one working to tax sugar-sweetened beverages, a policy network that overlaps and competes with the much larger and more powerful taxation network, or the global network that has developed to promote alcohol control (Schmitz, 2016).

In light of the ubiquitous nature of policy networks, successful KT for policy will, depending on the policy question being considered, require a considerable effort to translate research evidence to a broad range of people, some of whom are going to resist the implications of the research evidence. In other words, large diffuse policy networks will make KT more difficult, insofar as they include a large number of competing interests, some of which may not even be particularly concerned with public health as such. At the extreme, in some policy networks there will be actors who wilfully and consistently seek to mask, distort, and challenge the best available scientific evidence (Parkhurst, 2016). For example, producers of sugar-sweetened beverages will discount and seek to discredit research on the effectiveness of various kinds of sugar taxes. Others in the policy network might agree with the public health research on the matter but argue that a different or broader range of factors is more important than the public health considerations. For example, departments of industry may instinctively resist any efforts to impose additional regulatory burden on specific sectors; departments of finance may be unwilling to relinquish their autonomy to determine tax policy; citizens may argue against the introduction of any new taxes; and libertarian organisations might fight against any government intervention – period.

The fact that policymaking is fundamentally a network activity has significant implications for the design of KT approaches aiming to inform public health policy. For example, the effectiveness of a given KT approach will vary depending on the nature of the issue area's policy network. In a large, open network where public health officials are but one group among many, even the most effective knowledge-brokering efforts will be of limited use if they are too narrowly targeted to public health officials. In the case of active transportation – which aims to encourage walking, cycling and public transit for health reasons – the dominant policy network is probably not public health but rather the policy network of urban planners who are focused on making cities more liveable (Saidla, 2017). Conversely, for a small and/or closed network, some of the more traditional dyadic KT approaches may be effective. Dyadic KT approaches might work, for example, to inform vaccination-related decisions made by a public health department of a small city (notwithstanding growing public interest and concern with vaccination).

Appreciating different policy instruments

In order to address a given policy challenge, governments have to make choices about what policy instruments they wish to use. For example, faced with a spike in deaths due to illicit drug overdoses, governments can choose to use the criminal law to jail dealers and perhaps even drug users, or they can opt for harm-reduction approaches like needle exchanges and safe-injection sites.

There is a large literature that seeks to define, classify and analyse the use of different policy instruments (cf Howlett, 2011). With respect to public health, four such instruments are particularly prominent: a) regulating, b) communicating, c) taxing, and, of course, d) spending. All are used, alone and in varying combinations, in the making of public health policy. More to the point, as outlined in Table 1, each policy instrument has potentially different implications for KT. Of course, evidence should, and often does, influence the choice of policy instrument (for example, is regulation more effective than taxation when it comes to sugary-sweetened beverages?). But, having chosen a policy instrument, governments still gather evidence, but the implications for KT are quite variable.

Consider, for example, the use of the law, either statutes or subordinate regulations issued under the authority of an overarching statute. Law is among the most powerful tools available to governments, in that the state essentially compels individuals and organisations to act in certain ways and penalises those who do otherwise. It is for this reason that the development of statutes and the promulgation of regulations is typically a long, complex process in which affected parties are given multiple opportunities to engage with the process and articulate their preferences and concerns. For example, regulators routinely engage in complex consultation processes that may involve formal hearings with highly codified methods for submitting information and, by extension, research evidence (Sparrow, 2011; Gilardi, 2004). When the policy instrument of choice is regulation, effective KT for public health policy must look very different than when the preferred policy instrument is say, communication.

Similarly, when the policy instrument of choice is taxation, there is a complex process dominated not by the ministry of health but by the ministry of finance. This arises in public health policy with respect to the taxation of unhealthy products like alcohol and tobacco, with many implications for what will be effective KT.

Table 1 Implications of different policy instruments for KT approaches

Policy instrument	Implications for KT approaches
a) Regulating (for example, food safety regulations)	Regulators often rely on highly structured processes of consultation and input, such as regulatory hearings, which may supersede dyadic KT approaches. Decisions might be subject to judicial review such that regulatory processes often discourage informal or non-transparent inputs.
b) Communicating (for example, healthy food guides)	Communications can come from different kinds of actors and in different forms, from elected politicians giving speeches to public servants publishing documents. Traditionally, public health officials have wide decisional authority on the messages they communicate, especially on highly technical matters and during crises. A wider range of economic departments and central policy agencies will be involved when messages could create economic winners and losers.
c) Taxing (for example, tobacco taxes)	Ministries of finance and central agencies usually control taxation. Tax policy creates winners and losers, attracts significant lobbying from powerful stakeholders, and is rife with follow-on consequences. Proposed public health policies are often contested on ideological grounds and actors who stand to be taxed may seek to undermine public health research.
d) Spending (for example, free vaccinations)	Ministries of finance and central agencies ultimately control budgeting, although budget requests typically originate in line departments. Public health officials' control over spending decisions typically increases as those decisions move from broad policy objectives towards specific implementation of those policies; in turn, scientific evidence may become more influential. Some measures that would improve population health (for example, reducing income inequality by means of redistribution) are very costly and, absent tax increases, mean less money for other priorities.

Specifically, public health researchers with established relationships to health officials, using dyadic KT approaches, may find themselves with far less influence when their proposals get decided upon by finance officials. These finance officials analyse the effectiveness of various taxation instruments against a range of criteria – of which public health is but one.

Working within broader policy advisory systems

The existing science of KT traditionally focuses on how and to what extent research evidence gets transferred to decision makers (however defined). There is a resolute focus on the interface between research and policy. However, if we widen the analytical lens just a bit it becomes clear that 'research' or 'science-based advice' co-exists with other advice proffered by other actors which takes many forms and privileges different inputs. These constellations of policy advisors come together in what John Halligan first described as complex and variable 'policy advisory systems' (Halligan, 1995). Among political scientists who study such systems, there is a consensus that 'in most instances decision makers now sit in complex webs of advisory activity' (Craft and Wilder, 2015, 1). These webs include public service analysts; internal and external political advisors; and an assortment of experts, professionals and stakeholders.

What is more, such policy advisory systems vary considerably. Craft and Wilder have developed a typology of policy advisory systems. They suggest that such systems

can be collaborative, contested, hegemonic, or closed (Craft and Wilder, 2015). In a broadly analogous but more pragmatic way, John Lavis has argued that when thinking about knowledge brokering the traditional focus on individuals should perhaps give way to knowledge-brokering structures or KT platforms, that is, organisational entities devoted to fostering the use of research evidence in policymaking (Lavis et al, 2008; Lavis et al, 2013).

If we take seriously the realities of policy advisory systems, then we must internalise their implications for KT aiming to inform public health policy. Those who wish to insert public health research into policy must consider the larger policy advisory system in which they work. For example, in a relatively closed policy advisory system around issues like vaccination, the players will know one another and share a common and robust understanding of what is known and what needs to be known. In other words, the KT process for updating school-based immunisation policies benefits from the relatively small number of players involved who typically share broad agreement on the problem (that is, preventing the spread of infectious diseases) and the solution to address it (that is, providing cost-effective vaccines, especially to school-aged children). In this instance, the KT for policy challenge is relatively simple. Contrast this example with a more contested policy advisory system around an issue like obesity where the network is relatively open but where there is little agreement on the nature of the problem, much less the most effective solutions needed to address it. More importantly perhaps, different actors in the policy advisory system will be preoccupied with different aspects of the issue. In this case, the KT challenge is much larger such that dyadic KT approaches are unlikely to be sufficient or effective on their own.

Conclusion

Efforts to understand the policymaking process have major implications for the design of KT approaches that aim to inform public policy, including public health policy. To summarise, in Table 2 we put forward four propositions designed as guidance for anyone wanting to facilitate the use of research evidence in public health policymaking.

First, *audience make-up* matters. Effective KT for policy depends on engagement with more than a single decision maker or even a small group of decision makers. Second, *audience breadth* is also important. Effective KT approaches that are solely focused on the health sector or, even more so, specialised public health officials, may

Table 2 Challenges and guidance for KT aiming to inform public policy

	Challenge	Guidance
1) Audience make-up	Policy is made through diffused decision making with each policy decision made by many people.	KT efforts should be designed to target broader networks that include a broader range of policy actors.
2) Audience breadth	Some policy issues are managed by specialised groups, others involve actors from across government.	KT efforts need to consider diversity of the many people that will influence any given policy.
3) Policy context	Each issue has a different kind of policy network and policy advisory system.	KT efforts should be tailored to the characteristics of the policy network and advisory system.
4) Policy instruments	Different policy instruments are dominant for different issues and involve different policy processes.	KT efforts should be designed very differently depending on the dominant policy instrument.

prove to have limited effect on changing public health policy that depends on the support (or at least agreement) of policymakers outside of the health sector. Third, KT approaches need to be adapted for the issue's *policy context*, especially characteristics of the policy network and broader policy advisory system they are intending to inform. For example, KT approaches that work well for vaccination policy may not be nearly as effective when the policy issue is the relationship between income inequality and health. Fourth, KT must adapt to the dominant *policy instruments* in a given policy domain. When the policy instrument of choice is regulation, KT for public health policy should look very different than when the policy instrument is communicating, taxing or spending. In other words, KT approaches need to reflect the requirements generated by the dominant policy instruments in a given area.

Simply put, policymaking is an inherently political process that cannot be reduced to maximising the take-up of relevant research evidence. Effective KT for public health policy requires a sophisticated understanding of the inherently political nature of the policymaking process and the particular challenges associated with effective research use. Ultimately, what is required is the 'good governance of evidence' (Parkhurst, 2016) that might well include a system of public and transparent evidence synthesis, and systematic efforts to ensure that the relevant evidence is available to all members of the policy network but especially to decision makers. Fortunately, there is a large body of social scientific research that offers insight into the policymaking process in varying types policy networks. We also have a body of research into what is too often an unexplored and unexplained black box labelled 'politics'. Far more will be achieved by making better use of this social scientific research evidence to inform KT efforts.

Acknowledgements

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